Stitch & Split

Selves and Territories in Science Fiction

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Arrestments:

Corporeality and Mediation

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Alles Vergängliche ist nur ein Gleichnis/All the ephemeral is only allegory

— Goethe

Cinema, it may be said, begins within the passing-away of photography. This is not to say that photography suffers a demise, a diminuation, or an end, but that the differences between these media are marked in a negative interval, a becoming-other of the photographic and the cinematic, even as their complicities are both pluralized and obscured. That photography's *imaginary*, figured in its presumption of verisimilitude and presence, takes up residence within cinema and subsequent media, secretly, almost invisibly, renders it on the order of allegory: a hidden alterity within the visible[1].

It is a transition that took place with an invisible arrestment, in the stilled pause of a static image. By the end of the 19th century the projection of photographs was an established and familiar spectacle, and a very large archive of glass plate negatives produced for popular magic lantern shows is still in evidence today. The Lumière freres, in their earliest cinematographic projections, quite likely used this naturalized familiarity to lull their audiences into a comfortable and habitual inattention[2]. Imagine the shock, at cinema's very beginnings, where, on a wall or a screen in a dark, crowded, chamber a photographic projection, familiar and immobile, its tonal gradations fixing buildings, trees, vehicles, figures in a frozen moment, suddenly jumps into motion. With a start one is caught up by a flickering, mobile, image, in a reflex that secures, in this unexpected moment, the relations between cognition, recognition and reproduction. What ensues is not the familiar motion of a closed cycle of continuous movement, such as one finds in a phenakistascope, zoetrope, or zoopraxinoscope, but a complex apprehension of discontinuous motion. Things, animals, and trees move independently of each other, in a manner that exceeds the specular enframing of photography's imagined capture. Bodies disappear or reappear, slipping off the 'screen' as they never do in the schema of proto-cinematic devices. Now, as Derrida has noted, we are indeed in the realm of phantoms[3].

But what of those *bodies*, perceptible and perceptive, caught up in a register where true and false, present and absent, commingle, where interiority and exteriority are undifferentiated and coextensive, and the visible and invisible modify an indefinite economy of sense? In the notes that follow I will address certain questions concerning the cinematic inscription/circumscription of bodies within the complex contours of their material, cognitive and technological interaction.

speculation: on bodies

… when is the object of cinema? When, indeed, is the moving image?

— Sean Cubitt

To speculate: to *reflect*, or to *project*? Whether it is to reminisce upon some state of affairs, to observe or narrowly examine something, or to exercise a faculty of hypothetical reasoning[4], *speculation* involves the parsing of space, time, identity and difference (as the *speculum*, a mirror, displaces both the body and its image). The specular distribution of bodies follows according to deictic variation — bodies whose persistence and stabilizations in space and time are anything but secure — only to reappear as *images*: reflections, projections, apparitions. Such *spectres* recquire a supplement, an intercessionary technology, such as writing, a mirror, a spectator, and the transmitted trace of bodies, places, things, for their recognition or endurance. This infrastructural supplementarity, in turn, attaches to other bodies, sensate and perceiving, such that there is the *image* of a continuum between perceived and perceiving bodies, a linkage underwritten by the intercessionary *techne* of the specular apparatus. Technical reproducibility returns shadows to the world, embodied, in a reciprocal supplementarity, a habituation of the visible. The instrumentality of the body — its pluralization and inclusion in media — is such an accomplished 'fact' of our modernity that it often passes unnoticed, naturalized in the regimen of things and events, its strangeness caught — *arrested* — in a glance, a ghost of peripheral vision, the mere spectre of mediation, a blur or an afterimage.[5]

… .to look at an object is to plunge oneself into it… . objects form a system in which one cannot show itself without concealing others.

— Maurice Merleau-Ponty

The error of Narcissus, in looking at his reflection in a pool of water, was to take the image he found there to be that of another, a figure of great beauty, with whom he fell in love. When he recognized that he gazed at his own reflection, Narcissus' despair at the impossibility of a passion that could never be satisfied inevitably induced death. One might note the very long history of relations between death and divination and reflection — the image of mirror and soul are thematically linked, bearing a philosophical resonance from Plato to Levinas and beyond. But perhaps it is more interesting to consider that initial, momentary, arrestment of the body as Narcissus stared, immobile and transfixed, before the presence of an unrecognized and beguiling other. In that brief interval, before an apparition passed into recognition, the body that appeared to Narcissus had a physical presence, a reality that was both compelling and substantive. No matter, within that still moment, that the image was soon to be revealed as something meager, an illusion, mere *phantasmata*, within the eye and mind of the beholder. What is curious here is the initial reflex. To be caught, arrested, subject to, and of, a specular gaze. It is this dual aspect of bodies in mediation — *suture et rupture* — that constitutes what one might call a *science-fictional body*, a body both technical and irreal which cohabits the spaces of the real. A body which, as both appearance

and apprehension, partakes of the real, even as it forms a *catachresis*, a scar, sealing over, marking, the place of the real, a space it cannot ever fully occupy, or fill.

It is in such moments of excitation and apprehension that bodies 'take place' — as images, mediations, relays, realities — where the cinematic play of light and shadow is perceived as substance, where re-cognition recovers the 'something' of cognition, a recuperation of sense to reflex which presumes the deferred presence of bodies, whether mediated by the *sensoria* of an originary spectator (a draughtsman or camera operator) or the prosthetic intercession of a technical process (photographic, cinematic, digital). The mediated body has an intercessionary structure, and operates in a *future-anterior* tense, fostering the assumption that *someone* will-have-been present at the originary point of technical reproduction (even if that 'someone' is a minimal simulation, as is the case in automated surveillance systems) such that the perception of a material trace, sometimes a mere blur, is recuperated as a presence-having-been and that the '*bodies*' that appear before us were actually *there*). Time is attenuated or dilated, imperceptible but for the duration of the bodies traversing the cinematic field, and so both present and absent, now and then, a hybrid *deixis*. These two dispositions are profoundly implicated in the body's represented presence, and demarcate the space and time of a promise: that the *real* is (always) *recuperable*. There is something here, too, of the self-preservation of the ego, of the evasion of death, of the strange proclivity of artifacts (mirrors, cameras) and materials (water, glass, bronze, silver) to secure the soul, leaving but an empty husk behind. The inverse — that such 'captives' are an index, via the material substrate of the photo-sensitive plate or ferric oxide strip, of the *real* — is among our most pervasive modern mythologies.

sensorium instrumentum: prosthetic recognition

How does it come about that cognition of the real movement of a fictional or irreal body, by producing a (real) experience of the movement-image, induces a re-cognition that apprehends the body as substantive? It is something more than simple habit or conceit, and in considering how a spectator orders these phenomenal shadows into the impression of things and beings, one must also consider *where* such apprehensions occur. I addressing the relations between perception, cognition and recognition, one might begin by asking: *where is the moving image?*

The primary motor cortex is a thin strip of neural tissue running ear to ear along the surface of the human brain. It is the brain's action center, and its role in the orchestration of most types of voluntary movement is well known and documented[6]. The primary motor cortex is involved in initiating actions as diverse as walking up and down stairs, throwing a stone at a moving target, or the complex hand-eye coordination required in wielding dining utensils so as to avoid stabbing oneself in the forehead. Recent studies show that the primary motor cortex also harbors what one might call an introspective side, having to do with bodily perception and movement. For example, during an experimentally induced illusion in which people mistakenly perceive that a stationary part of their body is moving, certain areas of the motor cortex become increasingly active. By using functional magnetic resonance imaging (*f*MRI) scans researchers found that this illusory perception of movement is accompanied by a characteristic elevation of blood flow in the primary motor cortex, indicating heightened brain-cell activity. While one's sense of bodily position has traditionally been attributed to the so-called somatosensory tissue located adjacent to the primary motor cortex, these new findings seem to indicate that it is the primary motor cortex itself that not only issues motor "commands," but also participates in the analysis of sensory information coming back from the muscles.[7] A related study using brain-imaging technologies reports that parts of the motor-cortex also respond vigorously when test subjects *do no more than silently read words*. The primary motor cortex responds *at least* as vigorously as when actually performing the actions indicated by such words. The relation between (interior) brain structure and (exterior) technical practice — reading/writing — is all the more remarkable in that it is not just any written words that produce such excitations, but precisely *active verbs*. As test subjects read a verb referring to the action of the face, arm or leg, the precise motor cortex areas that control the specified action clearly exhibit the high rates of blood flow that signify intense neural activity. At the same time, prominent activity also occurs in the so-called pre-motor brain regions, those that influence the learning of new actions, and in two left-brain structures — Broca's area and Wernicke's area — that have long been linked to understanding language. The comprehension of active verbs linked to actions coordinated by specific areas of the pre-motor and primary motor cortex produces a "ghostly" excitation in those relevant areas, triggering the same forms of excitation as occur when the brain moves its (own) 'feet.' One is tempted to speculate about the reaction of these brain structures when certain other complex visual interactions, via such technologies as photography, cinema and video, take place in perception (especially where it is a matter of the somatic recognition of other bodies).

