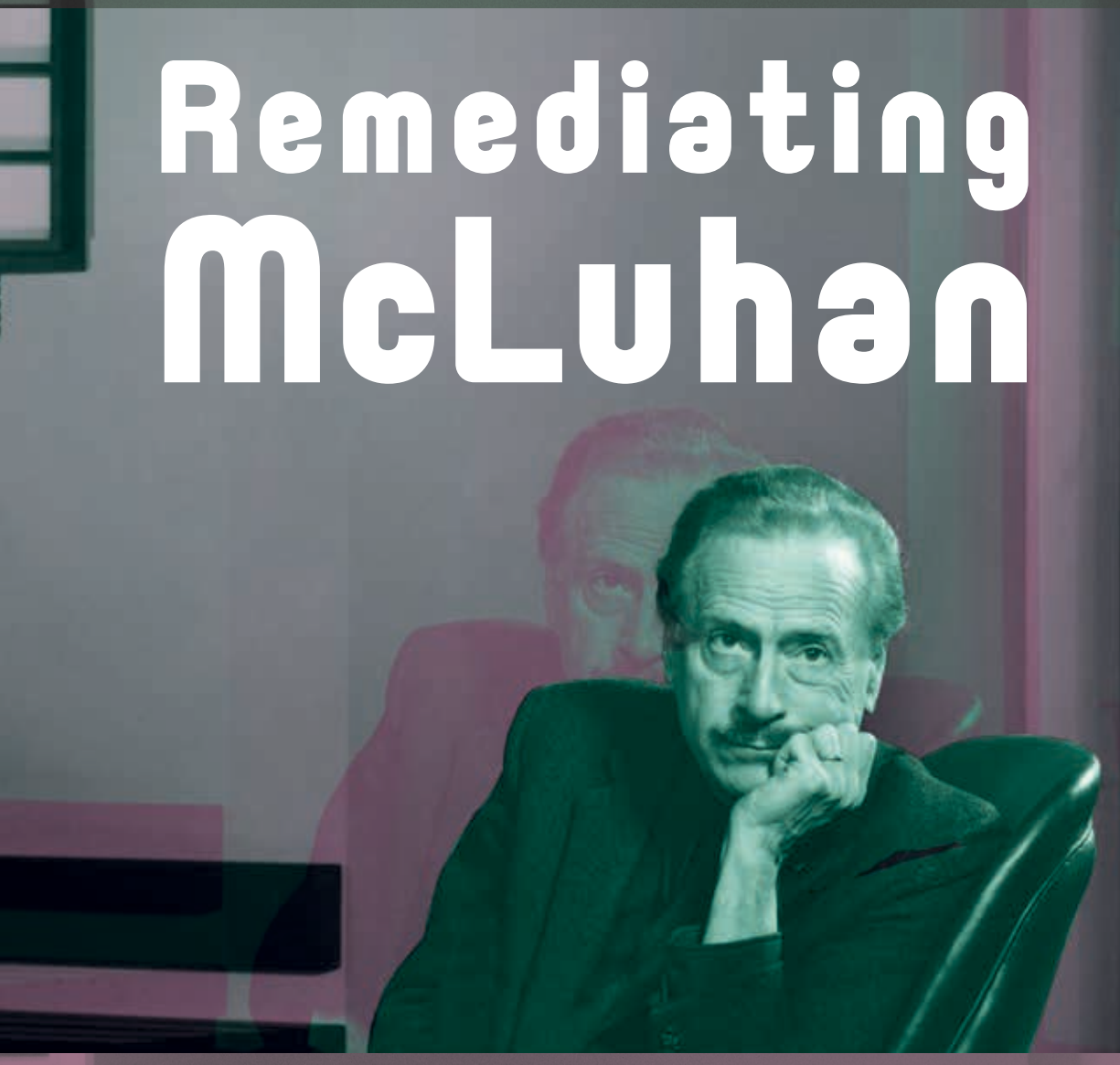
RECURSIONS

Remediating McLuhan



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Remediating McLuhan

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Remediating McLuhan

Richard Cavell

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In memory of Claude Bissell, President Emeritus, University of Toronto and Founding Senior Fellow, Massey College

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One is an artist at the cost of regarding that which all non-artists call 'form' as content, as 'the matter itself'. To be sure, then one belongs in a topsy-turvy world: for henceforth content becomes something merely formal—our life included.

Friedrich Nietzsche, *The Will to Power*
(November 1887 – March 1888)

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Being Mediated

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Introduction

McLuhan is a medium and quite possibly a medium who is the message.
Donald Theall, *The Medium is the Rear-View Mirror* (1971)

The McLuhan remediated in the following pages is the one who had become a cliché when Donald Theall wrote these words that presaged what eventually became a twenty-year decline in McLuhan's reputation. Theall's McLuhan was defined by the parameters of literary modernism, communications biases, hot and cool media and technological determinism. The publication of McLuhan's *Letters* in 1987, and Philip Marchand's biography in 1989, heralded a renaissance of interest in McLuhan that has continued unabated to the centennial conferences and confabulations of 2011 and beyond. While this current scholarly interest has assured McLuhan's foundational status as media theorist—affirmed by Friedrich Kittler no less[1]—it has by no means exhausted the import of his writings, in large part because his written body of work as a whole is rarely revisited, and because 'media' retains a largely communicational bias in much of what has been written on him.

The McLuhan I write about here is a McLuhan whose thought resonates with contemporary media theory. When McLuhan wrote about the 'digital computer' in *Understanding Media* (McLuhan, 1964, p. 80), he did so to highlight the translational quality of the digital—that it can code anything into anything else—which suggested to him the importance of the interface and the resonating gap as the spacetime of electronic mediation. His writing embodied these insights. McLuhan argued that a linear approach to understanding electronic media could only fail, since the exponential increase in informational data could be understood only in terms of pattern recognition—what today is called visual analytics (although McLuhan would call these analytics 'acoustic' because they did not derive from perspectival space). Thus, we find McLuhan constantly coding and recoding his work, the medium is the message becoming the medium is the massage becoming the medium is the mess age becoming the medium is the mass age. His books were consistently montaged, cut and pasted, until he came to call them 'non-books'—mashups of disparate traditions and high and low cultural references. And McLuhan consistently de-authorised himself after *Understanding Media*, writing (and re-writing) his work performatively as dialogues. It is in this context that McLuhan is 'digital', not because he 'predicted' the digital moment.

McLuhan likewise rejected the theoretical orthodoxies of his day, from structuralism to Marxism, including the iteration of 'communication studies' that was then current, thus opening his work to the post-theoretical readings I propose here—'post-theoretical' in the sense that *media* are precisely what such theories failed to theorise. If 'theory' is associated with visual culture, as its etymology suggests (*theoros* = spectator), then McLuhan's entire career can be understood as a critique of the visual culture that had emerged from print technologies. His focus was on the *invisibilia* of media effects (and their paradoxical materiality) and on the inescapable immersion in these media of those who sought to understand them. It was for this reason that McLuhan found himself at odds with the regnant theories of his time, especially the linguistic metaphor that informed structuralism, post-structuralism and deconstruction. Language, for McLuhan, was not a privileged medium, and media did not function linguistically. This position set him at odds with most of the major thinkers of his time. It was not that he was unaware of thinkers such as Foucault and Derrida, but he found their theories inadequate precisely because they did not consider the question of mediation. McLuhan—who was being *read* by Foucault and Derrida—had produced a much more radical notion of Foucault's epistemic theory by linking episteme to mediation, and had anticipated Derrida's deconstruction of speech-as-presence with the notion of utterance as *outerance*.[2]

The remediation of McLuhan can be made most productively along three major axes developed in his work:

(a) *that all utterance is 'outerance'*: utterance is McLuhan's term for mediation generally. It contains *in nuce* his 'extension' thesis of mediation but also, and more radically, his notion of mediatic displacement (and thus 'amputation', the flipside of the extension theory). It is not only the subject that is displaced in this articulation, but also the human;
(b) *that the content of one medium is another medium*: this is at once the basis for the historical, critical, and creative dimensions of McLuhan's notion of remediation: *historic*, because it sets up a relationship between an epistemic medium and a previous one; *critical*, because it provides the basis for critiquing a medium that is environmental (and thus immersive) *from within*; and *creative*, because it opens up the possibility of counter-environmental production (at which point the critical and the creative coincide);
(c) *that media are embodied*: this suggests that all mediation is bio-mediation. In this sense, the distinction between the mediatic and the human collapses and is replaced by a feedback loop, such that the two can only be understood relationally, the human and the mediatic merging.

McLuhan is radically humanistic in the contrarian sense that he re-positions the 'human' from essence to *tekhne*. This is a Nietzschean McLuhan, not an Aristotelian one, whose media theory is about the overcoming of 'man'—media as *Übermensch*. This is the McLuhan who at the beginning of his career stated that to understand electronic media one must immerse in the destructive element. That element is mediation and what it mediates is the human. This brings us to the heart of the great paradox in McLuhan: the sense that all media are embodied is coupled with the notion of discarnation. This strikes us as an odd idea, until we reflect that every time we utter a sound we extend ourselves environmentally and in doing so we dislocate our subjectivity, putting ourselves outside ourselves (even though we were never 'inside' ourselves; rather, we come into being through an utterance that *displaces* the self in the act of utterance).

McLuhan moved in his career from psyche to *bios*, from mind to brain. His concept of utterance is not the 'orality' about which his student Walter Ong wrote in the service of an argument for a fundamentally conservative oral culture. McLuhan's is a philosophical consideration of radical implication, sundering the world that Ong so painstakingly conjured. McLuhan's is the world of E.R. Dodds' Greeks, who were 'ear-rational'—subservient to a 'ratio-nality' based on the senses. For McLuhan, it is the masks of the Greek tragedians who *become* them, the *personae* through which they utter themselves. This is the self conceived of as an alienable object—an angel or a robot, as McLuhan was to put it at the end of his career. But these angels and these robots take on a life of their own in his theories. Media, like money (which is also a medium and has its own chapter in *Understanding Media*), know how to reproduce, and what this tells us is that media have become the new *bios*.

It is in the post-theoretical context that McLuhan takes on his full significance. If his ideas about mediation sound like a theory of alienation, they are, except they work in reverse—it is through this mediatic alienation that we *discover* ourselves as human, as fully one with our technologies, which have always been technologies of the self, a post-humanism which in McLuhan's thought is fully humanistic because, he argues, we are human *through* our technologies: they are the pre-condition of our being human.

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List of sigla

BT Friedrich Nietzsche, *The Birth of Tragedy*, trans. and intro. Douglas Smith (Oxford: Oxford University Press, 2000).

CA Marshall McLuhan and Wilfred Watson, *From Cliché to Archetype* (New York: Viking, 1970).

DN Friedrich Kittler, *Discourse Networks 1800 / 1900*, trans. Michael Metteer, with Chris Cullens, foreword by David E. Wellbery (Stanford: Stanford University Press, 1990).

EFS Harry Frances Mallgrave and Eleftherios Ikonomou, ed. and intro., *Empathy, Space and Form: Problems in German Aesthetics, 1873-1893* (Santa Monica: Getty Center, 1994).

GFT Friedrich Kittler, *Gramophone Film Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (1986; Stanford: Stanford University Press, 1999).

GG Marshall McLuhan, *The Gutenberg Galaxy: The Making of Typographic Man* (Toronto: University of Toronto Press, 1962).

GV Marshall McLuhan and Bruce Powers, *The Global Village: Transformations in World Life and Media in the 21st Century* (New York: Oxford University Press, 1989).

LM Marshall McLuhan and Eric McLuhan, *Laws of Media: The New Science* (Toronto: University of Toronto Press, 1988).

LWK Michel Foucault, *Lectures on the Will to Know and Oedipal Knowledge*, ed. Daniel Defert, trans. Graham Burchell (London: Palgrave, 2013).

MB Marshall McLuhan, *The Mechanical Bride: Folklore of Industrial Man* (New York: Vanguard Press, 1951).

MM Marshall McLuhan, Quentin Fiore, Jerome Agel, *The Medium is the Massage: An Inventory of Effects* (New York: Random House, 1967).

MS Richard Cavell, *McLuhan in Space: A Cultural Geography* (Toronto: Toronto University Press, 2002).

TTED Marshall McLuhan and Barrington Nevitt, *Take Today: The Executive as Dropout* (Toronto: Longman, 1972).

TTW Friedrich Kittler, *The Truth of the Technological World: Essays on the Genealogy of Presence*, ed. Hans Ulrich Gumbrecht, trans. Erik Butler (Stanford: Stanford University Press, 2013).

TVP Marshall McLuhan and Harley Parker, *Through the Vanishing Point: Space in Poetry and Painting* (New York: Harper & Row, 1968).

UM Marshall McLuhan, *Understanding Media: The Extensions of Man* (New York: McGraw-Hill, 1964).

VI Vilém Flusser, *Vampyroteuthis Infernalis,* trans. Rodrigo Maltez Novaes (New York: Atropos Press, 2011).

I

Re: Mediation

1. Beyond McLuhanism

in memory of Mark Poster

The remediation of McLuhan—after a twenty year hiatus in which he was infrequently cited, often as 'the infamous'—began in the wake of the publication of his *Letters* (1987) and Philip Marchand's biography (1989). What these works suggested was that the 'McLuhanism' that had characterised critiques of the media theorist for the previous twenty years had failed to account for a thinker whose complexities extended beyond the remit of media triumphalism, utopian technologism, crypto-Catholic redemption, the 'return' to orality, naive globalism and, ultimately, techno-determinism. While these critiques reflected their moment, 'McLuhanism' also owed a great deal to McLuhan himself. Increasingly inspired by the urgency of his cause, he tended to overstate his case, to repeat himself endlessly,[1] to refuse accommodation for critical positions that did not accord with his own, to eschew the critical language of the day and favour sound bites over argumentation.

For all that these critical spasmodics damaged McLuhan's reputation in the 1970s and 80s, they emerged from a theoretical position that can be described as *immersive*, a position that argued media could only be theorised from within the parameters that they proposed. This was especially true of electronic media, which exercised a pervasiveness that was total; thus, McLuhan rejected the notion that electronic media would be susceptible to a critical position that was external to them. This was the lesson he had learned from Poe's 'A Descent into the Maelström': you had to go with the flow.[2] Ultimately, this led to McLuhan's rift with Raymond Williams.[3] McLuhan's approach to media studies did not at all accord with that of Williams, who tended towards the 'secure point of view',[4] as Patricia Yaeger has put it, even though it is now recognised that '[t]here is no longer a secure epistemological ground' ('Dreaming of Infrastructure', p. 12) available to cultural critics. The notion of objectivity—of being able to take a position outside that which one was critiquing—was fostered by print culture, McLuhan argued, since print was an abstractive medium. Electronic phenomena were eroding this notion of objectivity because they were encompassing and pervasive—what McLuhan called 'acoustic'—in that sound not only surrounds you but also breaches notions of inside and outside. Commenting on the 1960s phenomenon of the Happening,

a spontaneous, performative event, McLuhan stated that 'the Happening does not so much address the audience as *include* the audience. It expects the audience to immerse itself in the "destructive element".'[5] It was likewise with the critic of electronic media.

The remediation of McLuhan allows us to re-encounter his work within a contemporary critical context. Deeply committed to the idea that print had had a profound epistemic effect not only on social, political, cultural and economic structures but on our thought processes themselves (or 'mental processes', as he calls them in *The Gutenberg Galaxy*, p. 24), McLuhan sought to think his way through the effects that electronic mediation, in its turn, would produce. The advent of the internet has further encouraged the remediation of McLuhan, insofar as the internet cannot be identified with any one medium and so forces us to consider mediation more broadly. 'Medium' for McLuhan had the force of Foucault's *episteme* (Cavell, 'Vorwort', p. 4) and of Friedrich Kittler's discourse networks. The medium is *environmental*, to use a term that McLuhan employed constantly in the 1960s, and this notion has also come back to haunt us.

The remediation of McLuhan sounds the following notes:

[1] McLuhan was among the first to remediate McLuhan. A scholar of the Renaissance, he was aware that cultural history was itself a form of remediation, which is a major theme of *The Gutenberg Galaxy*. He applied this notion in his own work at the macro level through the notion of remediation (as it has come to be known through the writings of Bolter and Grusin),[6] and at the micro level through the processual, dynamic nature of his work, such that the notion 'the medium is the message' invites remediation as 'the medium is the mess age', which is then re-worked as 'the medium is the massage', which devolves further into 'the medium is the mass age'. McLuhan similarly remediated his own books (such that remediation merges processually with re-reading and rewriting): *The Mechanical Bride* (1951) as *Culture is Our Business* (1970); *The Gutenberg Galaxy* (1962) as *Take Today: The Executive as Dropout* (1971); and *Counterblast* (1954) as *Counterblast* (1969). Increasingly in his career, McLuhan sought to produce 'non-books',[7] de-authorising and displacing himself such that these books cannot be read in the usual understanding of that word, either because they were written in a non-linear fashion or because their meanings are generated through juxtapositions of text and image or because they were written in sound bites, invoking acoustic modes of understanding rather than literate ones. As Raymond Williams remarked of *The*

Gutenberg Galaxy (configured as a series of asterisked footnotes to an absent text—the book itself as dominant medium), 'if the book [i.e. *The Gutenberg Galaxy*] works it to some extent annihilates itself.'[8] This deconstruction of the book was the first phase of McLuhan's project to demonstrate that the new electric technologies were not in the service of print; the second phase, published as *Understanding Media* (1964), argued that these technologies were not representations of something else, but had an irreducible *materiality*. As early as 1954 McLuhan wrote that 'The new media are not ways of relating us to the old 'real' world; they *are* the real world' (*Counterblast* [1954], n.p.), which suggests that, as Mark Hansen has put it, these technologies have a 'materiality outside the space governed by textuality' (*Embodying Technesis*, p. 125).

[2] McLuhan's theories are theories of *displacement*: the displacement of time into space; of media into intermedia; of message into medium. But his displacements are not obliterations; they do not operate as binary oppositions, one term collapsing into the other. McLuhan theorised interfaces, gaps and resonances; he insisted that displacement be understood as a *process* of relations in tension: 'It is hard,' he wrote in 1972, 'for the [...] uncritical mind to grasp the fact that "*the meaning of meaning*" *is a relationship: a* figure-ground *process of perpetual change*' (McLuhan and Nevitt, *TTED*, p. 86). His *Laws of Media* (1988) are laws only to the extent that they can be broken; his modalities of enhancement, obsolescence and retrieval are dynamised by the principle of reversal, the universe to which these laws apply being a chaos of permeable borderlines constantly shifting ground in new tectonic alliances.[9]

[3] In a 2004 editorial in *Critical Inquiry*, W.J.T. Mitchell calls for a 'medium theory' that would situate itself somewhere 'between the general and the particular' ('Medium Theory', p. 332), would not seek the de-oxygenated pinnacles of high theory, and would give due attention, finally, to mediation. This 'medium theory' would be the logical outcome of McLuhan's notion that 'the medium is the message', which, whatever else it signified, pronounced the end of hermeneutics.[10] *Pace* Mitchell, however, we do not need media theory because it can provide a *via media* between the excesses of high theory and the uncritical meanderings of 'interpretation'; rather, media 'are the end of theory because in practice they were already there to begin with,' as Geoffrey Winthrop-Young and Michael Wutz have put it ('Translators' Introduction', p. xx). What McLuhan inaugurated with 'the medium is the message' was not an alternative to theory but an engagement with the reigning theories of his day and the social contexts of their production. As Friedrich Kittler

notes, 'What counts are not the messages or the content with which [people] equip so-called souls for the duration of a technological era, but rather (and in strict accordance with McLuhan) their circuits, the very schematism of perceptibility' (*GFT*, pp. xl-xli).

[4] Rather than writing about an uninflected 'orality' to which electronic media were 'returning' us, McLuhan theorised the production of a space that was profoundly different from the visual space produced by print culture. This new space was embodied and deeply involving. McLuhan referred to this space as 'acoustic' because it was produced through the interaction of the senses in a way that visual space is not. Sound thus came to represent for McLuhan the senses 'in touch' with one another, and he would often refer to electronic media in terms of the audile-tactile,[11] as in the case of television, whose images cannot be perceived directly by the eye but must be produced deep within the brain. Of crucial significance in McLuhan's theorisation of the acoustic space of mediation was his insistence that it is *material*: 'Kant and Hegel simply flipped out of Hume's visual determinism into acoustic subjectivism. All of their followers are still under the illusion that the acoustic world is spiritual and unlike the outer visual world, whereas, in fact, *the acoustic is just as material as the visual*,' he wrote in 1974 (*Letters,* p. 489, emphasis added). For McLuhan, 'Media are staples' ('The Later Innis', p. 385); media have taken on the role in information culture that raw materials had had in mechanical culture. This was the argument put forward by Harold Adams Innis, who had extended his early studies of the fur trade routes and cod fisheries in Canada into a study of communication systems and their biases. Ironically, with his insistence that the *invisibilia* of media were nevertheless material, McLuhan found himself being rejected by the Left 'because his focus on bodies and media, extensions, narcosis and self-amputation was *more* materialist than Marxism had ever been' (Winthrop-Young and Wutz, 'Translators' Introduction', pp. 267-8, n. 9).

[5] McLuhan was a theorist of what Peter Sloterdijk has called the 'media-ontological situation' (*Critique of Cynical Reason*, p. 512), in that McLuhan posited a relationship between media and what it means to be a (human) being. As a consequence of this relational ontology, McLuhan does not theorise a stable subject position. In his first book, *The Mechanical Bride* (1951), the 'bride' of consumerist culture is 'mechanical' and thus infinitely reproducible; in his second book, the 'man' of his 'Gutenberg Galaxy' is constituted through typography; and his 'understanding media' completely lacks a subject. As the progressive

form of the verb, 'understanding' anticipates Kittler's comment that media can never be understood: 'Understanding media—despite McLuhan's title—remains an impossibility precisely because the dominant information technologies of the day control all understanding and its illusions', writes Kittler (cited in Winthrop-Young and Wutz, 'Translators' Introduction', p. xl). What Kittler fails to notice is the form of the verb here, as well as the comic book pun of the book's initials—'Um …'. Indeed, a Kittlerian re-reading of the mediatic *a priori* inherent in understanding as an adjective suggests that it is the *media*, here, that are *doing* the understanding, or even *being* understanding. As Christopher Horrocks has stated, 'For McLuhan, immersion in electronic media [...] has a psychological and sensory impact that profoundly affects the ontological security of the individual' (*McLuhan and Virtuality*, p. 66), an impact that McLuhan referred to as 'discarnation' ('A Last Look at the Tube', p. 197). Writing at the end of his career, McLuhan stated that 'in these [electronic] media, the sender is sent, and is instantaneously present everywhere. The disembodied user extends to all those who are recipients of electronic information. It is these people who constitute the *mass* audience, because mass is a factor of speed rather than quantity."[12] Yet, for McLuhan, discarnation did not imply that technology was inhuman; in his understanding, 'all technologies are completely humanist in the sense of belonging entirely to the human organism' (Bornstein, 'Interview with McLuhan', p. 67). But this was a 'humanism in reverse' (McLuhan and Parker, *TVP*, p. 258), corporate rather than individual, leading us not towards the discovery of a human subjectivity, but towards an understanding of the 'human' as existing relationally—as always already technologised, as always already mediated.

[6] As McLuhan had learned through his 1943 dissertation on Renaissance literature,[13] rhetoric profoundly unmoors the speaking self from 'presence'; indeed, as he often put it, all *utterance* is at the same time *outerance*, at once private and public, at once an expression of the self and a displacement of the self.[14] The breaching of private and public, inner and outer, is itself part of the much larger confluence of the biological and the technological: 'technology is part of our bodies,' he writes in *Understanding Media* (p. 68). To ignore this was a fatal flaw, in his view, because it encouraged a critique of technology as something separate from the social dimension of its cultural production. Indeed, he suggested that the bio-technological interface had become so extensive through electronic media that we had turned ourselves inside out—extended *and* amputated ourselves (the other part of the Faustian

bargain with the prosthetic gods)—and extruded ourselves into an environment[15] that is at once ourselves and utterly 'other', a prosthetic environment that appears foreign to us—even though it *is* us—because it is now outside us. We have, in this sense, been *incorporated*.

[7] McLuhan used the term 'environment' in a contrarian way at the origins of the environmentalist movement of the 1960s to argue that there was no longer a 'natural' environment, but only the one that we ourselves had created and which now encompassed us totally. What was once the 'natural' environment had become an artifact in the era that would come to be named the Anthropocene. It was the launching of Sputnik in 1957, according to McLuhan, that had turned nature into culture, earth becoming an artifact of technology, contained by technology rather than being its container. 'Technological art takes the whole earth and its population as its *material*, not as its form', he wrote in his 1954 pamphlet *Counterblast* (n.p.). This new environment proposes an 'ecology' of 'echo recognition' whereby we confront a 'nature' that is constituted by the bio-technologies of our extended selves: 'Today's ecological awareness is echo recognition' (McLuhan and Nevitt, *TTED*, p. 3), because '[i]n today's electric world, man becomes aware that [the] artificial "Nature" of the Greeks is an extension of himself' (*TTED*, p. 6).

[8] In McLuhan we encounter the political and the economic as modes of information technology. With the end of the Second World War, McLuhan argued, the era of Mars had given way to that of Venus, thus inaugurating a libidinal economy in which consumption was at once the product and the goal in a vast feedback loop of endless consumerism. 'Technology eats itself alive,' McLuhan and Nevitt wrote in 1972; it 'loops the loop' (*TTED*, p. 111). McLuhan's study of this libidinal economy, *The Mechanical Bride* (1951), posits a wedding of the technological and the organic. McLuhan was among those who realised that, in the postwar period, commodification would be generalised within culture. The vehicle for this generalisation would be advertising, at once the new poetry[16] of the culture-as-commodity era and a profound expression of the libidinal economy governing it. Thus, the frequent critique made of McLuhan—that he ignored the political and the economic—needs to take into account the way in which his theories blurred these distinctions. For McLuhan, economics and politics had collapsed into the cultural, a feedback loop in which we are at once the subject and object of our desires. Ironically, it was the assumed 'immateriality' of media technologies that tended to make McLuhan's work seem irrelevant during the period when 'critical' most often meant 'Marxist'—why

was he not dealing with economic practices? Did this not lead to his deterministic reading of the media? And where was politics in all of this? Now that the 'immaterial' has become invested with a 'materiality' it had not previously enjoyed—as in the notions of 'performativity', of the body as 'construct', of the 'death' of the subject, and above all of the 'effect' as meaningful in its own right—it is possible and even necessary to remediate McLuhan's media theories as political and economic analyses of the new cognitive capital.[17]

[9] In the 1960s, Tom Wolfe famously compared McLuhan to Newton, Darwin, Einstein, Freud and Pavlov, and while McLuhan's connections to Einstein and Freud have been explored over the years, the reference to Darwin deserves further pursuit as media theory increasingly encounters the *bios*.[18] The environment as bio-technological extension represents for McLuhan the notion of an embodied mediation. If this bio-technological extension, this environment, is understood as technological, rather than natural, then its effect is to promote the notion of technology as a continuation of nature, rather than its overcoming. In this sense, we are 'becoming beside ourselves,'[19] to use Brian Rotman's formulation; that is, becoming one with our prostheses.

[10] Jean-Luc Nancy states in his book *Corpus* that

> Our world is the world of the 'technical', the world whose cosmos, nature, gods, whose system, complete in its intimate jointure, are exposed as 'technical': the world of an *ecotechnics*. Ecotechnics functions with technical apparatus, with which it connects us in all directions. But what it *makes* is our bodies, which it puts into the world and connects to its system, our bodies, which in this way it creates as more visible, more proliferating, more polymorphous, more pressed together, more in 'masses' and 'zones' than they have ever been.[20]

McLuhan insisted, on the contrary, that the price of this connection was a concomitant disconnection without identity or self-presence, and he emphasised the increasing importance of the *in-visible*. Although he theorised electronic media as being tactile, touch, for him, measured separation. It is this resonating gap, this echoing effect, that is the site of McLuhan's 'ec[h]o-criticism'.

[11] While McLuhan sought to expand the role of the artist such that everyone engaging critically with the mediatic environment took on that role, he was lamenting as early as 1958 that 'the public [did] not rally with enthusiasm to the creator role', because 'we had been only

too successful in creating a consumer-oriented public that expected all articles presented to it to be fully processed for immediate use' (McLuhan, 'Media Alchemy', p. 66). The artist/critic, argued McLuhan, must wake us up, bring us to consciousness. Otherwise, as he put it, we dream awake, living in a vast phantasmagoria of our own invention which we take as natural, when, ironically, even nature has become a medium that we constantly seek to adjust. If, as Mark Taylor has suggested, modern philosophy is characterised by an encounter with the other ('Introduction', p. 8), then in McLuhan we find this insight taken beyond Hegel's meditations on the master/slave relationship to the discovery that the other we encounter at the heart of humanity is ourselves *as* technology. Hence, the double edge of McLuhan's 'humanist' take on technology, since it represents not simply a humanising of technology but the more disturbing—or perhaps transformative?—notion that technology is the *pre-condition* of our being human.

2. McLuhan and the Question of the Book

Why are books the last bastion of analog?
Jeff Bezos[1]

McLuhan's reputation in the 1960s hinged to a considerable extent on his pronouncements about the book, which was considered the prime bulwark against the threat posed by television, and, more broadly, 'the media', a concept to which McLuhan was ineluctably connected. McLuhan's comments about 'the end of book culture' (*Counterblast* [1969], p. 48) were thus not well-received, and he was excoriated by critics for his 'assault' on the book. Dame Rebecca West, in her 1967 presidential address to the English Institute in London, asserted that *The Medium is the Massage* was designed 'to cheer illiterates on their way, and this is not a petulant description, for the burden of Professor McLuhan's gospel is that illiterates *should* be cheered on their way'; such a person, she concludes, 'should not have been allowed to establish himself as an authority, should not be treated respectfully, should not be a professor at a university of high standing.'[2] McLuhan replied generally in 1967 that 'anybody who looks at [the book] in a kind of clinical spirit is regarded as hostile, and an enemy of the book' ('Dialogue with Stearn', p. 275). He goes on to state that

> attention to the book is regarded as unfriendly because it is felt that the book will not bear scrutiny any more. […] [I]n the same way, any attention to new media which are in the ascendant, whose gradient is climbing rapidly, is considered as an act of optimism. […] There are only two cases, you see, in classifying one's relation to almost anything in merely literary terms—you are either 'for' or 'against'. It's as simple as that. So if you write about the book you must be against it because the book is declining in terms of its overall cultural role. If you write about new media in the ascendant, you must be in favor of it. Such is the Western devotion to facts that the mere stating of any case is considered a hostile act. The idea of stating without approval or disapproval is alien to the literary man who finds classification indispensable for order. (p. 276)

More than thirty years after McLuhan made these comments, however, and well into the era of the internet that he is often said to have anticipated,

we find a historian of the book, Robert Darnton, making the same argument that McLuhan addresses above: that he had prophesied the end of the book. Stating in a 1999 article on 'The New Age of the Book' that 'Marshall McLuhan's future has not happened', Darnton goes on to write:

> The Web, yes[;] [...] global immersion in television, certainly; media and messages everywhere, of course. But the electronic age did not drive the printed word into extinction, as McLuhan prophesied in 1962. His vision of a new mental universe held together by post-printing technology now looks dated. If it fired imaginations thirty years ago, it does not provide a map for the millennium that we are about to enter. The 'Gutenberg galaxy' still exists, and 'typographic man' is still reading his way around it.[3]

Darnton is Carl H. Pforzheimer University Professor at Harvard and Director of the Harvard University Library, and his work on the history of the book, especially as it relates to pre-revolutionary France, is highly regarded. As a historian of the book, it is fitting that Darnton should turn his attention to the book's future, and the essay in which he invokes McLuhan is particularly concerned with potential effects the 'e-book' would have on its traditional counterpart. Given his critique of McLuhan here, however, it is telling that, a decade later, we find Darnton deeply enmeshed in that 'mental universe held together by post-printing technology', having swung, in his own words, from 'jeremiad' to 'utopian enthusiasm' ('Google and the Future of Books') as he seeks to embrace what he now calls a 'world digital library' ('A World Digital Library is Coming True!').

This shift in attitude can be attributed to the rise of the internet as our primary cultural interface;[4] it is now through the net that we encounter books in libraries and bookstores, and to understand the fate of the book in what Ted Striphas has called 'the late age of print' (in the book of that title) we have to begin by understanding it in this way. This does not mean that the book is disappearing; rather, as the book enters the digital domain its analogue avatar is becoming valued as an object. New Directions recently published Anne Carson's *Nox* on a single sheet of paper about 30 feet long, folded like an accordion and housed in a box; Gingko has published the poem *Pale Fire*, culled from Nabokov's book of the same title, complete with facsimiles of the legendary note cards; *S.* is a boxed novel replete with inserts and 'handwritten' marginal notes, 'containing' (and the gesture is significant) another novel, *Ship of Theseus*, that was 'published' in New York by Winged Shoes Press in 1949 (Dorst, *S.*). As an object, the book becomes one with other objects, which is why the largest book retailer in Canada,

Chapters-Indigo, sells gardening equipment and cooking utensils beside the gardening books and cookbooks.

The book, thus, has not disappeared in the internet era, as Darnton rightly states; rather, it has become the *content* of the internet and is thus inseparable from it—the e-book itself has no content, and as books are digitised, they are valued increasingly in terms of intellectual property, not as content. Sales of e-books have now superseded sales of traditional books in North America, but the interconnections go much further. Web presence is no longer secondary to the book but an integral part of it. The book now begins its life on the web and continues to live there. Readers are able to listen to the author on the book's webpage and read pages from the author's manuscript there as well. Faber and Faber has released an iPad version of Eliot's *The Waste Land* that includes audio and video performances, and Penguin has an electronic version of Kerouac's *On The Road* that includes the manuscript of the work, other documents, and an interactive map of America through which the reader can trace the journey related in the book. Furthermore, readers are able to interact with other readers on the web, thus involving themselves in the production, or performance, of the book.

It is precisely the reader who gains authority in this new milieu. Roland Barthes' 'death of the author' that gave 'birth to the reader' was, mediatically, the death of the book as cultural authority.[5] The 'readerly' text is an involving text—'cool', in McLuhan's terms. Hence, the popularity of graphic fiction, and hence Amazon's decision to publish Timothy Ferriss—Ferriss writes self-help books and self-help is the epitome of interactivity.[6] Self-help has even made its way into mainstream literature with books such as Alain de Botton's 1997 *How Proust Can Change Your Life*, subtitled *Not a Novel*, although the book is no less literary for that. The reader who is being invented by the new, interactive media is one fully present in sensory terms, and the traditional book is taking note, with covers that are inescapably tactile, paper that is sensuous, colours that leap off the page, and electronic interfaces that are deeply involving.

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McLuhan was addressing issues such as these more than half a century ago. He was alerted to a shift in the role of print as represented in the art of the Futurists, Vorticists and Dadaists, where the printed page often appeared as an object: no longer the *ground* of culture, print had become a *figure*. McLuhan spent the decade of the 1950s theorising the basis of this change, which he would articulate in the 1962 publication to which Darnton alludes

at the beginning of his article, *The Gutenberg Galaxy*. *The Gutenberg Galaxy*, however, does not suggest that the book is being driven to extinction. Rather, McLuhan writes about the *effects* of the book: how it translated us from the world of roles to the world of jobs, and from 'the magical world of the ear to the neutral visual world' (p. 18); how print changed our 'mental processes' (p. 24); how the manuscript was a 'form of *publication as performance*' (p. 84); how authors and publics were created by typography (p. 130); how 'every technology contrived and "outered" by man has the power to numb human awareness during the period of its first interiorization' (p. 153); how 'print, in turning the vernaculars into mass media [...] created the uniform, centralizing forces of modern nationalism' (p. 199); and how 'the portability of the book [...] added much to the new cult of individualism' (p. 206).

What McLuhan argued was coming to an end was not the book but the *galaxy*—the immense system of cultural interrelations put into place by 'typographic man'. As McLuhan noted in a number of articles published prior to *The Gutenberg Galaxy*, the book itself would survive the end of the galaxy, just as TV has survived the advent of the internet. Thus, in 'Printing and Social Change', published in 1959, McLuhan traces the effects that print media have had on Western social forms and argues that 'in moving into the electronic age where all is simultaneous, *we also become more sensitive to the values and unused possibilities of print*' ('Printing and Social Change', p. 90 [emphasis added]). This notion was not a prediction, but rather a working out of the idea that as a new medium increases in importance within a culture, the previously central medium will be remediated as content, as television remediated film and as the internet is remediating the book (and everything else).

As McLuhan put it in 'Inside the Five-Sense Sensorium', 'the book thrives as never before, but its *form* is no longer constitutive or dominant' (p. 54).[7] Far from predicting the end of the book, then, during the period after the publication of *The Gutenberg Galaxy*, which is to say the period in which he was writing *Understanding Media* (1964), McLuhan was cautioning that 'It would be a mistake to suppose that the trend of culture toward the oral and acoustic means that the book is becoming obsolete. It means rather that the book, as it loses its monopoly as a cultural form will acquire new roles' (*Counterblast* [1969], p. 98). And in a symposium held in London in 1973 on the topic *Do Books Matter?*, McLuhan stated that '[t]he book is not moving toward an Omega point but is actually in the process of rehearsing and re-enacting all the roles it ever played' (p. 39).

It was in this way that McLuhan came to refer to his own books that he published after *The Gutenberg Galaxy* as 'non-books.'[8] Raymond Williams

had stated in reviewing *The Gutenberg Galaxy* that its importance lay as much in its mosaic structure as in its content; the book is a series of 109 asterisked footnotes to an absent text (the book as cultural icon) and can thus be read in any order. 'The experience that matters in [*The Gutenberg Galaxy*],' writes Williams, and it is important to quote him *in extenso* here,

> is the structuring of a configuration—a 'galaxy'—around the properties of print. This structuring is necessarily critical, since it is an essential part of McLuhan's thesis that the inherited procedures of an educated mind are conditioned by the properties of print, so that only by an effort of critical imagination can these properties be seen. In turn, this critical imagination is now possible only because we are moving out of a print-culture, with its fundamental linear and uniform properties, into an electronic culture, with its new or restored properties of simultaneous configuration. The point of difficulty is then almost too simply seen: not only that the substance of the book is embedded in print, but that the normal reaction to it [...] will be in print also. Paradoxically, if [this] book works, it to some extent annihilates itself. ('A Structure of Insights', pp. 186-7)

As indeed it does. In a sense, McLuhan never wrote another book after *Understanding Media* (1964), the companion volume to *The Gutenberg Galaxy*; he either rewrote previous books, or de-authorised himself by writing collaboratively, or deconstructed the form of the book, or published aphoristically and ephemerally in non-traditional forms like his *Dew Line Newsletters*, one of which contained a deck of playing cards that has McLuhanesque sayings printed on them. It was this emphasis on the materiality of the book as medium that led McLuhan to produce books that looked like *The Medium is the Massage* (1967), a classic exercise in the book as object, and studied today not only for its content but also for its design, as in Lupton and Miller's *Design Writing Research* or Schnapp and Michaels' *The Electric Information Age Book*.

The designer of *The Medium is the Massage*, Quentin Fiore, produced an object that fulfilled McLuhan's insight that, after 500 years, the book was leaving the centre stage of Western culture. More image than text, you have to do more than read *The Medium is the Massage* to experience its full effect—you have to interact with it. Fiore had studied with George Grosz, one of the progenitors of photomontage, and this commitment to a photographic hyperspace is evident on every page of *The Medium is the Massage*. These are images that work you over, graphically displaying how

the medium is not a neutral conveyer of meaning but actively massages it. And the tactile connotation of massage is further conveyed through the two formats in which *The Medium is the Massage* was published: the familiar paperback size (still in print half a century later) and a very large format that opens up to over 14 by 11 inches—the size of a portable TV screen of that era.

Jerome Agel—McLuhan's other collaborator on the book—had coordinated a number of ideas from McLuhan's previous works and his endless conversations to create the text of *The Medium is the Massage*, and this was yet another way in which McLuhan undermined the notion that a book had to be the product of a single author (although Schnapp and Michaels insist that McLuhan was *primus inter pares* in producing the text).[9] What McLuhan gives us instead is akin to a conversation—'the massage?' we read when we open the book, as if it were answering the question that we would inevitably ask on reading the title, thereby breaking down the barrier between public and private that the book had first created.

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McLuhan had argued that all media are intermedia, that they are modes of translation, processual, rather than static, and yet, paradoxically, that their effects are material. It is this latter insight, that electronic media are material, which appears to give Darnton the most trouble. He would not disagree with McLuhan's comments about the book surviving into the electronic era, though he is mistaken in assuming that McLuhan was theorising a clean break between the book and whatever was to come after. McLuhan had insisted, after all, that aspects of manuscript culture persisted for hundreds of years in the era of the printed book (and would return with graphic fiction), just as aspects of the book would persist in the electronic era. This was the basis of McLuhan's notion of remediation, that the content of a new medium is a previous one.

The 'e-book', in this context, is somewhat of a red herring. What is significant is the internet; books continue to sell, as Darnton himself notes, thanks to the internet marketing of Amazon.com *et al.* But Darnton's internet exists exclusively as servant to the book; he is insensitive to the digital *as a medium* and insensitive to the fact that, as Katherine Hayles notes, contemporary publishing is almost exclusively digital, from the computer on which the text is written to the internet on which it is advertised and, in many cases, subsequently read and then archived. 'So essential,' she writes, 'is digitality to contemporary processes of composition, storage, and

production that print should properly be considered a particular form of output for digital files rather than a medium separate from digital instantiation' (*Electronic Literature*, p. 22). For Darnton, however, the printed book remains the measure of all things; he notes how difficult it is to read an e-book in conventional terms. But the mechanical model of print culture cannot be applied to that of electronic media—the relationship is not mimetic. With its hundreds of billions of pages, the web approximates Mallarmé's *Livre*—that infinite book which encompasses everything that exists.[10]

McLuhan and Darnton part company precisely in McLuhan's greater sensitivity to the cultural implications of media production. McLuhan insisted that the pervasiveness of electronic media, and the materiality of these *invisibilia*, would sunder the hierarchies built up by print, contesting print as a ditto device with the differences and diversities of intercultural engagements. Darnton *does* record a sea change of this sort, but the terms in which he does so are significant. Noting that volume 1 of the *Papers of Benjamin Franklin*, published in 1959, sold 8,407 copies, while vol. 33, published in 1998, sold only 753, Darnton decries the demise of conventional scholarship in the age of electronic media. 'Many presses tried to find a way out of [this] impasse,' he writes, 'by concentrating on subjects currently in vogue: books about gender, sex, feminism, homosexuality, lesbianism, women's studies, African American studies, postcolonialism, and postmodernism of all varieties' ('New Age of the Book'). Clearly, what for some readers and scholars are liberating aspects of the new media are, for Darnton, retrograde. In an interview with the Italian newspaper of record, *La Repubblica* (5 April 2000), Darnton proposes that because of the proliferation of information on the net, hierarchies will have to be imposed in order to distinguish fundamental knowledge from the merely ephemeral. This veiled argument for censorship makes it clear that the implications of electronic media for Darnton have to do not simply with the form of the book—that is, with the fact that it might have pages that you turn or 'pages' that you scroll through—*but with the cultural effects of the medium itself.* What makes Darnton uncomfortable is his recognition that academic culture and book culture are deeply intertwined, and that as book culture ceases to be the dominant one in a post-literate society, academic culture will likewise experience considerable change.

Darnton's conclusion more or less takes this position, and is far less apodictic than his introduction; it speaks of his sponsorship of the 'Gutenberg-e' project, which sought to publish electronically 'exemplary' dissertations but which failed after publishing 17 texts.[11] 'The world of learning is changing

so rapidly,' Darnton writes, 'that no one can predict what it will look like ten years from now. But I believe it will remain within the Gutenberg galaxy—though the galaxy will expand, thanks to a new source of energy, the electronic book, which will act as a supplement to, not a substitute for, Gutenberg's great machine' ('New Age of the Book'). At the end of *The Gutenberg Galaxy*, McLuhan similarly wrote,

> it has been the business of *The Gutenberg Galaxy* to examine only the mechanical technology emergent from our alphabet and the printing press. What will be the new configurations of mechanisms and of literacy as these older forms of perception and judgment are interpenetrated by the new electric age? The new electric galaxy of events has already moved deeply into the Gutenberg galaxy. Even without collision, such co-existence of technologies and awareness brings trauma and tension to every living person (pp. 278-9).

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Rather than being 'for' or 'against' media, McLuhan suggested we understand them as *inter*media. Rather than predicting the web, which Darnton has him doing, McLuhan formulated the thesis that electronic media were producing a space that was different from the visual space produced by the book. This space he called acoustic, by which he meant not exclusively addressing the visual, perspectival space that was the product of print, and if there has been a revival of interest in McLuhan's work over the last decade it is because acoustic space as he formulated it has much in common with the hyperspatial phenomena that have re-focussed attention on spatial production generally.[12] Like hyperspace, acoustic space is at once virtual and material; it contests notions of 'inside' and 'outside', challenges received notions of subjectivity, cannot be limited to a single point of view and questions rationalist assumptions about experiential phenomena. Its fundamental modality is dialogue, and if we are to understand the 'new age of the e-book' we would do well to examine that particular modality of knowing.

Darnton's concerns about the e-book now encompass Google's monopoly on digitised texts, and the new way of reading that electronic media seems to be imposing—a 'leap frogging around in texts which cannot be compared to serious reading' ('Google and the Future of Books', Web). It was precisely this sort of reading, however, that led to the *rise* of the codex; unlike the scroll, the codex permits textual leap-frogging, which was very attractive

to Christians who wanted to juxtapose a reading in the Old Testament with one in the New. However, in noting this leapfrogging *effect*, Darnton begins to glimpse what McLuhan meant when he said that media 'work us over', that they change not simply content but form and not simply form but ourselves as well. Nevertheless as recently as 2011, in *The Chronicle of Higher Education*, Darnton repeated his mantra that the book is not dead, prompting a blog response from Mark Bauerlein that it is not the book as object that is dead, but the book as 'primary carrier of knowledge and the central medium of learning.'[13] In fact, as Bauerlein notes, consumer spending on reading is down in the US, and the National Endowment for the Arts reports that the percentage of adults who read outside the requirements of work and school is down. And *The Economist* notes that the sector of the printing industry serving magazines and newspapers is in sharp decline.[14]

More pointedly, Anthony Grafton's *Codex in Crisis* argues that 'the computer and the Internet have transformed reading more dramatically than anything since the printing press' (p. 2). Grafton draws on the McLuhanesque notion of an 'information ecology' (p. 9), a notion which once again harks back to the idea of intermediation, to argue that no medium exists in isolation. He notes that Cambridge University Press, the world's oldest publisher, 'receives five hundred thousand page views a month from searchers who began at Google or at Google books. In other words, around two-thirds of all the potential customers for the books of the world's oldest publisher start at Google rather than the Press's own Website' (p. 21). This does not mean that Cambridge University Press is failing to sell books; what it does mean is that their books are now very much the content of the internet. Context becomes everything, in these terms. As Grafton comments, 'information leads a "social life" of its own. The form in which you encounter a text can have a huge impact on how you use it' (p. 38), and it is the form of the book that is changing. As Gregory Crane, the creator of the website Perseus, remarks, scholarship appears to be moving towards a new, 'granular' (p. 48) form that can be combined and recombined in a number of ways, suggesting that the days of the monograph may be over. Grafton comments that

> websites [...] place as much emphasis on images as on words and make lateral movement easier than straightforward progress. [...] The protean text of the Web [...] may change hour by hour [and] thus fits the conditions of modern life, with its lack of stable beliefs and even of stable human selves. [...] This new form of reading is not only dynamic, but interactive.

> [...] Discussion strings make it possible for all involved to carry on elaborate debates about a provocative column or review (pp. 48-9).

As the book takes on new functions, so does the library. While the books it houses may have passed their 'best before' date, the library has been able to re-invent itself as a cultural centre. Rem Koolhaas, thus, did not even put a reading room in the Seattle Public Library, but the people keep coming. And the Vancouver Public Library, built in the shape of the Roman coliseum, has been at capacity since the day it opened, partly because it integrates into its structure services such as banking, real estate, a florist and several eating options, including a pub. The books are still there, but they are no longer at the centre.

What will this mean for the humanities, one of Darnton's major concerns? McLuhan was likewise concerned by this question. As he wrote in a 1961 article, the electronic age, with its onslaught of information vectors, demands a form of knowledge based on pattern recognition, and it was this sensitivity to patterns of expression that distinguished the orator, for whom knowledge was ultimately performative. Thus the 'assembly line' of segmented knowledge yields under electronic organicism to 'clusters of simultaneous operations' ('The Humanities in the Electronic Age', p. 7). 'The end of mechanism, the extension of organic interdependence to every phase of experience and human association is what has happened to us' (p. 7), McLuhan adds. It did not happen as quickly as his mind was able to conceive of it, but it is certainly happening. We are moving, he suggests, from a product model of knowledge to a process model, and with this shift comes a greater degree of 'involvement with the entire communal process' (p. 7). A process model of knowledge does not allow the certainties, or even the satisfactions, of traditional research; it is not the field for specialists but for interdisciplinarians. It will inevitably move outwards from the academy into the world beyond, though with dynamic interplay between them.

This implies that the university will no longer be the prime locus of research; as Google, Wikipedia and YouTube attest, research is now a full-time activity that everyone is involved in—research is corporate, in this sense, with students increasingly taking on the roles of 'edupreneurs' (Kamenetz, *DIY U*). McLuhan's vision of the involved world is one in which the educated infrastructure is expanding rapidly, because we are all involved in 'learning a living'. It is a world in which the everyday activity of research brings the *socius* back into dialogue with the academy. Thus, we must 'enthrone the living dialogue' (p. 10), as McLuhan put it, with a pun on *cathedra*, or chair:

what will occupy the chair of knowledge is this dialogue, not the authority of an individual or of an institution. The 'new technology of our age demands this greatest of all humanist forms of instruction, not as an ideal, but as a daily necessity' (p. 10). The book will still have a voice in this dialogue, but it will be one voice among many.

Embodiment as Incorporation

3. McLuhan and the Body as Medium

Contemporary media studies are said to be in crisis. The advent of the 'new' media has provoked the question of how the new media differ from the 'old', mass media. Some, such as Bernhard Siegert, have responded that there *are* no mass media.[1] Siegert's argument is that what was massified in mediation were material objects, such as television sets, whereas mediation has more to do with transmission. Others, such as Eva Horn, push Siegert's argument further, stating that '[t]here are no *media*' ('Introduction', p. 1), and argue that a fixed concept of media has been superseded by the new media, which have become such a part of our lives that media theorists can only study their effects.

As Wendy H.K. Chun notes in her introduction to *New Media / Old Media*, the term 'new media' gained prominence in the mid-1990s and was meant to signal a radical break from mass media such as television; what really sets the new media apart, according to Chun, is the element of *interactivity*. There are a number of problems with this staking out of 'new' media territory, however. Firstly, the 'old' mass media are still going strong; television's hegemony has not been overturned by the new media. Rather, television has been remediated—we now watch TV on the internet. TV still retains the lion's share of people's free time,[2] but they watch it alongside over one billion unique viewings of YouTube per month.[3] What this points to is a media ecology, one in which media interact and interrelate; it is becoming less possible to understand media in isolation. Secondly, interactivity was identified as an aspect of mass media by McLuhan half a century ago; in fact, what associates television with the other two screens that dominate our lives today—the one on the computer and the one on the mobile device (where video accounts for more than 50 per cent of all traffic)[4]—is universally acknowledged to be its 'immersive' quality (Stross, 'While Television Still Shines').

To address these complexities and the contested theories about them, Chun does what most academics would do—she turns to the dictionary and looks up the word 'media'. 'According to the *Oxford English Dictionary*,' she writes, 'media stems from the Latin *medium* meaning middle, center, midst. [...] The term "media" [became] linked to "mass media" in the 18th century; paper was a medium of circulation, as was money; in the 19th century, electricity was a medium' ('Introduction', p. 3). This is, in fact, the contemporary understanding of 'media', so it is not surprising that Chun does not cite the other definition of 'media' in the dictionary: 'an intermediate layer in the wall of a blood vessel' (*OED*). Yet, it was on this

connection between mediation and the body[5] that McLuhan based his analyses of media, analyses that have become foundational to the field. To understand how McLuhan arrived at this notion that the body is a medium it is necessary to consider his early training in rhetoric.

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One of the singular paradoxes of Marshall McLuhan's career as a media theorist is that the media theory he inaugurated has rarely been revisited by media theorists; as W.J.T. Mitchell has put it, '[t]hirty years after the death of Marshall McLuhan, the great pioneer of media studies, the field still does not have its own identity' (*What Do Pictures Want?*, p. 206). This speaks in part to the current crisis in media theory, but the point is more complex, because McLuhan's theories were not put forward in the highly delimited sphere in which media theory has subsequently devolved. While very much a media theorist in the vein of those cited by Mitchell—Kittler, Virilio, Lunenfeld, Manovich—McLuhan's work is distinguished by the much broader notion of media which informed his theory, and by the comprehensive nature of that theory. To the broad claims he made about media he added ontological and epistemological dimensions, and it is in this sense that he can be addressed as a philosopher of media.[6] *Understanding Media*, the foundational text of 1964, contains chapters on roads, numbers, clothing, housing, money, clocks, comics, nationalism, bicycles, photographs, the press, automobiles, advertising, games, the telegraph, the typewriter, the telephone, the phonograph, movies, radio, television, weapons and automation. Left at this, *Understanding Media* could easily have become the primer for a cultural studies manual with a media focus. However, McLuhan complicates this 'culturalist' notion of mediation with an unforeseen element: biology. As McLuhan puts it in a key passage of *Understanding Media*:

> Physiologically, man in the normal use of technology (or his variously extended body) is perpetually modified by it and in turn finds ever new ways of modifying his technology. Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and to evolve ever new forms. The machine world reciprocates man's love by expediting his wishes and desires, namely in providing him with wealth. (p. 46)

The passage bears close reading: technology, here, *is* biology—a 'variously extended body'; the human and the technological have merged. Secondly,

there is a feedback loop between technology and biology; they change each other epigenetically, in the way suggested by Donald O. Hebb: the neurons that fire together wire together.[7] Thirdly, what might strike us as the logical order—humans initiating technological change and then being changed in turn by these new technologies—is reversed, because here it is the technology that drives the change, with humans as facilitators. McLuhan anticipates here Bernhard Siegert's notion of a 'plurality of cultures' that 'abandons a one-sided conception of human-thing relations that privileges human beings' ('Doors', p. 7). Finally, the process described by McLuhan becomes the basis for an economic analysis, whereby mediation is the site of wealth production in a libidinal economy that is driven by 'cognitive capitalism'.[8]

In order to understand how McLuhan came to this radical formulation of bio-mediation, it is necessary to examine his early training as a scholar of Renaissance culture, and, in particular, his interest in rhetoric, the art of shaping a communication to achieve a particular embodied (or affective[9]) response—to make you laugh or cry, or to persuade you to accept a particular point of argumentation. But rhetoric has a flipside: it decentres the speaking subject, who speaks 'through' the rhetorical structure (as through a mask), such that the subject is both 'inside' and 'outside' their utterance. In a broader context, rhetoric and biology merge through joint terminology such as 'ablation' and 'prosthesis'; in the specific context of McLuhan's theories, prosthesis is the concomitant of extension, and McLuhan's use of the terms 'extension' and 'amputation' highlight his visceral conception of these processes. Rhetorical utterance was thus paradigmatic of utterance generally, in that all utterance is 'outerance', extending the speaking subject but also displacing it.

McLuhan's rhetorical studies might appear to be unrelated to his media theory, but, in fact, the two are intimately connected. When McLuhan arrived in Madison, Wisconsin in 1936 to begin his teaching career, after completing his doctorate at Cambridge University, he found that his students were ill-prepared to follow his course on Renaissance literature, so he put together a new course—on advertising (Marchand, *Marshall McLuhan*, p. 43). The connection between the two courses was rhetoric: literature and advertising both use rhetoric because both seek to 'connect' with their audience in order to involve them in a narrative or persuade them to buy a product. What particularly interested McLuhan about advertising was that its affective dimension was so highly articulated, suggesting that the ads were directly aimed at the libidinal economy that had established itself in the consumerist culture of the period. By the late 1950s, when he

was writing his *Report on Project in Understanding New Media* (1960)—which he revised in 1964 as *Understanding Media*—McLuhan reflected this affective aspect of mediation in his argument that media require a greater or lesser extent of 'completion' by their audience, a notion that in *Understanding Media* he called 'hot' and 'cool' mediation. 'Hot' media, like the radio, required little or no completion by those to whom they were directed; 'cool' media, like television, however, were deeply involving. This involvement, in the case of television, was profound, not because the content of television was significant, but because the medium was immersive—in fact, it was *invasive*, requiring an interaction with the brain in the production of images which are not perceptible to the eye alone. As McLuhan put it in one of his most powerful articulations, '[t]he TV screen just pours that energy into you [,] which paralyzes the eye; you are not looking at it, it is looking at you' (*Book of Probes*, p. 532). Once again, the human element is decentred, with the television taking over the role of viewer. When McLuhan said that television was more involving than the book, he was thought to be naively utopian at best, or a traitor to humanistic studies at worst; understanding his comment in the context of bio-mediation, however, provides it with a deeper range of meanings. To quote again from *Understanding Media*, the

> power of technology to create its own world of demand is not independent of [the fact that] technology [is] first [of all] an extension of our own bodies and senses. When we are deprived of our sense of sight, the other senses take up the role of sight in some degree. But the need to use the senses that are available is as insistent as breathing—a fact that makes sense of the urge to keep [...] TV going more or less continuously. The urge to continuous use is quite independent of [...] 'content' [...] [and is] testimony to the fact that technology is part of our bodies. [...] [However], [o]nce we have surrendered our senses and nervous systems to the private manipulation of those who would try to benefit from taking a lease on our eyes and ears and nerves, we don't really have any rights left. Leasing our eyes and ears and nerves to commercial interests is like handing over the common speech to a private corporation, or like giving the earth's atmosphere to a company as a monopoly. (pp. 67-8)

McLuhan's analysis of the invasive qualities of electronic media went further, however. He argued, counter-intuitively, that electronic media were tactile, and thus 'the medium is the *massage*', as he put it in his book of that title. After 500 years of print culture, which had valorised the eye

and demoted the other senses, electronic culture was reinvigorating the sensorium, addressing those senses that print had silenced. 'By electricity,' McLuhan wrote in 1960,

> we have not been driven out of our senses so much [as] our senses have been driven out of *us*. [...] Whatever we may wish in the matter, we can no longer live in Euclidean space under electronic conditions, and this means that the divisions between inner and outer, private and communal, whatever they may have been for a literate culture, are simply *not there* for an electric one (*Letters*, p. 278).

This anticipates to a considerable degree Mark Hansen's argument, in *Embodying Technesis,* that the 'implicit desideratum motivating contemporary techno-criticism' is 'the foregrounding of the body as the site for technology's molecular material impact' (p. 18).

If media interface with our bodies, such that culture becomes an immense prosthesis of the sort Freud alluded to in *Civilization and its Discontents*, then media undermine ontological certainties about subjectivity and selfhood. As Christopher Horrocks has noted, McLuhan's theories 'profoundly [affect] the ontological security of the individual' (*Marshall McLuhan and Virtuality*, p. 66). This ontological insecurity, however, arises not only from disembodiment (prosthesis) but from *embodiment* as well. McLuhan's argument is that electronic mediation has prosthetically extended our bodies to the point that we live in a totally embodied cosmos—Technology 'R Us—but that by virtue of this extension we experience this embodiment as an external phenomenon. To this extruded body McLuhan gave the name 'environment', and it is there that we now live—in a 'nature' of our own making.[10] Ultimately, McLuhan argued, electronic mediation produces 'discarnation',[11] an out-of-body experience that is generalised through technology. Yet technology, for McLuhan, was not inhuman; it was profoundly human: 'all technologies are completely humanist in the sense of belonging entirely to the human organism' ('Interview with Eli Bornstein', p. 67). As Anne Balsamo writes in *Technologies of the Gendered Body*, 'it is not simply that technologies create the *concept* of the body, but rather that communication technologies reproduce the body itself. To this end, McLuhan critically examines a variety of images and texts from popular culture to demonstrate how communication technologies function as the new body sensorium' (p. 174). The rhetorical production of the gendered body (as theorised by Judith Butler in *Gender Trouble*) is, in these terms, also the production of a technologised body.

The environment as bio-technological extension presents for McLuhan the notion of an embodied mediation. If this bio-technological extension, this environment, is understood as cultural, rather than natural, then its effect is to promote the notion of culture as continuous with nature. Writing in 1970, McLuhan states that, '[s]ince Sputnik there is no Nature. Nature is an item contained in a man-made environment of satellites and information, [...] replaced by the sensory reprogramming of total environments and DNA particles, alike' (*Culture is Our Business*, p. 330). This position has gained increasing validity within biological theory. Freeman Dyson writes, in 'Our Biotech Future', that 'the domestication of high technology [...] [will] soon be extended from physical technology to biotechnology' (p. 4), and he predicts that 'the domestication of biotechnology will dominate our lives during the next fifty years at least as much as the domestication of computers has dominated our lives during the previous fifty years' (p. 4). In the future that Dyson predicts, '[d]esigning genomes will be a personal thing, a new art form as creative as painting or sculpture' (p. 4). In support of these predictions, Dyson draws on the work of microbial taxonomist Carl Woese, and in particular two essays: 'A New Biology for a New Century', in *Microbiology and Molecular Biology Reviews* (2004) and, with Nigel Goldenfield, 'Biology's Next Revolution', in *Nature* (2007). Perhaps the most revolutionary claim that Woese makes is that Darwinian evolution is not a constant of biological life; rather, he argues, it was preceded by 'horizontal transfer' (p. 4), that is, by 'the sharing of genes' (p. 4) in a non-hierarchical fashion (hierarchy being crucial to the need in evolution for one species to fail in order for evolution to continue).[12] Woese thus postulates 'a golden age of pre-Darwinian life, when horizontal gene transfer was universal and separate species did not exist' (p. 4). The fundamental genetic principle was that of sharing; the whole community advanced, rather than a single species. Then, as Dyson summarises, 'a cell resembling a primitive bacterium happened to find itself one step ahead of its neighbors in efficiency. That cell, anticipating Bill Gates by three billion years, separated itself from the community and refused to share' (p. 4). This was the beginning of the 'Darwinian interlude'. Ironically, notes Dyson, the Darwinian interlude *slowed down* evolution, since it did not permit lateral transfers of information. This interlude ended when a single species, *Homo sapiens*, began to dominate and reorganise the biosphere. Since that time, cultural evolution has replaced biological evolution as the main driving force of change. Cultural evolution is not Darwinian. Cultures spread by horizontal transfer of ideas more than by genetic inheritance. Cultural evolution is running a thousand times faster than Darwinian evolution; as McLuhan wrote in 1969, '[e]volution as process has shifted

from biology to technology' with a 'resulting acceleration of evolution' (*Counterblast* [1969], p. 53). And now, as we domesticate the new biotechnology, we are reviving the ancient pre-Darwinian practice of horizontal gene transfer, moving genes easily between technology, microbes, plants and animals, and thereby blurring their boundaries. As Dyson suggests, 'we are moving rapidly into the post-Darwinian era, when species other than our own will no longer exist, and the rules of Open Source sharing will be extended from the exchange of software to the exchange of genes' (p. 6).

Dyson's easy—horizontal—transition from computer-speak to biological theory is telling, as is the notion that we must now turn back on ourselves—having evolved to the top of the ladder, we must now move from the vertical plane to the horizontal, an idea that is mirrored by Ulrich Beck's argument in *Risk Society* that the only way modernity may go forward is by curving back on itself, such that 'environmentalism' can be understood as the *undoing* of modernity from *within* the modernist project. Indeed, Dyson argues that the single most important application of Woese's theories will be within 'green technology', where the sun, the genome and the internet will operate together.

McLuhan's theories of mediation have much more in common with these current concepts of biomediation[13] than do other theories of mediation contemporary with McLuhan's work. This affinity emerges via McLuhan's rejection of the Shannon-Weaver 'transportation' model of communication theory, which suggested that media simply move information from A to B, and substituted for it a 'transformation' model, which proposed that media transform information, a position that exempted McLuhan from postulating a subject as the 'origin' of a communicative act.[14] McLuhan, in other words, did not seek to understand *How We Became Posthuman* (Hayles). Rather, it is through our technologies, argues McLuhan, that we encounter our *humanity*. Rather than understanding how we became posthuman, McLuhan sought to understand how we became *human,* and his answer was that we became human through our technologies. 'The body,' as Eugene Thacker has put it, 'is a medium' ('What is Biomedia?', p. 48). Alluding to McLuhan, Thacker continues: '[i]t is not just that the medium is the message, but that biology is the new medium: the medium is a message, and that message is a molecule. This is the crux of the concept of "biomedia"' (p. 48). As Thacker goes on to state:

> Biomedia are novel configurations of biologies and technologies that take us beyond the familiar tropes of technology-as-tool, the cyborg, or the human-computer interface. 'Biomedia' describes an ambivalence that is

> not reducible either to technophilia (the rhetoric of enabling technology) or technophobia (the ideologies of technological determinism). Biomedia are particular mediations of the body, optimizations of the biological in which 'technology' appears to disappear altogether. With biomedia, the biological body is not hybridized with the machine, as it is in the use of mechanical prosthetics or artificial organs. Nor is it supplanted by the machine. [...] Biomedia is only an interest in digitization inasmuch as the digital transforms what is understood as biological. In short, the body you get back is not the body with which you began, but you can still touch it (p. 48).

Media interact with the *bios* and thus have a profound effect on the sensorium—the collectivity of our senses. Media 'transcode' the senses in a process parallel to that of 'remediation', writes Thacker, whereby one medium 'transform[s] certain visual, haptic, auditory, and corporeal habits specified by earlier media such as film' (p. 54).

McLuhan compellingly suggested in formulating his media theories that the content of a new medium is the old medium; this was perhaps his single, most profound insight into the way media function, because it puts forward at once a historical, critical and differential (or creative) component to his theory of mediation. Building on this concept, Bolter and Grusin suggest in their book *Remediation* that the body is, in effect, a medium that transcodes sensory stimuli parallel to the shift in the sensorium caused by media themselves. This aspect of remediation situates the historical dimension of mediation, and also its critical dimension. If we ultimately inhabit the body of mediation, then the only way we can become aware of that environment is by understanding its interface with the environments that it remediates within the media ecology. McLuhan called these remediations 'anti-environments'; Thacker refers similarly to 'hypermediacy'—'the overcoding, heterogeneity, and saturation of the subject by different media, the empowerment of multiplying media tools' (p. 55). As McLuhan argued, it is through the radical juxtaposition of environment and anti-environment that the critic awakens us to the mediations where we now have our being.

4. McLuhan, Tactility, and the Digital

Tactility is the world of the interval, not of the connection.
McLuhan and Parker, *Through the Vanishing Point* (1968)

To the sense of touch, all things are sudden, counter, original, spare, strange.
McLuhan, *Understanding Media* (1964)[1]

In 1967, Marshall McLuhan published one of the defining books of his career: *The Medium is the Massage*.[2] A classic example of remediation, this book not only played on one of McLuhan's most famous utterances, 'the medium is the message', but also inverted the linear, sequential 'rationality' and causal determinism deriving from the book as medium. In *The Medium is the Massage* there are more illustrations than there is print, the book can be read in any order, and McLuhan de-authorises his own relationship to this book by producing it collaboratively. As a result, it can be argued that the book cannot be read at all; it can only be experienced. However, to speak of *The Medium is the Massage* as one book is itself misleading, since McLuhan published this work simultaneously in two radically different formats: a standard 4 inch by 6 inch paperback, and a large 6 inch by 11 inch hardback edition. In doing so, he forced his readers to confront not only the paradox of remediation—that each medium contains its mediatic other—but also the paradox of the visual: that it embodies the vestigial traces of the senses that visual culture has repressed, and in particular tactility, the term McLuhan deployed to refer to the senses in touch with each other. Thus, McLuhan emphasises the role that touch plays in reading: it has the same relationship to vision as the white background has to black typography. Touch, in other words, provides the ground that allows the figure of abstract visualisation to signify.

The effect of electronic mediation, McLuhan suggested, would be a re-integration of the perceptual field of all the senses, not just the visual; electronic media thus proposed a return to sensual, affective, involving communication. In eliminating the fixed perspective imposed by literacy, electronic media had the effect of involving the viewer as (co)producer of the work's meaning. This element of involvement was part of a much larger sensory revolution that had an apotheosis of sorts in the 1960s. In artistic terms, the revolution had to do with the escape from perspectivalism and linearity, the concomitants of book culture that demanded that the word be understood in relation to an excluded ground and to lineal sequence. When

the word was freed from linearity it was able to return to the tactility of the manuscript (*manoscritto*: handwritten) that had been repressed by 500 years of print culture. And, as McLuhan and Parker emphasise in *Through the Vanishing Point*, the chief aspect of tactility is the interval—what McLuhan termed 'resonance'—as opposed to the continuity posited by print culture.[3] The two versions of *The Medium is the Massage* emphasise that tactility continues to play a role in reading, and that as we move away from the abstract visual space produced by the book we move towards an increasingly sensual engagement—'massage'—with mediation. As Jacques Derrida reminded us towards the end of his career, it was McLuhan more than anyone else who insisted that 'touch is the sense of the electronic age' (*On Touching*, p. 354, n.22).

If it sounds counter-intuitive to suggest that there is a tactile dimension to the visual it is because the visual culture created by the alphabet and hypertrophied by print has blinded us to the interplay of the senses. In Chinese script, hand + eye = look, the Chinese character 看 (kàn), meaning *look* or *see*, being a compound of two characters: hand (手) and eyes (目).[4] Unlike the alphabet, which functions through fragmentation, abstraction and lineal sequentiality, ideographic sign systems communicate all at once, engagement with them thus being much more sensorily inclusive. McLuhan based a significant portion of his mediatic theory on this basic distinction between two radically diverse systems of meaning.

McLuhan began his career as a media theorist with a study of advertising and its central status within the libidinal economy that emerged after the Second World War. Titled *The Mechanical Bride* (1951), this study was concerned with the ways in which advertising engaged its readers through iconic messaging and rhetorical phrasing. The title of the book was a reference to Marcel Duchamp, whose artwork, *The Bride Stripped Bare by Her Bachelors, Even*, provided McLuhan with an analogue to the anti-visual polemic that he was making, as well as with a prime exemplar of the erotic apparatuses—especially the automobile—that had come to populate the consumerist landscape of postwar North America. Yet McLuhan argues in this book that an even more significant way in which sex had been mechanised, or mediated, was through surveys, such as Alfred Kinsey's extension of statistical market surveys to sexual attitudes in his groundbreaking work, *Sexual Behavior of the Human Male*, published in 1948. In making this argument, McLuhan anticipated the connection between the libidinal economy, digital culture, algorithmic numeration and sensory involvement.[5]

McLuhan's comments in *The Mechanical Bride* represent the beginning of his critique of visual culture and his concurrent revalorisation of tactility. In

The Gutenberg Galaxy, McLuhan draws on the work of William Ivins, whose books *Art and Geometry* (1946), and *Prints and Visual Communication* (1953), argue that tactile awareness differs profoundly from visual knowledge. Tactility is marked, according to Ivins, 'by catastrophic contacts and breaking of contacts' (*Art and Geometry*, p. 3). The hand, he points out, has no point of view; this ordering principle of visual culture is absent in tactile culture, in which full sensory engagement is experienced all at once. These ideas became central to McLuhan's argument that electronic media are synesthetic, in that they placed the senses in relation with each other, and it is this synesthesia that has now been achieved by the computer, which 'stores and processes images, sounds, texts, or any kind of representation in a common code',[6] thus realising the dream of late nineteenth-century artists such as Scriabin and Rimbaud of painting a mountainous landscape in the key of E-flat major or writing a poem in shades of green and blue.

This notion of synesthesia subtended art historical discourse developed in Germany in the late nineteenth century that sought to theorise the notion of empathy, or *Einfühlung*. This notion suggested that an empathic, or involving, response to the visual was activated *kinetically*—through movement—and that this kinetic response was associated with tactile values. The significance of this notion for McLuhan was immense, because it suggested a kinetic space that was radically different from static, Euclidean space, opening up its fixed vectors of vision[7] to multiple points of involvement. A major contributor to the late nineteenth-century empathy debate was Friedrich Theodor Vischer, who argued that empathy implies both the interrelationship of viewer and object, *and* the interrelationship of sensory apprehension. As Vischer writes in *The Optical Sense of Form*, he derived the notion of empathy from a proto-Freudian text by Karl Albert Scherner. 'Here,' writes Vischer, 'it was shown how the body, in responding to certain stimuli in dreams, objectifies itself in spatial forms. Thus it unconsciously projects its own bodily form [...] into the form of the object' ('Optical Sense of Form', p. 9).[8] This passage contains a number of elements that are important in McLuhan's work, including the insistence upon the bodily and the sensual in the context of mediation, the relationship between the sensual and the spatial, and the notion of projection, or extension.

There were a number of attempts to turn Vischer's notions into a general artistic theory. Conrad Fiedler, for example, sought to develop Vischer's theory of the embodied sensuality of mediation. Fiedler was also virtually the co-author of Adolf von Hildebrand's 1893 monograph *The Problem of Form*, a text which McLuhan cites several times. For Hildebrand, the tactile in art was 'a kind of synaesthesia or interplay among the senses', as McLuhan

puts it in the *Gutenberg Galaxy* (p. 41). Hildebrand based his theory on kinesthetic perception, which pertained to the eye in motion. Perception for Hildebrand was thus relational: '[s]ince each quality affects all others, there must always be a translation of inherent spatial values into effective or relative values that are valid for one particular visual frame' ('The Problem of Form', p. 235).

McLuhan writes in *Understanding Media* that '[t]he aspiration of our time for wholeness, empathy and depth of awareness is a natural adjunct of electric technology' (p. 5), because electronic technologies involve—they work us over, as in a massage. And media always work with other media, environmentally. Making his well-known argument about remediation, that 'the "content" of any medium is always another medium' (*UM*, p. 8), McLuhan goes on to express this relationship as *scalar*: 'the "message" of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs' (p. 8). This scalar difference also constitutes a critical configuration: '[j]ust before an airplane breaks the sound barrier,' writes McLuhan, 'sound waves become visible on the wings of the plane. The sudden visibility of sound just as sound ends is an apt instance of that great pattern of being that reveals new and opposite forms just as the earlier forms reach their peak performance' (p. 111). We become aware of a dominant medium at the moment of its greatest hegemony, at which point it flips into another form of mediation. As McLuhan goes on to note, '[m]echanization was never so vividly fragmented or sequential as in the birth of the movies. […] The movie, by sheer speeding up [of] the mechanical, carried us from the world of sequence and connections into the world of creative configuration and structure. […] When electric speed further takes over from mechanical movie sequences, then the lines of force in structure and media become loud and clear. We return to the inclusive form of the icon' (*UM*, p. 12), which, like the Chinese script for 'look', signifies all at once. 'By imposing unvisualisable relationships that are the result of instant speed [McLuhan writes], electric technology dethrones the visual sense and restores us to the dominion of synesthesia, and the close interinvolvement of the other senses' (*UM*, p. 111). Electronic speed-up, thus, is not explosive but implosive: '[t]he instant character of electric information movement does not enlarge, but involves' (p. 111).

Yet this involvement has a price, every extension being accompanied by an amputation, or by a degree of alienation. As McLuhan wrote to Jacqueline Tyrwhitt on 23 December 1960:

> the problem that we have now to face in the management of inner and outer space [is] not fixed but ever new-made ratios, shifting always to

> maintain a maximal focus of consciousness. Thus the human community would assume the same integral freedom and awareness of the private person [.] By electricity [...] we have not been driven out of our senses so much [as] our senses have been driven out of *us*. [...] [W]hen our senses are external to us, it becomes natural to regard a perpetual flow of programs through all media as indispensable to the community, just as much as the private individual considers that all of his senses should be receiving impressions all the time, even in sleep. [...] Whatever we may wish in the matter, we can no longer live in Euclidean space under electronic conditions, and this means that the divisions between inner and outer, private and communal, whatever they may have been for a literate culture, are simply *not there* for an electric one. (*Letters*, p. 278)

It is this notion of embodied intermediation that takes us from the visual domain to the tactile domain, and from the tactile domain to the digital. As Bernadette Wegenstein reminds us, 'the digital revolution at the heart of new media has not eliminated the need to think about embodiment; indeed, the body and questions of embodiment are more relevant than ever today' ('Body', pp. 27-8). This is so because the digital serves as a mode of translation with the power to translate anything into anything else, and what we are translating are extensions of ourselves: from YouTube to the iPod Touch, all mediation becomes bio-mediation. As McLuhan puts it in a key passage of *Understanding Media*:

> Physiologically, man in the normal use of technology (or his variously extended body) is perpetually modified by it and in turn finds ever new ways of modifying his technology. Man becomes, as it were, the sex organs of the machine world, as the bee of the plant world, enabling it to fecundate and to evolve ever new forms. The machine world reciprocates man's love by expediting his wishes and desires, namely in providing him with wealth. (p. 46)

Two elements in this quotation merit special attention.[9] The first is the emphasis on the relational aspect of humans and technology. As Samuel Butler asks in his novel *Erewhon*, published in 1872, 'is not machinery linked with animal life in an infinite variety of ways?' (p. 313). This novel was revered by McLuhan, and informs his position that humans and technology are engaged in a vast feedback loop. The second point that needs attention in this passage is McLuhan's comment that 'the machine world reciprocates man's love by expediting his wishes and desires, namely in providing him

with wealth.' McLuhan is describing a libidinal economy, and collapsing an economic analysis into a mediatic one. This conflation is enabled by the notion that electronic media were corporate: they incorporated us by virtue of the fact that media are extensions of ourselves. It was for this reason that McLuhan devoted much writing in the latter part of his career to the corporate world.[10] McLuhan understood corporation not as an instrument but as a process, and was prescient in focusing on the increasing corporatism that would come to characterise digital culture, from cloud computing to group think, the hive mind, cybernetic totalism, digital Maoism, Facebook, YouTube, Twitter and the corporate scholarship of Wikipedia.[11] In the digital era, authorship recedes along with individual subjectivity. The musician who samples becomes a technician along with the recording engineer. 'Producing in the age of digital technology,' as Chris Cutler argues, 'is no more than critical consuming' ('Plunderphonia').

McLuhan often quoted James Joyce's comment, '"My consumers are they not my producers?"'(*GG*, p. 278). In the electronic era, McLuhan argued, intersubjectivity would increasingly characterise our sense of self in a social milieu that was becoming tribal. Indeed, as N.J. Enfield has suggested, individuals are biologically inseparable from evolutionary corporation, genomes surviving beyond the individual body ('Credit notes', p. 12). In these terms, the individual is not the primary social unit. Nor has the individual always been primal in artistic terms; oral culture, which was of fundamental importance to McLuhan's media theory, is deeply corporate, as are technological complexes, religious belief systems and languages. They all belong to a creative commons because cultural systems are collective ('Credit Notes', p. 12).