In 1927 Ivan Pavlov had described the reflexive "orienting response" of human test subjects to novelty in the perceptual environment. Whenever something occurs that is new or unusual to an organism, the individual momentarily stops what it is doing and focuses its senses to the source of stimulation. This tacit sensitivity to movement and novelty is a part of the human evolutionary heritage, doubtless having conferred an advantage in responding to potential predatory threats. Typical physiological effects of orienting reactions are a dilation of the blood vessels to the brain, a slowing of the heart and consequent constriction of blood vessels to major muscle groups. There is a drop in skin resistance, and alpha waves are blocked for a few seconds, before returning to their baseline level, as the brain focuses its attention on sensory stimulus,

processing information while the body is momentarily quiescent. This behavioral arrestment occurs with, for example, sudden noises or shifts in the relative luminosity of objects. In 1986 researchers at Stanford University and at the University of Missouri initiated a study to determine whether the simple formal features of television — cuts, edits, zooms, pans, flashes, sudden noises — activate the orienting response to keep (involuntary) attention focused on the screen. Through careful monitoring of test subject's brainwaves researchers concluded that these structuring devices in media can, and do indeed, trigger involuntary orienting responses. Scientists at Indiana University had shown that there is a decrease in heart rate for from four to six seconds after an orienting stimulus. When the formal features in projected and televised action sequences, advertisements, or music videos were examined, it was found that they come at a rate of approximately one per second, and thus activate the orienting response continuously[8] (even within the 50 second reels of Lumière's early *actualities*, the perception of constant discontinuous motion produces this effect). Moreover, when certain regular sensory stimuli — luminence, tone, or rhythm, for example — were omitted, thus changing an *anticipated* pattern, the orienting response was also similarly engaged.

It is not surprising that cinematic strategies of sound/image composition, editing, and *mise-en-scene* operate in this register. The human visual system, recognising a change in luminosity as a change in form, gives unconscious credence to our investment in the fidelity of cinema's flickering *sensibilia*. We have already reacted to a moving image, the trace of a person, for example, *as if* he or she were present. We presume the deferred presence of somebody as having been, at some time, present, before the camera such that it (the device, unintentionally) — or someone else behind the camera (intentionally) — has observed and faithfully secured the image of the person or event represented. But, as Walter Benjamin reminds us, the camera itself does not see[9] but has been prosthetically inserted between the originary subject and the (intending) eye of the hypothetical person operating the camera, so that it circumscribes and subsumes that space, a 'camera-eye' which holds place for — *simulates* — the presence of the eye of the spectator, such that there is a presumed coextension — an *identification* — between apparatus, originary operator, and present viewer. This presumption organizes perceptible phenomena as an evidentiary trace of photographic verisimilitude, a technically reproducible access to the real. It is an instance of the camera's penetration into human re/cognition, as happens when we look at a photograph of some person or watch an actor/character in a movie. As the film unfolds before us, there are moments of sympathy or dislike, times when our hearts may race, or our breathing become shallow, hairs stand on end, and we become aroused, or terrified, or burst into laughter almost before we know it, as if the shadows before us have some privileged link to a present that has not passed away, but which, once having taken place — arrested in the trace of the image — is present *at every moment*, and

persists, holding place for the potential recuperation of the real. Cinema is promissory, and there is a strange prolepsis (anticipation) concerning technical reproducibility in this very social configuration, a presumption that the repetition of the real constitutes a privileged access to the originary act or event — a strange, and modern, spatial conceit that locates the deferred and absent trace in some recoverable — inhabitable — *elsewhere*.

Cinema, in spite of its familiarity and ubiquity, secures our attention in a manner quite remarkable. We have an abiding fascination with visual experience: the act of looking is reflexive; the gaze, recognized and sustained, is folded back into itself as pleasure; we have an interest in novelty, in the revelations of desire, sexuality, and death, and in scenes of violence, aggression, and the exotic. We have a peculiar *curiositas* in the very phenomena of motion and duration, color, and form. Disregarding the synthetic origin of the persistence and retention of traces that produce an illusion of motion, we invest ourselves in the claims of the cinematic. Moreover, our cognitive involvement in its technical/aesthetic *topos* forms a complex and enduring pattern of relations between perception, reference, technic, medium, and memory. The perceiving body is inscribed into a register of instrumentation, engaged in prosthetic perceptions indistinguishable from, and supplementary to, its own sensations. Such inscription has a history, and there are technical substrates of unconscious memory that persist and permeate our relations to the instruments we devise, writing us into the writing of light and movement, shaping and delimiting the forms of attention and modes of address which, in their interaction with specific machinery, re-cognize the specular as intimately linked with the real.

Still, it is "only a movie," and while the figures on the screen may indeed be insubstantial phantoms readily distinguishable from corporeal reality, the experience of motion in the cinema, at a physiological level, cannot be distinguished from the experience of real motion. As Christian Metz has noted, there is a perceptual basis for the assertion that motion in the cinema is not a re-presentation, but a presentation, not the re-experience but the experience of motion, since the very same perceptual mechanisms that process real motion and apparent motion are brought into play in both cases.[10] Those same mechanisms for discerning the real enable, in an always effective sleight of hand, our investments in the play of shadows, and there is an uncanny commutability between one register, the physiological, and another, the phantasmatic, such that there is a real engagement, and investment, in the illusions of the specular. One might trace the contours of this engagement in the deployment of (re/presencing) *bodies*.

here and there: present and absent bodies

In 1896, the film *Démolition d'un mur* by Auguste and Louis Lumière begins with three figures standing in front of two perpendicular walls, structures that must, at

some time, have been the walls of a house. One of the walls extends from the foreground, left, into the background, and the other connects with it in the background and extends from there into the right side of the screen. One man, whom we take to be the foreman, sends the other two men off-frame, one to the right, and the other to the left, while he remains in the center of the frame. The two men disappear. After a moment one of them reappears in the small space between the wall and the left terminal edge of the frame. Seconds later the left wall collapses and two men rush to the pile of stones remaining near the center of the frame; as the dust clears we begin to see, in perspective, the space that the wall had masked. There are two salient points here: first, the scene is composed in such a way that the two walls create a cubic space within the projected frame, so that the left wall is coextensive with the frame of the image, an attribution underscored by the reappearance of the man from off-screen, just behind the wall. And second, the man's appearance serves to demonstrate the structural similarity between two aspects of frame and wall — a contiguity of real and imagined spatiality — since both subject him to similar sorts of appearance and disappearance. The tumbling wall is a spectacle based entirely on the effects of movement upon the conventions of traditional perspective, and the cinematic frame is here both revealed and *figured* as an omnipresent mask or window over a coherent physical space. The production of a consistent and logical *hors-cadre*, or "off-screen space" is an effect of the presumption of a preferential contiguity connecting spaces of appearance and disappearance, here secured through the transit of bodies. *Démolition d'un mur* was a very popular film, and it was often projected over and over again, forward and backward, as the audience sat transfixed, caught up in the play between *mise-en-scene* (casting or putting things in place) and *mise-en-abyme* (casting them into the *abyss*). That one state could be (constantly) transformed into the other, and back, suggests a dynamic (and indeed phantasmatic) recuperation of time. Such effects of technical reproducibility are not so much an empirical fact of a certain modernity as a structural possibility within the media/artifact, so that in *Démolition d'un mur* the trace of history, even of such a small, local nature, is rendered salient only through an "arrestment of the image," and satisfied by repetition, exceeding the limits of its representation (the event has, after all, passed away) into its inverse. It is not so much that Lumière's wall disappears, but that it threatens to disappear, and that this promissory threat is rhythmically reproduced, over and over again, forward and back, preserving itself through the cinematic arrestment as being always on the verge of disappearing. This is perhaps most true in the moment that it reappears. It is, as Benjamin might say, an arrestment that causes the appearance of the present as a history or, to put it more precisely, as a trace of the possibility of history. The possibility, figured in a trace, of the survival of history through the arrestment and repetition of what has passed away, is bound to our capacity to read these traces as traces of *something*. The "now-time"