McLuhan's major work about corporate management, *Take Today: The Executive as Dropout*, written with Barrington Nevitt, argued that traditional management structures were no longer valid in the tribal world of electronic mediation. The executive, to be successful, had to drop out of such arrangements and enter the truly corporate world of engaged management, the world of Facebook, of Microsoft and of Apple, all of which, in fact, were founded by dropouts. The new corporate executive, states McLuhan, is 'one who knows when to drop out in order to get in touch.'[12] As McLuhan wrote in a *festschrift* for the legendary management guru, Peter Drucker, the notion that we had entered into the 'age of discontinuity' derived directly from the increasing significance of electronic mediation, because, as McLuhan reiterates here, the on and off switching programs of the computer are resonant with tactility, which he terms the 'art of the interval' ('The Man Who Came to Listen', p. 36). The paradox of digital culture is that

tactility does not provide us with continuous and connected knowledge: it is impossible to determine sequence with your fingers. The digital is much more akin to cubist art than to realist art, and maps onto a similar history. Tellingly, it was the profound realisation of the founders of Google, Sergey Brin and Larry Page, that 'cyberspace possessed a form of self-knowledge, inherent in the links from one page to another,' as James Glieck writes in *The Information* (p. 423). What is significant here is that Brin and Page located this knowledge not in any specific piece of information, but in the spaces *between* information, what Aby Warburg, in his history of art, referred to as the *Zwischenraum*.[13] This notion of the interval is a key concept of digital culture, and the source of its several paradoxes. For instance, as Glieck puts it, in digital culture 'everything is close, and everything is far at the same time. This is why cyberspace can feel not just crowded but lonely' (p. 425). We are increasingly in touch with one another, yet increasingly alienated. Our intersubjectivity is becoming exponentially mediated: the operations of email, Facebook and Twitter remind us once again that digital culture is profoundly discontinuous—relational, but not connected. We are, in the words of Brian Rotman, 'becoming beside ourselves', and it is this paradox of tactility that McLuhan highlighted in his comment that '[t]o the sense of touch, all things are sudden, counter, original, spare, strange.'

5. Mechanical Brides and Vampire Squids

One has to enquire into the ontological status of apparatuses, their level of existence. They are indubitably things that are produced, i.e. things that are pro-duced (brought forward) out of the available natural world. The totality of such things can be referred to as culture.
Vilém Flusser, *Towards a Philosophy of Photography*

[M]an in the normal use of technology (or his variously extended body) is perpetually modified by it and in turn finds ever new ways of modifying his technology. Man becomes, as it were, the sex organs of the machine world.
Marshall McLuhan, *Understanding Media*

While there is much that divides Marshall McLuhan (1911-1980) and Vilém Flusser (1920-1991), the confluence afforded by the prospect of discussing them together allows us to consider what I suggest is a central strand of connection, namely their tendency to understand media as *embodied*, which is to say, as having a relationship with *bios*.[1] This is a paradoxical dimension of their work, however, because the element of embodiment is configured according to a principle of *alienation*, such that the closer our relationship to media becomes, the further we get from the classic notion of the sovereign self. McLuhan had expressed this paradox through the notion of extension and amputation. Flusser, characteristically, expressed the paradox within a philosophical idiom,[2] describing *bios* as a system of networks that mark a process of estrangement.[3] The paradoxical dimension of these media theorists' work derives from their experiences of what I have elsewhere called a *cultural geography*,[4] one which was characterised by a profound sense of *displacement* that became a key element of the work they produced. Flusser, who fled the Nazis and ended up spending much of his career in Brazil, meditated often on the notion of the *bodenlos*, which expresses the vertiginous experience of immigration, the experience of never quite arriving—what V.S. Naipaul described as *The Enigma of Arrival*, which is that, as an immigrant, you never quite do. McLuhan, for his part, experienced the (far less traumatic but none the less real[5]) lostness of the colonial citizen, at once a British Subject and a Canadian—and a Western Canadian at that, far from the centre of political, social and cultural power in Ontario—and therefore neither British, nor fully Canadian, and he characteristically referred to Canada as a 'borderline' case.[6] (After completing his Master's degree at the

University of Manitoba, McLuhan's study at Cambridge was facilitated by a scholarship from the tellingly named Imperial Order of Daughters of the Empire [Marchand, *Marshall McLuhan*, p. 28].) These experiences inevitably posed ontological questions,[7] and the inquiries of McLuhan and Flusser into bio-technology and bio-mediation converge with the contemporary interest in the 'ontological condition of humanization'[8] named by media, in which our relationship with media increasingly poses questions about what it means to be a human *being*. This notion of what Flusser called *Menschwerdung* (becoming human) is part of a larger mediatic process that Brian Rotman has suggestively described as 'becoming beside ourselves',[9] a process of intersubjectivity and the transvaluation of the human that, in philosophical terms, anticipates the present, post-linguistic moment and its interest in 'materiality, worldliness, shared embodied existence and human subjectivity' (James, *New French Philosophy*, p. 4).

McLuhan was and remains foundational to the discipline of media studies as we know it today, and Flusser spent a good deal of his career disagreeing with him.[10] There are, nevertheless, commonalities:[11] both thinkers took an environmental approach to their subjects, rejecting the strict linearities of history for the spatialised models of pattern and configuration.[12] They were both wedded to notions of poiesis rather than mimesis, 'making' rather than 'matching', in McLuhan's terms.[13] They both loved wordplay.[14] Their experiences of cultural displacement led in both cases to an interest in nomadism, borderlines and transcultural valuation.[15] Both had a notion of mediation as translation.[16] Both had an interest in the notion of dialogism.[17] Both were highly self-critical, Flusser practising what he called 'devoration', a form of critical cannibalisation,[18] and McLuhan rewriting his books as 'non-books' after *Understanding Media*.[19] Where they part company to a certain extent is in their take on anthropomorphism, Flusser seeking an alternative 'to humans [by] establishing a new dialogic or intercultural exercise by critiquing anthropomorphism' (Finger et al., Kindle locator 115),[20] while McLuhan founded his media theory on a notion of the relationship of the human and the technological.

The notion that media are embodied presented a paradox to McLuhan that he formulated in terms of 'utterance' and 'outerance'—an utterance, or extension, was also a displacement. In the case of speech, what was displaced was the speaking subject; in the case of mediation generally, what was displaced was the human. This dynamism of inner and outer is characteristic of McLuhan's theorisation of the way in which the biological and the technological were interfused. Indeed, he suggested that technology had supervened our bodies, such that we had turned ourselves inside

out—extended *and* amputated ourselves—and extruded ourselves into an environment which is at once ourselves and utterly other. McLuhan's programme in articulating this theoretical position was to provoke an understanding of media as *part of us*, as intimately related to ourselves, in order that we take responsibility for them, rather than adopt a determinist response.[21] As he puts it in *Understanding Media*, '[a]s long as we adopt the Narcissus attitude of regarding the extensions of our own bodies as really *out there* and really independent of us, we will meet all technological challenges with the same sort of banana-skin pirouette and collapse' (p. 68).

This appears to be a far cry from the utopian image with which Flusser opens his book *Into the Universe of Technical Images*:

> the prospect of a future society that synthesizes electronic images [...] will be a fabulous [one], where life is radically different from our own. Current scientific, political, and artistic categories will hardly be recognizable there, and even our state of mind, our existential mood, will take on a new and strange coloration. This is not about a future floating in the far distance. We are already on its cusp. [...] We live in a utopia that is appearing, pushing its way up into our surroundings and into our pores. [...] What is happening around us and in us is fantastic, and all previous utopias, whether they were positive or negative, pale in comparison to it. (p. 3)

Flusser goes on to clarify, however, that the utopia he writes about has two tendencies: '[o]ne moves toward a centrally programmed, totalitarian society of image receivers and image administrators, the other toward a dialogic, telematic society of image producers and image collectors' (p. 3). Flusser makes the crucial point in this context that, in the present era, 'human beings depend for their lives more on learned and less on genetic information than do other living things' (p. 5); thus, the move into the information era is a move away from the notion of the human as defined by the sovereign self, or, to put it another way, a move from the hard ontology of the human 'being' to the soft ontology[22] of posthumanism, where being is relational and humans are no longer at the centre of the universe. As Flusser puts it,

> When images supplant texts, we experience, perceive, and value the world and ourselves differently, no longer in a one-dimensional, linear, process-oriented, historical way but rather in a two-dimensional way, as surface, context, scene. And our behaviour changes: it is no longer dramatic but

> embedded in fields of relationships. What is currently happening is a mutation of our experiences, perceptions, values, and modes of behaviour, a mutation of our being-in-the-world. (*Into the Universe*, p. 5)

Flusser's notion of media is a profoundly tactile one; 'grasping' (*Into the Universe,* p. 9) is one of his key concepts for understanding media. In this context, the late writings of Heidegger on sculpture are pertinent. In these meditations, Heidegger argues that tactility implies the extension of the self insofar as space implies the connectivity of all things. As Andrew Mitchell puts it in *Heidegger Among the Sculptors*, 'things begin at their limits, for it is here that they enter into relationships with the rest of the world'; 'the body is the extent of my reach, is where I touch, it is the site for all that concerns me and for all that approaches me. I can be touched from a distance only because my body is already at that distance from me. My body is my abode and my abode is the world' (p. 43). Mitchell goes on to state that in these essays on sculpture, Heidegger seeks 'to think the body as no longer distinct or separable from space, to think the body as dissolved in space yet defined by it, as mediated, an inhabitant of the between, neither present nor absent but always arriving sensibly and shining out beyond itself through space. To think space itself is to think the middle, the between'. Thus, '[t]he truth of sculpture is the truth of being: mediation' (p. 91).This is a relational idea of being—that I have my being in relation to the world around me. Thus, 'the works that humans produce are nothing alienated from nature or artificial in the depreciative sense, but could even be said to be needed by nature' (p. 64).

The dynamics of embodiment emerge most powerfully in Flusser's enigmatic text, *Vampyroteuthis Infernalis*, written at the beginning of the 1980s and published towards the end of that decade. Flusser had been fascinated by a newspaper story about three vampire squids that had been dredged from the depths of the ocean (p. 119); in the absence of scientific information about the squid, he proceeded to elaborate his own fable about it, or, to put it another way, he sought the meaning of the squid as an embodied mediation, one that constituted the 'other' of the 'human'. This accords with the McLuhanesque notion that 'the human body can neither be understood as a first or primary medium [...] nor relegated to the status of merely optional receiver of technically mediated information. [...] Rather, the body for McLuhan comprises the non-self-sufficient "ground" for all acts of mediation, including those [...] that expand its agency beyond the "skin".'[23]

Generally read as a philosophical meditation on 'otherness', which it is, *VI* also presents a theory of bio-mediation. Flusser's vampire squid is a

Fig. 5.1. Vampyroteuthis Infernalis (Wikimedia commons).

particularly *mediatic* being:[24] it inhabits the 'constant auditory commotion' (p. 68) of the sea depths; it has glands that expel ink (p. 40), which acts as 'media for intersubjective communication' (p. 91); it has 'light-emitting organs, (p. 41); and it has the ability to '"speak through the skin"' (p. 42), the 'colouration of the skin constitut[ing] a code' (p. 42). It is also capable of excreting a fluid that makes it invisible and thus its ability to make itself into a purely 'informative surface' (p. 42). From the beginning of the book, Flusser strives to assert the connections between the vampire squid and ourselves: '[w]e are both variations of the same game played with the calculi of genetic information that programmes all terrestrial life', an organism that 'act[s] upon the world and that absorb[s] it' (*VI*, p. 25). This quality of bio-informatics allows *Vampyroteuthis* to be understood as a '"being-with-us" [or] *Mitsein*', (p. 27), and thus testifies to our posthuman status. As Flusser puts it, 'we must liberate ourselves [...] from the model according to which existence is the meeting [...] of a "self" with a "world". [...] We should, on the contrary, admit the concrete and simple fact that existence is a being-in-the-world which always has a subject in relation to objects and objects in relation to a subject' (p. 71). Mediation, in this formulation, is at the heart of *being* itself.

A particularly noteworthy quality of the squid is its uncanny tendency, when frightened, to turn itself inside out, in a manner that is a biological simulacrum of the notion that electronic media extrude and 'amputate' our bodies.[25] This process takes place in a libidinal economy signified by the ability of the squid to grasp objects (the definitive mediatic process in Flusser's media philosophy) with a third penis (*VI,* p. 41), the first being the usual one and the second devoted to oral stimulation during copulation. This libidinal economy is an economy of information, 'of information

consumption' (*VI*, p. 114), in Flusser's words, and the notion of mediation as libidinal[26] provides a major connection between the work of McLuhan and Flusser.

McLuhan had arrived at a biological notion of mediation through his readings in modernist artistic theory and practice—not only the theorists of empathy, or *Einfühlung*, such as Hildebrand, Worringer, Wölfflin et al.,[27] but also Le Corbusier, the Prague-born Siegfried Giedion, and Laszlo Moholy-Nagy; this was the modernism that McLuhan discovered at Cambridge in the 1930s at about the same time that Flusser was discovering modernism in Prague.[28] What McLuhan learned from the empathists was that the experience of the work of art is mediated by the body. What he learned from Giedion was the notion of organicism, a notion that Giedion had acquired from the biotechnics developed in Raoul H. Francé's *Plants as Inventors*, published in English in 1923. As Detlef Mertens has noted, this work is concerned with topics such as the organicism of architecture and the organic relationship between the ear and the telephone (*Modernity Unbound*, p. 19). Francé was particularly interested in homologies between biology and technology, such as that between flagellate forms and turbines. A quarter of a century before Francé, Ernst Haeckel[29] had published *Art Forms of Nature* (1904), in which he sought to demonstrate the linkages between architectural forms and the forms of microscopic sea creatures known as radiolarians (Mertens, p. 17). In addition, the great emphasis placed on glass by architects such as Le Corbusier and Mies van der Rohe, and proclaimed paradigmatically by Bruno Taut's Glass House of 1914,[30] was meant to signify that technology had produced a 'second nature', which was both 100% human and 100% natural, 'natural evolution and technological development rolled into one' (Mertens, p. 17), given that glass is *not* found in nature but *is* made up of natural elements. By making new forms of being possible—primarily by breaking down the barriers that define the inside and outside of being—this second nature produced a new subjectivity, a subjectivity that was porous, no longer sovereign, and which shared its being with its environment. A house, according to this configuration, became a machine for living, in Le Corbusier's phrase, a phrase which, in the context that I am arguing here, must be understood as having its emphasis on 'living' at least as much as on 'machine'. This is in fact the argument made by Niklas Maak in his study of Le Corbusier; Maak argues that Le Corbusier's shift from the rectilinearity of the Unité d'Habitation to the biomorphism of Ronchamp is inherent in his earliest work, rather than a radical break from it. As Maak puts it, '[f]aced with accusations of an anti-historical and inhumane belief in technology, [Le Corbusier] took the bull by the horns and

claimed that modernist architecture was anchored not in technology, but in nature, and, indeed, in human nature' (p. 68). This argument was consistent with the declaration by the early theorists of cubism that cubism was a biological phenomenon, a 'second nature' that included the technological. As such, this new artistic order was not anthropomorphic, since it provided an opening onto the 'nonhuman, pre-human, and even inhuman' (Mertens, p. 34), a theme that resonates not only with *VI*, which Flusser describes as 'a fable more or less about biology' (p. 123) but also with McLuhan's mechanical bride, who was likewise associated with a watery milieu (*MB*, p. 61).

The Mechanical Bride was inspired by Marcel Duchamp's 'erotic apparatus', as Harold Rosenberg[31] described *The Bride Stripped Bare by her Bachelors, Even*, also known as 'The Large Glass'. Duchamp had conceived of the work after watching a staged performance in 1912 of Raymond Roussel's surrealistic novel *Impressions d'Afrique*, a work that features 'life-sized kinetic statues, a child impersonator of machines, a one-legged Breton fisherman who plays a flute made from his own tibia, a pale pennant with red streaks that turns out to be a translucent vampire bat, and a sponge that reveals itself to be an amorphous, tentacular animal' (Peter Read, 'Raymond Roussel', n.p.). The title of McLuhan's book presents unambiguously this 'interfusion of sex and technology' (*MB*, p. 94) that Roussel so delicately alludes to. 'Since all organic characteristics can now be mechanically reproduced,' McLuhan writes, 'the old rivalry between mechanism and vitalism is finished' (*MB*, p. 34). McLuhan's analysis of opinion polls is telling in this regard. These polls, he argues, sample the 'social blood' (*MB*, p. 47) of society in the same way that Kinsey took the pulse of the sexual mores of postwar America. The use of statistical surveys to map sexual attitudes was, for McLuhan, a prime site of the interfusion of the mechanical and the organic; the irony of Kinsey's reading is that he could not imagine sexuality *beyond* the biological. In *Understanding Media*, McLuhan would write that *humans* had become the sex organs of the *mechanical* world, allowing it to fecundate ever new technologies (p. 46). McLuhan illustrates the interface between technology and the organic through the cinema, noting that, 'in England the movie theatre was originally called the Bioscope' (*UM*, p. 284) and that 'the movie re-creates organic process and movement by pushing the mechanical principle to the point of reversal' (p. 182). The notion that a mechanical process yields an organic effect implies that the organic itself is a form of technology, nature a part of culture, in a relationship that is dynamic. McLuhan further developed these notions in *War and Peace in the Global Village* (1968), where his discussion of feedback and feedforward loops is conveyed through eight iconographic images from the animal world

(including one of a flea's penis) to suggest that media technologies develop biologically.[32]

This notion has been proposed by Freeman Dyson, who writes, in 'Our Biotech Future' that 'the domestication of high technology [...] [will] soon be extended from physical technology to biotechnology' (p. 4), and predicts that 'biotechnology will dominate our lives during the next fifty years at least as much as the domestication of computers has dominated our lives during the previous fifty years.'[33] If the process that Dyson describes is a process of *becoming* human, then the unavoidable conclusion is that we become human through our technologies, and it is this conclusion that McLuhan and Flusser reach in their various ways. The notion that all media are ultimately bio-media derives philosophically from a post-Cartesian concept of consciousness as embodied, in the sense elaborated by Antonio Damasio in *Descartes' Error* (1994) and other books. Damasio's take, however, remains anthropomorphic and phenomenologically centred on the human. Flusser's *VI* insists on the porosity of the human—we have more in common with the vampire squid than not. Yet, it must also be noted that the squid is itself a product of mediation—it is through these mediations that we know it (as Flusser first came to know of the squid), and it is at this point that the mediatic and the biological can be seen to merge, because, as Flusser puts it, 'biology is itself a product of the human "web"' (*VI*, p. 63).

While Flusser explicitly stated that '[a]pparatuses [...] should not be anthropomorphized, however convincingly they may simulate human thought functions," (*Into the Universe of Technical Images*, p. 16), McLuhan is often accused—most notoriously by Friedrich Kittler[34]—of having an anthropocentric bias to his work. But the 'human' in McLuhan's media theory is always already technologised and displaced into the mediatic environment: all utterance is *outerance*. The bride in his libidinal theory of mediation is mechanical, and Gutenberg 'man' is typographical. We are their electronic children, and what we are becoming remains the most compelling question in media philosophy today.

Empathic Media

6. McLuhan: Motion: e-Motion

Towards a Soft Ontology of Media

All tools set forces in motion. [...] *The machine has not separated us from nature; through it we have discovered a new nature never before surmised.*
El Lissitzky, 'Nasci', *Merz* 8-9 (1924)

The new media are not bridges between man and nature: they are nature.
McLuhan, *Counterblast* (1969)

The human lives in that it bodies [*leibt*]*, and thus it is admitted into the open of space, and through this self-admittance it holds itself already from the outset in a relation to its fellow humans and things.*
Heidegger *Kunst – Plastik – Raum* (1964)[1]

While media theorists would agree on few fundamentals intrinsic to their field of study—starting with the definition of 'media'—they would no doubt concur that media have an epistemological dimension. Whether it be McLuhan's notion of the media 'environment' ('Educational Effects', p. 402) or Kittler's concept of a 'discourse network', it can be argued that the effects of media are cognate with the Foucauldian *episteme*: they 'determine'[2] our situation because they function in a Heideggerian manner as the pre-condition of what we can know and say (*die Sprache spricht, nicht der Mensch*[3]) and they 'are' our situation (as Mitchell and Hansen would have it[4]) because they operate 'environmentally' as our mediatic frame of reference.[5]

But is it possible to speak of an ontology of media? Kittler addresses this question in his 2009 article 'Towards an Ontology of Media' by invoking, at the outset, McLuhan's 1971 comment that '"philosophy systematically excludes techne from its meditations. Only natural and living forms are classified as hylo-morphic"' (quoted in Kittler, p. 25). Kittler argues that the Canadian media theorist gets Aristotle's metaphysics wrong: '[w]e have good reason to suppose, quite to the contrary, that form and matter are categories stemming originally from technical things and more or less forcibly transferred [...] to natural ones' ('Ontology', p. 25). Kittler grants priority to technology rather than nature, arguing that McLuhan was suggesting the opposite.[6] In fact, McLuhan is arguing that technology *is* nature: '[t]he literate Greeks abstracted visual order out of preliterate oral chaos and called their artifact "Nature" (*phusis*). [...] In today's electric world, man

becomes aware that this artificial "Nature" of the Greeks is an extension of himself, just as he is an extension of nature.'[7] Kittler acknowledges that 'McLuhan's curious philological error,'[8] however, becomes 'a historical truth. It is precisely because the opposition of form and matter stems from technology, not from natural and living forms, that ontology systematically excluded media technologies from its domain' ('Ontology', p. 25).[9] Indeed, for Kittler, philosophy's lack of mediatic self-consciousness undermined it until philosophy became one with the computer, at which point philosophy and '*Medienwissenschaften*' coincided. As Kittler puts it elsewhere, 'the core of the Greek episteme, ontology or the logos of Being, has materialized in computing machines' ('Universities', p. 250). What could be known and the medium of knowledge were fused at that point, and knowledge became the knowledge of mediation.[10] Where McLuhan and Kittler differ is in Kittler's insistence on the *priority* of technology to nature, rather than on the *relationality* of technology and nature. In the second paragraph of McLuhan's letter from which Kittler quotes, McLuhan comments that, in the present moment of electronic organicism, 'we have no choice but to recognize the entelechies of technology. This is called *ecology*' (*Letters*, p. 429; emphasis in original). It is called 'ecology' because media are environmental—they *are* our situation, our vastly extended being[11]—as well as the domain where hardware, wetware and software interact; or, as Kittler puts it elsewhere, where '"this glowing, cognizant part of nature, is feeding back into itself".'[12]

If philosophy could not 'think' media, then the pre-history of media cannot be found in philosophy; as John Guillory has remarked, 'the concept of a medium of communication was absent but *wanted* for the several centuries prior to its appearance, a lacuna in the philosophical tradition that exerted a distinctive pressure, as if from the future, on early efforts to theorize communication' ('Genesis', p. 321). If the pre-history of media is not to be found in philosophy, then where might we look for it? I suggest that we look for it in theories of art. Both McLuhan and Kittler point us in this direction. Kittler remarks that form and matter 'present themselves much more evidently to us in sculptures than in stones or trees' ('Ontology', p. 25).[13] McLuhan, for his part, remarks in the letter from which Kittler quotes that '[p]ens and swords and ships and sealing wax' (p. 429)[14] are entelechies. In this chapter I focus on art theory at the particular moment when it was responding to changes in the mediascape that were shifting the sorts of philosophical questions that could be asked about art (and ontology). As Guillory notes, the 'emergence of the media concept in the later nineteenth century was a response to the proliferation of new technical media—such as the telegraph and the phonograph—that could not be assimilated to the older system

of the arts' ('Genesis', p. 321). In the following pages I explore the way in which a specific art historical discourse, that of empathy, or *Einfühlung*,[15] as developed in artistic/philosophical circles (largely in Germany) in the late nineteenth century—precisely the moment, according to Guillory, when 'the substantive noun *medium* [became] connected with matters of communication' ('Genesis', p. 321)—found its way into the foundational media theory of Marshall McLuhan. I do so through a focus on the idea of 'motion'[16] as articulated via tropes of kinetic movement and cognate notions of speed and acceleration, as well as the notion of emotion—the idea that kinetic movement is particularly adept at evoking emotion (for which we often use the phrase 'being moved') or, more broadly, involvement and interactivity.

The notion that media are involving and interactive invokes the concept of a 'soft ontology',[17] and it is precisely here that Kittler's example of the form and matter of sculpture is significant. Soft ontologies are defined as 'flexible sets of metadata that describe a domain of information by means of spatially conceptualized properties [...] that jointly define the *ontological space* [...] in which an information domain "is" or exists' (Kaipainen et al., p. 474). The notion of soft ontology is especially pertinent for understanding internet applications that include 'user-contributed content' (p. 474), such as Flickr or YouTube. Soft ontology derives from the idea that 'the very core elements of language and cognition are spatial metaphors [...] originating from bodily-motor-spatial experiences, such as the expressions "*under-stand*", "*get-around*", *or* "*up-load*"' (p. 475; one might add, thinking of Kittler, '*write-down*'). It should be noted that soft ontology is crucial to understanding multi-perspective environments that cannot be accommodated as 'an operation or algorithm with a predefined or fixed end condition' (p. 477). A key example of such a multi-perspective exploration is that required by a sculpture, 'hardly collapsible to any single perspective' (p. 481), as both Kittler and McLuhan note in their own way.[18] A dynamic model is essential to this formulation because motion is the key element in the comprehension of relational positionalities. A dynamic model was also essential to McLuhan's notion of mediation, which is why he linked media to the concept of movement in its associations with metaphor (Greek *metapherein*, to transfer) and translation (Latin *translatio,* carried across).[19]

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McLuhan theorised open systems; as he writes in *Understanding Media*, 'money is not a closed system, and does not have its meaning alone' (p. 142),

and this insight can be expanded generally to his theory of mediation. As opposed to his Toronto colleague Harold Innis, who feared that contemporary culture was moving increasingly in the direction of a static spatialisation, McLuhan argued that electronic mediation was producing a dynamic spacetime. It was with this insight that the idea of *motion* entered into McLuhan's thought. He had been profoundly impressed by the concurrence of modernity with the notion of speed. This aspect of modernity was expressed most dramatically by F.T. Marinetti, who proposed that the future would be characterised by 'a new beauty, the beauty of *speed*.'[20] But Marinetti was not the only modernist, or proto-modernist, to reflect on the importance of speed. A decade before the Futurist *Manifesto* of 1909, Henry Adams noted that a new force had manifested itself that was 'constantly induced to accelerate its motion till it shall establish a new equilibrium. A dynamic theory would begin by assuming that all history, terrestrial or cosmic, mechanical or intellectual, would be reducible to this formula.'[21] Adams goes on to write that '[m]otion is the ultimate object of science, and measures of motion are many; but with thought as with matter, the true measure is mass in its astronomic sense—the sum or difference of astronomic forces' (p. 35). Like Innis, though not reflecting directly on mediation, Adams sees history as a 'movement from unity into multiplicity, [which], from 1200 to 1900, was unbroken in sequence, and rapid in acceleration. Prolonged one generation longer, it would require a new social mind' (p. 40). For Innis, it was the increasing mobility of media of communications, from clay tablets to paper to airwaves, that was crucial to this process of acceleration, a process that troubled him deeply. It also troubled Adams, who was overwhelmed when he saw the hall of dynamos at the Paris Exposition of 1900. In his famous essay, 'The Dynamo and the Virgin', Adams invests the Dynamo with the power and aura of religion, but a religion (as David Tomas puts it) of the 'contingent and ephemeral' and of 'the invisible consequences of supersensual events' ('Echoes of Touch', p. 107).

The sensual and dynamic aspects of mediation came together in the late nineteenth century art historical concept of *Einfühlung*. This notion suggested that empathic response to the visual was activated *kinetically* and that this kinetic response was associated with tactile values.[22] The notion of empathy had arisen in the context of a post-1850s disenchantment with the notion of idealism. Attention was increasingly given to material content and to the subjectivity that encountered it. Empathy was the term employed to describe that relationship, though it went beyond the subject/object relationship to imply the interactivity of art forms. Friedrich Theodor Vischer, a chief theoriser of empathy, argued that the 'artistic spirit'

could animate form, such that it appeared to produce 'echoing sounds that reverberate from these movements';[23] in this formulation, empathy implies both the interrelationship of viewer and object, and the interrelationship of sensory apprehension—the notion of the *sensus communis*. As Vischer writes in *The Optical Sense of Form*, he derived the notion of empathy from a proto-Freudian text by Karl Albert Scherner: '[h]ere,' writes Vischer, 'it was shown how the body, in responding to certain stimuli in dreams, objectifies itself in spatial forms. *Thus it unconsciously projects its own bodily form* [...] *into the form of the object*' (quoted in *EFS*, p. 92, emphasis added). This passage contains a number of elements that resonate in McLuhan's work, including the insistence upon the bodily and the sensual in the context of mediation, the relationship between the sensual and the spatial, and the notion of projection, or extension. Alois Riegl, in his *Historical Grammar of the Visual Arts*, described this sensuous extension in terms of tactility: '[o]nly by drawing on previous tactile experiences do we mentally flesh out into three-dimensional form the two-dimensional surface that our eyes actually perceive.'[24] As Lucia Allais comments, this implies that 'form was always ready to disintegrate in the very act of perception':

> This crumbling of form was for Riegl not only a matter of perception, but also of history. Throughout his scholarship, Riegl located shifts in the perceptual apparatus, making them structural to the development of art. [...] Writing about an impressively diverse set of periods and artifacts, Riegl concluded that the subjective view had gradually gained dominance and that modern art accordingly displayed an increasing tendency to stage the atomistic decomposition of bodies in space. [...] In what he grants may sound like 'the exaggerated theory of a crazed hypermodern man', he hypothesized that 'the individual no longer exists—or, more precisely, is a set of molecules too tiny to be depicted'.[25]

Quantum mechanics meets art history meets ontology in this analysis of the dispersion of the sovereign self by means of empathic involvement.

There were several instances in which notions such as these were elaborated in terms of a general artistic theory. Conrad Fiedler, for example, sought to expand Vischer's theory in the direction of the sensuous, arguing that the optical was not simply an abstract sense. Fiedler was virtually a co-author of Adolf von Hildebrand's 1893 monograph *The Problem of Form*. Hildebrand insisted on the sensuous aspect of spatial perception: '[s]ince we do not view nature simply as visual beings tied to a single vantage point, but, rather, with all our senses at once, in perpetual change and motion, we live

and weave a spatial consciousness into the nature that surrounds us, even where the appearance before us offers scarcely any point of reference for the idea of space' (quoted in *EFS*, p. 239). Hence, for Hildebrand, the tactile in art was 'a kind of synaesthesia or interplay among the senses,' as McLuhan puts it in the *Gutenberg Galaxy* (p. 141). Hildebrand based his theory on the distinction between visual perception, which pertained to the eye at rest taking in a distant view, and kinesthetic perception, which pertained to the near view and the eye in motion. Perception for Hildebrand was thus relational: '[s]ince each quality affects all others, there must always be a translation of inherent spatial values into effective or relative values that are valid for one particular visual frame' (quoted in *EFS*, p. 235). McLuhan expanded this insight into a general theory of the sensorium, in which translation took place along the sensory gamut. It is particularly noteworthy that, in these aesthetic theories on which McLuhan was drawing, space was no longer an absolute; the door had been opened for the entry of time into the 'spatial structuring of form' (Mallgrave and Ikonomou, 'Introduction', *EFS*, p. 38).

Vischer's notion of empathy also influenced the work of Heinrich Wölfflin, whose *Principles of Art History* is likewise cited numerous times by McLuhan (e.g. *GG*, pp. 41, 81). Wölfflin pushed the notion of artistic translation even further than his predecessors. His notion of artistic translatability had far-reaching aesthetic implications, insofar as it critiqued, directly or indirectly, Lessing's notion of space-oriented and time-oriented art, with its underlying assumption that visual art (as opposed to literary art) was static, thus engaging its viewer through sublime contemplation. Lessing had inherited this position from Winckelmann, who suggested that the distinguishing feature of the famous Laocoön statue was the stoic quality of the representation. This view was contested in the most extraordinary fashion by Aby Warburg, the Hamburg art historian whose massive library became the core of the Warburg Institute in London. Warburg argued that the Laocoön sculpture sought to convey movement, rather than the 'static serenity'[26] and aesthetic distance attributed to it by Winckelmann. What Warburg wanted to demonstrate by means of this assertion was that artists consistently sought to represent embodied movement in time rather than stasis, and emotion rather than reserve. But Warburg took this notion of movement further, animating the entire field of art history and giving it a pan-cultural dimension, so that in his vast *Mnemosyne* project—Mnemosyne because, as Giuliana Bruno states, 'memories are moving images' (*Public Intimacy*, p. 8)—he combined high art examples with those of mass culture in what ended up being over a thousand images on more

than 60 panels, at once a process of analysis and a work of art in itself that anticipates the work of Schwitters and El Lissitzky, and of photomontage generally.[27] Through the *Mnemosyne* project, Warburg emphasised the 'mediality' of artistic production, which supervened any given work. Often called the founder of the iconographical approach to art history, the implications of Warburg's approach were much broader. By studying artworks in terms of recurring motifs, facilitated by the boards on which he would pin copies of similar images, Warburg sought to understand art-historical discourse as a montage, rather than as a linear, progressivist narrative, and to do so outside the strictures of Lessing's and Winckelmann's categorical imperatives. As Georges Didi-Huberman puts it, Warburg's theory of artistic production constitutes a '*knowledge-movement* of images, a knowledge in extensions, in associative relationships, in ever renewed montages, and no longer knowledge in straight lines, in a confined corpus, in stabilized typologies. [...] To invent a knowledge-montage in art history meant to renounce evolutionary—and teleological—schemata in place since Vasari' ('Foreword', pp. 10, 12). Instead of artistic evolution, Warburg proposed an artistic pathology—that is, he proposed that artistic representation was a representation of pathos, rather than ethos, and for this he proposed the category of the *Pathosformel*, or 'pathos formula', encodings of emotional intensity that 'migrated through different artworks, periods and countries' (Erll, *Cultural Memory Studies*, p. 9). As Margareta Ingrid Christian remarks, the *Pathosformel* introduces 'a biological milieu into a social environment and a cultural context' and this concept is 'part of a wider nineteenth-century interest in capturing movement scientifically—in particular, invisible movement.'[28]

The symptom of this pathos was bodily movement, what Warburg called 'passionate agitation' (Didi-Huberman, p. 15); these pathos formulae were thus at once embodied, in motion, and emotive. Warburg, furthermore, 'understood that symptoms are not "signs" (the *sēmeia* of classical medicine)' (Didi-Huberman, p. 16). Indeed, Michaud argues that subsequent iconological studies, such as Edgar Wind's *Pagan Mysteries in the Renaissance*, obscured Warburg's insights precisely by enlarding them with a vast verbiage of textual interpretation. In Warburg's understanding of artworks, *the meaning was the metamorphosis itself*. As Michaud puts it, 'the work [for Warburg] is not a closed totality but a juxtaposition of elements in tension' (p. 80), '*eine Ikonologie des Zwischenraumes*,' as Warburg stated ('an iconology of interfaces' [my trans.], German quoted by Michaud, p. 244). And if artworks contain mythological elements, argued Warburg, they also contain references to contemporary daily life:

> artists of the time used the past to convey a reality affecting them directly. The issue was to understand not how the Italian artists, poets, and painters identified with Antiquity but how they appropriated motifs in order to create figures fully participating in Florentine reality. In this appropriation, we find the singular form of style to which we gain access through [...] 'empathy' (*Einfühlung*) (Michaud, p. 81).[29]

Warburg thus theorised that artworks seek to express motion, that this motion was symptomatic of pathos, and that to study such images effectively they would have to be mobilised—'the spectator abandons passive contemplation in order to intervene actively in the representation' (Michaud, p. 83). In this regard, it should come as no surprise that Warburg's *Mnemosyne* project remained unfinished, or, more precisely, asserted constantly its status as a *work in progress*.

The theory of cinematic montage, as developed by Sergei Eisenstein, emerged out of similar art historical considerations. Eisenstein had read the Laocoön in the way that Warburg suggested, in terms of the representation of montaged movement—'sequential displacements'—aimed at juxtaposing 'expressions that appear only in succession' (Michaud, p. 286). Eisenstein's reading of the Laocoön notes that the '"wrinkles of pain" on Laocoön's brow [...] are shown in two different phases of a physically impossible facial expression' (Eisenstein, p. 114), suggesting that what the sculptor was representing was the body in motion, and not a static body. Eisenstein thus critiques Lessing's *Laocoön* on the basis that 'the fundamental subject of [Lessing's] discourse is not so much the conflict between two art forms—painting and poetry—as the conflict between two methods [...] a method dealing in data and results, and the method of images, as a method concerned with becoming, with process' (Eisenstein, p. 153). According to Eisenstein, Lessing theorised two separate realms of painting and poetry because 'in Lessing's day neither Edison nor Lumière had yet supplied him with that most perfect apparatus for research and assessment of the aesthetic principles of art: the cinematograph' (Eisenstein, p. 154).

Eisenstein's move here is similar to Kittler's: the Laocoön is always already the manifestation of a media ontology that would appear fully only when the technology of mediation reached its complete articulation. It is significant that Kittler, like Eisenstein, exemplifies this quality in his discussion of form and content with sculpture. What the sculpture encodes is movement in space, a spacetime that contests rigid ontologies. In this context, Kittler's allusion to Heidegger (noted above) is significant. As Andrew J. Mitchell states in *Heidegger Among the Sculptors*, Heidegger formulates

'a thinking of relationality' in the meditations he made on sculpture late in his career. 'Against a traditional view of space as an empty container for discrete bodies, these writings understand the body as already beyond itself in a world of relations and conceive of space as a material medium of relational content' (Mitchell, p. 91).[30]

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References to motion, movement, speed, acceleration appear on nearly every page of McLuhan's *Understanding Media*, and it is inarguable that motion is fundamental to McLuhan's media theory. To quote from the second page of *Understanding Media*,

> [i]n the mechanical age now receding, many actions could be taken without too much concern. Slow movement insured that the reactions were delayed for considerable periods of time. Today the action and the reaction occur almost at the same time. We actually live mythically and integrally, as it were, but we continue to think in the old, fragmented space and time patterns of the pre-electric age (p. 4).

With this cultural acceleration comes a greater degree of involvement, which McLuhan invokes in terms of empathy: '[t]he aspiration of our time for wholeness, empathy and depth of awareness is a natural adjunct of electric technology' (p. 5). Making his well-known argument that 'the "content" of any medium is always another medium' (p. 8), McLuhan goes on to express this relationship as scalar: 'the "message" of any medium or technology is the change of scale or pace or pattern that it introduces into human affairs' (p. 8). This scalar differentiation allows McLuhan to address the fundamental critical problem raised by an increasingly accelerating mediascape: how is one to gain purchase on a phenomenon—speed—which, by its very nature, does not permit distantiation? McLuhan confronts this issue precisely with reference to the shifts in scale that he had previously identified. The critical advantage of speed-up is that it moves away from the visual bias, the hegemony of a single sense, to a multisensory engagement: '[b]y imposing unvisualisable relationships that are the result of instant speed, electric technology dethrones the visual sense and restores us to the dominion of synesthesia, and the close interinvolvement of the other senses' (p. 111). Speed-up, in other words, makes one more acutely aware of scalar shifts—the point of critical insight—and heightens that awareness through a greater involvement of the sensorium, an insight that would

become the basis for the tetradic analyses McLuhan proposed in the *Laws of Media*.[31]

McLuhan consistently references art history in making these points. For example, he writes in the chapter on 'Clocks' that, 'now that we live in an instantaneous world, space and time interpenetrate each other totally in a space-time world. In the same way, the painter, since Cézanne, has recovered the *plastic image* by which all of the senses coexist in a unified pattern' (p. 148). McLuhan and Parker deal most fully with art historical discourse in *Through the Vanishing Point: Space in Poetry and Painting*. McLuhan's constant assertion of the importance of art as an 'early warning system' of media shifts, strongly supports the suggestion that McLuhan saw in art historical discourse the pre-history of media studies, or indeed, saw a continuum between art and mediation. The subtitle of *TVP*—*Space in Poetry and Painting*—indicates that McLuhan and Parker, like Warburg and Eisenstein before him, contest Lessing's normative categories, which posited poetry as time-based and art as space-based; in McLuhan and Parker's reading, these categories interpenetrate through the concept of space-time. *TVP* was the thirty-seventh volume in a series edited by Kenneth Clark, Werner Heisenberg and Joseph Needham, among others, and was published alongside works by Walter Gropius, Lewis Mumford, Moses Hadas, and Georg Lukacs. It distinguishes itself from these books, however, by its form alone, which comprises a preface; an essay on 'sensory modes'; 49 'exhibits' that juxtapose a visual artwork to a series of aphoristic comments in what McLuhan and Parker call a 'spatial dialogue'; and appendices on tactility and on colour television. These apparently disparate interests, they write, are justified by 'speed up' and the 'resulting increase of interfaces' in the mediated environment. This is where McLuhan and Parker also forcefully make their argument that 'the artist has the power to discern the current environment created by the latest technology' (p. xxiii). Artistic production thus takes the form of an interface of a previous environment, or medium, with the current, epistemic one: '[w]hen two or more environments encounter one another by direct interface,' write McLuhan and Parker, 'they tend to manifest their distinctive qualities' (p. 238). It is noteworthy that what is being manifested here is something about the sociohistorical context of the artwork, and not the artist's psyche. McLuhan and Parker understand the artwork not as a 'form of self-expression' but as a 'kind of research and probing' (p. xxiv), thus aligning the work of the critic with that of the artist, and hence *TVP* takes the form of a critical *livre d'artiste*.

'The content of any system,' write McLuhan and Parker at the end of *TVP*, 'consists of the preceding system, [...] and in that degree the old environment

acts as a control on the new' (p. 242). Film was the obvious exemplar of this principle: not only was it among the clearest examples of remediation in its spectral life on television, but it also exemplified one of the ways in which a previous medium could exercise a cultural effect on a new medium. One reason why McLuhan rejected the linguistic metaphor—which was a major factor in his work being overlooked by the dominant theoretical paradigm of the 1960s and 70s—is that he refused to assign to language a super-medial or exceptional status, and he did so precisely to argue that language could have a dynamic, critical role within a media ecology. 'The word,' write McLuhan and Parker at the beginning of *TVP*, is an 'evocative power, not a sign' (p. 33), and of the first illustration in that book—an image from the Altamira caves—they write that 'the magic of the cave image lies in its *being*, not in its being seen' (p. 35). This relational being is re-encountered in the contemporary media environment. 'It is not a private need of expression' McLuhan and Parker write, 'that motivates [people today] but a corporate need of involvement in the total audience. This is humanism in reverse' (p. 258).

The hybridity of contemporary cultural production constituted a critical basis whereby accelerated culture could be interrogated. Unlike Paolo Virilio, McLuhan did not posit universal acceleration within media.[32] As McLuhan writes in *Understanding Media*, '[t]he speed-up of information [...] naturally created new forms of arranging material for readers. [...] Slow down [this process] and there occurs a change, not only in [...] physical appearance [...] but also in [...] style' (p. 205). Addressing Wlad Godzich's fear that the increasing speed-up of images cannot be controlled, and that all that remains for us is to '*see* a world, images of this world, and an imaginary all travelling at the speed of light in a universe without *logos*' ('Language, Images', p. 370), McLuhan counterposes a universe with not one *logos* but two: *dialogos*. Thus, as he told me in conversation in 1978, he was deeply excited by the entry of Mikhail Bakhtin's theories into the critical parlance of the 1970s, with their insistence both on dialogue and on the bodily dimension of communication. It was also for this reason that he stated that his laws of media—enhancement, reversal, retrieval and obsolescence—represented not a sequential series of relationships but 'four simultaneous ones' (*LM*, p. 99). What we experience in the tetradic forms through which McLuhan pursued his media analyses at the end of his career is an image that works against itself by demanding to be read through its use of language but refusing to be read sequentially or logically. This radical juxtaposition of visual and acoustic spaces constitutes the foundation of McLuhan's media critique.

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In *From Cliché to Archetype*, McLuhan and Wilfred Watson assess James Hillman's 'survey of theories of emotion' and his thesis that emotion is akin to a 'hyphen', a 'flow of relation' across a 'gap' (p. 74). But they also note that '[w]hat Hillman does not stress is that "gap" or "interval" is the space of *touch* or of tactility and involvement. The very word "emotion" is a hyphenated gap, as it were' (p. 74). McLuhan and Watson go on to state that 'Hillman points to the other aspect of ourselves, "that which we might say is particularly our 'human being." This [...] is "passionate not only because its motion is locomotion, but also because its motion and emotion are part of the process of alteration, growth and decay"' (p. 74).

7. Re-Mediating the Medium

for Douglas Coupland

Electronic Man approaches the condition in which it is possible to deal with the entire environment as a work of art. [...] *This new possibility demands total understanding of the artistic function in society. It will no longer be possible merely to add art to the environment.*
McLuhan and Parker, *Through the Vanishing Point* (1968)

It is entirely appropriate to be considering Marshall McLuhan's work at the Moderna Museet[1] in the context of the 'post-medium condition' since this museum has an intimate connection to one of McLuhan's most provocative comments about the nature of art. Writing in *The Medium is the Massage* (1967), McLuhan (with Quentin Fiore and Jerome Agel) superimposed his notion that 'art is anything you can get away with' over an image of Nikki de Saint Phalle's monumental *She: A Cathedral*, photographed in its Moderna Museet installation of 1966. This 82 foot / 28 metre-long sculpture contained music rooms, a cinema and aquarium, and a milk bar in one of the breasts. The sculpture conveys in iconic fashion a number of McLuhan's chief assertions about the function of the work of art in the electronic era: that art was interactive; performative; collective; total; tactile; libidinal; involving; and, especially, environmental. The risqué nature of the image also encoded McLuhan's notion that the artist was at once a critic and a renegade.

McLuhan's media theory was inextricably tied to his ideas about art; in fact, he understood the mediascape as a vast work of art, which, like de Saint Phalle's sculpture, we had come to inhabit. This notion immediately serves to undermine traditional notions of the separation of art and its cultural contexts and, as such, raises a number of theoretical questions about art in its post-medium condition, a condition where the traditional genres of the visual arts—primarily painting and sculpture—no longer seem to hold, and in which we seem to have moved towards a practice-based understanding of the artistic medium. And what can media theory tell us about these shifts?

As I have argued in *McLuhan in Space*, McLuhan, by mid-career (that is, post *Understanding Media*, published in 1964), increasingly sought to address himself to artists and, more radically, to be understood as an artist himself—the 'intellectual as *vates*'[2] as he put it: the critic as creator. McLuhan argued that 'it is the artist's job to *dislocate* older media into postures that permit attention to the new' (*UM*, p. 254), and here we approach one of

McLuhan's central theoretical pillars, namely that of remediation. McLuhan and Harley Parker specifically addressed media theory to artistic discourse in *Through the Vanishing Point: Space in Poetry and Painting* (1968). As the subtitle suggests, McLuhan and Parker's central focus is on the classic distinction made by G.E. Lessing in his 1766 book *Laocoön*, where he sought to differentiate poetry as a time-based art and sculpture as a space-based art. Subtending Lessing's argument was the desire to keep discourse about art separate from the art about which it spoke, thus conserving for critical discourse a superior status—criticism of art could say things about art that art itself must remain silent about. As *TVP*'s subtitle indicates, it is contesting Lessing's distinction by proposing an interfusion of artistic media, as well as of discourse *about* artistic media, and here the *livre d'artiste* format of both *TVP* and *The Medium is the Massage* becomes highly relevant.

By invoking Lessing, McLuhan and Parker were entering into a debate on medium specificity within artistic production that had been re-launched by Irving Babbitt's *The New Laokoon*, published in 1910, in which Babbitt lamented what he saw as the confusion of artistic categories within modernist art. Clement Greenberg had taken up the debate by the 1940s, when McLuhan had already established his reputation in the literary and artistic avant garde, being published in *Neurotica* (1948-1952) magazine, edited by legendary pornophile Gershon Legman; in Cyril Connolly's *Horizon* (1940-1949), whose contributors included Lucian Freud, Barbara Hepworth, Paul Klee, Henry Moore and Ben Nicholson; and in *View* magazine (1940-1947), which also published the work of Joseph Cornell, Brion Gysin, André Breton, Picasso, Klee, Léger and Frederick Kiesler, whose deployment of the 'galaxy' concept would influence the form of McLuhan's masterwork, *The Gutenberg Galaxy* (1962).[3] Greenberg had opted for a 'pure' abstraction in art that he proposed as 'a salutary reaction against the mistakes of painting and sculpture in the past several centuries which were due to [a] confusion [of forms]' ('Towards a Newer Laocoon', p. 296). Greenberg's position also implied a *critical* abstraction, placing the critic in a separate and superior category to that of the artist.

By the end of the 1960s, at the height of McLuhan's fame, the 'confusion' of the arts was being associated specifically with McLuhan's media theories, as is evident in W.K. Wimsatt's essay, 'Laokoon: An Oracle Reconsulted', where he writes that:

> Today's critical 'anti-interpreter' rejoices in the trampling of barriers and in a philosophy that understands the non-reality of all art entities and presumably of most natural ones. [...] We arrive [thus] at 'multimedia',

> the barrage and 'massage', the 'super-saturated attack' on the senses, the 'overload', the 'blitz', contrived with elaborately inventive care in the 'total environment' discotheque, at sales meetings, [...] at electronic theater events, in the halls of Expo and the Royal Ontario Museum:--batteries of pulsing and eye-searing strobe lights, wailing sirens and high-decibel modern rock, flashing and jumping screens, electronically tinted mists, incidental smells and touches, all these for 'turning on' the patron—in a total experience which approximates the effect of the psychedelic drug—a deepening and merging of sensory experience, a release of the mind from the rational ordering of perception. (p. 45)

That McLuhan is the intended target of this attack is hard to miss: in addition to the Canadian context invoked by Wimsatt's references to 'Expo [67]' (dubbed 'McLuhan's Fair'[4]) and to the Royal Ontario Museum (where McLuhan's collaborator on *TVP*, Harley Parker, was Head of Design and Installations), 'massage' is a clear reference to *The Medium is the Massage*, as is 'total environment', and phrases such as 'sensory experience' invoke well-known McLuhanesque concepts.[5]

Wimsatt's concerns reflect what John C. Welchman has identified as 'a kind of subtextual debate on the divisive aesthetic rationale of Lessing's key text. This gave rise to two fields of response to the close zoning of the sign, reproducing that fissure in the formation of the modern between formalist autonomy and self-reference, and non-formalist material and signifying interaction' ('After the Wagnerian Bouillabaisse' p. 62 n. 8). Dadaist and Surrealist works raised these issues very powerfully, as Welchman goes on to note: 'No longer could painting and sculpture be denied access to what Lessing maintained was the exclusive concern of literature: narrative action extending in time. And texts, conversely, were opened up to interactions, [while] visual practice was construed as inseparable from the social, the political, or the personal' (p. 62).

McLuhan and Parker's rejoinder to these issues in *TVP* took as its central argument that the modernist movement in art was a response to 500 years of the spatiality inaugurated by the book, that of three-dimensional space as a concomitant of the foreground/background dynamic (deriving from the figure and ground relationship imposed by black type on white paper) and the fixed position of the viewer. It was this space that was contested by proto-modernist artistic configurations such as the pre-Raphaelite brotherhood, which sought to return to the two-dimensional planar space that had characterised medieval art, the period in which the manuscript predominated, a form which combined text and image. That combination

returned at the beginning of modernism, as cultural production generally began to experience the implications of the end of book culture and the rise of electronic mediation. The book became remediated: no longer the dominant cultural form, it became the content of the new art.

As McLuhan had argued in *The Mechanical Bride*, his 1951 homage to Duchamp's *Bride Stripped Bare by Her Bachelors, Even*, the newspaper remediated in many ways the medieval manuscript's juxtapositions of text and image, producing thereby a much more involving space. As McLuhan puts it in the first essay of *MB*, 'the French symbolists, followed by James Joyce in *Ulysses*, saw that there was a new art form of universal scope present in the technical layout of the modern newspaper. [...] Discontinuity [...] is the visual technique of a Picasso, the literary technique of James Joyce' (pp. 3-4; I have reversed the order of the sentences). McLuhan further argued in *Understanding Media* that the newspaper headline invoked the haptic, sculptural quality of typography (which, until the invention of offset, actually impressed the page physically); as he puts it, 'ordinary newspaper headline style tends to push letters toward the iconic form, a form that is very near to auditory resonance, as it is also to tactile and sculptural quality' (*UM*, p. 160), and, in this context, it is significant to note the uses made of newspaper text not only in early modernist work such as that by Picasso and Georges Braque, but also by postwar artists such as Robert Rauschenberg, an avid reader of McLuhan.[6] The intermediated, involving nature of this art addressed itself to senses other than or in addition to the visual, and the attendant somatic implications became the *cri de coeur* of the art of the 1960s and beyond, from Robert Morris's insistence in his 'Anti Form' article that sculpture should represent a 'process' to Lucy Lippard's 1966 New York exhibition *Eccentric Abstraction* that polemically asserted that the tactile had superseded the visual.

These critiques of what Rosalind Krauss has called the 'optical mirage' (*The Optical Unconscious*, p. 123), the mirage produced by the three-dimensional spatiality inaugurated by the book, coalesced in Jackson Pollock's large canvases. As John Welchman puts it, the 'progressive dependence of painters on effects of the surface was seen as a decisive rejection of post-Renaissance verisimilitude and perspective' ('After the Wagnerian Bouillabaisse' p. 61). McLuhan's assessment in *Understanding Media* was characteristically overarching: '[m]erely by releasing objects from the uniform continuous space of typography we got modern art and poetry' (p. 289), where he is thinking not only of early cubism but of poems such as *The Waste Land*, which produce meaning through juxtaposition of discrete texts, rather than through linear continuity—'These fragments I

have shored against my ruins' (*Complete Poems and Plays*, p. 50), as Eliot writes. McLuhan summarised his position in *The Medium is the Massage*:

> Art [...] is shaped by the way space is perceived. Since the Renaissance the Western artist perceived his environment primarily in terms of the visual. Everything was dominated by the eye of the beholder. His conception of space was in terms of a perspective projection upon a plane surface consisting of formal units of symmetry—as an absolute condition of order. This view is deeply embedded in the consciousness of Western art. (pp. 56-7)

The effect of electronic mediation, McLuhan suggested, would be a re-integration of the perceptual field of all the senses. Electronic media thus proposed a return to sensual, affective, involving mediation, including artistic mediation. Hence, McLuhan and Parker's notion that modern art had gone 'through the vanishing point': in eliminating the fixed position of the viewer and the third dimension, modernism sought to involve the viewer as the (co)producer of the work's meaning. This element of involvement was, among other things, part of a much larger sensory revolution that had an apotheosis of sorts in the 1960s via the concept of tactility. And, as McLuhan and Parker emphasise in *TVP*, the chief aspect of tactility (to which they devote a concluding essay) is the interval—what they term 'resonance'—as opposed to the continuity posited by print culture. While the visual appearance of two-dimensional space is flat, its sensory dimension is 'the opposite of inert. [...] For dynamic simultaneity is the effect of the two-dimensional, and inert homogeneity the effect of three-dimensionality' (*GG*, p. 127). McLuhan and Parker are aware that this argument is counter-intuitive; as they write, '[i]n a visual culture it sounds quite paradoxical to say that sculpture is primarily tactile and only incidentally visual. In fact, tactility [...] is crucial in the world of the arts' (*TVP*, p. 263) because tactility facilitates empathic involvement.

McLuhan and Parker's *TVP* contributed to an aesthetic debate about artistic categorisation that continues to the present day. One of the major articulations of this debate was Rosalind Krauss's 'Sculpture in the Expanded Field', where she writes:

> Over the last ten years rather surprising things have come to be called sculpture: narrow corridors with TV monitors at the ends; large photographs documenting country hikes; mirrors placed at strange angles in ordinary rooms; temporary lines cut into the floor of the desert. Nothing,

> it would seem, could possibly give to such a motley of effort the right to lay claim to whatever one might mean by the category of sculpture. Unless, that is, the category can be made to become almost infinitely malleable. (p. 31)

The danger in this infinite expansion of the field, as Krauss sees it, is that it denies difference by asserting a universal category (in this case, 'sculpture') that is able to encompass all possible manifestations of the form. Like Lessing and his followers, Krauss is thus concerned with category contamination. To this concern she opposes the argument that sculpture is an 'historically bounded category and not a universal one' (p. 33) and that sculpture, for much of its history, had been associated with the monument and had thus been site specific. Krauss associates the loss of this site-specificity with modernism itself: 'it is the modernist period of sculptural production that operates in relation to this loss of site, producing the monument as abstraction, the monument as pure marker or base, functionally placeless and largely self-referential' (p. 34).

The absorption of the base—thus marking its transportability—and the concomitant self-referentiality, define for Krauss the particular modernity of sculpture, which began to exhaust itself by the 1950s as a sort of 'pure negativity' (p. 34). To quote Krauss again: 'within the situation of postmodernism, practice is not defined in relation to a given medium—sculpture—but rather in relation to the logical operations on a set of cultural terms, for which any medium—photography, books, lines on walls, mirrors, or sculpture itself—might be used' (p. 42). It is this lack of medium specificity that represents the greatest threat of postmodernism for Krauss; in *Under Blue Cup*, Krauss resorts to the notion of 'technical support'—the automobile, for example, is the technical support of Ed Ruscha's work—as the contemporary iteration of paint on canvas, a formulation which allows her to extend the notion of medium to post-media practices while denying those media—including the automobile, which has its own chapter in *Understanding Media*—any significance within art historical discourse. One wonders what Krauss would make of David Hockney's use of the iPhone and iPad to paint pictures of flowers. Hockney wonderfully blurs the art-historical notion of 'medium' with the mediatic use of the term when he writes that 'I was aware immediately when I started drawing on the iPhone that it was a new medium' (*Fresh Flowers*, n.p.).

As Joseph Kosuth noted in his 1969 essay, 'Art After Philosophy', Duchamp was pivotal in repositioning the understanding of art as deriving from its physical embodiment (the position that Krauss appears reluctant to give up), to a notion of art as an investigation of the possibilities of art itself, of the

medium. Duchamp played throughout his career with this self-referentiality and its suggestion that the line dividing artist and critic was beginning to blur. This blurring of the critical function has its concomitant in the blurring of artistic media that is the subject of McLuhan and Parker's *TVP.* As we recall, the authors argued there that the flat plane of non-perspectival art achieves a multi-dimensionality that they associated with tactility. As Alex Potts comments, such work, which began to proliferate in the 1960s, 'is characteristically sculptural because of its focus on the tactile substance of objects and materials and the literal properties of its medium. At the same time, through this very focus, it negates traditional conceptions of sculptural form that were seen to constitute sculpture as a distinctive artistic medium' ('Tactility', p. 284). In an era that would increasingly move away from the traditional notion of sculpture, Potts observes, 'sculpture, the haptic three-dimensional art, the art of things and objects, is everywhere and nowhere: everywhere in that objects and three-dimensional props are standard features of contemporary art installations; nowhere in that these displays are rarely conceived as falling into the category of sculpture' (p. 286). What is important about these post-medium works is that their 'vividly felt sense of tactility displaces any immediate apprehension of structural qualities associated with sculpture as an art form' (p. 286). Joseph Beuys' use of felt, for example, achieves its sculptural qualities through tactility rather than through form. And the everydayness of felt suggests that the notion of artistic materiality has been vastly expanded, as Potts suggests, to embrace 'a materiality taken in the broadest sense—to include cultural phenomena, as well as images, voices, sounds and texts, in so much as these constitute the fabric of people's everyday world' (p. 302). It is precisely here that McLuhan's work on 'the medium'—a term to which he gave new meaning and new cultural force—gained its purchase: '[r]ethinking medium seemed to offer a viable way of re-imagining and perhaps even remaking the world for people across the political spectrum—this was, after all, the moment that produced Marshall McLuhan's immensely popular, eccentrically utopian and dystopian speculations on the shaping force of medium in modern culture' (p. 302). Those speculations began with a meditation in *The Gutenberg Galaxy* on typography, on its materiality, and on its material effects on social, cultural and political production and how, after 500 years of print culture, electronic mediation was retrieving the qualities of sensuous engagement that had been associated with orality.

We see evidence now of this sensuous engagement in the rise of performance art and also in the expansion of the notion of the aesthetic into our increasingly mediated relationship with the world around us. The

supersaturation of contemporary media culture means not only that the traditional artistic media have converged through digitisation, but that our being is taking on an aesthetic dimension insofar as computational media are extensions of our consciousness. Domenico Quaranta, in *Media, New Media, Postmedia*,[7] suggests that post-medium art is finding its place not only in the interstices of traditional artistic genres but between the arts and the sciences and between arts and technology: having put our bodies outside ourselves we now inhabit them as artifacts through technologies such as Facebook. The medium, thus, has not disappeared. It has become environmental, as McLuhan suggested in his reading of Nikki de Saint Phalle's installation, and it is important to note here that McLuhan derived the concept of the 'environment' from the artistic practice of the installation.

Interestingly, art as environment does not seem to present a threat for artists. Maurizio Cattelan's retrospective installation, shown at the Guggenheim New York in December of 2011, takes all the art off the walls and hangs the works from the ceiling, making the viewer strain and bend and gyrate to see his work. As Nancy Spector remarks in the catalogue for the show, this form of exhibition does not constrain Cattelan's critical position:

> As a child of the 1960s, Cattelan is a product of [the] relentlessly mediated environment, in which the spectacle is no longer 'understood as a mere visual excess produced by mass-media technologies' but rather 'a worldview [...] that has become objective'. Cattelan is not at all interested in conquering the totalizing perspective of the spectacle, in opposition to Debord and the other Situationists, critical forebears to his artistic generation. Rather, he infiltrates spectacle culture in order to choreograph its effects from within, with a long-term goal of reclaiming subjectivity and raising consciousness about significant moral issues. (p. 108)[8]

Indeed, the choice of medium says little about the critical potential of a work of art, as Jan Verwoert has noted.[9] If anyone is threatened by such choices it is the critics: Cattelan's retrospective has been universally panned. I would argue that a major reason for this negative reaction is that Cattelan denies his critics a fixed standpoint (quite literally at the Guggenheim) from which to abstractly view his art—the Greenbergian ideal. He demands, rather, that the critic be immersed in the work of art. As Daniel Miller has suggested, 'the paradoxical critic appreciates that they hold no transcendent position, but rather remain at ground level, involved in the same system' (n.p.). This is the challenge of post-media art. At the same time that the category of the aesthetic continues to expand, the very notion of the aesthetic becomes

paradoxical. As Leonard Koren notes in *Which 'Aesthetics' Do You Mean?*, 'aesthetics is pervasive in our lives and behavior. It's basic, it's primal. The way we dress, style our hair, decorate our homes, prepare our food, give names to things—these are all aesthetic activities. Then there's the novels we read, the music we listen to, the movies we view, the video games we play, the art we make and collect' (p. 1). Through the involving nature of electronic mediation, we ourselves have become artifacts within this environment, and it is this environment that we call 'the media'.

Determining Technology

8. McLuhan, Turing, and the Question of Determinism

To attempt to provide rules of conduct to cover every eventuality, even those arising from traffic lights, appears to be impossible.
Alan Turing, 'Computing Machinery and Intelligence'

Lack of homogeneity in speed of information movement creates diversity of patterns of organization.
Marshall McLuhan, *Understanding Media*[1]

Marshall McLuhan arrived at Cambridge University in the fall of 1934. He enrolled at Trinity Hall (Marchand, *Marshall McLuhan*, p. 38) and remained there until the summer of 1936, when he received his Bachelor's degree, having 'set the foundations for almost all of his subsequent intellectual work' (Marchand, p. 41). By extraordinary coincidence, Alan Turing, then a Fellow of King's College, was at the same time 'supplement[ing] his fellowship by supervising undergraduates in next-door Trinity Hall' (Hodges, *Alan Turing*, p.5). Their paths quite possibly crossed, although John Polanyi, who knew them both, states that McLuhan, 'sadly', never spoke of Turing.[2] Biographical speculation aside, it is possible to argue that Cambridge's reputation as a hotbed of research in physics loomed large in their intellectual lives, even though the one had enrolled in Cambridge to study literature and the other mathematics.

It was particularly the question of *determinism*, put in play by the researchers in the Cavendish physics lab at the time that McLuhan and Turing[3] were in Cambridge, that had a role in the formulation of their theories about mediation. While the question of determinism is visited today in media theory in terms of a debate about whether media 'determine' our situation, as Friedrich Kittler has put it (*GFT*, p. xxxix), at the time that McLuhan and Turing were students at Cambridge, the question of determinism had a distinctly philosophical dimension, and was often invoked in questions related to issues in physics and mathematics arising in the context of the breakdown of Newtonian physics in the face of the increasing understanding of quantum effects. For the purposes of this chapter, I am understanding 'determinism' as an aspect of media 'traffic',[4] that is, in terms of the 'signals'[5] that seek to control, or determine, the movement of

that traffic. The metaphor of traffic was specifically invoked by Turing, and the question of media traffic, or movement, emerges in McLuhan's formulation of the 'laws' of media.

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Motion or movement, in the sense of kinesis, is fundamental to our understanding of media. From McLuhan's insistence on the relationship of mediation to concepts of movement inherent in metaphor (from the Greek *metapherein*, to transfer) and translation (from the Latin *translatio*, to carry across), to the fundamental importance in Kittler's media theory of cognitive notions such as *aufschreiben*, which describe a motor-spatial experience—writing *down*—mediation has had an association with movement. John Durham Peters has shown the early confluence of transportation and communication theories, noting Charles Horton Cooley's comment in *The Theory of Transportation* (1894) that '"[t]ransportation is physical, communication is psychical"' (*Speaking into the Air*, p. 275), and Durham Peters remarks that '*Verkehr*—traffic or exchange—is the closest Marx gets to naming communication' (p. 125). Harold Innis, whom we know today as a communications theorist, began his career as a student of transportation; his first book, *A History of the Canadian Pacific Railway*, published in 1923, has more than 50 indexed references to 'traffic'. By 1930, however, when Innis published *The Fur Trade in Canada*, 'traffic' had given way to 'transportation' in the index, and the second item under that heading was 'communication'—by express, telephone, and radio. It was McLuhan who noted in 1951 that, at the end of his career, Innis had turned from 'the trade-routes of the external world' to 'the trade-routes of the mind' ('The Later Innis', p. 385), harkening back to the comment of Charles Horton Cooley about the physical and the psychical; as Durham Peters puts it, 'the rise of the concept of "communication" is a symptom of the disembodiment of interaction', (*Speaking into the Air,* p. 228), a notion that emerges in McLuhan's concept of 'discarnation' and in the famous Turing test.

'[T]raffic has its own logic and forms its own structures and rules; [...] one can plan, steer and direct [traffic] but probably not control [it].'[6] It is possible to explore this scenario in terms of traffic signals—both 'sign traffic' as well as the signals that control movement of that traffic in order to avoid 'traffic accidents, tail-backs or blocks.'[7] To what extent do these signals 'determine' the flow of traffic?

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There are a number of similarities between the work of McLuhan and Turing that contextualise a discussion of the role that determinism played in their notions of media 'traffic'. Perhaps most significantly, they were both influenced by the 'new' physics as practiced in Cambridge's Cavendish lab, and by related questions emerging from the work of A.S. Eddington and his response to Laplacian determinism. (I should note parenthetically that although McLuhan's Cambridge years are often taken to signify his encounter with the New Literary Criticism, I have argued elsewhere that the New Physics affected him profoundly.[8]) As Andrew Hodges writes in his biography of Turing, 'Eddington [...] wished to preserve some idea of free consciousness. [...] He had to reconcile this with the scientific view of physical law. And how, he asked, could "this collection of ordinary atoms be a thinking machine?'" (p. 65). Hodges adds that 'Alan's problem was the same.' For McLuhan, Eddington was a link to Einstein's notion of the spacetime relationship in physics (cf. McLuhan and Nevitt, *TTED*, p. 113), and to fourth-dimensional philosophy,[9] which is important in having addressed both physics and metaphysics.[10] As I note in *McLuhan in Space*, '[p]hysics is one of the major topoi in *The Gutenberg Galaxy* (1962), providing the key metaphor for the relational, dynamic methodology McLuhan substituted for the concept of 'arrest' that he had employed in his first book, *The Mechanical Bride* (1962)' (Cavell, p. 61, with some changes). McLuhan particularly invoked the new physics as support for his critique of visual space, drawing on Heisenberg's use of the term 'resonance' in his account of quantum mechanics to argue in *The Gutenberg Galaxy* that the random state in physics was cognate with the auditory domain (27). Linus Pauling explained this term in *The Nature of the Chemical Bond* using the metaphor of a tuning fork, which significantly invokes the auditory domain as the site of indeterminacy:

> the resonance phenomenon of classical mechanics is observed [...] for a system of two tuning forks with the same characteristic frequency of oscillation and attached to a common base, which provides an interaction between them. When one fork is struck, it gradually ceases to oscillate, transferring its energy to the other, which begins its oscillation; the process is reversed, and the energy resonates back and forth between the two forks until it is dissipated by frictional and other losses. (pp. 12-13)

Here we see the notion of media 'traffic' in the way that McLuhan conceptualised it, namely as a notion of translation that excludes equivalency. McLuhan and Nevitt write in *TTED* that 'Einstein, Heisenberg and Linus

Pauling have baffled the old mechanical and visual culture of the nineteenth century by reminding scientists in general that the only physical bond in Nature is the resonating interval or "interface". [...] It is hard for the conventional and uncritical mind to grasp the fact that "*the meaning of meaning is a relationship*": a figure-ground process of perpetual change' (p. 86). Turing, at the end of his career, was also interested in the principle of resonance.[11] As he writes in his 1952 article 'The Chemical Basis of Morphogenesis', '"[i]t is usually easy to understand how an oscillator keeps going when once it has started, but on a first acquaintance it is not obvious how the oscillation begins. The explanation is that there are random disturbances always present in the circuit'" (quoted by Hodges, p. 432).[12]

Resonance, understood in the context of oscillation, raises the notion of the 'interface'. First coming into usage in the nineteenth century (Drucker, *Graphesis*, pp. 139-146), the term was used 'to understand circulation, distribution, and transmission on a large and small scale' (Schaeffer, 'Interface', p. 164). It was physicists, and particularly James and William Thomson, who adopted the term most fully. William Thomson, later Lord Kelvin, was a pioneer of transatlantic telegraphy, while James focused his attention on river networks. Although William Thomson had used the word 'interface' for the first time in 1874 in the context of the natural sciences to refer to 'conduits and pathways for transmission as they refer to the flow of energy' (Schaefer, p. 165), by 1880 he had extended the term to telegraph technology (Schaefer, p. 165).

Of particular note in this context is the debate initiated by James Clerk Maxwell, the Cambridge physicist, over a concept commonly referred to as 'Maxwell's Demon', which suggested that the second law of thermodynamics 'was open to chance and limited by a problem of observation. How can one be certain that the entropy of a closed system will increase over time?' (Schaefer, p. 165). As Schaefer goes on to note,

> To illustrate the significance of this question, Maxwell imagined an enclosed space divided into two sections that are kept separate except for a small opening. Both sections are filled with gas molecules, and a tiny creature [Maxwell's demon] is stationed at the opening between the two chambers. This creature will only allow the faster, warmer molecules on one side and the slower, colder molecules on the other. This hypothetical scenario would violate the second law of thermodynamics. Maxwell's Demon suggests that one could only say that it is statistically likely that the entropy of a closed system will increase, meaning that the second law of thermodynamics is not an observable condition of nature. (Schaefer 165-6)

It was William Thomson who named Maxwell's creature a 'demon' (perhaps in contra-distinction to 'Laplace's demon' of causality) and it was in the same article that he used the term 'interface' to refer to the place where the demon is found—the place between the two chambers. Of greatest significance here is that the interface is a site of indeterminacy. Thus, when Thomson became involved with the laying of the transatlantic telegraph cable, the concept of the interface served as the theoretical focus of his enquiries into signal degradation.

The concept of interface is crucial to the famous Turing test, which devolves from a human-computer interface in which the test consists of the computer being able to convince a human that it is likewise a human.[13] The point of this test, which has occasioned considerable controversy and speculation,[14] is, I would argue, the interface itself, and that interface is indeterminate in the way suggested by Maxwell. In proposing a human/computer interface, Turing is suggesting, as Judith Genova argues, that 'biology is open to thought's manipulation; [...] the possible mergings of humans with machines [...] made it clear that no boundaries were sacred or unbreachable. All rules, all categories, all boundaries were made to be transgressed' ('Turing's Sexual Guessing Game', pp. 315, 317). The Test was to Turing what the 'mechanical bride' was to McLuhan: an exploration of the interface of technology and biology.

The question of determinism was foremost in Turing's thought as he began work on what would become the 'Turing machine', but now, as Hodges puts it, '[i]nstead of trying to defeat determinism, he would try to account for the appearances of freedom' (p. 108). What would ultimately eliminate determinism from this scenario was the potentiality that the machine could *learn*. This was not for Turing a mimetic project, however. As he put it, "'I certainly hope that no great efforts will be put into making machines with the most distinctively human, but non-intellectual characteristics, such as the shape of the human body. It appears to me to be quite futile to make such attempts and their results would have something like the unpleasant quality of artificial flowers. Attempts to produce a thinking machine seem to me to be in a different category'" (quoted by Hodges, p. 420, from a BBC radio talk given in 1951). Turing's comments have a parallel in McLuhan's insistence on the distinction between matching[15] (or imitation) and making (or process), one closed and the other open-ended.

McLuhan's *Laws of Media*—enhancement, reversal, obsolescence and retrieval—are likewise indeterminate insofar as they exist simultaneously (McLuhan and McLuhan, *LM*, p. 127). This is a highly paradoxical scenario for the 'traffic signals' that govern mediation; although McLuhan

and McLuhan assert that all human artifacts 'share this same four-part logos-structure' (p. 127), '"[m]edia determinism"' (p. 127) can arise only from failing to recognise the *pattern* of the media process. As McLuhan puts it in *Understanding Media,* '[l]ack of homogeneity in speed of information movement creates diversity of patterns of organization' (p. 91), and it is this diversity that becomes the focus of the media theorist.

McLuhan's position derives from his critique of Shannon and Weaver's transportation notion of communication, which underlies the dictionary definition of 'media traffic', the second definition given in the *Oxford English Dictionary*: 'the messages or signals transmitted through a communications system.' McLuhan's formulation of the laws of media as simultaneous emerges from his notion that media transform rather than transfer; his four laws of media correspond to the four nodes of metaphorical traffic: A=B where A≠ B (as in 'My love is a red, red rose'). These traffic signals alternate as figure and ground (a red light producing the stopped cars as ground and the moving ones as figures, and vice versa), or perhaps as zero and one in a binary system. As Alexander Galloway remarks, McLuhan 'evokes interface as a type of friction between media, a force of generative irritation' (*The Interface Effect*, p. 149 n.8).

Despite Turing's programs and despite McLuhan's laws, neither ultimately conceived of their theories as deterministic.[16] As Turing stated, '[o]ne might [...] have a rule that one is to stop when one sees a red traffic light, and to go if one sees a green one, but what if by some fault both appear together? One may perhaps decide that it is safest to stop. But some further difficulty may well arise from this decision later' ('Computing Machinery and Intelligence', p. 457).[17] McLuhan and Turing appear, thus, to have anticipated the contemporary turn in physics from laws to probability. As Luciano Floridi remarks in his short introduction to information theory, '[n]owadays, the most accepted view in physics is that particles behave indeterministically and follow the uncertainty principle. To the best of our knowledge [...] computational determinism is not an option, Laplace's demon is a ghost, and digital physics shares its fate' (*Information*, pp. 69-70). Or, as Turing put it, '[t]o attempt to provide rules of conduct to cover every eventuality, even those arising from traffic lights, appears to be impossible' ('Computing Machinery and Intelligence', p. 457).[18]

9. Angels and Robots

In the mid-1970s, Marshall McLuhan proposed to revisit his foundational text, *Understanding Media*, in order to address the generation that had experienced the transition from visual space to acoustic space—from the space produced by print media to the space produced by electronic media. Whereas visual space was abstracting, monological and eye-bound, argued McLuhan, acoustic space was involving, dialogical and multi-sensual. What, asked McLuhan, were the implications of this massive shift? The question is no less pertinent now that the move into the electronic regime has advanced so considerably, with the spatial element having become crucial to an understanding of ubiquitous communications.[1]

Philip Marchand writes in his biography that 'McLuhan's never-ending search for collaborators found him working in 1979 with Bruce Powers, a professor of communications for Niagara University. [...] Powers was knowledgeable about new information technologies such as fiber optics and microwave transmissions; [...] together the two planned to write a book called *The Social Impact of New Technologies*' (*Marshall McLuhan*, p. 266). That book was not completed because McLuhan suffered a severe stroke in late September, 1979, which left him unable to speak, read or write (Marchand, p. 270), but in 1989, Powers published *The Global Village: Transformations in World Life and Media in the 21st Century*, a compilation of McLuhan's writing, and of dialogues between McLuhan and Powers. In the book that McLuhan had been planning, he had not been proposing to revise substantively the media theory he had put forward in *Understanding Media*. He was, in fact, refining these theories as the tetradic *Laws of Media,* which were published posthumously in 1988. Rather, writes Powers, 'McLuhan, in his final years, wanted to talk to a new generation, one which was twenty to twenty-five years beyond *Understanding Media* (1964) [...] [and] [...] in the grasp of a vast material and psychic shift between the values of linear thinking, of visual, proportional space, and that of the values of the multi-sensory life, the experience of acoustic space' (*GV*, p. ix). Powers states that McLuhan sought to develop the implications of the notion that 'the extensions of human consciousness were projecting themselves into [a] total world environment via electronics' (p. vii). Much of this is familiar from *Understanding Media* (and from McLuhan and Nevitt's *Take Today*); to this material, McLuhan added his increasing interest in theories of left versus right brain hemispheres,[2] theories currently revived in the work of behavioural neuroscientist Antonio Damasio,[3] and others.

McLuhan associated acoustic space with the right hemisphere of the brain, which is the hemisphere that supports synchronic thinking in terms of patterns and configurations, and visual space with the left hemisphere, which is diachronically logical and linear in orientation. Given that left-brain thinking and right-brain thinking are not independent but mutually supportive, the interface (*corpus callosum*) between these sections of the brain occupies a crucial position, which McLuhan associated with the resonating interval: '[t]he interface [...] is resonant and not static. That pressure creates a condition of continual, potential transformation called *chiasmus*. Resonance is the mode of acoustic space; tactility is the space of the significant bounding line and of interval' (*GV*, p. 6). McLuhan argues that the mode of analysis most suited to understanding the relationship between right- and left brain is tetradic, not syllogistic, since the syllogism tends to eliminate ground (context), whereas left- and right brain function chiasmically[4] as environmental ground to the figure of the dominant hemisphere, a relationship addressed by the tetrad. Thus, when I watch television, the left brain subsides into ground as the right brain takes over in pattern recognition. McLuhan argues that, with our increasing dependence on media such as computers to do our left brain thinking for us, 'knowing itself is being recast and retrieved in acoustic [right brain] form' (*GV*, p. 14).[5] This trajectory of McLuhan's thought is echoed in current notions about the effects of the computer on thought patterns. Daniel Pink's *A Whole New Mind: Why Right-Brainers Will Rule the Future*, argues that we are 'entering a new age [...] that prizes aptitudes [of] "high concept" and "high touch"' (p. 2). To understand media in their electronic iteration, McLuhan suggests, one must do so from a right brain perspective, that is, configurationally; to do so from a left-brain perspective, linearly and logically, would be inadequate to the phenomena that now confront us.