(Benjamin's *jetztzeit*) of the image stands for, and in the place of, what has passed away, the absent event survived by its mere trace: the photo-chemical index of cinema's (presumed) verisimilitude.[11]

In 2003, something similar occurs in the science-fictional film *The Matrix: Revolutions*[12], when the protagonist, Neo (played by Keanu Reeves), is trapped in an interstitial space, a relay point between the (simulated) realities of the Matrix and the Machine City, a place named "Mobil Station." Impatient and a bit anxious at the prospect of being trapped for an indefinite period of time in this liminal transfer zone, Neo jumps down onto the (simulated) tracks of the subway system, in an attempt to sprint to freedom. The shot is frontally framed, like a proscenium, with a foregrounded secondary level — the tracks — where the primary action will take place (perhaps another serendipitous reference to a compositional feature favored by Lumière). Neo, using the superhuman speed of his simulated body, disappears from the left margin of the screen, only to reappear moments later on the right, skidding to a halt in the very same space he has just left. The disappearance and subsequent reappearance of Neo's body is both real and represented (artifactual and factual), and — within the narrative conceit of the Matrix — *irreal*, that is, doubly simulated. Neo's disappearance and reappearance secure the stability of the *mise-en-scene* as identical, confirmed by the immobility of the camera, the continuous sound of running, and the impossibility of the doubling of his body in the given deictic (spatio-temporal) configuration. In other words, the insistance of the reality of this space-as-simulation — i.e., an uncanny or unreal space — is a necessary ground for the continuity of the singular body, even as the perceptible trace of that body is pluralized. The impossibility of the doubled body is thus transferred to the impossibility of the site, a curious interterritoriality between the cinematic body and architecture.[13] The body, as interval and supplement, operates as both trace and relay, to suture the (impossible) simulation to the real.

Such corporeal pluralities and interruptions are not at all foreign to cinema, indeed they are among its most common occurrences, taking place as *edits*, articulating persuasive narrative economies through the abreviation of the body's deictic (spatio-temporal) dispositions. In an early silent reel, *The Playhouse* (1921) Buster Keaton used a simple matte-technique to double his body over and over again, causing "himself" to inhabit every position of every member of a stage company, and an entire audience, as well as a boisterous chimpanzee[14]. It is an astonishing effect, both for its artifice and for its very contemporary-seeming realism. Keaton's body is inscribed into place after place after place, yet the effect produced by this pluralization of spatiality is the *collapse* of every iteration into a single time-frame. Much of the effectiveness of this scene is due to an enduring fascination with the spectacle of discontinuous motion — Keaton plays every figure differently and simultaneously — which operates as a referential trace of the actual. In other words, the impossible doubling of

the body in the photographic index is sutured to spectacle not only as a surplus but as a supplementary structuring principle as well, its appearance laying claim to the real through repetition and occlusion in the same space. It is an *impossibility*, but it is a perceptible one. In Lumière's *Repas de bébé*, of 1895, it was not the relatively repetitive activity of feeding the baby that captured the attention of the audience, but the small matter of leaves rustling in the background, moving discontinuously in an otherwise imperceptible breeze. A small matter perhaps, but for an audience familiar with the closed circuit of mechanical illusions of motion (via such devices as thaumatropes, zooetropes, phenakistascopes) the discontinuous demarcated the territory of the real, and confirmed the verisimilitude ceded to the camera. Bodies such as Keaton's were both true *and* false, simultaneously inscribed into the present tense of the artifactual and into the future-anterior of the mediated trace of the real. Only time had been affected, and such temporal attenuations or dilations disappear into true duration.

Dominique François Arago, writing in *The Photographic Times*[15] in 1887, after seeing an instantaneous chrono-photograph of a bird in flight, describes

> *… blurred lines… if indeed there is any record at all — since the impression of not only a single instant has been registered, but the impression of all succeeding instants while the plate remains exposed. Here again we have truth, in fact — but not apparent truth…*

Arago goes on to remark on the marvel of instantaneously photographing a bird on the wing *"so perfect that every feather could be seen."* There is a strange duplicity in this comment: a skepticism concerning the truth contained in the arrestment of a body, subtracting it from life, and at the same time a fascination with the exactitude represented by the very trace of that arrested body. While the chronophotographic experiments of Etienne-Jules Marey, Jacques Demeney, Ottomar Anschutz and others sought to record the substantive transformations of physical bodies in motion, their effect was to evacuate precisely the body they sought to fix, capturing in the static accretions of images *something* which is less a record of the patterns of matter in motion than a spectral image of rhythm and movement, something which rendered bodies transparent, ghostly, and evocative. Shortly after Marey's work *Le vol des oiseaux* (1890), there appeared a number of exceedingly strange objects — cast bronze sculptural works derived from the chronophotography of birds. There is something quite uncanny in a sculpture which represents successive phases of the motion of a bird in flight, and which does so by embedding each *body* into the next, so that there is a material occlusion of what is, after all, the same bird, occupying a number of (the same) places at once. Once again, time has disappeared with the parsing of bodies that had rendered it salient, bodies rendered singular and given over to a persistant duration and fixity. Lacking the surplus residue of photography's indexical relation to the real, these strange hybrid objects are inert, immobile, and derivative. But perhaps they are no stranger than other mediations, merely less naturalized and familiar.

in vivo ex silica: the body's real motion

We can also take up the problematic fixation of coextensive iterations of the body as a temporal dislocation in other, more contemporary, instances. The bodies that appear in transit throughout *The Matrix Reloaded* are subject to all manner of deictic distortions. In every fight-scene — there are many — there is a complex visual/phonic choreography of bodies whose primary function is to define or constrain the contours of the architectural-narrative space and time (*mise-en-scene*). For example, at the point of initial contact, in the courtyard fight-scene between Neo and the multiply replicating Agent Smith(s), there is a coextensive and increasingly resonant rhythm track, a frenetic trance/techno/glitch beat which literally fills up the space between spectator and spectacle, teasing and engaging the audience, suturing attention into a collective simulation of dance. This acute attention to sound defines and establishes the intelligibility, variability, and frequency of the bodies that traverse the screen, setting them into minutely composed patterns and intensities. Bodies vanish and appear, momentarily glimpsed, fragmented by frame, or trajectory, or by the occlusion of other bodies — arrested traces of the shape of discontinuously moving time, employing rhythm to produce a *synesthesia* between auditory and visual intervals, a rhythm which both mirrors, and embodies, interactive sound/image configurations[16].

Within this field another pattern of rhythm simultaneously takes place. Extreme acceleration is represented by near stasis, as bodies move from a normal rate of speed to an increasingly slower pace, to a final and momentary static arrestment.[17] At this point the camera, which had thus far accompanied the body, is suddenly cut loose, to circulate and move freely in and around the frozen figures. At the precise moment that the camera returns to a fixed relation to the body, the stasis collapses, and there is a very rapid acceleration, followed by a return to the 'normal' tempo and pace of fighting. This configuration, similar to a standing waveform, is repeated over and over again. Moreover, the moment where static image collapses into accelerated motion is always at the point of impact of a physical blow, such that the recipient of the blow — Neo, or more often Agent Smith — moves uncannily across the screen, engaging in us an unconscious reflex, a hardwired orientation response to unexpected perceptions in the visual field. The pace is rapid, and the rhythmic patterning of visual and auditory collisions, is quite effective. Where other films deploy bodies in a combination of physical prostheses — wirework and digital post-effects — to construct an image (e.g., Ang Lee's *Crouching Tiger, Hidden Dragon*, or Zhang Yimou's *Hero,* where special effects are used primarily to compose an intricate and

beautiful spectacle — the Wachowski brothers use the temporal arrestments, dilations and accelerations of bodies in *The Matrix Trilogy* as species of edit. The bodies-in-motion are impossible bodies, as is the occlusion of one body by another of the same (Agent Smith in the brawl scene), yet the surplus referential index of plural bodies secures and legitimates the "real effect" of the visual field, and confirms the irreal reality of *The Matrix*.[18]