McLuhan developed his notions about right and left brain thought through two metaphors that he had used intermittently over the previous decades: angels and robots. Left-brain thinking he characterised as 'angelism', right-brain thinking as 'robotism', and these terms already hint at the social and cultural complexities that McLuhan associated with the deepening immersion in the electronic vortex. Angelism is the mode of abstraction associated with alphabetic culture, writing and printing, and visual space. Angelism tends to exclude ground and concentrate on the figure 'floating around devoid of its original context' (*GV*, p. 79), as in the process of reading text, where the figures of black type predominate over the ground of white page. Angelism is thus also associated with the fixed point of view, with hierarchy and specialism. Robotism refers not to 'the

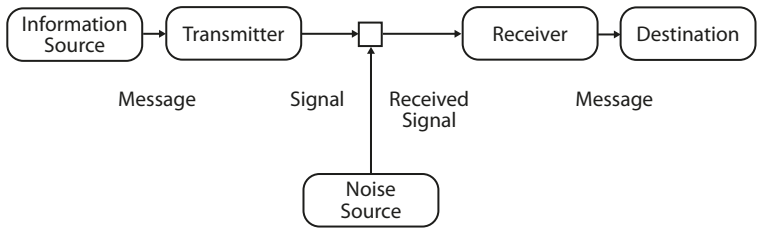
Fig. 9.1. Tetrad for Acoustic Space

mechanically rigid behavior of "Rossum's Universal Robots"'[6] but to 'the suppression of the conscious "observer self" or conscience, so as to remove all fear and circumspection, all encumbrances to ideal performance', (p. 67) such that '[r]obotism is instant readjustment' (p. 69), a process that is being increasingly facilitated by the universal translatability afforded through digital technologies. Robotism, in addition, is not place-related. It emphasises multiple points of view, is directed fully towards ground and acoustic space rather than to figure, is empathetic, has a compulsion towards interface, and is decentralizing; the awareness of ground implies participation rather than detachment.

The implications of angelism and robotism for our understanding of communication is profound; as McLuhan writes:

> [t]he basis of all contemporary Western theories of communication—the Shannon-Weaver model—is a characteristic example of left-hemisphere lineal bias. It ignores the surrounding environment as a kind of pipeline model of a hardware container for software content. It stresses the idea of inside and outside and assumes that communication is a literal matching, rather than making (*GV*, p. 75).

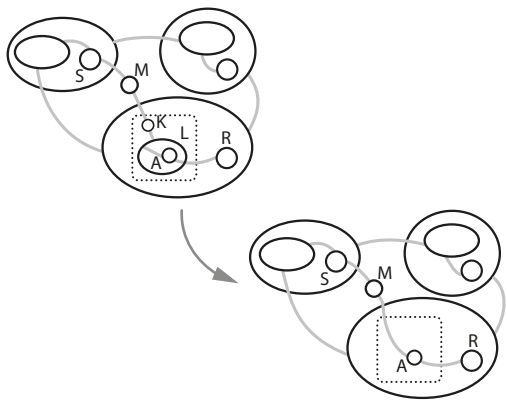
Fig. 9.2. The Shannon-Weaver Communication Model



This way of understanding communication is now outmoded:

> [i]n the electronic age, a right-hemisphere model of communication is necessary, both because our culture has nearly completed the process of shifting its cognitive modes from the left to the right hemisphere, and because the electronic media themselves are right-hemisphere in their patterns and operation (p. 80).

Fig. 9.3. Communication Bigraph



One can observe these differences graphically by comparing Shannon and Weaver's diagram of communication with one proposed by Robin Milner. The former is fundamentally linear, while the latter is more aptly characterised as a series of flows.[7] The critical and theoretical problem represented by the shift from left brain to right brain was thus '*to discover such a model that yet is congenial to our culture and its residua of left-hemisphere orientation*' (p. 80, emphasis added).

One such manifestation of this problematic was the attempt to regain the notion of individual identity inculcated by print culture in an era of the increasing dispersion of identity by media that displace the self and thus lead to ontological uncertainties—ID as RFID. To this imploded ontology McLuhan gave the name 'discarnate man' (p. 97), cautioning that '[l]oss of individualism invites once again the comfort of tribal loyalties' (p. 98). On the positive side, the involving nature of right-brain media turns the consumer into an active producer. 'More and more people will enter the market of information exchange, lose their private identities in the process, but emerge with the ability to interact with any person on the face of the globe,' because '[o]pen wireless transmission, being truly acoustic, is a group voice' (*GV*, pp. 118-119). As James E. Katz puts it, mobile technology 'will link us more tightly to our interpersonal networks even as it allows us to wander further from them physically' ('Mainstreamed Mobiles', p. 436).

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McLuhan's theory of mediation is bio-extensive; while mechanical media extended the body, electronic media, in his understanding, extended consciousness. This notion accords with the 'extended' (or 'wide') model of human cognition, which argues that 'cognition can and often does depend directly or constitutively on the non-brain body and structures outside the body' (Thompson, 'Sensimotorists', p. 29).[8] According to this model, '[c]onsciousness is a way of being actively related to the environment; it depends on inner states but is not itself an inner state. Its locus is therefore not the brain, but the body in active engagement with the world'; thus, 'the substrates of consciousness are not exclusively neural, but extend physically and functionally beyond neural systems to include the non-neural body geared into its environment' (Thompson, p. 29). This 'extended mind theory' was first proposed by Andy Clark and David Chalmers in 1998; it proposes that 'cognitive processes can include structures outside the body as proper parts of the information-processing routines undertaken to solve a problem or carry out a cognitive task.'[9]

McLuhan's cognate argument is that electronic mediation has prosthetically extended our body and our consciousness to the point that we live in a totally embodied cosmos, but that by virtue of this extension our bodies are now *outside* us in a way that is mimicked by the current move towards cloud computing,[10] that is, to a mode of computing whereby the processing activity is outside the individual computer in large, amorphous 'clouds' of computers. What is crucial to note here is that computing has

extended *itself* through this process in what can only be considered the next stage of bioextension. Computers, in effect, have become the new *bios*. Those who muse upon an era when computers will do our thinking for us have failed to note that this process has already initiated and that the phase they contemplate would be merely a refinement of what has already taken place.[11] We now live in the extruded bodily sensorium to which McLuhan gave the name 'environment', and it is this electronic environment that we nostalgically refer to as 'nature'. The effects of media, as this example suggests, always tend towards environmentalisation; additionally, media seek to work organically in conjunction with other media via remediation, a functionality greatly accelerated by the invention of the World Wide Web, as Nicholas Carr has argued in *The Big Switch*,[12] which proposes that an effect of the shift towards cloud computing will be to move from a consumption to a production model of mediation. This shift is congruent with the shift from visual to acoustic space; as McLuhan writes in *The Gutenberg Galaxy*, 'the printed word [separated] [...] producer and consumer' (p. 209), and electronic media are bringing them back together again. Thus, one is able both to purchase a book online from Amazon.com and also to write a review of the book; to view a video on YouTube and produce one in response; to read a blog and respond to it; to research an idea on Wikipedia and also modify the reference. As Carr notes, '[t]he public computing grid isn't just a transmission channel [...]. It's also a means of assembling, or integrating, the diverse components into unified and useful services (*Big Switch*, p. 113). The 'involving' aspect of this production model of mediation signals the recalibration of the sensorium from visual dominance to a tactile re-engagement with the sensorium (because touch is the senses in action), and this provides a basis for understanding the explosion of growth in handheld devices such as the mobile phone, laptops and tablets. The mobility of these devices can be understood bio-extensively: they facilitate the movement of the *people* who hold them and the information they access. And their 'phonic' dimension relates to acoustic *space*: increasingly, these devices (and smartphones paradigmatically) are used to communicate *with other devices* and applications in non-Euclidean (local/global) space, and not primarily to facilitate communication with other people. Mobile communication provides a telling example, thus, of that state McLuhan referred to as 'discarnation', an out-of-body experience that is generalised through technology.[13]

McLuhan and Powers conclude *The Global Village* with a discussion of the 'satisfactions' and 'dissatisfactions' of 'global robotism' (pp. 83-129);

angelism is not an option. Remarking on the paradoxical 'disembodied' and 'collective' (p. 83) nature of electronic communication, McLuhan and Powers suggest that interactive technologies will 'produce the dominant right-hemisphere social patterns of the next century' (p. 83). 'Users' of the new communications technologies will 'simultaneously become producers and consumers' (p. 83). This makes for a highly creative environment as facilitated by the horizontal transfer arrangements made possible by the non-linear, non-hierarchical space produced by electronic media. The flipside of this situation produces some of the 'dissatisfactions' of robotism:

> Electronic man loses touch with the concept of a ruling center as well as the restraints of social rules based on interconnection. Hierarchies constantly dissolve and reform. The computer, the satellite, the data base, and the nascent multi-carrier telecommunications corporation will break apart what remains of the old print-oriented ethos by diminishing the number of people in the workplace, destroying what is left of personal privacy, and politically destabilizing entire nations through the wholesale transfer of uncensored information across national borders. (p. 92)

This reflects the fact that one pole of electronic culture is corporate while the other is fragmentary: '[e]lectronic man wears his brain outside his skull and his nervous system on top of his skin. [...] He is like an exposed spider squatting in a thrumming web, resonating with all other webs. But he is not flesh and blood; he is an item in a data bank, ephemeral, easily forgotten, and resentful of that fact' (p. 94). The 'group mind' (p. 97) will predominate in this culture, and when 'people do not know who they are, they get anxious and violent' (p. 98). Facilitated by the 'wireless canopy' (p. 119) of mediation, '[e]veryone will be involved in robotic role-playing' as part of 'a new robotic corporate entity' (p. 129).

McLuhan counters this dystopian scenario with the notion that the exploration of electronic media's interfacing of producer and consumer 'could create more personal leisure', which would provide people with 'more time to "drop out" and "tune in" on themselves' (p. 143). He also offers a critical counterweight to the effects of robotism, namely the tetradic form of analysis that formed the theoretical basis of his 'laws of media'. While a return to the 'angelism' of visual space is not an option in electronic culture, it is possible, through tetradic analysis, to juxtapose and interface these two epistemologies to produce a critical difference. As Powers puts it, '[f]or Marshall McLuhan, the meaning of meaning was [a] relationship' (*GV*, p. xi). McLuhan and McLuhan expand on these notions in *Laws of Media*, where

the four laws (enhancement, obsolescence, retrieval and reversal) exist in a figure and ground relationship (*LM*, p. 18). If '[r]obotism for those with writing means the suppression of the conscious observer self' (p. 79), then the critical imperative is that it must be interfaced with angelism—the ability to abstract and categorise. As McLuhan comments, the 'paradox today is that the ground of the latest Western technologies is electronic and simultaneous and thus is structurally right-hemisphere' (p. 80), which is to say configurational. However, 'the overwhelming pattern of procedures in the Western world remains lineal, sequential, and connected' (p. 80). The exercise of tetradic analysis is meant to interface these modalities, such that 'the ground of users' is factored analytically into 'the multiplicity of side-effects of [...] [the] entire environment of interfacings' (p. 87) to produce an 'apposition of both figure and ground instead of concentrating solely on an abstract sequence or movement isolated from any ground' (pp. 90-1).

The figure-ground relationship configured by the tetrad is tactile, in that it is defined by a 'resonant interval' (*LM*, p. 111); that is, by the gap that functionalises tactile space. This gap is analogous to the *corpus callosum*, which mediates between left- and right brain hemispheres. The tetrads thus constitute 'a dialogue-structure' (*LM*, p. 125). As McLuhan goes on to explicate, 'the conventional form in analysis or exposition has been triadic and logical, as in the syllogism. It is ultimately a propositional left-hemisphere form, rigid and connected' (p. 125). Even Hegelian dialectic is connected 'by virtue of the identity of opposition, of sameness-in-reverse' (p. 126). To this connected mode of critical examination, McLuhan proposes the disconnections and displacements of tetradic analysis, which adds the fourth dimension of ground to the three figural dimensions of triadic analysis. The four elements of the tetrad are 'not sequential but simultaneous' (p. 127), or processual.

Given that the tetrads actualise the visual (figure) / acoustic (ground) dynamic, they become a mode of production for counter-environments;[14] that is, interventions that seek to materialise the assumptions of the dominant medium through the critical application of a previous medium. It is in this scenario that language takes on a new and powerful role as the mode of critique within the electronic era. McLuhan suggests that language 'made us slaves to the vagaries of second nature' (*LM*, p. 119); that is, the 'nature' we ourselves have made, and that the 'nature' of electronic media has now, paradoxically, remediated language not as *doxa* but as a mode of critique. The tetrad thus enacts the critical dimension of media as translational metaphors. The elaboration of the tetrad allowed McLuhan to maintain his *immersive* position vis-à-vis electronic media while not abandoning those

aspects of print culture to which he had often proclaimed his loyalty. In this way he could not be found 'guilty of importing, uncritically, literate assumptions into nonliterate areas of study; of using models of perception that have no relevance to their materials' ('Dialogue with Stearn' p. 273). At the same time, the tetradic critical process need not abandon the insights of literate culture thanks to the agency of its dialogic structure.

This dialogical approach to media critique is evident in Katherine Hayles' account of the impact of digital humanities within the academy. Writing in *How We Think: Digital Media and Contemporary Technogenesis*, Hayles remarks that 'techniques, knowledges, and theories developed within print traditions can synergistically combine with digital productions to produce and catalyse new kinds of knowledge' (p. 8), including critical knowledge. Hayles calls for a 'theoretical framework in which objects are seen not as static entities that, once created, remain the same throughout time but rather are understood as constantly changing assemblages [...] [that are] enmeshed in networks of social, economic, and technological relations, some of which are human, some nonhuman' (p. 13). Tetradic analysis, whereby visual and acoustic epistemologies are juxtaposed in the critical process, provides such a framework. The analyses that it produces look much less like printed text and more like concrete poetry,[15] or perhaps mirror writing—a Rorschach test for an era deeply divided between two modes of knowing. In raising questions about reading—how does one read a concrete poem?—the tetrad at once invokes a core set of humanistic values and re-codes them, such that all reading becomes re-reading, the angelism of print remediating the robotism of electronic mediation.

Being Mediated

10. Marshall McLuhan's Echo-Criticism

Today's ecological awareness is echo recognition.
McLuhan and Nevitt, *Take Today: The Executive as Dropout*

'Environment' was the term employed by McLuhan in his elaboration of the way in which media attained epistemic status, becoming, in effect, the frame of reference for a given historical period. Although environmental groups such as Greenpeace (Dale, *McLuhan's Children*) take McLuhan as their progenitor, insofar as he provided them with a paradigm for the mediatics of environmentalism, McLuhan's 'environment' differed radically from theirs in that he rejected their notion of 'nature'.[1] Media had become the new environment in his argument, and media would be the only way out, through the creation of anti-environments. The gestalt dynamic of environment and anti-environment, which McLuhan formalised at the end of his career through the chiasmic principle governing his tetradic laws of media, constituted the 'ec[h]o' effect of his feedback theory of mediation, the 'acoustic' response to an increasingly narcissistic visual culture.

McLuhan adopted the term 'environment' from the artistic practice that we know today as the 'installation',[2] an artwork that takes over an entire space, such as that of an art gallery, as 'ground', rather than being a 'figure' on the wall. Although the term environment does not feature largely in contemporary media theory—it is not listed in Mitchell and Hansen's *Critical Terms for Media Studies*—the notion of a media 'ecology' has returned media theory to a number of the concerns McLuhan sought to raise with the notion of 'environment', and especially to the notion of the 'echo' effect (and hence the pun in my title) whereby culture would come to dominate our concept of 'nature' as part of a recursive phase in which modernity could be understood as turning back on itself.

McLuhan's connection to this 'environmental' discourse came through Maurice Merleau-Ponty, and particularly Merleau's notion of 'the flesh of the world' (*The Visible and the Invisible*, p. 144) as articulating the interface of body and environment. This notion that a libidinal, affective economy underpinned cultural mediation was crucial to McLuhan's work from his first book, *The Mechanical Bride* (1951). That book was concerned with a 'second nature' comprised of the technological prosthetic. A major implication of this position was that 'nature' was understood to be in history, and therefore that there was no going back to nature as a transhistorical concept.

The 'environment', for McLuhan, was now 'contained' within a network of 'human managerial oversight' (Luke, *Ecocritique*, p. 90), whereby 'the Earth is [...] inflected as an errant subject requiring techno-scientific correction, or "environmentalization"' (Garrard, *Ecocriticism*, p. 166; the internal quote is from Luke). Greg Garrard has related this position to that of Baudrillard's 'simulacra', whereby 'a world of simulation [...] now functions to supplant the real world' (p. 170), and while this notion is cognate to a degree with the 'echo' effect that increasingly consumed McLuhan's interests towards the end of his career, it should be noted that, for McLuhan, it was not that culture is simulating nature; for McLuhan culture is now *nature itself.*

As counter-intuitive as it might appear, this position has gained increasing validity within biological theory. As the research into extremophile life conducted by Carl Woese has demonstrated, Darwinian evolution constituted an 'interval' of vertical integration that was preceded by a form of horizontal evolution in which the entire eco-system advanced as one. And, as Freeman Dyson argues, bio-technologies are returning us to this mode of horizontal integration, whereby 'cultural evolution has replaced biological evolution as the main driving force of change' (Dyson, 'Our Biotech Future' pp. 4-8).[3] A parallel view of the material centrality of culture within a social context has attained increasing sway in the succeeding decades, and is the central thesis of Michael Denning's *Culture in the Age of Three Worlds.* Denning argues that the period from 1945 to 1989 is distinguished by this 'cultural turn'. As he compellingly puts it:

> As we look back on the last half of the twentieth century, it seems clear that culture moved to the foreground. It is not, to be sure, that there had been no culture before 1950, but it was always in a period's background. Historians dutifully included it in a supplementary chapter on arts and culture as they surveyed the age of Jackson or Victoria. But suddenly [...] everyone discovered that culture had been mass produced like Ford's cars; the masses had culture and culture had a mass. Culture was everywhere, no longer the property of the cultured or the cultivated. Just as an earlier bourgeois gentleman had been pleasantly surprised to discover that he had been speaking prose all along, so now even Americans found that their barbaric yawp was culture. And what's more, culture mattered—this was not your grandparents' culture, the quaint customs and artifacts collected by folklorists. Rather, under its various guises—the omnipresent commercial signscape, the unending stream of mass entertainments, the regular consumption patterns of a world of shoppers, the millions of adolescents migrating to high schools and universities,

> and eventually, as a common denominator, the uncounted gigabytes of digitized information—this mass culture was part of the wealth of nations, an engine of what those intoxicated by the new discovery called a 'postindustrial' society. (p. 282)

What links McLuhan's work to Denning's thesis is the notion that, in the post-war period, culture in the traditional sense fused with the notion of 'communications' as it was then being developed. As Denning puts it, 'the "media" [...] seemed to occupy an imaginative space equal to the state and the market' (p. 4) and that '[f]or a new generation of New Left thinkers around the globe, the issue of culture was not simply the fact of the existence of the new technologies of mass information and communication, but the reshaping of the everyday lives and struggles of subaltern classes and peoples by those new forms' (p. 5). The uprisings of 1968, the period when McLuhan was at the height of his fame, would appear to give credence to this theory, in that these uprisings had a powerful cultural component (and hence their association with universities) as well as a global one. McLuhan, of course, was not a New Left thinker, and in a period when 'critical' meant Marxist, he would not be read with profit by those on the Left or in the larger theoretical community. It was only with the collapse of the New Left (which at some point had become the Old Left) that McLuhan's work re-entered a critical discourse that now easily meshes media theory with social critique.

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It is here that we can turn to *Take Today: The Executive as Dropout* (1972). McLuhan and Nevitt's contention in this book is that the launching of Sputnik in 1957 transformed nature into culture, earth becoming an artifact of technology, *contained* by technology rather than being its container. This epistemic model proposes an 'ecology' of 'echo recognition', whereby we confront a 'nature' that is constituted by the bio-technology of our extended selves: '[t]oday's ecological awareness [they write] is echo recognition', because '[i]n today's electric world, man becomes aware that [the] artificial "Nature" of the Greeks is an extension of himself' (pp. 3, 6).

Putatively a guide for business executives, *Take Today: The Executive as Dropout* is in fact a manual for navigating the '*corpore*-ate' self, namely the vastly distended human-technological interface, such that '[c]onsciousness' becomes 'corporate action' (p. 3). In the contemporary context, the notion of the autonomous self is diminished as corporate media such as Facebook and YouTube increasingly take on attributes of the subject. McLuhan had

already decentred the subject with his insistence that all utterance was also 'outerance', thereby ambiguating the notion of self-presence that has—at least in Derridean theory—long been associated with the human voice.

Elaborating thus the notion that 'nature' is now an echo of the increasingly dominant order of culture, McLuhan and Nevitt map out an 'echology' that takes the nature/culture chiasmus into account, presenting a relational epistemic model in contrast to the connected, continuous model of rational thought (*TTED*, p. 10). This echoing, relational space is 'acoustic' in that it does not require the fixed centre of visual space; as McLuhan and Nevitt put it, the 'blind man's cane picks up the *relation* of things in his environment by the quality of resonance' (*TTED*, p. 8). The blind man lives in acoustic space as we do now, our lives governed increasingly by the *invisiblia* of electronic mediation, by things we cannot see, things that are no less powerful because not part of the regime of the visual: 'the new frontier [they state] is as invisible as a radio wave' (*TTED*, p. 90).

McLuhan and Nevitt's focus in *Take Today* is on *homo faber*, rather than *homo sapiens*—man the maker, as opposed to man the thinker—and on the productive power of disconnection, particularly the gap, or place of resonance (to invoke the acoustic model), as opposed to the connected and continuous models of thought provided by print culture. Because corporate media comprise an immense feedback loop constituted by the 'interplay of mutual transformation that occurs between man and his world' (*TTED*, p. 96), they demand to be understood as configurations, rather than through points of view (which are associated with visual space). The authors argue that the only models useful for understanding corporate media are at once total and dynamic, at once local and global. As Geoffrey Winthrop-Young states, an argument for the relationship of nature and culture 'provide[s] the possibility for an analysis of history and of the present in terms of interacting "grey" and "green" ecologies—of the configurations that arise from the interaction of climate and computers, mammals and machines, media and microbes' ('Cultural Studies and German Media Theory', p. 94). This was McLuhan's goal in elaborating the notion of the media 'environment'.

It is in this context that Ulrich Beck's notion of environmentalism as the successor to modernism is especially pertinent. Beck understands environmentalism as a reversal of modernism, at once a 'post-imperial' and a 'reflexive modernism' (*Risk Society*, p. 183). In this scenario, '[m]odernity has [...] taken over the role of its counterpart—the tradition to be overcome, the natural constraint to be mastered' (p. 183). Now it is modernity that seeks *to overcome itself* by declaring its conflation with environmentalism; whereas modernism gave us progress, environmentalism gives us redress.

But such a position can be argued only by acknowledging the collapse of nature into culture: we tweak the environment now as we used to tweak the dial on our stereos. The environment has obsolesced modernity in the same way that the computer made the book obsolete—not by getting rid of it but by embodying it as content. We have moved from High Tech to Eco Tech; the technological element remains but has now been absorbed into the environment, not as its substitute (this is not a binary opposition) but in dynamic relationship to it.

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If we were to understand this bio-technological extension, this environment, as culture, rather than nature, then the effect of this new understanding would be to enhance our notion of culture as a continuation of nature, rather than its overcoming. This notion of bio-technological culture is linked at once to the virtual and to the material. It is indeterminate and it is human, to the extent that it constantly transforms the human, a humanity never identical to itself because what makes us most human, as McLuhan remarked, is technology itself. A number of these notions find expression in Jean-Luc Nancy's concept of 'eco-technics'. As Nancy puts it in his book *Corpus*,

> Our world is the world of the 'technical', the world whose cosmos, nature, gods, whose system, complete in its intimate jointure, are exposed as 'technical': the world of an *ecotechnics*. Ecotechnics functions with technical apparatus, with which it connects us in all directions. But what it *makes* is our bodies, which it puts into the world and connects to its system, our bodies, which in this way it creates as more visible, more proliferating, more polymorphous, more pressed together, more in 'masses' and 'zones' than they have ever been.[4]

McLuhan's notion of 'echology' differs from Nancy's however, in its rejection of the notions of identity and self-presence. While McLuhan theorised electronic media as tactile, the sense of touch was, for him, the one that gauged separation, not fusion.

It is this resonating gap, this echoing effect, that is the site of McLuhan's echo-criticism. While the critical position that it articulates theorises no place outside that which is being critiqued, it does propose in its insistence on dynamism that environments can only be understood through counter-environments, the creation of which becomes the critical imperative of the

tetradic form of analysis. 'The scrapping of Nature', McLuhan and Nevitt write, 'is a *fait accompli*. We cannot go back to the natural state, with or without our innocence. Now that Nature has been discarded,' they continue, it 'must be reinvented' (*TTED*, p. 294). That reinvention is what McLuhan called 'the media'.

11. McLuhan and the Technology of Being

> *[C]ulture is best seen not as complexes of concrete behavior patterns—customs, usages, traditions, habit clusters—as has, by and large, been the case up to now, but as a set of control mechanisms—plans, recipes, rules, instructions (what computer engineers call "programs") for the governing of behavior.* [...] *[M]an is precisely the animal most desperately dependent upon such extragenetic, outside-the-skin control mechanisms, such cultural programs, for ordering his behavior.*
> Clifford Geertz, *The Interpretation of Cultures* (1973)

As the terms 'Facebook' and 'YouTube' suggest, we are increasingly experiencing our being via technologies of mediation; if Facebook implies an extension of corporeality, YouTube more complicatedly points towards an extension of our conscious self. Brian Rotman has expressed this phenomenon as a process of 'becoming beside ourselves', which suggests the displacement of fixed notions of being by processual notions of becoming, and the way in which these processes are taking us beyond defined notions of selfhood—from the self to the 'selfie'. McLuhan's media theory pertains directly to this increasingly relational sense of being emerging from the mediascape through his argument that media are effecting 'an evolutionary [...] [shift] from biology to technology' in which 'the body becomes the old hardware environment,' and 'media [the] means of extending and enlarging our organic sense lives into our environment' (*The Book of Probes*, pp. 111, 155).

Insights such as these derive from McLuhan's sense of media as embodied; as he put it, media are both extensions and amputations of the body and, with the computer, that process extends to consciousness itself. In conjunction with this extension theory, McLuhan developed an environmental or ecological theory of mediation, bringing the two notions together in his 1967 tour de force, *The Medium is the Massage*, a book that is so brilliant in terms of its design that its importance for McLuhan's thought tends to be overlooked. As Schnapp and Michaels put it in *The Electric Information Age Book*,

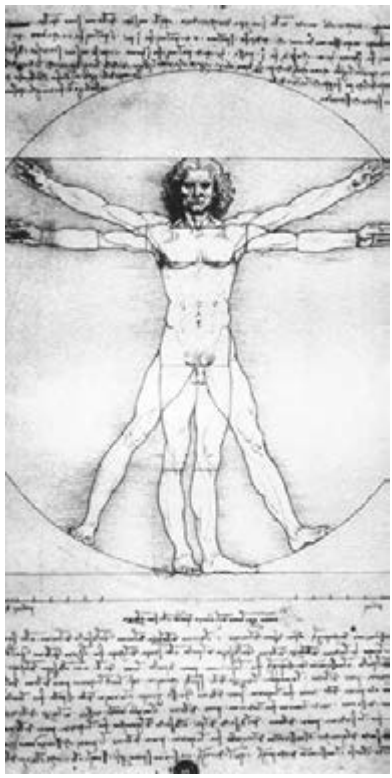
> [T]he turn from message to massage was more than a public relations gambit or an addition to the already extensive catalog of McLuhan puns. It signals two broader shifts. The first is in McLuhan's thought, from his prior insistence on [...] 'extension' to the more forceful concept of the 'total media work-over'. The second is in his language, from linear modes of exposition to a 'sort of post-alphabetic, non-syntactical language' (p. 67).[1]

These interrelated concepts of a bio-mediated environment that was post-linguistic in its structuration were of profound importance to McLuhan's articulations of media and their implications. The third fundamental principle of his theory of mediation was that the content of a dominant medium is a previous medium, a notion that provided this theory with a deeply historical element. McLuhan had argued in *The Gutenberg Galaxy* (1962) that the effect of print culture had been to detribalise the oral community, the agency of this detribalisation being typography itself, and hence the book's subtitle, *The Making of Typographic Man*. In McLuhan's argument, typography, mediated by the book, created the 'individual', a notion that emerges from the illustrations to Geoffroy Tory's 1529 treatise on typography titled *Champ Fleury.*[2] This already suggests that our notion of selfhood was a product of mediation, but it was a particular self that was produced in this process—the sovereign self, a concept that Tory alludes to via Leonardo's famous drawing of man as the universal measure of creation, such that the body is the repository of all knowledge. As we retribalise through electronic mediation, McLuhan argued, the sense of individuality that had been produced by the book would be displaced by the power vectors of mass communications. The sovereign self, as depicted here by Leonardo, is precisely that which is breached in the ontology of electronic mediation, when you experience your being via your 700 friends on Facebook, and when You share your identity with the Tube.

Fig. 11.1. Geoffroy Tory, from *Champ Fleury*, trans. George B. Ives (1529; rpt. New York: Grolier, 1927)

These ideas raise profound philosophical questions, yet McLuhan was raising these questions at the very moment—half a century ago—when the linguistic metaphor was rapidly coming to dominate philosophies of structuralism, post-structuralism and deconstruction. The longstanding repression of the notion of mediation (or, more broadly, technicity) within philosophical discourse meant that McLuhan's media theory was read in a culturalist context rather than in a philosophical context, and this despite the fact that he was famously claimed as the 'pop philosopher' of

Fig. 11.2. Leonardo da Vinci, *L'uomo universale*



the 1960s. It is only now, as the linguistic metaphor fades from philosophy, that McLuhan is once again coming into his own as a thinker whose theories of technologies of mediation raise significant and challenging questions about 'materiality, worldliness, shared embodied existence and human subjectivity' that are being addressed by the new French philosophy (James, *New French Philosophy*, p. 4).

McLuhan was well aware that utterance, the fundamental act of mediation in his theory, was a problematical index of subjectivity, because all utterance is also outerance, thus displacing the subject from that which brings it into being.[3] In this reading, utterance is a site of ontological uncertainty. Who speaks when I speak? Martin Heidegger famously responded that it is speech that speaks. Friedrich Kittler built upon these notions in his media theory, arguing that it is media that determine our situation. Peter Sloterdijk has continued this trajectory, stating that 'it is society that comes into being through media and not the reverse.'[4]

These comments raise a question of fundamental importance, namely the 'always already' of mediation: how can we think the *a priori* of media? One approach to addressing this question can be made through an analogy with the deconstruction of the primacy of speech operated by Derrida et al. While speech appears to have primacy over writing, and thus an originary status, speech is in fact always already 'written' insofar as its meaning is produced differentially. But Derrida's analysis depends on the notion of the trace, which, in Kittler's analysis, is a metaphor that derives from one of Edison's more famous inventions (*GFT*, p. 33). What Kittler's comment points to is that the mediatic question subtends the linguistic one raised by Derrida et al. How, then, can we understand mediation if we do not wish to invoke a linguistic paradigm, which, by implication, would limit mediation to the role of communication, while acknowledging that mediation—in an era when most communication is between media—has supervened the human?

The approach taken by Bernard Stiegler has been to follow the Derridean paradigm by invoking the always already of technicity, or what he calls an 'originary technicity'. As Ian James suggests, Steigler's work 'aims at nothing short of a systematic thinking of the technicity of life in general and of human life in particular' (*New French Philosophy*, p. 61). Steigler argues that philosophy established 'a hierarchy between episteme (knowledge) and *tekhne* (productive technique, all art and artfulness, including that of language),' based on the notion that 'foregrounding the importance of *tekhne* rather than episteme in philosophy would lead it into sophistry: the privileging of skillful or rhetorical use of language' (James, p. 63). Stiegler's *Technics and Time*, published in 1994, invokes the myth of Epimetheus in order to convey both originary technicity and the philosophical forgetting of *tekhne*. Epimetheus was assigned by the gods to give each creature a defining trait, but he forgot about humans, and so had nothing left to give them. Fortunately, his brother, Prometheus, came to his (and our) rescue, stealing the gift of arts, or *tekhne*, and fire from the gods and giving them to humans. This myth, argues Stiegler, suggests both the forgetting of *tekhne* within the history of the human *and* the defining nature of *tekhne* for the human. As Nathan van Camp writes, '[s]ince for Stiegler, the human is constituted through its exteriorization in technical objects, its origin cannot be explained in either purely transcendental terms by appealing to, for example, spirit or language, or purely empirical terms such as genetic evolution' ('Animality', n.p.).[5] What Stiegler seeks to argue, again according to van Camp, is a 'structural coupling of the human and technics that makes the constitution of the one impossible and unthinkable without the other.' For McLuhan, this coupling is utterance, which constitutes interior and

exterior at the same moment. While Stiegler is reluctant to understand the body as a technics (such that the gift of Prometheus would be technological embodiment itself, and thus the relevance of his punishment), McLuhan's notion of discarnation, or extension that is also amputation, captures the paradox of this form of embodiment that is experienced externally to ourselves, via our technologies, or outerances, a process that renders us *corporate*—the body we share is not our body, yet it embodies us.

Stiegler argues that there is '"the need, today, to forge another relation to technics, one that rethinks the bond originarily formed by, and between, humanity, technics, and language"' (quoted by James, *New French Philosophy*, p. 64). This notion accords with McLuhan's concept of a human-technological interface—that of the *mechanical* bride; that of *typographic* man. For Stiegler, 'what makes humans distinctive *as* humans is their ability to conserve the past through the meanings sedimented in the materiality of technical prosthetics and to project this past into a future (in a way which constitutes the present as such)' (James, *New French Philosophy*, p. 67). For McLuhan, this notion of a '"*redoublement épochale*"' (James, quoting Stiegler, p. 69) is intrinsic to the concept of (re)mediation itself.

Through the notion of an 'originary technicity', Stiegler's philosophy of technics raises the question of a 'deep history' of media. That is, if we argue the 'always already' of media, how can we conceptualise this notion historically? This is the question posed by the concept of 'deep history', which seeks to free history from its dependence on written evidence, and thus poses a mediatic question similar to the one we have been considering thus far. The chief proponent of deep history is Daniel Lord Smail, whose book *Deep History and the Brain* proposes to coalesce his thesis around 'biology, brain and behavior' (*Deep History*, p. 3) in order to produce 'narrative continuity between prehistory and history' (p. 5). In the mediatic context, these concerns have been pursued through the notion of media archaeology, though a deep history of media archaeology would go beyond researching the objects of mediation to the idea of mediation itself.[6] Smail's notion of deep history is useful because it effectively seeks to extend the notion of history from writing to other forms of mediation, though it is curiously dead to the idea of mediation itself. Smail's greatest insensitivity is his inability to understand the human as always already mediated. The 'English language,' he writes, 'does not have a word for the category that consists of all things that encode information about the past. So what shall we call these things, if not documents. *Artifact* could do, except one balks at the idea of describing a gene or a phoneme as the product of handiwork' (p. 48). But surely one could describe both gene and phoneme as forms

of mediation. This is precisely what information theory now proposes, as Smail acknowledges, though without realising the implications for his own project: '[m]odern DNA,' he writes, 'is uncannily similar to an edited text. It consists of lines of code, written in an alphabet of four letters, that faithfully reproduce[s] an original' (p. 9).

Smail's deep history wishes to go further than the 60,000 years of 'modern linguistic capability' (p. 57); he wishes to argue against the notion that 'a consciousness of history is a pre-requisite for historicity' (p. 57), stating that the 'insistence on the written is a patronizing denigration of the oral, a persisting and blind denial of the fundamental role of memory as an archival and historical medium in all Postlithic societies' (p. 59). And thus we arrive at the medium, except that for Smail, the medium is not the message, and so he can state with splendid naiveté that 'to write a natural history of the earth is to imagine that all the events of the past four and a half billion years could have been captured by a video recorder capable of tracking events in all their minutiae' (p. 70). However, the gap that Smail seeks to bridge has already been bridged by the philosophy of mediation. On the one hand, Smail wishes to decentre the human from the historical, much of his book presenting itself as a diatribe against the 'eminent persons' theory of history; on the other hand, he is reluctant to decentre the sovereign self, such that it merges with the technicity that is the focus of his study. Yet the nub of Harold Innis's great work *Empire and Communications* was its expansion of the notion of history vastly beyond writing. And McLuhan elaborated on that work precisely in the direction that Smail wishes to follow, namely into the brain and its environmentalisation through the medium of the computer.

The sticking point for Smail is the notion of cultural evolution. Smail argues that the notion of an accelerated cultural evolution simply repeats the schism between 'the time of biology [and] the time of history' (p. 86), because it implies that human history is different from pre-human history, although he is in sympathy with Clifford Geertz's notion that culture be understood as a set of control mechanisms that operate similarly to computer programs (quoted as the epigraph to this chapter), as well as with the idea that 'things have their own social lives' (p. 103) and that 'discourses developed by record-keeping bureaucracies serve to frame people and things' (p. 104).[7] What troubles Smail is acceleration, the notion that cultural evolution is accelerated evolution whereas Darwinian evolution is slow, since this once again appears to reproduce the divide that he is intent on overcoming.

Smail's desire for a 'unified theory of cultural evolution' (p. 101), one that combines slow with accelerated evolutionism, has in fact been put forward

in a revised notion of Darwinism theorised by the microbial taxonomist Carl Woese. Through taxonomic research spanning decades, Woese was able to discover an unknown domain of life, the archaea, whose existence caused him to question the verities of Darwinian evolution.[8] The implications of Woese's research is that Darwinism was an interlude in the evolutionary process; it was preceded by a period of horizontal transfer, where the entire *bios* advanced as one. With the dominance of *homo sapiens*, Darwinian evolution is coming to an end, and we are returning via cultural evolution to horizontal transfer, but in the cultural model, technology shares the field with biology. In this era, the rules of Open Source sharing will be extended from the exchange of software to the exchange of genes, as Freeman Dyson has compellingly put it ('Our Biotech Future', p. 8). Even Smail concludes that '[c]ulture, in some fundamental sense, has been revealed as a biological phenomenon' (p. 154). Thus, it is wrong to say that 'biology gave way to culture with the advent of civilization' (p. 155); rather, '[c]ivilization *enabled* important aspects of human biology' (p. 155).[9]

If all forms of mediation are pedagogies (we learn what they teach us), Smail's notion of deep history allows for an understanding of humanistic learning that places in relief the shift to the digital that is now taking place within academia—in effect, Smail is giving us an information theory of history without the information theory. Friedrich Kittler has identified the shift towards the informatic as one of the most profound in the history of education. Noting that medieval universities were founded on the practices of storage, transmission, processing and recording, he argues that they in fact constituted 'a complete media system' ('Universities' p. 245).[10] This unity was broken apart by the invention of the printing press and the concomitant rise of nations. The press divorced the processing of texts from the activity of learning, and nations took over the rights to publication from universities, François the First (the François for whom Geoffroy Tory produced *Champ Fleury*) 'ordering two copies of each book to be stored in his royal depot legal' thereby devaluing the wealth and subverting the monopoly 'of medieval university libraries' (p. 247), since the 'production of modern subjects (in the Cartesian sense) required their extrication from the older guilds' (p. 247). Hence, the instrumentalisation of education, according to Kittler, which is now coming to an end with the ascendancy of the computer. As Kittler puts it,

> universities have finally succeeded in forming once again a complete media system. […] [T]he computer processes, stores, and transmits whatever data it receives, whether textbooks, measurements, or algebras. […] For

> the second time in eight centuries, the university is technically uniform simply because all departments share one and the same hardware. [...] Even the humanities' knowledge volatilizes into software libraries. Furthermore, whereas the book-based humanities encountered difficult problems when trying to store or address images, animations, and sounds, computers do not simply record such data but address and process them. The methodical integration of studies in language and music, film and poetry may begin. (pp. 249-50)

Of particular note is Kittler's comment that '[w]hen the [...] humanities do not deal with man, their topics are cultural technologies such as writing, reading, counting, singing, dancing, drawing. [...] For the humanities, there is nothing nontechnical [now] to teach and research' (p. 251). To remove 'humans' from the humanities is to discover the humanities as a set of technologies, such that ontology has fused with mediation. In this scenario, Smail's concerns are addressed by the fact that 'the so-called sciences and technologies, far from dealing with ahistorical truth, are involved in history simply by making it' (p. 251).

Katherine Hayles has noted that '[t]he regime [of computation] reduces ontological requirements to a bare minimum. [...] [F]ar from presuming the "transcendental signified" that Derrida identifies as intrinsic to classic metaphysics, computation privileges the emergence of complexity from simple elements and rules' (*My Mother Was a Computer*, p. 23). The question of technology here takes on the core function that motivates interdisciplinary research and teaching. Far from being instrumentalist, this questioning probes our being in the world, since the nature of computational tasks require that they be distributed across a broad global network, which at once decentres the sovereign self (because communication takes place more often between computers than human subjects) and redefines it relationally.

This may sound like a proposal for digital humanities; however, I am concerned about the way in which 'digital' has become the contemporary mantra. The alphabet, after all, is digital.[11] What I am proposing, instead, is a cultural analytics; or, to use McLuhan's term, 'pattern recognition', that extends from textual criticism to the philosophy of software. From the Kantian notion of reason as the regulator of university discourse, to the culturalist arguments of the Humboltians, cultural analytics proposes that digital technologies are now poised to assume the role of *Bildung* (self-cultivation), producing 'a shared digital culture' as David M. Berry puts it in *The Philosophy of Software* (p. 12), that provides 'a *humanistic*

understanding of technology, [...] which also involves an urgent inquiry into what is human about the *computational* humanities [and] social sciences' because 'the project of humanity requires urgent thought [...] in relation to the challenge of a *computationality* that threatens our understanding of what is required to be identified as human at all' (pp. 21-2). The only challenge here, however, is to notions of the sovereign self, and it is for this reason that McLuhan presented his argument that we are human through our technologies as humanism *in reverse*, a humanism that produces not a self but a being in relation.

II

12. The Tragedy of Media: Nietzsche, McLuhan, Kittler

Is this my own voice that I hear—carried on the wings of the air?
Sophocles, *Oedipus Tyrannus*[1]

Friedrich Kittler asserts provocatively in *Gramophone Film Typewriter* that Nietzsche heralds media philosophy in his statement '"[o]ur writing tools are also working on our thoughts"' (quoted p. 200). This reference to Nietzsche opens a significant historical and critical avenue onto media philosophy as practiced not only by Kittler but also by McLuhan, despite the fact that McLuhan's media philosophy emerged from a rhetorical tradition that was only partly related to the philosophical tradition in which Kittler saw himself to be the mediatic heir of Nietzsche.[2] Yet this philosophical tradition is key to the emergence of media philosophy as a discourse that raises significant epistemological and ontological questions, questions that begin to emerge with Nietzsche's rethinking of the very idea of philosophy[3] as he moved away from abstraction towards materiality.[4] Nietzsche accomplished this rethinking of philosophy *mediatically*[5] by contesting the shift from *akouein* to *theôria* that had been inaugurated by the advent of literacy. In *The Birth of Tragedy*,[6] the 'Alexandrian' (or Socratic) man[7] is specifically identified with 'a proof-reader blinded by book dust and printer's errors' (*BT* 18, p. 100), and 'the "journalist", the paper slave of the day' (*BT* 20, p. 109) is an avatar of the 'slave class' of 'Alexandrian culture' (*BT* 18, p. 98). However, it is 'with the rebirth of tragedy [that] the *aesthetic listener* is also reborn' (*BT* 22, p. 120, emphasis in translation). As P. Christopher Smith explains, '[i]t falls to Nietzsche [...] to overthrow the two-millennia-long Platonic-Aristotelian "historical effect", to reverse, that is to say, the metaphysical [...] turn away from the acoustical to the visual' (Smith, *Hermeneutics*, p. 296).[8] Through opera, argues Nietzsche, a '*reverse process, the gradual awakening of the Dionysian spirit* in our modern world' (*BT* 19, p. 106, emphasis in translation) is taking place. Thus, if today 'we have to read the Greek gods for allegories of media theory' ('Hermes on the Hudson'),[9] as Geert Lovink has suggested, then such readings find their context in the mediatic discourse inaugurated by Nietzsche in *The Birth of Tragedy*.

Nietzsche wrote in 1880 that the '"press, the machine, the railroad, the telegraph are the premises from which nobody has dared to draw the

conclusion for a thousand years"',[10] and much of his later writings make glancing reference to what would come to be called the 'mass media'. Barbara Stiegler has discussed these references in the context of 'the press, the creation of a leveled *mass*, and the coming of *nihilism*' ('On the Future of Our Incorporations', p. 125), arguing that 'Nietzsche is certainly the first philosopher who strives to *think the media*' (p. 125). Stiegler writes that the 'era that is inaugurated with an explosion of media corresponds at once to an acceleration of history and to a *fluid becoming of all being*, which loses all form of stability and which increases the consciousness of an *absolute flux*' (p. 127, emphasis in original). In *The Birth of Tragedy*, Nietzsche calls that flux *Dionysus*, and it is Dionysus who 'forces the era of nihilism to invent a new relationship to constancy and eternity' (p. 128).

The communality of the Dionysian experience is itself mediatic, Stiegler argues, insofar as media necessitate a relationship to the other through 'the creation of a *We* and an incorporation of the other into oneself', since by 'extending our field of perception, the media extend our organs of incorporation' (p. 128), as 'the theoretician of media Marshall McLuhan will explain a century later' (p. 129).[11] This process of incorporation is accompanied by its Apollonian counterpart: 'figure, image, and delimitation' (p. 128), which, in the McLuhanesque terms invoked by Stiegler, would imply the cool remediation of a hot medium—the 'recentering on oneself' (p. 132)—the 'key to individuation being [...] the tension between the ecstatic exposure to flux and the reorganization of the self that this exposure requires' (p. 133), the '*cool* selections that all shaping into form implies' (p. 136).[12] This is fundamentally the role of art, which has allowed 'human flesh [...] to surpass ordinary animal flesh by a higher capacity of incorporation' (p. 136). The project of art thus becomes that of opening onto the flux of new incorporations which concomitantly require new forms.

The critical comments on mass media in Nietzsche's late writings are underpinned by the media philosophy articulated in *The Birth of Tragedy*, a philosophy invoked by Kittler in the *incipit tragoedia* of *Discourse Networks*, and to which McLuhan directly alludes at the beginning of *Understanding Media*. This conjunction raises the questions: why tragedy? What is the tragedy of media? What is Nietzsche's foundational role in inaugurating that discourse and in what ways did McLuhan and Kittler take it up?

Although Nietzsche presents *The Birth of Tragedy* as a theory of art, or aesthetics, it acquires a mediatic context if we consider it in terms of the oppositions inherent in Lessing's *Laocoön*.[13] There, art is presented in terms of temporal and spatial mediations—the modalities that Harold Innis would come to associate with the biases of communication—and it is arguable

that Nietzsche inherited this oppositional structure[14] in writing *The Birth of Tragedy*, especially as it plays out via the dynamic of orality and literacy. Kittler suggests this with characteristic wit, citing a monologue by Edison in Villiers de l'Isle-Adam's *L'Ève Future* that 'will bring Lessing's *Laocoön* up to date in 1886' (*DN*, p. 230). In *L'Ève Future*, Edison muses that Christ '"allowed men only to print his testament, not to put it on the phonograph. Otherwise, instead of saying 'Read the Holy Scriptures', we would be saying 'Listen to the Sacred Vibrations"' (quoted p. 230).

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The Birth of Tragedy presents itself in terms of dualisms, not only via the dyad of Apollo and Dionysus but also through the 'Attempt at Self-Criticism' and the 'Foreword to Richard Wagner', the second of which sounds an Apollonian note to the first, Dionysian one.[15] The historical trajectory traced by the book is likewise double, tragedy being reborn in the operatic fusing of text and music (another dyad).[16] This suggests that the Apollonian/Dionysian dynamic remains in operation over a vast historical trajectory, and that Nietzsche's own writings are themselves subject to it;[17] so powerful is this dynamic that it is capable of translating into its own terms all social and cultural production.[18] The Apollonian and Dionysian constitute 'powers, forces, impulses, drives [...] larger than individuals, forces capable of compelling individuals to behave in certain ways regardless of their own volition' (Smith, 'Introduction', p. xxiii). 'Tragedy' is in this context at once a cultural (not necessarily literary) form and an effect of the Apollonian and Dionysian dynamic.

The chorus sang in Greek tragedy,[19] and it was in the chorus that Nietzsche posited the essence of the tragic. This provides an opening onto the significance of the second half of the book's title: *Out of the Spirit of Music.* What this subtitle suggests is that music is the ur-medium:[20] '*the melody is the first and the universal principle*' (*BT* 6, p. 39).[21] As Christoph Cox states, '[m]usic [...] *precedes* particulars, which actualize the forces it puts into play' ('Nietzsche, Dionysus, and the Ontology of Music', p. 507).[22] Cox suggests that the Dionysian music yearned for by Nietzsche would be found in electronic music, which 'affirmed the univocity of sound, generating the entire musical field out of a stream of electrons emitted by an oscillator' (p. 508), thus opening music to 'something beyond the human', a notion that Kittler would specifically take up in his assertion that in electronic music one could hear the gods sing. The prime importance of music in *The Birth of Tragedy* may thus be the fact that it is *sound*—'the shattering force of sound' (*BT* 2, p. 26)—and particularly the sound characteristic of the oral

tradition,[23] a tradition reflected in the musicality of Nietzsche's style in *The Birth of Tragedy*[24] (as well as in his musicianship per se) and subsequently in his aphoristic writing, which suggests the world of the sound-bite (associated with the typewriter's remediation of speech, as McLuhan noted),[25] rather than of linear prose exposition. Significantly, while Nietzsche 'follows scholarly tradition by placing the origin of tragedy in the chorus', what is important for him 'is not its message but its dithyrambs' (Stern, *Nietzsche*, p. 41), which are 'more authentic than the world of words and mere "literature"' (Stern, p. 43). The acoustic realm—that of Dionysus—is outside the visual domain; it is to the Apollonian that the visual domain appeals. The Dionysian is choric; the Apollonian, individual. Together, they produce tragedy, which sounds like the 'balance' proposed by Innis between the temporality of orality and the spatiality of print but is, in fact, much more radical; as Kittler points out, tragedy for Nietzsche 'still includes "the pleasure of destruction"' ('Nietzsche', *TTW*, p. 25, quoting from *Twilight of the Idols* X § 5). The Nietzschean legacy for media philosophy is thus one of 'parallels and oppositions' (Smith, 'Introduction', p. xxi), rather than balance.

Both McLuhan and Kittler structure their media philosophies around tragedy—McLuhan in the discussion of *The Tragedy of King Lear*, which opens *The Gutenberg Galaxy*, as well as in his invocation of *The Birth of Tragedy* at the beginning of *Understanding Media*, and Kittler in the *incipit tragoedia* that opens the second half of *Discourse Networks*. For McLuhan, the tragic element of mediation is inherent in the 'outering' of mediation, which is both extension (*ekstasis*) as well as amputation and alienation. For Kittler it is the inauguration of a discourse network that displaces knowing into technology, a form of tragic madness.

Nietzsche suggests that what we can know of the world and what we can experience of the world are its mediations, the processes of bringing that world into being. Nietzsche foregrounds the mediated nature of his own book in his 'Foreword to Richard Wagner', referring to that which 'enable[s] me to write the words of its introduction' (*BT*, p. 17), to what is 'imprinted on its every page', to 'the unbound Prometheus on the title-page.'[26] When Nietzsche was writing *The Birth of Tragedy* in the last third of the nineteenth century, technologies of mediation were an inescapable fact. As Johanna Drucker remarks, '[i]ndustrialization exponentially extended the capabilities of mechanical print production, and these transformations were accompanied by changes in the concept of art.'[27] Rather than seeking to make a distinction between mass-produced art and the 'genuine' artwork,[28] however, Nietzsche focuses on art as process, de-materialising it in order to


DIE

GEBURT DER TRAGÖDIE

AUS DEM

GEISTE DER MUSIK.

VON

FRIEDRICH NIETZSCHE,

LEIPZIG,
VERLAG VON E. W. FRITZSCH.

re-materialise it as something performative, such as opera (which, Kittler will argue, is the forerunner of the internet).[29] The Dionysian was not an artifact but a process through which such artifacts came into being, and Nietzsche's valorisation of the operatic artform is already a sign of this move towards a process-based critique of art. If modern art was 'medium-based', as Ducker suggests ('Art', p. 9), Nietzsche's 'aesthetic phenomenon' was media-based, and what made this distinction radical was that it included 'life' itself, 'the magnificent handwriting of nature' (*BT* 8, p. 47), an insight that would come to the fore with conceptualism (another artistic movement in which de-materialisation and re-materialisation would be the order of the day)[30] and with performance art. What performance art foregrounds is that the body is itself a medium, a notion that intersects with Nietzsche's concept of aesthetic embodiment—the body as cultural process, whose counterpart is the *sparagmos* of disembodiment, suggesting thus the constructedness of the body, its mediatic extensions and amputations: 'as dismembered god, Dionysus possesses the dual nature of a cruel, wild daemon and of a meek and mild sovereign. The hope of the epopts was directed towards a rebirth

of Dionysus, a rebirth that we must begin to sense obscurely as the end of individuation' (*BT* 10, p. 60). As Kittler states, Nietzsche's media philosophy 'recognizes no limits to creation and destruction' ('Nietzsche', *TTW*, p. 17).

Bill Brown has stated that 'media by definition have a dematerializing effect' ('Materiality', p. 51) in that they are 'parasitic' upon immediacy.[31] As Steven D. Brown argues, the concept of the parasite, as formulated by Michel Serres, suggests that 'mediation [...] must [...] "repress" the fact of this mediation [...] to appear immediate. This is the classic paradox of mediation, we "forget" the medium in order to focus on the message' ('In Praise of the Parasite', p. 84). This paradox goes to the heart of *The Birth of Tragedy*—tragedy emerges as 'the mediator [*die zwischen*] which holds sway over the strongest and in themselves most disastrous characteristics of the people' (*BT* 21, p. 112). Bill Brown puts this in its larger philosophical context:

> Kant argued that 'dealing with the things themselves' is an impossibility within human experience because things themselves (things in themselves) remain elusive; we know the world only as it is mediated by perceptual categories (time, space, cause and effect, and so on). We know the world, moreover, only as it is mediated by the senses, one of which—touch—seems to provide some privileged access to the physical; indeed, the immaterial/material distinction often asserts itself [...] as the difference between the visible and the tangible. (p. 51)[32]

The necessity of mediation was for Nietzsche the essence of the tragic: the need for mediation acknowledged the incomprehensibility of 'existence and the world' (*BT* 5, p. 38) and hence Nietzsche repudiates 'a newly born daemon called *Socrates*' (*BT* 12, p. 68), the 'first and highest *sophist*' (*BT* 13, p. 73). The incomprehensibility of existence calls not for sophism but for a 'goat song' chanted by satyrs, a song that justifies existence aesthetically, a revealing that is also a re-veiling—'the Apollonian dream-state, in which the world of the day veils itself and a new world, clearer, more intelligible, more gripping than the other and yet more shadowy, in constant flux, is born before our eyes' (*BT* 8, p. 52).[33] Nietzsche writes that '[i]n order to be able to live, the Greeks were obliged to create these gods' (*BT* 3, p. 28), and thus 'only as an *aesthetic phenomenon* are existence and the world *justified*' (*BT* 5, p. 38).[34] The linkage of the aesthetic to perception[35] is crucial to this process, as Caroline Jones notes; the 'senses both constitute our "sense" of unmediated knowledge and are the first medium with which consciousness must contend' ('Senses' in Mitchell and Hansen, *Critical Terms for Media Studies*, p. 89). It can thus be said that we come into being through our mediations:

'[t]he same drive which calls art into life as the completion and perfection of existence [...] seduces the living into living on' (*BT* 3, p. 28).[36] But the effect of the aesthetic is to take us beyond ourselves: perception opens us to the world. Our mediated existence thus demands an overcoming of our 'all too human'[37] selves and acknowledging ourselves to be relational, which is to embrace the Dionysian principle that 'cause[s] the subjective to dwindle to complete self-oblivion' (*BT* 1, p. 22) in favour of 'a higher communal nature' (*BT* 1, p. 22). Mediation, in this sense, is 'the elementary form of relations. It is the basis of intersubjectivity, of our "being together"' (Steven Brown, 'In Praise of the Parasite', p. 96), and at this point the mediated self merges with the *Übermensch*.[38]

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Tragedy is likewise the point of departure for McLuhan's media philosophy: *The Gutenberg Galaxy* begins with an analysis of Shakespeare's *The Tragedy of King Lear* as a major articulation of the detribalising effect of print on oral community and ends by suggesting we are experiencing the same mediatic transition, but in reverse: Dionysus is reborn in the shift from print to electronic media.[39] With the publication of *Understanding Media* two years later, McLuhan takes *The Birth of Tragedy* itself as his point of departure. However, Nietzschean elements were present in McLuhan's work prior to *The Gutenberg Galaxy* and *Understanding Media*, although these references are inflected to a certain extent by Nietzsche's postwar reception.

Wyndham Lewis provided McLuhan with his major conduit to Nietzsche.[40] Writing in a 1955 review of Hugh Kenner's study, *Wyndham Lewis*, McLuhan quotes Kenner's comment that Lewis was the man '"to whose mind the Cartesian split and the Nietzschean energy were not hobbies but life-blood"', and who was '"better equipped than anyone else to write out of inner knowledge the tragedy of his time"' ('Nihilism Exposed', p. 97). McLuhan states that this is so because Lewis espouses 'the neo-Platonic and Buddhist view of the opacity of intellectual knowledge and the illusory character of the human self,' in which 'art alone can impregnate the world with some quality of reality.' Such views, writes McLuhan, 'underlie all the mechanic-materialisms from Descartes to John Dewey,' which 'regarded matter as an irreducible mental state. But mental states might well change with some rearrangement of the cosmic powers or aeons. And it is the business of the artist to be constantly shifting the scenery of existence about in accordance with his infallible intuitions of the cosmic weather. Art is revolution' (p. 98). The 'tragedy and comedy of the human condition' results from the

'juxtaposition' of the artistic imagination with 'matter, sense, and intellect.' McLuhan concludes that 'it is precisely the courage of Lewis in pushing the Cartesian and Plotinian angelism to the logical point of the extinction of humanism and personality that gives his work such importance in the new age of technology,' because, for Lewis, 'to exist humanly is to be a failure.'[41]

The position articulated here represents a considerable departure from that evident in *The Mechanical Bride*, where 'Nietzschean brio' (p. 88) is associated with Marinetti's *Futurist Manifesto* (p. 88):

> [n]urtured in Schopenhauer's 'pessimism' and Nietzsche's 'energy', [Marinetti] seized the machine as the true agent of the superman and the only escape from anxiety and esthetic languors. [...] Mussolini, the jazz addict, was all for this Marinetti extroversion of the self and fusion with the activity of the machine. Hitler preferred Wagner and the introverted megalomaniac dream which hitches the super-human energies of the machine to the psyche itself (p. 90).[42]

McLuhan seeks to counter the 'intoxication and lyricism' (p. 90) of this Nietzschean brio with 'some degree of critical reflection' (p. 90); this, rather than a rejection of the 'fusion with the [...] machine' (that this passage might appear to call for) would remain a constant of his media philosophy.

Through the concept of the 'fusion with the [...] machine', McLuhan conflates Nietzsche's 'Overman' with the comic book character Superman via the work of Werner Sombart,[43] who was profoundly influenced by Nietzsche. 'Sombart argued that modern abstract finance and mathematical science was a realization at the material level of the elaborate speculations of medieval philosophy. In the same way it could be argued that Superman is the comic-strip brother of the medieval angels' (p. 103). The involution of the 'Superman' is the sleuth; '[t]his Nietzschean figure achieves his self-dramatization not directly, like the nihilistic malcontents of the Elizabethan stage, but on the inner stage of a mass dream' (p. 108). Sherlock Holmes and Philip Marlowe are McLuhan's chief exemplars here; McLuhan writes of Marlowe that he is 'Chandler's echo of Christopher Marlowe's supermen Tamburlaine and Dr. Faustus' (p. 110). McLuhan states that, in this context, '[i]t would be instructive to study the Greek and Elizabethan tragic heroes in comparison with our own. Our relative crudity appears in the quality of the catharsis we demand. The gangster hero stands in relation only to the laws of the land which he has defied. The Greek tragic hero stands in relation to a wider and more terrible law' (p. 147). That law would ultimately be identified in McLuhan's work not with a moral edict but with the law of media that

was asserting itself through the electronic retrieval of acoustic space, which McLuhan characterised as 'boundless, directionless, horizonless, the dark of the mind, the world of emotion, primor[d]ial intuition, terror,' where '[w]e begin again to structure the primordial feelings and emotions from which 3000 years of literacy divorced us' (*Counterblast* [1954], n.p.).

The notion that electronic media were retrieving an acoustic space cognate with that of classical Greece occasioned McLuhan's 'turn to Greece', which was associated with his reading of Innis's *Empire and Communications* (1950) and *The Bias of Communication* (1951) and his former University of Toronto colleague Eric Havelock's 1963 *Preface to Plato*. In the introduction that McLuhan wrote for the republication of *Bias*, he notes that Innis tended to characterise orality in such a way as to elide 'the interplay of written and oral forms, ascribing to the written form itself what was a hybrid product of its interaction with oral culture' ('Introduction' to Innis, *Bias of Communication*, p. xi). In effect, Innis failed to discern the acoustic (non-linear) space of media such as the newspaper, thus ignoring the dynamic between orality and literacy, whose intricacies Havelock would explore.[44] The distinction was important to McLuhan because it afforded an Apollonian purchase within an otherwise Dionysian media vortex. Nevertheless, it was Innis, in *Empire and Communications*, who alerted McLuhan to the possibility of understanding the past 'dynamically *as a dramatic action* with a world cast,' such that 'history [appears] as a mass of ruins' ('Foreword' to Innis, *Empire and Communications*, p. v). This was the scenario McLuhan produced in *The Gutenberg Galaxy*, which at least one critic has read as following 'the classic pattern of tragedy' (Compton, 'The Paradox of Marshall McLuhan', p. 115).

McLuhan's 'turn to Greece' led him to adopt for *The Gutenberg Galaxy* the conspectus model of analysis employed by Innis, who, in *Empire and Communications,* was intent on producing a vast historical canvas for his study of the effects of media; in *Understanding Media*, McLuhan adopted the 'snapshot' model of *Bias,* in which Innis argued the necessity of time-based media in an increasingly spatialised global culture. It was in this context that Innis specifically invoked Nietzsche:

> The Dionysiac ritual and the choral lyric as perfected by Pindar provided the background for the development of the drama under Aeschylus, Sophocles, and Euripides. In the second half of the fifth century writing began to make its encroachments on the oral tradition. Nietzsche has pointed to the significance of music, in which the joy of annihilation of the individual was understood, to tragedy. Disappearance of the spirit of music was followed by the decline of tragedy. (p. 43)

It followed that a retrieval of the spirit of music would occasion the rebirth of tragedy.

A direct result of the importance that both Innis and Havelock accorded to the influence of alphabetic culture on Greek thought can be observed in *The Gutenberg Galaxy*, where the first third of the book is devoted to classical Greece. It is through the orality/literacy dynamic that McLuhan develops his thesis about the opposition of the individual and the mass through the tribalising effects of orality and the detribalising tendencies of literacy. The nub of McLuhan's theory is that shifts in media cause an '"ablation"' (p. 3) that affects perceptual norms; the emphasis on perception derives from McLuhan's understanding of '*aisthetikos*', meaning 'relating to perception by the senses' (Cavell, 'Marshall McLuhan', *The Encyclopedia of Aesthetics*, p. 283). Geoff Waite remarks that, insofar as the aesthetic is an 'interface between mortal organism and im/mortal environment' (*Nietzsche's Corps/e*, p. 124), it is a site of prosthesis, setting up a relational field between the aesthetic and the anaesthetic, which actualises the Nietzschean principle that '"[t]he greatest portion of our experiences is *unconscious*"' (p. 124), a notion (as Waite remarks) shared by McLuhan. In perceptual terms, all phenomena are aesthetic; given that electronic media reunite a sensorium that had been fragmented by literacy, '[e]lectronic Man approaches the condition in which it is possible to deal with the entire environment as a work of art' (McLuhan and Parker, *TVP*, p. 7), but we apprehend that environment unconsciously—'we dream awake' ('Environment', *Perspecta*, p. 165). In McLuhan's epigenetic understanding, media exist in a feedback loop with our perceptions, changing them and thus changing our perceptions of the world we perceive. The environment of our perceptions thus becomes a mediatic artifact, something we have created and have come to inhabit, a vast phantasmagoria, an 'aesthetic phenomenon'. And insofar as the mediations we inhabit are relational, we exist 'ecstatically' with them in a state congruent with 'the ecstasy of the Dionysian, [...] with its annihilation of the usual limits and borders of existence' (*BT* 7, p. 46). Mediation in this context is allied with poeisis rather than mimesis—the medium transforms rather than transmits, and thus has a ritualistic and performative aspect that is not captured by the Shannon-Weaver model of communication.[45] As McLuhan put it, '"[w]hat they call 'NOISE,' I call the *medium*"' (quoted in Patterson, *History and Communication*, p. 100). It is the media environment that speaks, and, as Kittler proposed, electronic media speak in the voice of the gods—'white noise' (*DN,* p. 316).

McLuhan locates the dramatisation of these notions in *The Tragedy of King Lear*,[46] the point of departure for *The Gutenberg Galaxy*, where the

map that Lear calls for upon his entrance fragments the kingdom and Lear's family by breaking down the parameters of oral communication and inaugurating a literate culture represented by a slew of letters that are forged, misdirected or remain unsent (Stewart, *Shakespeare's Letters*, pp. 201-230). The map represents not only the shift from orality to literacy but imposes its material facticity upon the kingdom, abstracting it, dividing it, sundering the King's royal instantiation as the embodiment of all his people and driving his own family apart. Lear's 'darker purpose' (*King Lear*, act 1, scene 1, line 34) is at once his plan to divide the kingdom and an allusion to the ablative effect of print on vision, separating the visual sense from the other senses and leading paradoxically not to a heightened awareness but to a sensorily-deprived one because all the senses are no longer working together, as they would be in an oral culture. 'Vision', in other words, is a product of print; in an oral culture, vision would not be an isolated sense. When the enraged Lear dismisses his loyal follower Kent with the words 'Out of my sight!' (1.1.155), Kent replies tellingly, 'See better, Lear' (1.1.156), implying that Lear's 'sight' is the product of this new medium, and, as an ablation, is inferior to the senses working together. 'Look with thine ears' (4.6.147) advises the broken Lear at the end, having learned his tragic lesson.

Literacy fragments the oral community into individualism, producing 'Man', a media effect: '[b]y the meaningless sign linked to the meaningless sound we have built the shape and meaning of Western man' (*GG*, p. 50). It is this mediated 'Man' who informs McLuhan's writings on media as 'extensions'. To the fragmented man produced by print culture, McLuhan opposes 'ELECTRONIC MAN [who] [...] ablates or outers the whole man' (*Counterblast* [1968], p. 36). If, in oral culture, there are no individuals because the entire community exists homeostatically, in electronic culture we experience that communality outside ourselves—ecstatically. Alluding to Nietzsche's *The Anti-Christ*, McLuhan remarks that technological changes 'amount to a kind of transvaluation of values', which produces a 'feeling of the meaninglessness of life and human endeavor' (*War and Peace in the Global Village*, p. 61).[47] The process of remediation challenges these new meanings in an ongoing cycle of change.

This cycle maps onto the configurations of tragedy and comedy. If tragedy moves 'from an inclusive to an exclusive sense of the world', as McLuhan suggests (*GG*, p. 14), then it maps on to the shift from orality to literacy: orality tribalises and literacy detribalises. What is remarkable, however, is that the inversion of the tragic scenario (the subject of *Understanding Media*, which charts the shift from literacy into the electronic embrace of the global village) does not produce comedy, as it would in generic terms,

whereby comedy reverses tragic isolation through the device of a banquet or wedding feast.[48] McLuhan and Watson cite from Friedrich Dürrenmatt's 'Problems of the Theatre' to suggest why tragedy remains the dominant mode of contemporary theatrical genres such as the theatre of the absurd.[49] As Dürrenmatt states, although '"[c]omedy alone is suitable for us"', the culture of paradox manages to '"achieve the tragic out of comedy"' (quoted in *CA*, p. 6). The paradox of media is that they interface contraries, and in doing so produce 'trauma and tension' (*GG*, p. 279). In these terms, it can be said that the entire unfolding of media represents for McLuhan a site of loss figured as displacement, a 'Dance of Death' (*MM*, p. 95), a trope similarly invoked by Kittler (*GFT*, p. 5). While electronic media produce a unification through their interactive element,[50] that unification is experienced mediatically as a form of displacement—'[c]omputer data-banks dissolve the human image' (*Counterblast* [1969], p. 35)—in that the community is retrieved as otherness: the internet connects computers, not individuals. Connection is thus present, as at the end of comedy, but it is present paradoxically, as in the global village, where 'village', as McLuhan was at pains to point out, means the maximum of dissension.

McLuhan cites Bertrand Russell's account of these paradoxes as they played out in Greek culture through the shift from orality to literacy: '"There were, in fact, two tendencies in Greece, one passionate, religious, mystical, other worldly, the other cheerful, empirical, rationalistic and interested in acquiring knowledge of a diversity of facts"' (*GG*, p. 22, quoting from *The History of Western Philosophy*). What literacy achieved was a form of 'vision'. McLuhan traces the shift outlined by Russell to Socrates, with whom 'came the division between the tongue and the heart' (p. 24), noting that 'Plato shows no awareness […] of how the phonetic alphabet had altered the sensibility of the Greeks' (p. 25):

> Before his time, the myth-makers, poised on the frontiers between the old oral world of the tribe and the new technologies of specialism and individualism, had foreseen all and said all in a few words. The myth of Cadmus states how this King who had introduced the Phoenician script, or the phonetic alphabet to Greece, had sown the dragon's teeth and they had sprung up armed men. This, as with all myth, is a succinct statement of a complex social process that had occurred over a period of centuries. […] The myth, like the aphorism and maxim, is characteristic of oral culture. For, until literacy deprives language of [its] multi-dimensional resonance, very word is a poetic world unto itself, a 'momentary deity' or revelation, as it seemed to non-literate men. (p. 25)[51]

As electronic media reconfigure literacy into the 'subtle auditory space of the non-literate world' (p. 30), the effect is to turn the world into 'a computer, an electronic brain' (p. 32), with the concomitant results of 'panic terrors, [...] tribal drums, total interdependence, and super-imposed co-existence' (p. 32) of the 'dithyrambic spectator' (McLuhan and Parker, *TVP*, p. 29).[52] This 'complex, organic interplay of spaces' (*GG*, p. 45) is the opposite of the 'single space'[53] of the alphabet, which 'reduced the use of all the senses at once, which is oral speech, to a merely visual code' (p. 45). Speech is the content of that code, but not of any other form of writing. These other forms of writing are similar to 'modern mathematical equations like $E = MC^2$. [...] Such equations or figures have no content but are structures like an individual melody which evoke their own world' (pp. 46-7). In the electronic era, when 'we have discovered the limits of the alphabet technology' (p. 50) with the move into data, we shift concurrently into an acoustic mode of communication in which we 'sing the body electric.'[54] McLuhan draws on E.R. Dodds' *The Greeks and the Irrational* to suggest how the advent of literacy in classical Greece produced the 'individual ego': the '"split" is manifest as pictorialized models or "machinery" of complex situations such as tribal, auditory man had made no effort to visualize. That is to say, detribalization, individualization, and pictorialization are all one' (p. 52). The advent of electronic technologies reverse this process, such that 'the entire group of "irrationalists" in our century [...] elect the "sacral" or auditory mode of organization of experience' (67).[55]

McLuhan invokes *The Birth of Tragedy* in the first chapter of *Understanding Media*, commenting that, '[s]ince understanding stops action, as Nietzsche observed' (p. 16), the present volume can be construed as seeking to 'moderate' the effects of media. The allusion is to section 7 of *The Birth of Tragedy*:

> The ecstasy of the Dionysian state, with its annihilation of the usual limits and borders of existence, contains for its duration a *lethargic* element in which all past personal experience is submerged. And so this chasm of oblivion separates the world of everyday reality from that of Dionysian reality. However, as soon as that everyday reality returns to consciousness, it is experienced for what it is with disgust: an ascetic mood which negates the will is the fruit of those conditions. In this sense the Dionysian man is similar to Hamlet: both have at one time cast a true glance into the essence of things, they have acquired *knowledge*, and action is repugnant to them; for their action can change nothing in the eternal essence of things. [...] Knowledge kills action, to action belongs the veil of illusion; [...] true knowledge, insight into the horrific

> truth, outweighs any motive leading to action, in Hamlet as well as in the Dionysian man. [...] Conscious of the truth once glimpsed, man now sees all around him only the horrific or the absurd aspects of existence, [...] now he recognizes the wisdom of the forest god Silenus. (p. 46)

The notion of *ekstasis*, in which man is 'set outside himself' (*UM*, p. 43), governs McLuhan's analysis of media in *Understanding Media* as 'extensions' of 'Man', a term McLuhan had already deconstructed in *The Gutenberg Galaxy* (p. 50; cf. *UM*, p. 83). Through the ecstasy of electronic media, 'man [...] metamorphosizes himself into abstract information. [...] Without restraint, he can become boundless, directionless, falling easily into the dark of the mind and the world of primordial intuition' (McLuhan and Powers, *GV*, p. 98), whose resonance derives from '[o]pen wireless transmission,' which, 'being truly acoustic, is a group voice' (*GV*, p. 119). Counterposed to this acoustic world is the figure of Hamlet. The tragedy of Hamlet is that he has been detribalised from his father's ear-oriented world (it is in King Hamlet's ear that Claudius pours the poison) through his acquisition of writing as a student at Wittenberg. Unable to execute the tribal (oral) command for vengeance, Hamlet instead contemplates the question of being, which has been thrust upon him by the individuation of writing. Hamlet's Dionysian awareness is fated to be enacted in an Apolline world;[56] McLuhan's fate was the opposite.

The breach between thought and action in Hamlet contextualises McLuhan's counter-intuitive reading of Nietzsche. Whereas Nietzsche suggests that knowledge of the horror of existence makes action superfluous ('better not to have been born,' says Silenus), McLuhan construes the comment to suggest that critical knowledge can modify the action of (in this case) media.[57] Through this reading, McLuhan raises the question of the historicity of tragedy that was addressed by Walter Benjamin in his *Origin of German Tragic Drama*. Benjamin takes issue with Nietzsche in this work, arguing that Nietzsche dehistoricises tragedy in his mythicisation of it, and that the baroque 'mourning play' (*Trauerspiel*) distinguishes itself from tragedy in its historical orientation. 'For Nietzsche,' writes Benjamin,

> the tragic myth is a purely aesthetic creation, and the interplay of Apollonian and Dionysian energy remains equally confined to the aesthetic sphere, as appearance and the dissolution of appearance. Nietzsche's renunciation of any understanding of the tragic myth in historical-philosophical terms is a high price to pay for his emancipation from the stereotype of a morality in which the tragic occurrence was usually clothed. (p. 102)

More pointedly, Benjamin adds that the 'nihilism lodged in the depths of the artistic philosophy of Bayreuth nullified [...] the concept of the hard, historical actuality of Greek tragedy' (p. 103). It is precisely here that Benjamin's analysis is wanting however; if tragedy can be born, die and then be reborn as opera, it is indubitably in history, but it is in history as a medium, not as content. Thus, Nietzsche could shift his allegiance from Wagner to Bizet because the content was less important to him than the mode of mediation (cf. Liébert, *Nietzsche and Music*, p. 198).

McLuhan's reading of Nietzsche derives precisely from the notion that media are in history and productive of history, and provides thus an instance of rapprochement with Kittler. As Kittler argues in his essay 'World-Breath: On Wagner's Media Technology', '[u]nlike all programs of aesthetic education, and unlike the redemption promised by the Eternal Feminine, music drama has remained current' because it is 'the first mass-medium' (p. 122). Kittler refers to Nietzsche at this juncture, noting his comment that Wagner's art '"stands in opposition to all Renaissance culture which has until now enveloped us moderns in its light and shadow"' (p. 354, n. 3, quoting from Nietzsche's 'Richard Wagner in Bayreuth', *Unmodern Observations*). Kittler comments that '[a] century after Nietzsche, one may replace some terms of his exceedingly precise definition of modern media: "Gutenberg" for "Renaissance", and "paper and printer's ink" for "light and shadow".' Wagner's opposition to Gutenberg implies a shift from literacy to a form of orality, such that 'optical hallucinations are replaced by acoustic ones', and 'McLuhan's theory turns into reality' (p. 127). The 'revolutionary darkness' (p. 122) of the *Festspielhaus* confirms this shift from the literate world of visual culture to the ear-world of what Kittler calls 'an acoustic data-stream' (p. 123), a data-stream because music is ultimately number—the mathematical ratios of the tones producing a relational field, the 'pure dynamics and unadulterated acoustics' (p. 128) of white noise, an acoustics which in Bayreuth 'put all spectators into a state of "ecstasy"' (p. 134). This state of ecstasy poses the critical problem confronted by McLuhan in his reading of Nietzsche, insofar as ecstasy deprives the critic of a position from which to articulate a critical response. McLuhan's replies by merging the critic with the artist, such that art becomes critique. This 'ability of the artist' to 'parry' the 'violence' of 'new technology' with 'full awareness' is 'age old' (*UM*, p. 65), and revisits, albeit in another register, the Apollonian/Dionysian dynamic.

Like Nietzsche in *The Birth of Tragedy*, McLuhan is concerned in *Understanding Media* with contemporary manifestations of this dynamic as articulated in the relationship of orality and literacy. With the notions

of 'hot' and 'cool' media, McLuhan invokes the Dionysian and Apollonian orientations, and argues that electronic mediation has produced a mythic engagement with the phenomenal world;[58] rather than the alphabet, these new media have returned the icon to prominence, which produces meaning acoustically, that is to say, all at once. The mythic world is irrational in the sense that rationality was a product of literacy: 'we have confused reason with literacy, and rationalism with a single technology. Thus in the electric age man seems to [...] become irrational' (*UM*, p. 15); however, '[w]e *live* mythically but continue to think fragmentarily and on single planes' (p. 25). The confrontation of the Apollonian and the Dionysian is thus agonistic.[59] McLuhan also provides a counter-vision to this agonism in observations about the potential of electronic media to provide 'universal understanding and unity' through a 'collective unconscious' (p. 80). If electronic media promise 'a social consciousness electrically ordered', it must exist in tandem with 'a private subconsciousness or individual "point of view" rigorously imposed by older mechanical technology. This is a perfectly natural result of "culture lag" or conflict, in a world suspended between two technologies' (p. 108). This temporal element provides the necessary critical purchase in acoustic spacetime.