Rhythm is used in a similar way in the "rave in the cave" scene in the underground refuge-city of Zion. After Morpheus' oration, music starts and people begin to dance as the camera frames the distant, moving, crowd, and then cuts to a close-up of Neo and Trinity, who take the opportunity to leave the chamber for a more private setting. The camera will continue to intercut between these two sites, the communal and the intimate, until their conjoined conclusion. At the same time, the intensity of the music grows; bodies, becoming increasingly mobile and sensuous, are framed in mid-range and long shots, intercut with very close intimate shots of Trinity and Neo. Tension builds, the crowd becomes more energetic as the lovers lose themselves in the rhythm; the entwined dancing bodies become increasingly frenetic, and there are brief flashes of nudity, as the camera cuts back to Neo and Trinity just as they approach climax, completing a visual and rhythmic circuit where the erotic charge of the bodies in the chamber is transfered to the slow, at times almost static movements of the lovers. This metonymic relay effectively underscores the libidinal tensions of both collective and individial, so that when there is an abrupt eruption of a flashback — a possibly divinatory memory trace of Trinity's impending fate, a premonition taking the place of orgasm — the sudden silence is shocking.

One of the cinematic testing grounds for virtual, photorealistic humans in an artificially 'real' space took place in the seven-minute long fight scene between Neo and the multiply replicating Agent Smith in *The Matrix Reloaded*. The scene is often referred to as the "burly brawl."[19] Approximately 15,000 images were captured to accomplish the virtual backgrounds for this set, in order to allow the camera to travel everywhere except up close to the periphery walls. The set was reconstructed using 'Labrador' — an image analysis and photogrammetry tool to undistort images according to the angle of the lens, so that these images recreated the set by projecting onto the model with a perfect, seamless, fit. This became the basis for CG extensions, global lighting recreation, and the habituation of 'bodies.' Data acquisition for this scene began with extensive cyberscans and digital photographs of Neo (Keanu Reeves) and Agent Smith (Hugo Weaving) in costume. The actors performed every imaginable expression and body-movement for universal capture sessions using five prototype Sony/Panavision high-definition digital cameras. For larger actions, fight choreographer Yuen Wo Ping shot digital video of fight moves with a team of eight martial artists. This shoot became a template for motion capture scenes, and action was configured to the virtual characters built from Reeves' and Weaving's images.

Thirty-two motion capture cameras over four months were employed to shoot a scene which grew from Neo fighting 80 agents, to 100 agents, and finally to over 300 agents. It would have been impossible to have choreographed over 300 stunt-bodies, and multiple camera angles and movements, and even the as yet unrealized dream of "re-mapping the human body for animation" just wouldn't work, so Weaving and Reeves went back to the digital choreograph-template and 'performed' the necessary interstitial martial arts stunts. And, since neither Reeves nor Weaving had the same body dynamics of the Hong Kong martial artists, the micro-postures, gestures, and minute dispositions of their own bodies were re-mapped onto the virtual bodies to establish a proleptic (cognitive) continuity throughout. Facial expressions were also crucial to this continuity. Arius3D scanners, with polygon counts of around 10,000,000 — smaller than a pore on a human face — resulting in 30 second full-motion clips recorded in 1920 X 1080 high definition frames at 60 hertz interlaced, ported to hard discs at one gigabyte per second, generating approximately 20 terabytes of data, in a final resolution which rivals or exceeds the 'realism' of medical scans of 'real' bodies. The subtleties of hair, cloth, fabric and other textures were captured with Maya Cloth simulations. The final, virtual, 'bodies' of Neo and Agent Smith were literally 'sourced' from the bodies of Weaving and Reeves, rather than simulated. Composites of the "burly brawl" scenes were facilitated by a technique called 'multi-pass rendering,' rendering groups or sets in a depth composition, rather than performing at a pixel level, so that the bodies of Smith and Neo in the foreground would be in a high resolution, with bodies in the mid-and background being less resolved, but taking on the global light characteristics of the virtual environment in the same way as the figures in the forground. Like a compositing system in full 3D, where tacit and inclusive movements in different resolutions operate like motion blurs, smoothing movement, suturing bodies, artchitecture and environments together, producing an effect of spatio-temporal 'reality' via the trajectories of bodies.

Bodies, repeated, attenuated and deferred, operate as spatio-temporal markers, holding place/making space, re-presenting their deferred presences as a prosthetic real. But here, at times, the boundaries and coherences of bodies begin to come undone too. Not only is there a phenomenological sleight-of-hand before us, on screen, and within us as well, in the form of technical substrata of involuntary, unconscious, memory, but there may also be a pronounced and recursive re-cognition of that plurality. When Arnold Schwartzenegger was cast as the cyborg in James Cameron's *The Terminator* (1986) the fact that his own body was an *effect*, an 'edit' of the body, constructed in and by an agonistic and stressful relation with a regimen of machinery (the gymnasium, nautilus machines, free weights, and the like) is a recognition which is readily mapped into the fictional construct of an "envelope of living, human, flesh" formed around the contours of an interior chrome-molybdenum armature of the cyborg. It was, in fact, the ideal

body to represent a false body. Nonetheless, its "reality" secures the ground for the film's "realism." *The Terminator* is more precisely a highly abstract hyperrealism, proleptically fissioning between different *topoi*, cued by different optical filters: blue, signifying a transition to the future, yellow — the most subtle filter — giving a warm, normative, Southern California glow to the altogether too neat, cohesive, pretty, world invaded by the Terminator — and red, representing and territorializing the cyborg's point of view. There is a very interesting occurrence in one scene, where the cyborg, having been repeatedly shot, burned, pummeled and struck by numerous vehicles, has taken a room in a cheap hotel. The 'envelope of living flesh' has sustained rather a lot of damage, and it has acquired the beginnings of a somewhat rank smell. Cut to an exterior view, of an overweight and slovenly janitor pushing his cart down the tawdry hallway. As he approaches the door to the cyborg's room, he pauses and sniffs the air, and then raps on the door: *"… hey, whaddya got in there, a dead cat?"* Cut to the interior of the room, then to a red filter/cyborg-POV, where there is a complex alpha-numeric navigational interface, with an active cursor. A number of responses appear — in English — and the cursor travels down the list, and selects one. Cut to an exterior shot of Schwarzenegger's face, and the cyborg performs the selection, pronouncing: *"Fuck you, asshole."* Cut to the exterior hallway, where the janitor shrugs, and continues on his way. Here is the interesting question: Who reads?

We do. Although that 'we' remains a generalized and anonymous component of the cinematic aparatus, and no *specific* subject is required as a terminus for all of the forms of address that take place here. It is nonetheless a remarkable moment, as we — who momentarily occupy or take up residence in this space — find ourselves in the place of the machine (there is no little irony in this: the 'machine' is both phantasmatic and real). It is a crucial moment in the economy of the science-fictional narrative, the moment of uncanny embodiment, where our familiarity as spectators is *too* familiar, where there is a strange surplus of familiarity, the moment of awe and horror.[20] From that moment we are complicit with the monster in its relentless proleptic pursuit, and its recurrent presence, as a marker of time drawn out, as it shapes all of the rest of the film as uncanny. It is in that moment that *The Terminator* becomes a horror film, and our own perceiving bodies are rendered complicit in its discursive, narrative, territories.

There is a moment of somatic inscription in Mamoru Oshii's *Avalon*,[21] a Polish-Japanese co-production which undoubtedly influenced the *Matrix* trilogy, when the concatenation of voices — ambient, directed, narrational voice-over — abruptly ends, in the middle of a story. It is the back-story, or history that is being spoken/remembered by the protagonist, a female game-player named 'Ash'. As voices — hers, as speaker and/or narrator — cease, and she walks away, off screen, and the camera-eye moves on through the cityscape, all that remains is a subscript, continuing the story in the selected language-option (Japanese, Polish, English, French). In the sudden silence one hears one's own voice taking up the story, reading the subscripted words, filling in the evacuated phonic space, subvocalising the continuation of the story. Whether imagined or real, one's own voice, issuing from one's own body, is inscribed into the cinematic-narrative space, or rather that space has enfolded the body, and one is sutured to its specular technic.