As an instance of this double orientation, McLuhan cites the example of number: 'science has tended until recent times to reduce all objects to numerical qualities', but in 'any and all of its manifestations, [...] number seems to have both auditory and repetitive resonance' (p. 108). To elide this aspect of number is to forget that 'Apollonian man' was 'the product of a technological bias in Greek culture (namely, the early impact of literacy on a tribal society)' (p. 112). Critical purchase obtains from this dynamic. If, '[t]o an ancient Greek the discovery of private identity was a terrifying and horrible thing that came with the discovery of visual space and fragmentary classification' (McLuhan and Parker, *TVP*, p. 255), for electronic man the trajectory is from 'an extreme individual fragmentary state back into a condition of corporate involvement' that is 'experienced as alienation and loss of private selfhood' (*TVP*, p. 255).

This necessitates a critical focus that dynamises figure and ground,[60] as in McLuhan's reading of the mythical confrontation of Silenus and Midas retailed by Nietzsche:

> The classic curse of Midas, his power of translating all he touched into gold, is in some degree the character of any medium, including language. This myth draws attention to a magic aspect of all extensions of human sense and body; that is, to all technology whatever. All technology has

> the Midas touch. When a community develops some extension of itself, it tends to allow all other functions to be altered to accommodate that form. (*UM*, p. 139)

These mediated effects include the senses themselves:[61] both verbal and 'nonverbal ways of codifying experience' act as 'a store of perception and as a transmitter of the perceptions and experience of one person or of one generation to another' (*UM*, pp. 139-140).[62] It is in this way, as well, that the aesthetic becomes bound not only to art but also to existence.

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Like *Understanding Media,* the second part of Kittler's *Discourse Networks 1800 /1900* takes its point of departure from Nietzsche with its opening salvo 'Nietzsche: Incipit Tragoedia', and Kittler grants Nietzsche's philosophical texts a singular place in 'the founding age of media' (*GFT*, p. 200). Kittler reads *The Birth of Tragedy* in terms of a contestation between the optical and the acoustic, the world of sight and the world of sound, Apollo and Dionysus (*DN*, p. 188), and further suggests that an 'aesthetics of applied physiology' (p. 189) underpins this new age of media.[63] Nietzsche's interest in and use of the typewriter highlights the transition to the discourse network of 1900 with its purely mechanical iterations of '[s]patially designated and discrete signs' (*DN*, p. 193). Kittler emphasises the posthuman implications of the typewriter: '[u]nderstanding and interpretation are helpless before an unconscious writing that, rather than presenting the subject with something to be deciphered, makes the subject what it is' (*DN*, p. 196). Because the typewriter marks a shift from the human to the technological, interpretation ends since there is no meaning beyond the sheer materiality of type: 'media [...] are their own message' (Kittler, 'Nietzsche', p. 28).

Preceding this analysis is a circa 200-page 'Prelude in the Theater' on 'The Scholar's Tragedy' (*DN*, p. 3), which is summarised by the transition from *ach* to *Sprache*, or, as McLuhan put it, from utterance to 'outerance' (cf. *GG*, p. 5). The production of a 'virtual orality' (*DN*, p. 5) has no speaker, or, more precisely, has 'Man' as a speaker, himself the product of this speech. '[P]oetic and philosophic discourse conspire' (*DN,* p. 14), thus, and 'philosophy [...] enters into relationship with poetic imagination': philosophy becomes poetic because it is no longer about knowledge but about discourse, a philosophy of media.

The specific advent of the discourse network of 1800 is tied to the appearance of handbooks directed to mothers who are teaching the alphabet to

their children. The significance of the alphabet primers was the focus on language as materiality, and this materiality is naturalised via the Mother. Through this formula, Kittler is able to reject the notion of language as accessible to hermeneutics: '[l]etters have no meaning. Letters are not like sounds, related by the voice to the body and to Nature. The consequences drawn from this basic deficiency differentiate discourse networks' (*DN*, p. 29). The chief result of the discourse network of 1800 is 'oralization' (*DN*, p. 32), the notion that 'writing [was] a composition for the mouth instrument' (*DN*, p. 33), rather than 'graphic articulations'. Its principle became repetition: '*Mama* or *ma* functioned as the most distinguished minimal signified in the writing system of 1800. It was the earliest one to be discussed, archived, and fed back into the system', being 'pronounced by parents only so that it might recur in children's mouths—as a signature for the new education. What occurred, then, was true programming, which could thus be continued by automatons' (*DN*, p. 49). In this argument, Kittler's posthumanist positioning is clear: language is a form of programming that produces the human subject.

Nietzsche's interest in and use of the typewriter highlights the embodied transition to 'touch' and the 'spatial' (*DN*, p. 193) that likewise characterises McLuhan's notion of acoustic media. Kittler argues that '[s]patially designated and discrete signs—that, rather than increase in speed, was the real innovation of the typewriter' (*DN*, p. 193).[64] The typewriter produces an acoustic space by unlinking writing from voice and meaning from subjectivity. This connects both to Nietzsche's notion of the birth of tragedy out of the spirit of music and to Kittler's obsession with rock music as heralding a return to the acoustic world of the classical gods: '[i]n our mediascape, immortals have come to exist again' (*GFT*, p. 13), such that 'even the deadest of gods and goddesses achieve acoustic presences' (*GFT*, p. 55), because '[r]ock songs sing of the very media power which sustains them' (*GFT*, p. 111), namely 'Dionysus, the master of media' (*GFT*, p. 211). Inscription becomes embodied, producing a 'Dionysian dithyramb' (*GFT*, p. 196) out of the disjunction through which 'speech [is] directed toward the unanswering conditions of speech itself,' which is the 'terror that all media presuppose and veil' (*GFT*, p. 196). Speech is not about something; it is that thing itself. Dionysus thus becomes 'a typewriter myth' (*GFT*, p. 196) from which orality (as communication) 'vanishes' (*GFT*, p. 211). It is at this point that discourse enters the posthuman condition and '[c]ulture [*Bildung*], the great unity in which speaking, hearing, writing, and reading would achieve mutual transparency and relation to meaning, breaks apart' (*GFT*, p. 214), as does 'Man and his Norm. They articulate or decompose bodies that are

already dismembered' (*GFT*, p. 215). Tragic knowledge turns back on itself in the narcissism of the feedback loop.

But the body is re-materialised through phonographic inscription; whereas the alphabet had separated sound from inscription, the 'sound writing' of the phonograph remediates the body, but this time with a voice that is deprived of meaning—it is simply 'pure sounds' (*GFT*, p. 236), and '[i]dentity falls into simulacrum' (*GFT*, p. 241). The typewriter exerts a similar effect; '[w]riting in Nietzsche is no longer a natural extension of humans who bring forth their voice, soul, individuality through their handwriting. On the contrary: […] humans change their position—they turn from the agency of writing to become an inscription surface' (*GFT*, p. 210). As a consequence, a 'writing without the writer […] records the impossible reality at the basis of all media: white noise, primal sound' (*GFT*, p. 316). The sensorium has been given over to mediation. '[S]ensory deprivation [is] the background to and other of all technological media. That the flow of data takes place at all is the elementary fact of Nietzsche's aesthetic, which renders interpretations, reflections, and valuations of individual beauty (and hence everything Apollonian) secondary' (*GFT*, p. 120). As a result, '[t]ragic pleasure admits no negation and no opposite' ('Nietzsche', p. 30); it is environmental. If '"the world" can be "justified to all eternity […] only as an aesthetic product", it is simply because "luminous images" obliterate a remorseless blackness' (*GFT*, p. 120-1).

Media technologies originate 'precisely at the site of madness' (*GFT*, p. 255), because media flow through us, speaking us and producing us in the process. To Foucault's *History of Madness*, Pink Floyd's 'Brain Damage' replies with a 'story about ears and madness in the Age of Media' ('The God of the Ears', p. 47). Kittler quotes from an interview that Roger Waters gave to Nick Sedgwick in which Waters, lamenting the fact that his brain is so 'scrambled' that he cannot remember when he wrote a given song, says to Sedgwick that '"[t]he medium is not the message, Marshall […] is it? I mean, it's all in the lap of the fucking gods".'[65] Kittler hears in Waters' invocation of McLuhan that 'electronic media may in fact be announcing the advent of much darker figures'; that is, the possibility that we are held powerlessly in the thrall of media, that we cannot mean what we say because we are not in control of our media:[66]

> *ēthos anthropō daimōn*—'his own way is man's daemon'. […] Opposing *ēthos* is *pathos*—what comes over and befalls us. In short, we act or suffer as our daemon wishes. […] No image floating before our eyes compares in its pathos to what speaks in the voice [*aus der Stimme*]. […] The gods came because they were rhythmically and melodically invoked. […]

> [M]oods [*Stimmungen*] shape and preserve human beings. That is why [...] every Greek must learn, and suffer [*erleiden*], music. [...] And so every child [...] must be instructed in singing and playing music, so that it may experience, poetically, all the ethos or pathos harbored in its infinite soul. ('Pathos and Ethos', pp. 304-305)[67]

If McLuhan understood electronic media as returning us to a condition of acoustic space, Kittler suggests that with digital technologies we were returning to the mathematical condition of vocalisation, when once again the gods would sing—'gods' because electronic music has no human origin.[68]

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For Kittler, mediation is a form of madness in that we are not in control of our own discourse—the gods sing *through* us, as the poetic custom of the invocation implies.[69] It was Foucault's notion, however, that in re-evaluating the clinical view of madness as a failure of the rational, there emerged the possibility of the rebirth of our understanding of madness as constituting a form of knowing and being that was tragic—because knowing was irrational and being was becoming. It is precisely in contrast to Socratic knowledge that this tragic knowledge asserts itself. If the discourse network of 1800 is characterised by Faust among his books, the discourse network of 1900 is characterised by Nietzsche sitting at his typewriter, a discourse network in which knowledge has been given over to our technologies of mediation. This is a form of not-knowing, an irrational knowledge, because we can only know what our technologies know;[70] there is no transcendence of the materiality of mediation.

Tragic knowledge is the answer to the riddle of the Sphinx; Foucault remarks of Oedipus that 'the one who is ignorant is the one it is a question of knowing about' (*LWK*, p. 229). Man is unknowable as sovereign self because Man resides in his discursive systems, in his mediations;[71] the riddle posed by the Sphinx is also the answer—Man is not one thing but many. We can only know ourselves relationally, as mediated. Oedipus (who, as *tyrannus*, represents the sovereign self) is similar to Midas; the knowledge Midas seeks is Socratic, but the knowledge Silenus invokes is tragic. These are 'two different types of knowledge in their medium', as Foucault states; 'knowledge characterized by listening—*akouein*—[and] knowledge characterized by sight' (*LWK,* p. 230).[72] When Oedipus learns the truth, he blinds himself in acknowledgement of the mendaciousness of the visible not acting in conjunction with the other senses: 'now and until the end of his days he

is doomed to listen' (*LWK,* p. 255). Kittler remarks on 'a lovely definition offered by Michel Foucault' of tragedy, that it 'traverses the dimension of above and below' ('Martin Heidegger', p. 290); that vertical trajectory is described here mediatically, from the voice of the gods to the testimony of the shepherd, 'which joins together saying and seeing' (Defert, 'Course Context', 263). Knowing, here, is a critique of a certain sort of knowledge, that associated with Socrates. In contrast with that knowledge, '[w]hat the madman represents cannot be known but only divined' (Cook, 'Nietzsche, Foucault, Tragedy', p. 142), because that knowledge is irrational, or 'ear-rational' (Cavell, *MS*, p. 151), what Nietzsche called in *The Gay Science* a 'sublime unreason' (Bk. 1, section 1, p. 29). It was from this *gai saber* that tragedy was born, an art rather than a science, sound rather than sight.[73]

With shifts in media, the 'very limits which constitute who we are and the way the world is perceived are being contested' (Cook, 'Nietzsche, Foucault, Tragedy', p. 147). As Foucault put it, '"[f]rom philosophy comes the displacement and transformation of the limits of thought".'[74] This transgressive knowledge is also a reconfiguration of 'Man', and coincides thus with Nietzsche's notion of 'self-overcoming', captured by the term *Übermensch,* not 'conceived as an *end* or final state […] but as a process, […] a ceaseless process of self-overcoming' (Milchman and Rosenberg, 'The Aesthetic and Ascetic', p. 45). If media are the extensions of Man, then they are the overcoming of man; for Kittler, media are likewise the overcoming of 'so-called Man', but this formulation lacks the processual aspect evident in McLuhan's formulation. Aesthetics, or perception, merges with *techne* here through the notion of '*technê tou biou*', the 'art/aesthetics of life/existence', as Foucault suggests.[75] Foucault links *technê* to *poiêsis*, 'to the work of an artisan, and to the word "technique"' (Milchman and Rosenberg, p. 57). Art becomes the total frame of being rather than a specialised activity, and ontology becomes 'suffused with historicity' (Milchman and Rosenberg, p. 62, n. 54).

Incipit tragoedia, the words with which Kittler opens the second part of *DN*, are found at the end of *The Gay Science*, the work in which Nietzsche first broaches the possibility of the *Übermensch*.[76] It is precisely with the death of univocal, essentialist knowledge ('God') that mediation emerges as the locus of epistemology and ontology. It is here that knowing, being and mediation come together. If, for McLuhan, media take us beyond ourselves and if, for Kittler, media comprise the conditions of our being, then the beginning of tragic knowledge is that we have our being in media; that is to say, we have our being relationally, and as such are not fully and autonomously agential beings. Kittler readily embraced the Dionysian; the critical dimension

offered by the Apollonian was of less concern to him. As he stated in one of his last interviews, he did not believe that people should try to change the world by writing books.[77] McLuhan embraced Nietzsche's exhortation to 'sacrifice in the temple of both deities' (*BT*, 25, p. 131). Having theorised that the only possible critical stance within the electronic era was immersive, he acknowledged the pull of the Dionysian while arguing the need for an Apollonian distancing. This is the context of his counter-intuitive reading of Nietzsche's reference to Hamlet and reminds us of Nietzsche's 'important ideal of action (and *pathos*) at a distance' (Babich, 'Nietzsche's *Gay Science*', p. 98),[78] and that 'only art permits us to see things from a distance' (Babich, 'Nietzsche's *Gay Science*', p. 110). The concept of remediation allowed for this distancing. The concomitant of this position was that the Dionysian environment be understood as a work of art, such that art becomes critique via remediation. Caught up in this vortex was 'Man'; it was in this sense that the aesthetic phenomenon justified art *and* existence.

Media are an overcoming of the human and an opening onto the posthuman, the '*hyperanthropos*' (Babich, 'Nietzsche's Zarathustra', p. 59) who answers the riddle of the Sphinx and with whose invocation Prometheus returns.[79] The 'humanist fiction of sovereign authorship' (Breger, 'Gods', p. 116) gives way to digital superfoetation, the 'expanded relational self' (Braidotti, p. 60), and here the spatial aspect of the acoustic theorised by both McLuhan and Kittler is crucial: media put us outside ourselves and that space implies interconnection and interrelatedness but at the same time a sundering of the sovereign self. Media become environmental through 'a nature-culture continuum in the very embodied structure of the extended self' (Braidotti, p. 65) and, as in the late, Philhellenic writings of Kittler, music—acoustic space—encapsulates this spacetime media environment. Dionysus returns, and 'the being of so-called man reveals itself as ecstasy' (Breger, p. 119), as a being outside ourselves. This is tragic being, a 'divine Greek (un)being which we have begun to understand as a Dionysian force' (Breger, p. 120).[80] As Nandita Mellamphy remarks, 'the human becomes visible (Apollo) only as the aesthetic expression of overhuman primordiality (Dionysus); the human is only a surface of inscription for the overhuman' ('Nietzsche's Pharaonic Thought, p. 4). The *Übermensch* becomes, in this context, a kind of 'type-*writing,* […] a kind of choreographic mechanology and […] a *formative*, *informational,* or better yet, *telegraphic* technology […] beyond human determination' (Mellamphy, p. 4). McLuhan's extension theory is paradoxical in precisely this way: media take us beyond ourselves and it is in this process that we discover ourselves as human. This *outerance* is the tragedy—and ecstasy—of media.

Coda: On the 50th Anniversary of *Understanding Media*

The 26 chapters that comprise the second half of *Understanding Media* proclaim for media a cultural impact equal to that of the alphabet, while suggesting that to understand the alphabet as a *medium* asserts a claim to a new philosophical paradigm—a *media philosophy*. The seven opening chapters of the book propose media as the *trivium* and *quadrivium* of a posthumanistic epistemology.[1] Behind the alphabetic quotient hovers the digital as a universal mode of translation. And the subtitle places mediation in complex relationship to the *bios*.

McLuhan announced *Understanding Media* at the end of *The Gutenberg Galaxy* as that book's companion piece: 'The new electric galaxy of events has already moved deeply into the Gutenberg galaxy. Even without collision, such co-existence of technologies and awareness brings trauma and tension to every living person.'[2] Alluding to the famous scene (book 5, chapter 2) in Victor Hugo's *Notre-Dame de Paris* where we are told that '*ceci tuera cela*'—the book will displace the cathedral—McLuhan continues: 'Our most ordinary and conventional attitudes seem suddenly twisted into gargoyles and grotesques. [...] These multiple transformations, which are the normal consequence of introducing new media into any society whatever, need special study and will be the subject of another volume on *Understanding Media* in the world of our time.'

It is well-known that *Understanding Media* grew out of McLuhan's *Report on Project in Understanding New Media*. In the transition from the *Report* to the book, however, media took on a breadth not evident earlier. As McLuhan wrote to his former student Walter Ong in February of 1962, 'I expect to add to the present form [i.e. the *Report*] of *Understanding Media* several media like money, railways, ships and 'planes and cars—in fact, all of those externalizations of our bodily functions and perceptions which cause all human technology to exist in the ablative case' (*Letters*, p. 283). McLuhan was also concerned with the transition from visual to acoustic space, and thus the two books form a chiasmus, *The Gutenberg Galaxy* focusing on the transition from orality to literacy and *Understanding Media* from print culture to the acoustic. Chiasmus is a rhetorical trope; chiasm is an anatomical term for the crossing over of two physiological structures, and thus McLuhan unites the *techne* of mediation with the *bios*. He would

return definitively to this structure in the tetrads of *Laws of Media*, a book conceived of as a sequel to *Understanding Media.*

Reviews ran the gamut. Kenneth E. Boulding noted that the structure of *Understanding Media* was far more conservative than that of *The Gutenberg Galaxy*, and that while the terms 'hot' and 'cool' were unfortunate, they addressed a very significant fact about the way media work (McLuhan: Hot and Cool, p. 58). George P. Elliott made the point that McLuhan's 'writing is deliberately anti-logical: circular, repetitious, unqualified, gnomic, outrageous' (p. 67). Dwight Macdonald wrote that, '[c]ompared to Mr. McLuhan, Spengler is cautious and Toynbee positively pedantic', but, lest this be construed as a compliment, Macdonald added that the book is 'impure nonsense, nonsense adulterated by sense' (pp. 204-205). Christopher Ricks commented that McLuhan's 'style is a viscous fog, through which loom stumbling metaphors' (p. 217). McLuhan's statements about the 'oral' caused more than one critic to ask how he could write about the oral in a book. Other critics were disturbed by the lack of attention to content. Still others wondered why so much attention was given to popular culture, and where McLuhan stood morally when he referred to humans as the sex organs of technology. The most intelligent of these contemporary reviews was made by Harold Rosenberg for *The New Yorker*. 'We all know,' he wrote, 'that radio, the movies, the press do things to us. For McLuhan they also *are* us'; '[t]echnologies have been a component of human living for three thousand years, and our loftiest feelings have derived from that segment of us that is least ourselves' (pp. 194; 197). Rosenberg called McLuhan a 'crisis philosopher', though 'by far the coolest', a 'belated Whitman singing the body electric with Thomas Edison as accompanist' (pp. 196, 202).

McLuhan begins the book with one of his most insightful and far-reaching comments: that 'the "content" of any medium is always another medium' (p. 8). This provides his study with an historical and critical foundation, and one that is meant to challenge Enlightenment values, because 'we have confused reason with literacy, and rationalism with a single technology' (p. 15). *Understanding Media* embraces the 'ear-rational' and the disconnected as necessary concomitants of the electronic era and its newfound tribalism. But this is not to universalise the effects of media; the local inflects the global: 'the effect of [...] the TV image will vary from culture to culture' (p. 45).

The most important point made in *Understanding Media* is the relationship between the *bios* and technology, the notion that we have become 'the sex organs of the machine world' (p. 46), a concept first broached in *The Mechanical Bride*. This interfusion of sex and technology is only one

aspect of the 'hybrid energy' (p. 48) that will be released by the conjunction of literate and electronic modalities (p. 49), a conjunction that highlights the translational aspect of media, especially in their digital configuration: 'Today computers hold out the promise of a means of instant translation of any code or language into any other code or language' (p. 80). This translation is configured through number, which has 'both auditory and repetitive resonance, and a tactile dimension as well' (p. 108). Electronic media, in this regard, can be understood as producing an acoustic (non-visual) space that is characterised by sensory involvement. This is the space of 'the skew, the curved, and the bumpy' (p. 117), as opposed to the 'straight and uniform' domain of print culture. This new acoustic space will require 'nonverbal ways' (p. 140) of understanding. It will be a sculptural world, characterised by contours rather than by straight lines, just as film rolls up the linear frames of a movie to produce the sense of an organic process (p. 182).

Understanding Media retains its currency largely because it rejected the critical commonplaces of its day, and because it is inconclusive. Fuelled by 'percepts', it seeks not to create a system but to produce a pedagogy. The book teaches how to understand media not as a continuous phenomenon but as a discontinuous set of effects. It thus seeks to reproduce the experience of electronic media themselves, which require that we engage with them in 'a convulsive sensuous participation' (p. 314) in their 'discontinuous, skew, and nonlineal' (p. 334) configurations. Not a messenger but a medium, McLuhan created an effect.

Notes

Introduction

1. In his last interview, Kittler remarked that 'It was around 1985 when ideas began to take form, when I [...] was genuinely inventing. This is the beginning of media history, not media theory, since media theory had started with McLuhan earlier.' See 'The Humility of Thought', p. 10.
2. The term was not coined by McLuhan; a Google search reveals a rich legacy. The word is the forerunner of 'utterance'; a cognate term in French (*à l'outrance*) stands behind 'to th'utterance' in Shakespeare's *Macbeth*. The word appears in its own right in Coleridge, and its French variant recurs in Levinas, while Heidegger is said to have coined a cognate term in German. Angela Esterhammer writes that 'Coleridge tends to use "utterance" and "outerance" interchangeably. Language brings about the outness without which we could not participate in one another's worlds. [...] But outerance/utterance is again a more universal principle than it may seem, having to do not just with communication but also with cognition.' See *The Romantic Performative* (p.163). McLuhan similarly writes about Coleridge's 'recognition of the poetic process as linked with the modes of ordinary cognition' in 'Coleridge as Artist', originally published in 1957 and reprinted in *The Interior Landscape* (p. 115). It is in *The Gutenberg Galaxy* that McLuhan refers to '[t]hat outering or uttering of sense which is language', noting that '[l]anguage is a metaphor in the sense that it not only stores but translates experience from one mode into another' (p. 5). Kiran Toor remarks that 'the object is, by a process of necessary deception, transferred out of the subject into a sense of "*outness*" [...] in which the workings of our own being are separated and transferred out, and cloaked with a sense of *reality.* [...] [T]he 'other' in imaginative terms is an *illusory self-projection* through which the self explores the inherent, but yet undifferentiated, duplicity of its own mode of being.' See *Coleridge's Chrysopoetics* (p. 189). James Hutchinson Stirling wrote in 1865 that '[u]tterance, or outer-ance, is but as the outwardness of Extension' in *The Secret of Hegel* II (p. 310). John Llewelyn writes about outerance and 'Levinas's Critical and Hypocritical Diction', with its linkages to Heidegger. Ben Lesousky, writing about 'Post-Humanities' and 'The God of Biomechanics', argues that in Roy's final soliloquy in the movie *Bladerunner*, 'utterance is an outerance, as Elaine Scarry might say. It enters into the thicket of discursive space, where it will, as Bakhtin might say, brush up against other utterances, where it will affect and be affected, populate and be itself populated.' Frederick Burwick writes that '[u]tterance as outerance inevitably imposes otherness'; Burwick notes that 'the otherness of one's own utterance was noted by Schiller' and that Coleridge's 'outerance' was coined from Bishop Berkeley's "outness"' (p. 69). McLuhan's

student Walter Ong used the term in *The Presence of the Word*, and Stanley Cavell uses the term in *Must We Mean What We Say?* And *Outerance* is a video search engine.

Chapter 1

1. Writing in 1964 to Robert Fulford, then an editor of *Maclean's Magazine*, a weekly on the model of *Time* that still emanates from Toronto, McLuhan stated, 'I do not move along lines. I use points like the dots in a wire-photo. That is why I must repeat and repeat my points. Again, insights are not points of view. I do not have a point of view on anything. I am interested only in modalities and processes. [...] My main theme is the extension of the nervous system in the electric age and thus the complete break with 5000 years of mechanical technology. This I state over and over again'. See *Letters* (p. 300).
2. See *MB*: 'Poe's sailor in "The Maelstrom" saved himself by co-operating with the action of the "strom" itself' (p. 75). Philip Marchand, in *Marshall McLuhan*, mistakes McLuhan's reading of Poe's story by suggesting that its significance was that the sailor sought to free himself from the vortex. In fact, those who seek to free themselves from it perish. This notion that 'arrest' is the key to McLuhan's media theory also informs Glenn Willmott's *McLuhan, or Modernism in Reverse*.
3. See Raymond Williams, *Television.*
4. See Yaeger, 'Dreaming of Infrastructure', p. 11.
5. See McLuhan and Watson, *CA*, p. 198; the allusion is to Joseph Conrad's *Lord Jim* (chapter 20).
6. Bolter and Grusin, *Remediation.*
7. See Gordon, *Marshall McLuhan,* p. 267, and Schnapp and Michaels, *The Electric Information Age Book,* pp. 8, 87, 109.
8. See Williams, 'A Structure of Insights', p. 187. Williams later rejected McLuhan's approach to media because Williams found it too abstract. See *Television*, pp. 129-132.
9. Compare Bogost's notion of the ontograph, which he defines ontographically as 'a landfill, not a Japanese garden' in *Alien Phenomenology* p. 59. Thrift speaks of the ontograph as 'constantly shift[ing] orientation and composition but still retain[ing] a kind of coeval force through [...] collocation and overlap.' See 'The Sentient City', p. 3, and compare McLuhan's 'Inside the Five Sense Sensorium'.
10. See Gumbrecht, 'A Farewell to Interpretation'. Winthrop-Young refers to the 'major shift from meaning to media that emerged in German theory in the 1980s, that is, from the paradigm of essentially text-based hermeneutics to a focus on those materialities of communication that (pre)shape the constitution of meaning' in 'Memories of the Nile', p. 103.

11. McLuhan developed this notion that screens were tactile long before the production of the touch screen.
12. McLuhan, 'Last Look', p. 197. Compare Derrida, writing about Bloom in Joyce's *Ulysses*: 'On peut lire au travers de ce paradigme particulier: *he is at the telephone*, il y est toujours, il appartient au telephone, il y est à la fois rive et destine. Son être est un être-au-téléphone. Il est branché sur une multiplicité de voix ou de répondeurs automatiques.' See *Ulysse Gramophone,* p. 84.
13. McLuhan's doctoral thesis, 'The Place of Thomas Nashe in the Learning of his Time', has now been published under the title *The Classical Trivium.*
14. Compare Thrift's notion of 'outstinct' as developed in 'The Sentient City', p. 2.
15. As Bruce R. Smith notes in *The Acoustic World of Early Modern England*, an oral utterance is 'an *environmental* gesture' in that, by speaking, 'I extend my person into "the about me". Both the Italian and the German equivalents of "environment" carry, perhaps, a stronger sense of this unmarked spatiality than the English word now does: *ambiente* waves a hand toward the air around the speaker, while *Umgebung* invokes the "givens" that surround the speaker' (p. 14).
16. The brevity of advertising slogans anticipates Twitter, its 140 characters a form of poetic constraint comparable to the 14 words of Ezra Pound's remediation in 'In A Station of the Metro' of the fourteen-line sonnet.
17. See Moulier-Boutang, *Cognitive Capitalism*.
18. The reference to Pavlov may reference a Skinnerian interest in the technology/biology interface. McLuhan writes about Pavlov in 'Environment: The Future of an Erosion', p. 164.
19. Rotman, *Becoming Beside Ourselves*.
20. Quoted by James in *The Fragmentary Demand,* p. 144. Note also Derrida, *On Touching—Jean-Luc Nancy*, pp. 127ff. This text includes the second of Derrida's two references to McLuhan, and the first in a published work since 'Signature Event Context' (1971): 'the article [by Cathryn Vasseleu] is outstanding in the way it insists on the question of *technology* (Vasseleu reminds us that Marshall McLuhan said about the sense of touch that it is the sense of the electronic age) at the same time as the prohibition, phobia, or delirium of touching' (p. 354, n. 22). On McLuhan and Derrida see Cavell, 'Specters of McLuhan: Derrida, Media, and Materiality'.

Chapter 2

1. Bezos is quoted by Stone in *The Everything Store*, p. 23; see also Ted Striphas, *The Late Age of Print,* p. 3.
2. West, *Presidential Address*, pp. 3, 18. What occasioned this diatribe was McLuhan's use of the word 'implosion', which should interest Kittlerians.

3. Darnton's articles are conveniently located on *The New York Review* website: www.nybooks.com/contributors/robert-darnton/.
4. As Kittler puts it, 'all discourse networks are not books.' See *DN*, p. 369.
5. Barthes' 'The Death of the Author' was first published in English in *Aspen* magazine (5-6, 1967), where McLuhan had also been published, in issue number 4, which was designed by Quentin Fiore, who also designed *The Medium is the Massage* (1967).
6. It is now possible to publish with Amazon a book that has been edited by Amazon, promoted by Amazon publicists, made available on the Amazon website, read by Amazon readers, and reviewed by Amazon's reviewers, but not sold in bookstores. Amazon claims that it seeks to give greater royalties to writers than those given by the major publishers—rather than the 15% provided by traditional publishers, or the current 25% given by e-book publishers, Amazon provides 35% in royalties, and more to those authors who publish exclusively on Amazon's platform. Amazon argues that books today are in competition with 'Candy Crush, Twitter, Facebook, streaming movies, newspapers you can read for free,' as their senior Vice President for Kindle states. While traditional publishers claimed control of the industry via control of the content, Amazon realised that the industry was now digital and that its Kindle gave it control of the medium. The move has especially benefited academic publishers. The director of Rutgers UP claims that 'Amazon has democratized shelf space'; Amazon accounts for 72% of Rutgers' e-book sales. See Streitfeld, 'Feed the Beast (or Else)', pp. 1, 4-5.
7. To put this in a contemporary context: in the United States, 'data centers used about 76 billion kilowatt-hours [of electricity] in 2010, or roughly 2 percent of all electricity used in the country that year, based on an analysis by Jonathan G. Koomey, a research fellow at Stanford University who has been studying data center energy use for more than a decade. […] But the paper industry, which some predicted would be replaced by the computer age, consumed 67 billion kilowatt-hours from the grid in 2010, according to [US] Census Bureau figures reviewed by the Electric Power Research Institute for the *Times*.' See Glanz, 'Power, Pollution and the Internet', p. 20.
8. See Gordon, *Marshall McLuhan,* p. 67, and Schnapp and Michaels, *The Electric Information Age Book,* pp. 8, 87, 109.
9. 'In point of fact, McLuhan did quite a bit more than simply approve the overall concept and sign off on the mechanicals. There were several lengthy face-to-face conversations about the book, and he "scrutinized every spread" at various stages. […] He also carefully pored over the final typescript provided by Agel and Fiore, making numerous sentence-long additions and corrections, as well as altering its phraseology.' See Schnapp and Michaels, *The Electric Information Age Book*, p. 70.
10. Mallarmé, 'Le livre, instrument spirituel': 'tout, au monde, existe pour aboutir à un livre. […] Le livre, expansion totale de la lettre, doit d'elle tirer,

directement, une mobilité et spacieux' (pp. 267, 269). McLuhan discusses this essay in 'Joyce, Mallarmé, and the Press'.

11. See the discussion at www.apieceofmonologue.com/2012/01/robert-darnton-gutenberg-e-published-interview-google-books.html.
12. One might cite here Peter Sloterdijk's *Spheres* project, which seeks to re-read Western philosophy in terms of space, rather than time.
13. See Bauerlein, 'Robert Darnton's Errors', http://chronicle.com/blogs/brainstorm/robert-darntons-errors/34720. Darnton's thoughts on the book have generally received an unfavourable response; collected and published as *The Case for Books* (New York: Public Affairs, 2009), they were called 'a muddle' by Dinah Birch in *The Guardian* (15 November 2009, http://www.theguardian.com/books/2009/nov/15/case-for-books-robert-darnton).
14. See Anon, 'Printers sink': 'An industry that has raked in fat profits for years is struggling. Plunging circulation has forced many newspapers and magazines to shut.'

Chapter 3

1. As quoted by Horn, 'There Are No Media', p. 1.
2. See *Nielsen Reports,* 'A Look Across Media', http://www.tvb.org/media/file/Nielsen-Cross-Platform-Report_Q3-2013.pdf.
3. See www.youtube.com/statistics.
4. See Cisco, *Techcrunch*.
5. *The New York Times* (29 December 2013) reports that a new computer chip that allows computers to learn from mistakes 'is based on the biological nervous system' (p. 1). 'The new processors consist of electronic components that can be connected by wires that mimic biological synapses. Because they are based on large groups of neuron-like elements, they are known as neuromorphic processors, a term credited to the California Institute of Technology physicist Carver Mead, who pioneered the concept in the late 1980s' (p. 4). See Markoff, 'Brainlike Computers', pp. 1, 4.
6. See Cavell, *MS* and *spectresofmcluhan.arts.ubc.ca.* Graham Harman suggests in *Bells and Whistles* that McLuhan can be considered a philosopher of media alongside Heidegger.
7. Hebb, *Organization of Behavior* (1949). What Hebb actually wrote is: '*When an axon of cell A is near enough to excite a cell B and repeatedly or persistently takes part in firing it, some growth process or metabolic change takes place in one or more cells such that A's efficiency, as one of the cells firing B, is increased*' (p. 62).
8. See Moulier Boutang, *Cognitive Capitalism*. Boutang, in fact, uses the metaphor of 'pollination' to describe the workings of cognitive capitalism.
9. I allude here to the considerable body of work that has grown up around affect. See, for example, Brennan, *The Transmission of Affect*.

10. As Vikram Chandra suggests in *Geek Sublime*, '[w]e already live in a world that abounds with computers, and we already filter experience through software—Facebook and Google offer us views of the world that we can manipulate, but which also, in turn, manipulate us. The embodied language of websites, apps, and networks writes itself into us. […] [I]n the near future, we will live *inside* an experience mediated by computers' (Kindle locator 3016).
11. McLuhan, 'A Last Look at the Tube', 197; see also Luke, 'Discarnate Entities'.
12. The notion of co-evolution is attaining increasing sway in biological research; *The Economist* notes that scientists are now arguing that the three million bacteria in the human microbiome that do *not* share human genes are nevertheless intrinsic to human life. See Anon, 'Microbes Maketh Man'.
13. Chandra, in *Geek Sublime,* quotes an *Atlantic* article to the effect that 'synthetic biology, or "sinbio", moves the work [of biotechnology] from the molecular to the digital. Genetic code is manipulated using the equivalent of a word processor. With the press of a button, code representing DNA can be cut and pasted, effortlessly imported from one species into another' (Kindle locator 3035).
14. See, in this regard, Nicholas Tresilian, 'Toward a Neuroscience of Cultural Change'.

Chapter 4

1. Sources of epigraphs: McLuhan and Parker, *TVP*, p. 264; McLuhan, *UM*, p. 334.
2. McLuhan, with Fiore and Agel, *MM.*
3. See 'A Note on Tactility', in *TVP*, pp. 263-266.
4. As noted by Glieck, *The Information*, p. 33.
5. As Andrew Goffey remarks, '[a]lgorithms have material effects on end users—and not just when a commercial website uses data-mining techniques to predict your shopping preferences.' In the same essay, Goffey quotes Les Goldschlager and Andrew Lister's comments that the algorithm '"is the unifying concept for all the activities which computer scientists engage in".' See 'Algorithm', p. 15. Goffey goes on to note that algorithms are not absolute: '[a]lgorithms act, but they do so as part of an ill-defined network of actions upon actions, part of a complex of power-knowledge relations, in which unintended consequences, like the side effects of a program's behavior, can become critically important' (p. 19).
6. Lopes, *A Philosophy of Computer Art*, pp. 51-2.
7. Leon Battista Alberti, in formulating the 'rules' of perspective, visualised (in the words of Cecil Grayson) 'painting as a window through which the observer, *from a certain fixed viewpoint on this side*, looks at the scene "outside".' See Grayson's introduction to Alberti, *On Painting and On Sculpture*,

p. 12. Erwin Panofsky similarly states that perspective posits a 'single fixed eye' (31) in *Perspective as Symbolic Form.* Johanna Drucker, in *Graphesis*, writes that '[p]erspectival systems position a stationary viewer whose cone of vision is transected by a plane' (p. 149).

8. Vischer, 'The Optical Sense of Form', p. 92.
9. I discuss this passage more fully in 'McLuhan and the Body as Medium' in this book.
10. See Cavell, 'In-Corporating the Global Village'.
11. See Enfield, 'Credit Notes'.
12. From back of jacket to first edition of *TTED*; see generally ch. 9, 'Everyman as Dropout and Drop-in', pp. 279-295.
13. See the discussion in 'McLuhan: Motion: e-Motion' in this book.

Chapter 5

1. I use 'bios' in the sense of embodied lifeform, though the connection to BIOS—basic input-output system for PCs—is inescapable and telling.
2. To generalise, it seems that European media studies have a philosophical orientation whereas North American media studies have a cultural orientation. McLuhan is somewhat in the middle, given that his culturalist elaboration of media in *UM* (1964) had been preceded in *GG* (1962) by his notion that media have an epistemic function, though it is noteworthy that he saved his *most* philosophical ruminations about media for his letters, which is where Kittler had to go in order to engage with McLuhan about *eîdos* and *húle*. See Kittler's 'Towards an Ontology of Media' and my 'Vorwort' to McLuhan's *Gutenberg-Galaxis.* Finger et al. remark that 'Flusser started his writing career from a linguistic theory of reality, moving on to communication and media theory and ending up with a phenomenological theory of gestures. To put it another way, he moved from words in texts to communication processes within specific contexts to embodied thinking expressing itself in gestures.' This is one reason why I engage with Flusser's later work in this essay, given that I am seeking to draw parallels with McLuhan, who rejected the linguistic model early in his career. See Anke Finger et al., *Vilém Flusser*, Kindle locator 606.
3. '"I think that a biography consists of the listing of networks'" Flusser stated in a 1991 interview, quoted in Finger et al., *Vilém Flusser*, Kindle locator 191, who also state Flusser's view that '[h]umankind will never coincide with itself' (Kindle locator 1188). Flusser writes in *Into the Universe of Technical Images* that '[n]o longer people but rather technical images lie at the center, and accordingly, it is the relationships between technical images and people by which society must be classified' (p. 51).
4. I refer to *MS*, subtitled *A Cultural Geography*. Compare Finger et al., who use the term 'geographies of culture' (Kindle locator 919) and who speak of the 'diasporic nature' (Kindle locator 633) of meaning in Flusser.