The first sequence in David Fincher's *Fight Club* (1999) is a 'fly-through' of the protagonist's brain, beginning at a magnification of approximately 150,000X, zooming out with decreasing magnification through the minute structures of nerve cells, blood vessels, the folds of the brain, sinus cavities to exit through the forehead of Edward Norton. As the camera recedes from Norton's face, the enframing of the trajectory from deep cellular brain level (starting, metaphorically, at the amygdala, the center of "fearful thought") to facial recognition of the protagonist secures both the place, and the coherence, of an impossible continuum of the body, subsumed under the sign of identity.[22] In fact, such impossible recognitions have become a commonplace of commercial television, as one effortlessly follows the path of bullets in *CSI*, or the palimpsest of fading presences in *Without a Trace*. In all of these cases there is a commutability between the body and cinematic architecture such that an *effect* is seamlessly sutured to the body and to the apparatus of technical reproducibility conjointly. The body, as re-presentation, accommodates every supplement, attaches to any supplementarity or scalar disparity that claims or preserves the continuity of its re-cognition.

Today, instead of describing the fusion of flesh and metal, organism and technology, one might propose another definition[23] of the *cyborg*, as the coextension of the virtual and the actual, such that the infrastructural technics need not be sutured to a body, but may be supra-corporeal (the body is sutured to the infrastructure as a primary interface). The trace of such 'cyborg' bodies is to be found in those media artifacts, especially the cinematic 'body' — but also in the digital resolution and enhancement of surveillance images, medical models, or crowd-flow patterns, market behavior models, and the like — where there is an arrestment and enhancement of the evidentiary trace of the body's presence, behavior, probability, or culpability. Such arrestments do not lead to identities, but to generalities, part behavioral, part technical, and specificities (elements in a complex material-mental patterning).

This is not a situation which is confined to a fictional, political or cinematic register alone, but a state of affairs which has secured its territories in the physical world as well, as is the case with advanced surgical processes where computationally mediated technologies of apperception, diagnosis, decision, gesture, and speech, redistribute what had once been an autonomous surgical agent into a series of specialized remote operators. The surgeon-function, which had been an art of the *imaginary* — a visualization of multiple-coextensive bodies, ideal and real, based upon a professional and practical knowledge of corporeal dispositions which were in every important sense *invisible* — has

been replaced by an indefinitely extensible set of telepresent experts, potentially operating at remote proximities. Such tele-medical procedures reveal a profound linkage to media spectacle when one realizes that the shape and pattern of a procedure through time and space is mediated in much the same way as a film is 'edited,' with contiguous, contingent, or consequent operators fading in and out of the virtual surgical environment to constrain and transport the body of the surgical subject to its desired end. [24]

There are, of course, other models. In Leslie Thornton's *Peggy and Fred in Hell* (1984-2004) [25] two small children appear, vanish and reappear throughout a twisted, presumably post-apocalyptic topography. They are discontinuous transforms, bodies who leap forward in time (age) while staying in the same places, growing younger, or older, or staying the same, in no discernible pattern. There is no one else. Theirs is an empty, vacuous, world — save for all of the noise and debris, the detritus of language, of narrative, of media, covering every surface. In this maelstrom of signs, Peggy and Fred operate like small, random, imperfect recording devices, mimicking or performing snippets of a culture not their own. Television is a primary site, and their recursive logic is to demarcate, by their strange presence, the *dissolution* of the real.

Thornton's adaptive and proleptic series of inter-linked episodes is one of the most extreme attempts at tracing the dynamic contours of cinematic incompletability. It is, in a sense, a kind of *perpetuum mobile*, a self-organising generative machine, predicated upon the discontinuous pluralization of its own artifactuality. The 'story' is minimal, ascetic: *something has happened*; two children survive and are observed traversing a ruined terrain, interacting with the traces of technologies, the impressions of sense. Somehow television is always on, at least somewhere, and Peggy and Fred mimic and cajole, embody and enunciate traces of the world. Not necessarily their world, but ours. Seen through their eyes (is their pretense directed or impro-vised, is their reaction spontaneous or studied?) everything is strange and unreal. Like when they pretend to be adults: their only guide is media, they can have had no possible experience of adulthood, and so they produce an odd and profoundly distorted map of human being, an ephemeral imposture which is both extra- and intra-cinematic. Other things happen — interruptions, edits, transmissions, more recursions. The relationships between technology, soci-ety, identity, and subjectivity that underpin contemporary media culture no longer pertain here, though they persist as enduring shadows and afterimages. Form and conven-tion are equally under duress. There is a palpable sense of the interactive, as narrative collapses under the strain of excess labor necessary to its preservation. Regardless, we are swept along, and a new order of recognitions begins to operate. Thornton tampers, throughout, at a fundamental level, with media's deixis — duration, extent, effect, and causality are mobilised and redirected. *Peggy and Fred in Hell* may be one of the most sustainedly proleptic (antici-patory, suspenseful) works ever conceived, a hypnotic and consuming anti-narrative about narrative.

Peggy and Fred in Hell is a continual work-in-prog-ress, with thirteen "episodes" so far, operating within and ranging across different media: film, video, architecture, radio, digital media. Some sections involve simultane-ous projection and transmission, and the "episodes" are notoriously interchangeable. In *Have a Nice Day Alone* the entire spatial field of the film is activated by a technological glitch, a "nervous twitch," a bizarrely beautiful and hyp-notic pulsing of the surface. The image shrinks, flows, col-lapses, seeming to follow some strange and hidden agenda. Intermittently there is a text about speech on screen, visible through the pulse. In the background, extreme forms of vocalisation — yodeling and macabre laughter — punctu-ate the visual space. As the image flutters, a robotic voice speaks about various conditions of speech: silence, rhythm. Language is dislocated as one finds oneself subvocalis-ing the texts that appear on screen, sometimes before, or slightly later than, the 'voiceover.' It is unclear whether the voice mimics or generates the text, as it becomes more energetic. Finally, a small child (Fred) emerges and 'calms down' the mechanomorphic entity. The mode of address shifts from the position of a voiceover to that of a subject or character within the film as the child inter-rogates the voice. No longer authoritative and exterior, the voice is engaged within the *mise-en-scene*, interacting for a moment with the child, and then withdraws into an almost reflective repose, talking to itself. It is once again a palpable experience of an 'artificial intelligence' — one that is both complicit with us and utterly alien.

With *Have a Nice Day Alone*, the phantasmatic space of the screen, the familiar field within which we are accustomed to imagine ourselves, has been rendered exceedingly strange, and our capacity to invest our desires, expectations, and belief in what happens is enervated and compromised. It is as if we are carried away, swept into the uncanny fold of the work, as it punctuates extra-cin-ematic (off-screen) space and recursively collapses in on itself. *Have a Nice Day Alone* tampers with some of the more unusual, and overlooked, aspects of familiar media: it plays upon the Z-axis, revealing lateral dimensions of cinematic/temporal articulation (like special effects, of which it is undoubtedly some rare species, where the lay-ers of manipulation are compressed into a palimpsest of effects that are conventionally intended not to be seen; where composite images are taken for a single surface supporting the mythology of the camera's verisimilitude; even when one doesn't buy it, one accepts spectacle in place of realism, the negative trace of credibility). For Thornton, this negativity is doubled, a switchback into cinema's phenomenality that takes up different issues of pleasure. The surface of the cinematic illusion is punc-tured by another illusion, and then another, so that the repetition and doubling of the phantasm causes its col-lapse and return. Thornton's work is a kind of deontol-ogy — a negative theology — of cinema. *Have a Nice Day Alone* operates by revealing that the cinematic screen is a kind of *hole*, a negative abyssal space around which various discourses and desires are organised and articu-

lated. Media's *mise-en-scene* is symmetrically linked to this invisible *mise-en-abyme*, a "casting into the abyss" of signs and representations. It is only via the arrestment of these phantasmatic images by the engaged presence of a spectator that cinema exists. Cinema is an art of memory: turn on the apparatus in a dark, empty room, and all of the seductions, tropes, and forms of address play out, in a form of automatic solipsism; without a spectator the subject-positions engendered by the apparatus remain empty, and cinema does not take place. Leslie Thornton's works, by re-problematising the screen where these strange cartographies take place, do their part to deconstruct the media image of the world, not to show you where the "world" really is, but to reveal that it is not at all where you think. And neither are we.

Where for Leslie Thornton the body is a transmission, subject to all of the infelicities, accretions and dispersals of transport, for Quentin Tarantino it is an armature — of light, form, reference, citation — in essence, an *architecture*. These dispositions are not so different; both accept with good grace the presumptions of media, the conventions, and stereotypes, and requisite deep reactive levels. In *Kill Bill, Part 1,* the choreography of multiple bodies is arrested, slowed down and suspended — stabilized — to produce an extreme artifice, an architecture of blood as spectacle. The camera-body, generalized and thematized, is cut loose (there are some affinities to *The Matrix*). This does something quite unexpected and novel to the complicated attributions of simulated bodily presence that we habitually take up as our own. Suddenly we, too, are elsewhere. As Uma Thurman's body slowly pinwheels over the surface of her opponents (an overhead shot) the camera disengages to move away in a symmetrically opposite spiral, leaving a moment where the *maxima* and *minima* of their respective trajectories are coextensive, arresting her body — silent, perfect, and still — for a fraction of a second. Time and space come undone. For Tarantino, it is the embodiment of photography's fondest wish, a perfect moment; for Thornton, the resulting space is hellishly infinite

> *… displaced from increasingly precise measurements of time and space onto the immeasurable excesses of an instant without duration and without dimension…*
> — Paul Virilio

In the anxious series of "heterotopic cells" of *Kill Bill, Vol. 1,* the body may be a quaint conceit, an enabling construct in an endlessly seductive agony of the preservation and violation of forms, once again re-cognized as *phantasmatic* — not the faint ghosts and shadows we have suspected, but something far more strange, and far more contemporary, a phantasm coupled with architecture, as an architectural *effect*, an afterimage of place, a transmission — literally a presence within absence that has yet to play out, *in media res*, the supplementary field of the world. The body has become a probabilistic spread of data-fragments — the flickering shadows of the movement of presence

— engaging the senses in a proleptic (cognitive) construction of an artifact, the boundaries of which permeate our own analeptic (re-cognitive) reflections.[26]

> *The harsh reality that we are obliged to confront is the cyborg, the technological guinea pig, the living money, the human capital. The notion of virtual, which at first seemed connected to the spectacular and to the derealizing tendency of art, acquires in this case the opposite meaning. The virtual body, invaded and disseminated in networks, becomes the object extremely other and disquieting, and irreducible to the imaginary and symbolic dimensions…*
>
> *… the crucial moment of this extreme realism is, thus, the meeting place between human and machine, organic and inorganic, natural and artificial, impulse and electronics, people and commodities…*
> — Mario Perniola
>
> *… data made flesh…*
> — William Gibson

In the very moment of its enunciation, speaking is an *artifact*, a public gesture which is — in the very moment of its happening — calculated, constrained, formatted and initialized by a media apparatus. *Actuality* — the event — is made. It is not given, but actively produced in mediation, sifted, invested, performatively interpreted by, and within, numerous registers, which are in themselves factitious and artificial, selective and hierarchical, in the service of multiple interests. No matter how singular, tragic or irreducible the reality to which it refers, *actuality* comes into being, takes place, in the place of the real, as a fictional fashioning. It is a clear instance of what Bernard Stiegler and Jacques Derrida call *artifactuality* — one of the traits of media that constitute actuality: that in the very moment that one speaks — as a philosopher, let's say, or as a critic — one's words are swept away, no longer one's own, to appear in a multitude of places, a plurality of transmissions. Such words bear the mask of culpability, but embody what Benjamin has called *massenweise* (plurality, ubiquity, a massive or mass-like disposition)[27] and are more akin to artifacts than to the actual bodies which are claimed as their origin and evidentiary trace. It is one of the secrets of our time:

Allegory takes the place of the ephemeral, bodies and events take place as artifacts.

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Thomas Zummer is a scholar, writer, and artist. Among his recent publications are "Projection and Dis/embodiment: Genealogies of the Virtual," in *Into the Light: The Projected Image in American Art 1964-1977,* Chrissie Iles (Whitney Museum, 2001), "Variables: Notations on Stability, Permeability and Plurality in Media Artifacts," in *Saving*

the Image: Essays on Film and Video*, ed. Tanya Leighton and Pavel Buchler, (CCA/Manchester, 2002); *Portraits of Robots* (a catalogue of recent works, 2002), *"What the Hell is That?" Induced Aberration in Cinematic Taxa*, a digital book on cinema and the taxonomy of monsters, (Beehive Microtitles #1, 2000); *CRASH: Nostalgia for the Absence of Cyberspace* (with Robert Reynolds, exh. cat./Thread Waxing Space, 1994), and *Rouen: Touring Machines/Intermittent Futures* (with Judith Barry and Brad Miskell, Nicole Klagsbrun, Rouen/ Paris, 1992); He is currently completing a book on the early history of reference systems entitled *Intercessionary Technologies: Archive/ Database/Interface*. He is also a practicing artist, and exhibits his drawings, sculptural and media works worldwide. Thomas Zummer lectures on philosophy and the history of technology, and currently an Assistant Professor in Critical Studies at Tyler School of Art/ Temple University and a regular Visiting Professor in the Transmedia Programme/post-graduate at the Hogeschool Sint Lukas,Brussels/ University of Leuven, Belgium.

Notes

1. See: Marion, Jean Luc, *The Crossing of the Visible*, trans., James K. A. Smith, [Stanford: Stanford University Press] 2004, for a subtle and brilliant articulation of the relation between the visible and the invisible.

   Concerning allegory: In the very simplest terms, *allegory* says one thing and means another; in so doing, it destroys the normal expectation that one has of language, that words 'mean what they say.' At the same time, allegory is both a structural principle and a fundamental process of encoding speech, and it appears in an extraordinary and complex variety of forms. Allegory often calls attention to or indicates its own material armature as representation or conveyance of (absent/ present) meanings. Allegory derives from *allos* + *agoreuein* (other + speak openly, in public community, i.e., in the marketplace or agora: "To speak otherwise"). *Agoreuein* has the connotation of public, open, declarative speech, a sense which is inverted by the prefix allos, giving something like 'other than open, public, speech,' so that allegory is often understood as an inversion wherein there is concealed something different than can be seen in the literal sense (i.e., a secret). The term *inversio* in its original sense meant 'translation,' while *translatio* simply 'translates' (is the Latin equivalent of) the Greek term *metaphor*. Allegory is traditionally defined as an extended metaphor, when, for example, the events of a narrative obviously and continuously refer to another simultaneous structure of events, ideas or phenomena. It is important to point out the political overtones of the verb *agoreuein*, reflected in a long history of situations which have demanded and produced indirect, devious, and ironical ways of speaking or depicting. It is also appropriate to emphasize the public nature of allegory, in that when allegory occurs, as it does in parables or in painting, in utopian or dystopian tracts or fictions, it does so within the public sphere, that is, within the community of common tradition and reference. At the same time, allegory is excessive, often exceeding the bounds of the visual and the verbal, as in the case of dreams, where, since Freud, there is a recognition of unconscious or latent drives or conflicts residing within or hidden beneath texts and images, rendering them tacit psychological allegories. Allegory calls attention to the materialities and pluralities of signification and often involves pretense, as for example when one pretends to talk about one series of events when actually talking about another. More complex allegories tend to develop a strongly ironic tone, which may involve the recognition, implication or enunciation that one is reflexively performing an allegory. The pretence to simplicity, or stupidity, a tongue-in-cheek reliance on something obviously wrong or blatantly ignorant masks the seriousness of critique or indignity. This sort of critical/theoretical stance is closely related to allegory, and is called allogoresis.

   There is, too, an unruliness to allegory, an impossibility to set to rest it's references, tempered only perhaps by unlikelihood, or the excessiveness of labor invested in making sense. The endlessness of representation, the impossibility to contain reference where an apparent sense refers to an other sense, perhaps even another, casts one into a regressive abyss of signs and portents, a *mise-en abyme*. Allegory occasionally operates by revealing that the *mimetic* covers a kind of 'hole,' a negative space (*mise-en-abyme*) around which various images, discourses and desires are organized and articulated.

2. This account is cited in detail in Sean Cubitt, *The Cinema Effect* [Cambridge, MA: MIT Press], 2004.

3. Jacques Derrida, 'La danse des fantômes: Entrevue avec Jacques Derrida' /'Ghost Dance: An Interview with Jacques Derrida,' by Mark Lewis and Andrew Payne in *Public 2, The Lunatic on One Idea*, 1989. The phrase referred to is the following: *"When the very first perception of an image is linked to a structure of reproduction, then we are dealing with the realm of phantoms."*

4. *The Compact Edition of the Oxford English Dictionary*, Volume II, P-Z, [London: Oxford University Press] 1971/1984, page 2952 [pp.557-558]

5. Detailed versions of the arguments concerning the intercessional and phantasmatic relation of the body and technology may be found in previously published texts by the author. See: Thomas Zummer, "Variables: Notations on Stability, Permeability and Plurality in Media Artifacts," in *Saving the Image: Art After Film,* ed., Tanya Leighton, Pavel Buchler [Glasgow/Manchester: Center for Contemporary Art, Glasgow & Manchester Metropolitan University] 2003; see also "Projection and Dis/embodiment: Genealogies of the Virtual," in *Into the Light: The Projected Image in American Art 1964–1977*, Chrissie Iles, [New York: Whitney Museum of American Art/Abrams] 2001. In turn, foundational discussions of phantasm, spectrality, and technology derive principally from the works of Jacques Derrida, Bernard Stiegler, and Giorgio Agamben. For Derrida, see: *Specters of Marx* (New York: Routledge, 1994); *Mal d'Archive: Une impression freudienne* (Paris: Éditions Galilée, 1995); *Archive Fever: A Freudian Impression* (Chicago: University of Chicago Press, 1995–96), *Genèses, généalogies, genres et le génie: Les secrets de l'archive* (Paris: Éditions Galilée, 2003); and Jacques Derrida and Bernard Stiegler, *Échographies de la télévision* (Paris: Éditions Galilée–INA, 1996). For Stiegler, see *Technics and Time, 1: The Fault of Epimetheus,* trans. R. Beardsworth and G. Collins (Stanford: Stanford University Press, 1998); *La technique et le temps 1: La faute d'Epiméthéa* (Paris: Éditions Galilée, 1994); *La technique et le temps 2: La désorientation* (Paris: Éditions Galilée, 1996). For Agamben, see: *Stanzas. Word and Phantasm in Western Culture* (Minneapolis: University of Minnesota Press, 1993); *The Man Without Content*, trans. Georgia Albert (Stanford: Stanford University Press, 1999); *Remnants of Auschwitz: The Witness and the Archive*, trans. Daniel Heller-Roazen (New York: Zone Books, 1999).

6. See: Bruce Bower, "Brain's Moving Experience: Motion illusion yields a neural surprise" *Science News*, Vol. 162, No. 24, p..374, 14 Dec 2002

7. See: Bruce Bower, "The Brain's Word Act: Reading verbs revs up motor cortex areas" *Science News,* Vol. 165, No. 6, p. 83, 7 Feb 2004

8. I have made a similar argument in other texts. See: Thomas Zummer, "Variables: Stability, Plurality and Permeability in Media Artifacts," in *Saving the Image:Art After Film*, Tanya Leighton, Pavel Buchler, eds., [Glasgow and Manchester: ICP Glasgow and Manchester Metropolitan University] 2003

9. See: Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction, in *Illuminations*, Section XII, H. Arendt, ed., [New York: Harcourt, Brace & World] 1968; See also: Walter Benjamin, "Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit," in *Illuminationen. Ausgewählte Schriften 1*, Surhkamp, 1955/1977. Benjamin's remarks concerning an "unconscious optics" have had considerable influence on the development of contemporary visual studies. Among the more interesting works, see Patricia Ticineto Clough, *Autoaffection. Unconscious Thought in the Age of Teletechnology* (Minneapolis: University of Minnesota Press, 2000); Catherine Liu, *Copying Machines: Taking Notes for the Automaton* (Minneapolis: University of Minnesota Press, 2000); Scott McQuire, *Visions of Modernity: Representation, Memory, Time and Space in the Age of the Camera* (London: Sage Publications, 1998); Gerhard Richter, ed., *Benjamin's Ghosts: Interventions in Contemporary Literary and Cultural Theory* (Stanford: Stanford University Press, 2002), Samuel Weber, *Mass Mediauras: Form Technics Media* (Sydney: Power Publications, 1996), and Hans Ulrich Gumbrecht and Michael Marrinan, eds., *Mapping Benjamin: The Work of Art in the Digital Age*, [Stanford: Stanford University Press] 2003

10. Christian Metz, cited in Joseph and Barbara Anderson, "Motion Perception in Motion Pictures," in *The Cinematic Apparatus*, ed. Teresa de Lauritis and Stephen Heath (London: The MacMillan Press, 1980). See also Christian Metz, *Film Language: A Semiotics of the Cinema* (New York: Oxford University Press, 1974).

11. See: Tom Gunning, "The Cinema of Attractions: Early Film, Its Spectator, and the Avant-Garde," in *Early Cinema: Space, Frame, Narrative*, Thomas Elsaesser with Adam Barker, eds., [London: British Film Institute/BFI Press] 1990; "'Now You See It, Now You Don't': The Temporality of the Cinema of Attractions," in *Silent Film*, Richard Abel, ed., [New Brunswick: Rutgers University Press] 1996. The discussion of *Démolition d'un mur* by Auguste and Louis Lumière is indebted to Gunning's ideas. 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. The weary, exasperated expression on the face of Oliver Hardy after putting up with Stan Laurel for two reels is

one of many such examples. This reflexive puncturing of the claims of verisimilitude in cinematic illusion is an important trope in modernist avant-garde practices, a deconstruction, *avant la lettre*, of the habitual claims of technical reproduction. One might also note that the relation between illusionistic and reflexive artifacts in the early history of projected media was very complex, permeable and difficult. Edison's garish electrocution of an elephant, projected repeatedly to discredit Tesla and Westinghouse's rival espousal of alternating current, depended as much claims to narrative truth ("this terrible event happened, and could happen to you with devices that employ alternating current") as to spectacular disclosure ("the camera, present at this event does not lie").

All sorts of things happened in the cinema. *Démolition d'un mur,* was repeatedly shown backwards and forwards, the constant fascination of a wall tumbling down, and and then casting itself back in place, was unimpeded by the tacit acknowledgement that 'it is only a movie.' It was as much the display of the apparatus itself that constituted the spectacle, and often the ostensible content of a film was secondary, an ordinary, everyday event which was transformed by its passage through this clever machinery. In this early "cinema of attraction" the apparatus itself was inscribed into the specular field, and was, in fact, inextricable from the 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. Narrative spectacles, of the sort produced by Artemus Ward, for example, were quite popular, and Ward's magic lantern shows, panorama, and glass-plate lectures were easily translated into cinematic form. While these narratives had developed within, and as (an element of), technological spectacle they readily made the transition to the more voyeuristic, story-telling documentary, mode. Early 'reality-based' travelogues, such as the filmed excursions of Burton Holmes, performed a cinematic 'capture' of worldly exotica, while claiming an objective, neutral stance, and the apparatus is presented as merely recording the strangeness of distant peoples and places. At the same time there is a developing suppression or eliding of the presence of the camera/projector, as the technology becomes naturalized, and hopes of catching subjects — actors and spectators — unaware forms a new tropology of cinematic presence.

Even when the Lumière's films consisted of a single scene, as in *Sortie d'dusine, Arrivée d'un train, Barque sortant du port,* or *Démolition d'un mur,* there was a formal patterning within the image-field which operated as a highly structured narrative event. That is to say, that within the framework of early spectacle, so often thought to be a plotless recording of raw, unadjusted, untampered 'reality,' there was a tacit, extra-cinematic structuring of events as narrative. Or at least as susceptible to narrativization. In contradistinction to the claims advanced for uncontrolled cinematic realism, films such as Sortie d'dusine record events which already had a kinematic structure — the opening and closing of the factory gates for the arrival and departure of the workers occurred in an attenuated timeframe, dictated by the mechanics of a clock, and, one might suppose, whistles or bells. Consequently, the Cinématographe took up a position as a recording device, within an already highly structured narrative event, one with discrete patterns, contours and narrative closure. It is this relation of technical reproducibility within an already 'prosthetic' environment of linked human-mechanical operators where the unconscious tropology of phantasies and reflections will quickly organize around technologies of reproduction. Strains of phantasy or reflexivity, whether foregrounded or suppressed, form an inherent substrate in cinema and in subsequent media technologies.

12. An earlier version of this argument was presented in: Thomas Zummer, "*The Matrix Reloaded*: Andy & Larry Wachowski, U.S., 2003" in *Film Comment*, July/August 2003 [full text available online at www.filmlinc.com, as "Virus to Virus: *The Matrix Reloaded*," Thomas Zummer]; see also "*The Matrix Revolutions*: Andy & Larry Wachowski, U.S., 2003" Thomas Zummer, [online at www.filmlinc.com, as "Surface to Surface: *The Matrix Revolutions*," Thomas Zummer, *Film Comment*, December/January, 2003-04]; See also: *Matrix: machine philosophique,* Alain Badiou, et al, [Paris: Ellipses Editions] 2003.

13. ibid.

14. See: *The Playhouse*, Buster Keaton, director, U.S., (1921) 23 minutes, b&w; written and directed by Buster Keaton and Eddie Cline, © 1921 Joseph M. Schenk/© 1995 Film Preservation Society (Kino Video/DVD K131).

15. Arago, Dominique François, "Report," reprinted in *Classic Essays on Photography*, Alan Trachtenberg, ed., [New Haven: Leete's Island Books] 1980. See also: *Arrêt sur image, fragmentation du temps/Stop Motion, Fragmentation of Time*, François Albera, Marta Braun, André Gaudreault, eds., [Lausanne: Editions Payot Lausanne/Cinéma] 2002.

16. See: Thomas Zummer "Virus to Virus: *The Matrix Reloaded*", (www.filmlinc.com)

17. In its use of a static, almost fixed, image to indicate extreme acceleration, *The Matrix Trilogy* is indebted to an odd set of forebears: somewhere between Samuel Edgerton's high-speed photonics and Steve Austin, *The Six-Million Dollar Man,* (played by actor Lee Majors on the 70s science fiction tv show), we have naturalized the representation of velocity through temporal attenuation and dilation. *The Six-Million Dollar Man* introduced a recognizeable phonic trace in the soundtrack as an index of temporal or physical anomaly. Edgerton's photographs gave access to an invisible and minute world by the capture of its imperceptible passage — in a sense high-speed photometrics were frozen bits of acceleration. And certainly there is the debt to Marey, Muybridge, and other early chronophotographers, just as surely as there is a debt to the collective domestication of the "instant replay" in televised commercial sports coverage.

18. See: Thomas Zummer, "Surface to Surface: *The Matrix Revolutions*," *Film Comment*, December/January, 2003-04 (www.filmlinc.com). The reflexive 'irreality effect' is also to be found in films such as *Charlie's Angels: Full Throttle,* for example. Interestingly enough the prosthetic extension of the body via the cinematic apparatus itself often results in a recuperation of sense in another register: narrative, where there is a habitual recourse to dreams, delirium, intoxication or extraordinary (virtual) states. See also: Scott Bukatman, *Matters of Gravity: Special Effects and Supermen in the 20th Century*, [Durham: Duke University Press] 2003.

19. See John Fordham, "Neo Realism," (review of *The Matrix Reloaded*, dir. Wachowski Brothers) in *Cinefex,* Number 95, October 2003. Details of technical processes and data in the making of *The Matrix Reloaded* derive primarily from this, and other industry sources.

20. See: Sigmund Freud, *Das Unheimliche und Andere Texte/L'inquiétante étrangeté et autres texts,* tr., Fernand Cambon, preface, J.B. Pontalis, [Paris: Éditions Gallimard/Folio Essais N° 93] 2001; see also, for a superb survey of contemporary notions of the uncanny: Nicholas Royle, *The Uncanny,* [New York/London: Routledge] 2003.

21. Mamoru Oshii, director, *Avalon,* (2001), 106 minutes, color/sepia, Japanese/Polish co-Production; Mamoru Oshii has also directed *Ghost in the Shell, Ghost in the Shell II, Ghost in the Shell/Stand Alone, The Red Spectacles,* and *Stray Dog: Kerberos Panzer Cops.*

22. See: Christopher Kelty and Hannah Landecker, "A Theory of Animation: Cells, L-Systems, and Film," in *Grey Room 17*, published by the MIT Press, 2004. This is a fascinating and brilliant essay on technology, visuality and the materialities of representation.

23. For background references for notions of the 'cyborg' see the following: *Semiotic Flesh: Information and the Human Body*, Phillip Thurtle, Robert Mitchell, eds., (Seattle: Walter Chapin Simpson Center for the Humanities, Short Studies/University of Washington Press) 2002; Richard Doyle, *On Beyond Living: Rhetorical Transformations of the Life Sciences*, (Stanford: Stanford University Press) 1997; Donna J. Haraway, Simians, Cyborgs, and Women: The Reinvention of Nature, [New York/London: Routledge] 1991; Donna J. Haraway. *Modest_ Witness@Second_ Millennium. Female Man©_Meets_OncoMouse™: Feminism and Technoscience,* [New York/London: Routledge] 1997; Jenny Wolmark, ed., *Cybersexualities: A Reader on Feminist Theory, Cyborgs and Cyberspace,* [Edinburgh: Edinburgh University Press] 1999; François Jacob, *The Possible and the Actual,* [New York: Pantheon] 1982; Chris Hables Gray, ed., *The Cyborg Handbook,* [New York/London: Routledge] 1995; Evelyn Fox Keller, "Situating the Organism between Telegraphs and Computers," in *The Point of Theory: Practices in Cultural Analysis,* Mieke Bal and Inge E. Boer, eds. [Amsterdam: Amsterdam University Press] 1994.

24. See: Timothy Lenoir, "The Virtual Surgeon: Operating on the Data in an Age of Medialization," in *Semiotic Flesh: Information and the Human Body*, Phillip Thurtle, Robert Mitchell, eds., [Seattle: Walter Chapin Simpson Center for the Humanities, Short Studies/University of Washington Press] 2002.

25. The sections of Leslie Thornton's *magnum opus*, to date, are as follows: *Peggy and Fred in Hell: The Prologue* (21 minutes, b/w, 16mm film, 1985); *Peggy and Fred in Kansas* (11 minutes, b/w, video, 1987); *Peggy and Fred and Pete* (23 minutes, sepia, video, 1988); *[Dung Smoke Enters The Palace]* (16 minutes, b/w, 16mm film & video, 1990); *Introduction To The So-Called Duck Factory* (7 minutes, b/w, video, 1993); *Whirling* (2 minutes, b/w, 16mm film, 1996); *The Problem So Far* (7 minutes, b/w, 16mm film and video, 1996); *Chimp For Normal Short* (7 minutes, sepia, 16mm film, 1999); *Bedtime* (4 minutes, b/w, video, 2000-2002); *Have a Nice Day Alone* (7 minutes, video and film versions, 2000); *The Splendor* (2 minutes, video, 2001); *Paradise Crushed* (7 minutes, video, b&w, 2002); *End In New World,* (2 minutes, color & b/w, 2004). The order of the 'episodes' is malleable, and they are shown as stand-alone works or in a variety of different configurations. And to add the the maddening complex-

ity, different 'programs' — configurations of the works edited for a specific site or context — also exist in a digital archive. See: Thomas Zummer, "*Paradise Crushed, or: "… just stand in that quicksand for a moment, this shot won't take long… "*: Some notations on the works and life of Leslie Thornton" in *Senses of Cinema/Director Profiles* {www.sensesofcinema.com} 2003.

26.   Similar displacements and disfigurements of the technic body occur in works by Peter Tcherkassky (*Outer Space*), Martin Arnold (*Passage a l'acte*), Peggy Ahwesh (*She-Puppet*), Alan Sondheim (*Wolf*) and other media artists whose works do not necessarily present themselves as science fictional.

27.   See: Samuel Weber, *Mass Mediauras: Form Technics Media* [Sydney: Power Publications] 1996; and Jacques Derrida and Bernard Stiegler, *Échographies de la télévision* [Paris: Éditions Galilée–INA] 1996, English translation by Jennifer Bajorek: Jacques Derrida and Bernard Stiegler, *Ecographies of Television: Filmed Interviews,* [Cambridge: Polity Press] 2002.