5. McLuhan's relationship with the University of Toronto, however, can unequivocally be described as traumatic; when McLuhan was afflicted with aphasia after a stroke and unable to teach, his Centre for Culture and Technology was closed by decanal fiat and his office archives trashed. See Marchand, *Marshall McLuhan*, pp. 273-4.
6. McLuhan, 'Canada: The Borderline Case'. McLuhan and Bruce Powers reprinted this essay with revisions in the posthumously published *The Global Village*, pp. 145-166; for further discussion of this book, see 'Angels and Robots' in this book.
7. Flusser writes that 'I was vomited, by the fury of events, upon Brazil, which is a greatly amorphous situation, greedy in every sense, and also in an ontic one.' See 'In Search of Meaning ("Philosophical Self-portrait")', p. 198.
8. See Mitchell and Hansen, 'Introduction' to *Critical Terms for Media Studies*, p. xiii.
9. Rotman, *Becoming Beside Ourselves*. The book seeks to articulate the self that is coming into being in the digital era; unlike the self produced by the alphabetic revolution, the digital self is parallel, multiple and distributed, rather than serial, singular, monolithic, and linear. The notion of the 'parallel' refers to parallel computing, which is context based and characterised by 'distributed bio-social phenomena, of collective thought processes and enunciations that cannot be articulated on the level of an isolated, individual self' (p. 92).
10. Sjoukje van der Meulen quotes a letter that Flusser wrote in 1973 to René Berger in which Flusser states '"Maybe one day we can make (the two of us) a communication theory of media against McLuhan"' (p. 186). Flusser's critiques of McLuhan tend to be anodyne; writing in *Into the Universe of Technical Images*, Flusser states 'we can no longer use concepts like McLuhan's global village. One can no longer speak of a village when there is no public village square and no private houses' (p. 30).
11. Winthrop-Young states that 'Flusser was as much Marshall McLuhan as he was Flusser' in 'Groundless Provocation', (p. 20). Ströhl, in his 'Introduction' to Flusser's *Writings,* states that McLuhan and Flusser have only 'rare points of contact' (p. x), except when it comes to their 'phenomenological perspective' (p. xii).
12. See McLuhan, 'Environment as Programmed Happening' and 'Environment: The Future of an Erosion'. Flusser celebrated 'the disappearance of a single overreaching, all-embracing metaposition from which to survey and judge all other positions' according to Finger et al. (Kindle locator 659).
13. 'Flusser was always more interested in poiesis, in making art and realities, than in mimesis' (Finger et al., Kindle locator 128). In *TVP*, McLuhan and Parker write that '[b]efore she [Alice] went through the looking glass, she was in a visual world of continuity and connected space where the appearance of things matched the reality. When she went through the looking glass, she found herself in a nonvisual world where nothing matched and everything seemed to have been made on a unique pattern. [...] Territori-

ality is the power of things to impose their own assumptions of time and space by means of our sensory involvement in them. Again, it is a world of making rather than of matching' (pp. 253-4).

14. Finger et al. refer to Flusser's 'highly poetical' style of writing, 'brimming with wordplay and innovative imagery' (Kindle locator 144); McLuhan punned on his own work, such as 'the medium is the massage [sic].'
15. Finger et al. note that the 'literal and metaphorical border crossings Flusser was forced to experience beginning in 1939 are closely intertwined with this realization that this seemingly intact universe of Prague, this artwork of the past, would never reemerge as one' (Kindle locator 54). McLuhan wrote an essay on Canada as a 'borderline case', as noted above.
16. See 'Media as Translators' in *UM* (pp. 56-61). Flusser stated '"Perhaps everything I do is an attempt to elaborate a theory of translation"', quoted in Finger et al. (Kindle locator 588).
17. McLuhan expressed a deep interest in and engagement with the dialogics of Bakhtin, as he told me in conversation in October of 1978. According to Finger et al, 'Bakhtinian dialogism' was important for Flusser (Kindle locator 1447).
18. Finger et al. (Kindle locator 647).
19. Cavell, *MS*, p. 97.
20. Brian Christian writes in *The Most Human Human* that '[w]ith the Platonic/Cartesian ideal of sensory mistrust, it seems almost as if computers were designed with the intention of *our* becoming more like *them*—in other words, computers represent an IOU of disembodiment that we wrote to ourselves. Indeed, certain schools of thought seem to imagine computing as a kind of oncoming rapture. Ray Kurzweil (in 2005's *The Singularity is Near*), among several other computer scientists, speaks of a utopian future where we shed our bodies and upload our minds into computers and live forever, virtual, immortal, disembodied. Heaven for hackers' (64). This sounds eerily like Flusser's vision of telematic society developed at the conclusion of *Into the Universe of Technical Images*.
21. Floridi remarks in *Information* that '[u]nderstanding the *nature* of information ethics ontologically rather than epistemologically modifies the interpretation of its *scope*' (Kindle locator 1122).
22. I take this term from Kaipainen et al., 'Soft Ontologies'; for further discussion see 'McLuhan: Motion: e-Motion' in this book.
23. Mitchell and Hansen, 'Introduction', p. xiii; Flusser would reject 'human' in this formulation.
24. As such, the squid joins the 'exclusive animal menagerie located at the intersection of biology, philosophy, and literature', and media theory, I would add. See Winthrop-Young, 'Afterword: Bubbles and Web', p. 235.
25. Kittler notes a similar extravasation in Rilke's *The Notebooks of Malte Laurids Brigge*: '[t]he brain, this warm bluish boil, turns itself inside out and encloses the external world.' See *DN*, p. 319.

26. Flusser writes, in *Into the Universe of Technical Images*, that telematic culture is producing a condition congruent with 'libidinous dreams', a state that is 'not physical but cerebral. Images are steering the telematic society in this direction: toward a continuous cerebral orgasm' (p. 128).
27. For further discussion of empathy see 'McLuhan: Motion: e-Motion' in this book.
28. 'For the young Flusser, Prague was home; [...] it was Flusser's introduction to modernity and modernism' (Finger et al., Kindle locator 54). After leaving Winnipeg, McLuhan worked on a Master's at Cambridge from 1934 to 1936, returning there in 1939 to complete a doctorate. See Marchand, *Marshall McLuhan*, pp. 30-41.
29. McLuhan and Nevitt refer to Haeckel in *TTED,* p. 296.
30. The Glass House was not a house and Taut was not a trained architect; of such paradoxes historical epochs are made. The House was in fact a pavilion erected at Cologne for the German Werkbund Exhibition in 1914 and looks like a glass acorn on an art deco mushroom stem. See Scheerbart, *Glass Architecture* (published with Taut, *Alpine Architecture*). One of Scheerbart's drawings looks eerily like a vampire squid; Sharp describes it as one of Scheerbart's 'hairy bizarre creatures—half human, half animal—from a very peculiarly cerebral zoo' (p. 16). Sharp assures us, however, that Scheerbart 'was not [...] an eroticist.'
31. Rosenberg, 'Philosophy in a Pop Key', p. 194; this remains the most brilliant contemporary assessment of McLuhan.
32. See the discussion in Schnapp and Michaels, *The Electric Information Age Book*, pp. 108-9.
33. I discuss these points further in 'McLuhan and the Body as Medium' and 'McLuhan and the Technology of Being' in this book.
34. Winthrop-Young states in *Kittler and the Media* that 'McLuhan was and remains [for Kittler] an anthropocentric thinker' (p. 122).

Chapter 6

1. The epigraphs are sourced as follows: El Lissitzky, 'Nasci', p. 347; McLuhan, *Counterblast* (1969), p. 14; Heidegger, in Mitchell, *Heidegger Among the Sculptors*, p. 40.
2. 'Media determine our situation', as Kittler puts it in *GFT*, p. xxxix. This is somewhat of a trope in Kittler; cf. '[c]odes [...] determine us today' in 'Code', *Software Studies*, p. 40.
3. Heidegger, *Unterwegs zur Sprache*, p. 33.
4. Mitchell and Hansen, 'Introduction' to *Critical Terms for Media Studies*: 'the very burden of this volume [is] its neo-McLuhanesque injunction to understand from the perspective of media. Rather than *determining* our situation, we might better say that the media *are* our situation' (p. xxii).

5. That 'environment', for McLuhan, has a crucial gap, since all media contain a counter-environment in that media are themselves remediations. It is here that one finds a degree of critical agency, as opposed to Kittler's more formalistic determination.
6. Compare Kittler's comment to John Armitage: 'people are far too anthropomorphic when it comes to discussing technology' in 'From Discourse Networks to Cultural Mathematics', p. 28.
7. McLuhan and Nevitt, *TTED*, p. 6. Compare Mitchell on Heidegger: '[*t*]*echnē* is thus a way of attending to the place of *physis* in the world. The claim of *physis* asks and offers a relationship that neither partner would possess in advance—it offers a new world. In this respect, Heidegger can claim that "'[*physis*] and [*technē*] belong in a secret way together"' (*Heidegger Among the Sculptors*, pp. 64-5, quoting from *Die Herkunft der Kunst*, p. 14).
8. Kittler likewise fell afoul of the philologists. As Hans Ulrich Gumbrecht notes, '[a]s soon as these essays [Kittler's late Philhellenic work] appeared, classicists (whose competency is hardly an issue) critiqued the historical and philological claims they advanced. Time and again, Kittler found himself provoked to respond with gruff gestures of refusal (instead of engaging with specific objections). And yet, if one reads Kittler's works with a view to the "potential energy" for philosophy that they contain, then the criticisms offered by philological specialists prove as insubstantial as, for example, linguists' critiques of Heidegger's speculations concerning the etymology of Greek or German words (which, while almost always inspiring, tend to be problematic in historical terms)'. See 'Afterword: On the Singularity of Friedrich A. Kittler's Works', p. 321.
9. Kittler's 2009 essay on ontology, from which I am quoting, is a version of his 2003 paper on 'Number and Numeral', where he begins with the same passage from McLuhan. Here we are told that '[t]hese few lines remain true even though they are brimming with mistakes' (p. 52). Kittler consistently displays an anxiety of influence when discussing McLuhan. A former student reports that in his seminars, Kittler would comment that McLuhan's 'the medium is the message' was '"stolen" from the Bell Labs and was originally called "Fitting the Message to the Line".' See Axel Roch, 'Hegel is Dead', *Telepolis* (17.11.2011), http://www.heise.de/tp/artikel/35/35887/1.html.
10. McLuhan referred to this as the 'echo effect', the way in which mediation forms a feedback loop. See *TTED* passim, and compare Kittler's reference to mediation's 'endless feedback loop' ('Ontology', p. 29). I discuss these issues as well in 'Marshall McLuhan's Ec[h]o-Criticism' in this book.
11. 'McLuhan's version of disembodiment [...] cuts across superficial readings of the collectivism of the global village and the elevation of humans to a cosmic consciousness. For McLuhan, immersion in electronic media does not merely imply an elevation to a sublime state of global union, because his model incorporates the (admittedly under-theorised) conception that such immersion has a psychological and sensory impact that profoundly

affects the ontological security of the individual.' See Horrocks, *Marshall McLuhan and Virtuality*, p. 66.

12. Kittler, *Short Cuts* (Frankfurt: Zweitausendeins, 2002), 270, as quoted and translated by Winthrop-Young, 'Cultural Studies and German Media Theory', p. 97.
13. Kittler likewise states that, 'Quite in contrast to illuminators, painters, scientists, historians, and poets, thinkers tend to forget their very medium' ('Ontology, p. 26).
14. There is an allusion here to the poem 'The Walrus and the Carpenter' from Lewis Carroll's *Through the Looking Glass*, a key text for McLuhan (see Cavell, *MS*, pp. 87, 97, 119) in its questioning of fixed ontological categories.
15. A concept that emerged out of nineteenth-century aesthetic theory, *Einfühlung* is enjoying a revival of interest via contemporary neuroscientific discourse. Semir Zeki's research into the primate visual brain, for example, has led him to embrace the notion of *Einfühlung* as a way of expressing the '"link between the 'pre-existent' forms within the individual and the forms in the outside world which are reflected back. The 'pre-existent' forms are none other than the formal predilections of the working brain, as they have evolved along with its biological features".' Relatedly, researchers into 'mirror neurons'—those 'neurons in both the frontal and parietal cortex that have the capability of mirroring the actions and emotional behavior of others'—consolidate their research under the term 'empathy'. See Mallgrave, *The Architect's Brain,* pp. 146, 195. As Mallgrave notes, *Einfühlung* was also of interest to Merleau-Ponty (p. 113). This might be the place to point out that empathy does not imply an analogue relationship between phenomena and the brain; 'colour,' for example, 'far from being something out there in the world (photons have no colour), is rather a creation of our biological or neurological apparatus' (Mallgrave, p. 145).
16. 'Motion' was the theme of the conference at which this chapter was first presented.
17. There are similarities, here, with Niklas Luhmann's 'systems-theoretical definition of medium as a "loose coupling" of elements as opposed to the "rigid couplings" that go by the name of "form",' as Winthrop-Young expresses it in 'Cultural Studies and German Media Theory', p. 90. 'Soft ontology' is especially suitable as a descriptor of Web 2.0 technologies, which not only consume data but generate it, thus breaking down the barrier between consumers and producers. In this way, the users of Facebook become the content of Facebook. As David Berry puts it in *The Philosophy of Software*, 'the user becomes a source of data, […] essentially a real-time stream themselves' (p. 145).
18. Hence McLuhan's comment in *UM* that the 'TV image […] has the quality of sculpture and icon, rather than of picture. […] [It] requires each instant that we "close" the spaces in the mesh by a convulsive sensuous participa-

tion that is profoundly kinetic and tactile, because tactility is the interplay of the senses' (pp. 313-4).

19. McLuhan devotes a chapter to translation in *UM* (pp. 56-61).
20. Marinetti, *Teoria e invenzione futurista*, ed. Luciano de Maria, p. 10, my translation. De Maria argues that Marinetti is one of the precursors of McLuhan through his insistence on the effect of media on the human psyche. McLuhan cites Marinetti in *MB* (1951), and quotes from the *Manifesto* in *Counterblast* (1969). For a full discussion see Cavell, *MS,* pp. 107-11 and the afterword to Cavell, *Marinetti Dines with the High Command*.
21. As quoted in Rosa and Scheuerman, eds., *High-Speed Society*, p. 32.
22. The notion of giving 'tactile values to retinal sensations' (p.43) was popularised by Bernard Berenson in *Italian Painters of the Renaissance*. Berenson derived the notion from Adolf von Hildebrand, whom McLuhan quotes in *GG* (p. 41). McLuhan may also have read R.G. Collingwood's *The Principles of Art* (Oxford: Oxford UP, 1938), who writes that '"[w]hen Mr. Berenson speaks of "tactile values", he is not thinking of things like the texture of fur and cloth. [...] [H]e is thinking [...] not of touch sensations, but of motor sensations, such as we experience by using our muscles and moving our limbs".' Quoted by Alison Brown, 'Bernard Berenson and "Tactile Values"', p. 105.
23. Vischer, as quoted by Mallgrave and Ikonomou in their introduction to *Empathy, Space and Form*, p. 19. See also Papapetros, *On the Animation of the Inorganic*.
24. Riegl, *Historical Grammar*, p. 187. McLuhan cites from Riegl several times.
25. Allais, 'Formless Keepers', p. 29.
26. Philippe-Alain Michaud, *Aby Warburg and the Image in Motion*, p. 85.
27. As Buchloh argues in 'Warburg's Paragon?', p. 52.
28. Christian, '*Aer, Aurae, Venti*', pp. 410-411.
29. Michaud appears to be unaware of the critical history of this term. Warburg's direct connection to the theory of empathy was through August Schmarsow. See Martin Warnke, 'Aby Warburg'. For Schmarsow in this context, see Cavell, *MS*, p. 124.
30. Gumbrecht argues that 'Kittler [...] is concerned with thinking the world of objects—a conception I am calling "ontological"—wherein the world of things becomes present and tangible (ready-to-hand) to one's own body to the extent that the body experiences itself as part of this world (i.e. as "being-in-the-world").' See his 'Afterword' to Kittler's *TTW* (p. 321).
31. See the discussion of the tetrads in the chapter 'Angels and Robots' in this book.
32. Hartmut Rosa in 'Social Acceleration: Ethical and Political Consequences of a Desynchronized High-Speed Society', writes that 'there is no single, universal pattern of acceleration that speeds up *everything*' (Rosa and Scheuerman, eds., *High Speed Society*, p. 81). In the same volume see Stefan Breuer, 'The Nihilism of Speed: on the Work of Paul Virilio', and see also Wendy H.K. Chun, 'The Enduring Ephemeral'.

Chapter 7

1. This chapter was originally delivered as a lecture at the Moderna Museet (Stockholm).
2. 'The intellectual is newly cast in the role of a primitive seer, *vates*, or hero incongruously peddling his discoveries in a commercial market' (*GG*, p. 296).
3. See Cavell, *MS* (pp. 173-4), and Dawn Ades, 'Joseph Cornell's *Untitled Book Object* and Experimental Surrealism' (pp. 36-47). Ades notes Kiesler's use of '*enhanced two-dimensionality*' in a special issue of *View* dedicated to the work of Marcel Duchamp, 'with its foldouts, cut-throughs and flaps' (p. 43); the representational richness of two-dimensionality is a major theme of McLuhan's writings on art and mediation.
4. See Theall, *The Virtual Marshall McLuhan,* p. 126.
5. I follow here *MS*, pp. 101-135.
6. In an interview with Hans Ulrich Olbrist, cultural impresario John Brockman states that '[v]ery early in my career, 1964 or 65, Dick Higgins, the poet, who had a beautiful brownstone, organized a series of evenings along with John Cage for young artists. Cage would cook dinner and we would talk. Obviously he got a lot out of it and so did everybody there. It was there that I first heard of Norbert Weiner, first heard of McLuhan. Unlike the literati, the people in the art world were extremely erudite and interested in the sciences. People such as Rauschenberg and Cage were reading and talking about McLuhan and I started to read his books.'

   In an interview with John Naughton, Brockman adds that '[o]ne of the artists I got to know [in the 1960s] was the poet Gerd Stern, who had, on occasion, collaborated with Marshall McLuhan, incorporating live McLuhan lectures into USCO intermedia performances. Gerd, with his unkempt hair and abundant beard, was an odd counterpoint to the buttoned-down classics [sic] professor from Toronto, but they got along famously. Through Gerd and other artists, McLuhan's ideas had begun to permeate the art world, though it would be several more years before they hit the mainstream. Gerd introduced me to the anthropologist Edmund Carpenter, McLuhan's collaborator, who in turn invited me to Fordham University in 1967 to meet McLuhan, Father John Culkin and other members of that charmed circle of communications theorists. The discussion centred on the idea that we had gone beyond Freud's invention of the unconscious and, for the first time, had rendered visible the conscious. [...] It was McLuhan who turned me on to *The Mathematical Theory of Communication*, the book by Bell Labs scientists Claude Shannon and Warren Weaver that began: "The word 'communication' will be used here in a very broad sense to include all of the procedures by which one mind may affect another. This, of course, involves not only written and oral speech, but also music, the pictorial arts, the theatre, the ballet and in fact all human behaviour." He also pointed me

to Oxford zoologist J.Z. Young's 1950 BBC Reith lectures entitled *Doubt and Certainty in Science*. And I recall his quoting one memorable line that has stuck with me and informed my thinking since that day: "We create tools and mould ourselves through our use of them". John Cage had also picked up on all these ideas. He convened weekly dinners during which he tried them out, as well as his mushroom recipes, on a group of young artists, poets and writers. I was fortunate to have been included at these dinners where we talked about media, communications, art, music, philosophy, the ideas of McLuhan and Norbert Wiener. McLuhan had pointed out that by inventing electric technology, we had externalised our central nervous systems; that is, our minds. [...] He certainly was an influence on me in terms of my intellectual development and career. In one typical conversation, he recounted his ideas on how psychoanalysis had gone the way of the gods and we were in a new realm where we were looking at the evolution of patterns and information. A lot has been written about the differences between atoms and bits, but the first time I heard it was from Marshall. For anyone who met him during the 60s, his manner and the way in which he presented himself were remarkable and never to be forgotten. Sitting down at lunch, you would be faced with machine gun-like expositions of facts and ideas ranging from medieval classical literature to arcane scientific matters concerning the aural space of the native North American Eskimos, the focus of the work of his collaborator Edmund Carpenter.'

7. Domenico Quaranta, *Media, New Media, Postmedia: arte e nuovi media nell'era postmediale* (Milano: Postmediabooks, 2011).
8. The internal quotation is from Guy Debord, *Society of the Spectacle* (1967), thesis 1, translated by Ken Knabb, and available on the website of the Bureau of Public Secrets.
9. Verwoert argues that artistic intervention today is made at the level of the environment—the total system of art—which characterises the work of Cattelan very well.

Chapter 8

1. Sources of epigraphs: Turing, 'Computing Machinery and Intelligence', p. 457; and McLuhan, *UM*, p. 91.
2. Professor John Polanyi, Nobel Laureate and University of Toronto Professor Emeritus, is the only living link between Turing and McLuhan. He corresponded with Turing (Hodges, p. 485), who had met John Polanyi through John's uncle, Michael, holder of the chair in chemistry at Manchester at the time Turing was there. Polanyi also corresponded with McLuhan; the letter McLuhan sent to Polanyi refers to Cambridge and the 'lab' culture there (*Letters*, p. 487). In response to an email asking if McLuhan had ever mentioned Turing in conversation, Polanyi wrote back 'Dear Richard, Sadly

McLuhan never mentioned Alan Turing in my hearing. Cordially, John Polanyi' (11 January 2012).

3. Turing's famous essay, 'On Computable Numbers, with an Application to the *Entscheidungsproblem*', addresses this issue insofar as *Entscheidung* means '*decision, decidability, determination*,' as Charles Petzold notes in *The Annotated Turing* (p. 41), and Petzold comments with reference to the *Entscheidungsproblem* that '[u]ndecidability is essentially free will' (p. 349). Petzold goes on to describe the cultural context of Turing's paper: '[n]o longer was there any sense that the universe was linear, Euclidean, and fully deterministic. Space and time lost their moorings in a relativistic universe. In a famous 1907 paper on relativity, [David] Hilbert's friend Hermann Minkowski would coin the word *Zaumreit* or *spacetime*' (p. 42).
4. 'Media Traffic' was the theme of the conference for which this chapter was originally written.
5. This metaphor is used by McLuhan in the chapter on 'Roads and Paper Routes' in *Understanding Media*: '[w]hen information moves at the speed of signals in the central nervous system, man is confronted with the obsolescence of all earlier forms of acceleration, such as road and rail' (104). Turing used the cognate metaphor of 'traffic lights', as in the epigraph to this chapter.
6. Quoted from the announcement for the 'Media Traffic' conference, held at Paderborn University.
7. From the conference call for papers.
8. See the chapter 'The Physics of Flatland' in *MS*, pp. 49-68.
9. This interest in fourth-dimensional philosophy has a parallel in Turing's investigation of 'Hilbert space', a space of 'infinitely many dimensions' (Hodges, p. 80).
10. Lewis Carroll's *Alice Through the Looking Glass* was a working out of some of the metaphysical implications of fourth-dimensional thought, and this book was a favourite of both Turing and McLuhan (Hodges, p. 140 n.; Cavell, *MS*, p. 59). They also both admired Samuel Butler's *Erewhon* (Hodges, p. 73; McLuhan, *Letters*, pp. 31; 78), a book that likely interested Turing for its fantasies about 'mechanical consciousness' and McLuhan for the notion of bio-mediation that it develops. With McLuhan's comments on the relationship between humans and technology (cf. *UM*, p. 46), compare Turing's statement that 'the machine must be allowed to have contact with human beings in order that it may adapt itself to their standards' (quoted by Hodges, 361, from a talk given by Turing on 20 February 1947 to the London Mathematical Society).
11. 'Acoustic Delay Lines' were a significant component of the computers devised by Turing and others at Bletchley Park during the Second World War as part of their codebreaking activities; '[b]its (zeroes and ones) were stored in these tubes in the form of sound waves travelling through mercury' (quoted from information card, Bletchley Museum, UK). Petzold notes that

Turing's concept of a computer 'was electronic, used binary numbers, [...] [and] mercury delay line storage, which stored bits as acoustic pulses in tubes of mercury' (*The Annotated Turing*, p. 167).

12. Note that Turing makes these comments in the context of elaborating a theory of morphogenesis, which sets up a strong parallel to McLuhan's notion of embodiment. With Turing's theory now confirmed, applications are being proposed for the construction of soft robots. See Burrows, 'Turing's theory of morphogenesis validated', https://www.brandeis.edu/now/2014/march/turingpnas.html.
13. The Turing Test was passed in June of 2014 at an event organised by the University of Reading and conducted by the Royal Society of London. See www.reading.ac.uk/news-and-events/releases.
14. See, for example, Richard Purtill, 'Beating the Imitation Game'.
15. Compare Turing's comment in a letter to J.Z. Young (an author quoted frequently by McLuhan in *GG*): '"I think very likely our disagreements are mainly about the use of words. I was of course fully aware that the brain would not have to do comparisons of an object with everything from teapots to clouds, and that the identification would be broken up into stages, but if the method is carried very far I should not be inclined to describe the resulting process [sic] as one of "matching"' (quoted by Hodges, p. 436).
16. As Glieck remarks, '[i]nformation cannot be separated from probabilities. A bit, fundamentally, is always a coin toss' (*The Information*, p. 231). Note also Hayles and Pressman, who remark that 'technological determinism alone cannot adequately explain cultural developments. Media are always embedded in specific cultural, social, and economic practices' (*Comparative Textual Media*, p. xxvi).
17. John L. Casti has written a fictional account of a meeting between Turing, Wittgenstein, J.B.S. Haldane, and Erwin Schrödinger, which is hosted by C.P. Snow in his rooms at Christ's College Cambridge. Titled *The Cambridge Quintet*, the book takes the form of a dinner party hosted by Snow at which the question to be discussed is 'can machines think?', which is the classic question posed by Turing himself about computers. Casti, in his introduction to the book, invokes McLuhan's 'medium is the message' to justify the choice of dramatic dialogue in developing the questions posed by his fictional meeting.
18. Ian Bogost writes in *The Atlantic* (16 July 2012) that '[t]his year, the centennial of Turing's birth, we rightly celebrate Turing's life and accomplishments. [...] But as we do so, we should also take a lesson from the major cultural figure whose centennial we marked last year: Marshall McLuhan. McLuhan teaches us to look beyond the content and application of inventions and discoveries in search of their structures, the logic that motivates them. For McLuhan, television was a collective nervous system pervading every sense, not a dead device for entertainment, education, or moral corruption. If we look at Alan Turing's legacy through McLuhan's lens, a

pattern emerges: that of feigning, of deception and interchangeability. If we had to summarize Turing's diverse work and influence, both intentional and inadvertent, we might say he is an engineer of pretenses, as much as a philosopher of them. The most obvious example of this logic can be found in the now famous Turing Test'. In the test, Turing 'skirts the question of intelligence entirely, replacing it with the outcomes of thought. […] Unlike other sorts of machines, the purpose of a Turing machine is not to carry out any specific task […] but to simulate any other machine by carrying out its logic through programmed instructions. […] This is precisely what today's computers do—they pretend to be calculators, ledgers, typewriters, film splicers, telephones, vintage cameras, and so much more.'

Chapter 9

1. Robin Milner, in *The Space and Motion of Communicating Agents*, writes that 'a notion of *discrete space* is shared by existing informatics science on the one hand and imminent ubiquitous systems on the other. This space involves […] *agent, locality* and *connectivity*. When we come to a reconfiguration of the space we must consider two more […] concepts: *motion* and *interaction*. […] [This is] not the space of Euclidean geometry, but a discrete space involving properties like adjacency and containment' (p. ix). As Milner notes elsewhere in his book, this is also an embodied space.
2. McLuhan's interest in these theories was received with considerable derision at the time, reflecting their reception in the scientific community generally, when neuroscientists Roger Sperry and Michael Gazzaniga proposed their hemispheric theory in 1962. In 1981, on receiving the Nobel Prize for his research, Sperry noted that, when he began his research in the 1960s, the right brain was considered to be 'not only mute and agraphic but also dyslexic, word-deaf and apraxic, and lacking generally in higher cognitive function.' See Sperry's Nobel Lecture for 8 December 1981 at *nobelprize.org*.
3. Antonio Damasio has written *Descartes' Error: Emotion, Reason and the Human Brain* (1994); *The Feeling of What Happened: Body and Emotion in the Making of Consciousness* (2001); and *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain* (2003). An indirect link between Damasio and McLuhan is their shared interest in the theory of the bicameral mind proposed by Julian Jaynes in the mid-1970s.
4. David Wills likewise understands the bio-technological as configured according to '[v]arious chiasmatic relations.' See *Dorsality,* p. 16.
5. McLuhan's notion that electronic mediation must be understood in the context of the increasing dominance of the right (non-verbal) hemisphere of the brain emphasises that he was not seeking to produce a linguistic or language-based theory of mediation.

6. McLuhan refers to the Karl Čapek play *R.U.R.* that represents robots as androids who resemble humans, can think, and eventually become the dominant lifeform, having destroyed their human creators.
7. Milner describes this 'bigraph' as representing 'a change of state in which a message M moves one step closer to its destination. The three largest nodes may represent countries or buildings or software agents. In each case the sender S of the message is in one, and the receiver R in another. The message is en route; the link from M back to S indicates that the message carries the sender's address. M handles a key K that unlocks a lock L, reaching an agent A that will forward the message to R' (*The Space and Motion of Communicating Agents*, p. x).
8. Thompson reviews Andy Clark, *Supersizing the Mind: Embodiment, Action, and Cognitive Extension* (Oxford 2009), and Alva Noë, *Out of Our Heads: Why You are Not your Brain and Other Lessons from the Biology of Consciousness* (Hill and Wang, 2009).
9. As Thompson notes, these ideas are not universally accepted, especially by those who support a 'brainbound' position, leading thus to debates about the degree of embodiment involved in cognition and consciousness ('Sensimotorists', p. 29).
10. Nicholas Carr, in *The Big Switch*, states: '[n]ow that data can stream through the Internet at the speed of light, the full power of computers can finally be delivered to users from afar. It doesn't matter much whether the server computer running your program is in the data center down the hall or in somebody else's data center on the other side of the country. All the machines are now connected and shared—they're one machine. As Google's chief executive, Eric Schmidt, predicted way back in 1993, when he was the chief technology officer with Sun Microsystems, "[w]hen the network becomes as fast as the processor, the computer hollows out and spreads across the network"' (p. 60). Schmidt in fact coined the phrase 'the computer in the cloud' by which he meant that 'computing, as we experience it today, no longer takes a fixed, concrete form. It occurs in the Internet's ever-shifting "cloud" of data, software and devices' (p. 113).
11. William Saletan writes that the 'most powerful revolutions of our time aren't happening in Washington, the Muslim world or the global economy. They're happening in science and technology. At a pace our ancestors couldn't have imagined, we're decoding, replicating and transforming the human body. These revolutions are changing how we live, what we think and who we are. Bodies used to be unalterably separate. Yours was yours; mine was mine. That isn't true any more. Organ transplantation has made human parts interchangeable. […] If we can't get enough replacement parts from one another, maybe we can build them. Americans already replace one million knees, hips, shoulders and ankles each year. […] Artificial arms can translate brain signals directly into complex movements; implanted defibrillators now come with software updates. As Michael S. Gazzaniga

explains in *Human: The Science Behind What Makes us Unique* (2008), we're also invading the head with cochlear implants, artificial retinas and brain-computer interfaces.' See 'You: The Updated Owner's Manual', p. 23.

12. The shift that Carr refers to is from the notion that the computer must contain the data that it processes to the notion that the computer's function is to tap into data via the internet. This would be to realise the environmental status of the internet, in McLuhan's terms.
13. Willis argues in *Dorsality* that we should understand the human being not as something that was 'natural' and then developed technology, but as an imbrication of the human and the technological. He locates the technological dimension of this imbrication in the dorsal turn, the turn backwards away from vision towards the acoustic (whose mediations can come from behind): '[w]e should think of a technology that grows, and of the *bios* in general as following the technological turn, as bending outside itself deep within itself' (p. 4). I find Wills' notion of the dorsal turn echoed in McLuhan's statement that 'the medium is the rearview mirror' (*MM*, pp. 74-5). Wills 'cortical' (p. 8) argument thus re-traverses the trajectory that McLuhan articulated from the visual domain to that of the reconfigured sensorium, as well as from left brain to right brain, and there Wills re-encounters the ontologically ruptured subject of McLuhan's 'extensive' philosophy.
14. This process has a political dimension, as McLuhan argues in a chapter in *The Global Village* that otherwise appears anomalous on 'Canada as Counter-Environment' (pp. 147-166). See also Cavell, 'McLuhan's Borderline Case Revisited'.
15. As Hayles comments, the amount of material produced by data searches is often so massive that 'visualization tools become increasingly necessary' (p. 33).

Chapter 10

1. For a contemporary approach see Timothy Morton's *Ecology Without Nature*.
2. The terms 'installation' and 'environment' have been used interchangeably; Allan Kaprow referred to his first (1958) installation as an 'environment'. See Kaprow's *Assemblage, Environments, and Happenings*.
3. See the discussion in the chapter 'Mechanical Brides and Vampire Squids' in this book.
4. Jean-Luc Nancy, quoted by Ian James in *The Fragmentary Demand*, p. 144. Note also Derrida, *On Touching*, pp. 127ff.

Chapter 11

1. The internal quote is from Neil Compton, 'A Pot of Message', *The Nation* (15 May 1967), p. 631.
2. The element of biomediation is already present in this work. As Robert Massin notes, Tory '"brought together the seven liberal arts and the nine muses under the aspect of a flageolet (a type of flute with seven stops), which, seen end-on and in foreshortening, is at once an upright O and a prone I. These two letters allow the meeting of the straight line and the circle, and they therefore symbolize the two organs of generation; from this union, placed under the sign of the goddess Io, are born all the letters of the alphabet."' Massin's *Letter and Image* (1972) is quoted by Georges Jean in *Writing*, p. 136.
3. Compare Mitchell and Hansen: '[b]efore it becomes available to designate any technically specific form of mediation, *media* names an ontological condition of humanization—the constitutive operation of exteriorization and invention. […] The body, in sum, is a capacity for relationality' ('Introduction' to *Critical Terms for Media Studies* p. xiii; order of quotes reversed).
4. Sloterdijk makes this comment in his acceptance speech for the Prix Européen de l'Essai (2008) given by the Fondation Charles Veillon in Lausanne in March 2009. Sloterdijk goes on to say that '[t]his is an idea that in its most stimulating version one takes from Marshall McLuhan, an idea which the vast majority of German intellectuals since the 1960s understood very badly—and, as a consequence, in my country, one doesn't really know even today what is meant by "the medium is the message". […] It is especially an idea that, recently, has been apprehended with such precision by Niklas Luhmann that it is most often suggested, sadly, that one source it in the sociologist from Bielefeld rather than in the Canadian media theorist' (*En Guise d'aveu*, my trans., http://www.espacestemps.net/articles/en-guise-aveu/).
5. Van Camp, 'Animality' n.p.
6. The work of Jussi Parikka is essential here. See the interview with Paul Feigelfeld, 'Media Archaeology Out of Nature': '[t]he resources that are searched for, identified, and located by technological means in order to drive our technological development consist of rare earth and other kinds of materials that are simultaneously part of earth's durational history and part of the new media culture', http://www.e-flux.com/journal/media-archaeology-out-of-nature-an-interview-with-jussi-parikka/.
7. Compare Smail's comment that, 'as with cases like the Internet, the intentions of the original designer, to whatever degree they are achieved, can be utterly dwarfed by the unintended things that happen as we adapt to the ecology that has emerged from someone's tinkering' (p. 110).

8. For a brief discussion see Bryan Appleyard, 'Some Like it Very Hot'; see also 'McLuhan and the Body as Medium' and 'Mechanical Brides and Vampire Squids' in this book.
9. Compare Mitchell and Hansen, '[t]he [...] concept of media [...] is a tool for excavating the deepest archaeological layers of human forms of life. It is our collective attentiveness to this deep, techno-anthropological universal sense of media that allows us to range across divides' ('Introduction', p. ix).
10. Kittler, 'Universities: Wet, Hard, Soft, and Harder', p. 245.
11. As Kittler notes in *DN*, 'literature (whatever else it might mean to readers) processes, stores, and transmits ideas, and [...] such operations in the age-old medium of the alphabet have the same technical positivity as they do in computers' (p. 370). Likewise, Kittler writes in 'Martin Heidegger, Media, and the Gods of Greece' that 'computable real numbers can be described with the finite signs of an alphabet. This, and this alone, made it possible in 1943 for the calculations performed by human beings to become calculations performed by machines. [...] Otherwise, one could inscribe no *logos* into *physis*—such as occurs millions of times a day by means of electron-beam lithography' (*TTW*, pp. 300-1). W.J.T. Mitchell writes that 'Nelson Goodman argued that what makes a code digital is not numbers or counting but the use of a finite number of characters or elements, differentiated without ambiguity from one another. The alphabet, under this definition, is digital' ('Image' in *Critical Terms for Media Studies*, p. 45).

Chapter 12

1. Sophocles, *Oedipus Tyrannus,* p. 30.
2. Nevertheless, Kittler argues that Nietzsche began his mediatic project by 'theorizing language as rhetoric, [...] as [...] articulated language' ('Nietzsche', p. 17).
3. David Wellbery remarks of *BT* that 'Nietzsche's little book marks a radical departure from the two-thousand-year tradition of philosophical and critical literature on tragedy'. See 'Nietzsche on Tragedy', p. 513.
4. Alexander Nehamas notes that, '[a]ccording to Heidegger, Nietzsche's thought in *The Will to Power* constitutes the final stage in the development and "overcoming" of Western philosophy, or metaphysics' (p. 16).
5. Wellbery insists that what distinguishes *The Birth of Tragedy* from other philosophical works is 'the emphasis on medial specificity' ('Nietzsche on Tragedy', p. 515).
6. Nietzsche, *The Birth of Tragedy*, trans. and intro. Douglas Smith (Oxford: Oxford UP, 2000); hereafter *BT* with section and page number.
7. 'The whole of our modern world is caught in the net of Alexandrian culture and takes as its ideal the *theoretical man* who is equipped with the highest

powers of knowledge, works in the service of science, and whose archetype and progenitor is Socrates' (*BT*, 18 p. 97).

8. Nietzsche remarks that, '[s]ince Aristotle, there has been no explanation of the effect of tragedy from which the artistic state, the aesthetic activity of the listener [sic] might be deduced' (*BT* 22, p. 119).
9. Lovink makes this comment in a review of Eugene Thacker et al., *Excommunication* (Chicago: Chicago UP, 2013).
10. Quoted by Stiegler, 'On the Future of Our Incorporations' from *The Wanderer and his Shadow* (p. 124).
11. Stiegler claims that 'McLuhan thinks naively that it is enough to extend the central nervous system electrically for it to become more compassionate and responsible' (p. 130). McLuhan responded to this critique half a century ago: '[t]he more you create village conditions, the more discontinuity and division and diversity. The global village absolutely insures maximal disagreement on all points.' See 'A Dialogue with Gerald E. Stearn' in *McLuhan: Hot and Cool*, p. 279.
12. 'Cool' inevitably adverts to McLuhan's 'hot' and 'cool' media.
13. Wellbery cites Lessing's 'media theory' as one of the progenitors of *The Birth of Tragedy*. See 'Nietzsche on Tragedy', p. 513. Nietzsche refers to Lessing as 'the most honest theoretical man' (*BT* 15, p. 82). Lessing was crucial to McLuhan's media theory; see Cavell, *MS*, pp. 115-119.
14. This is not to deny the major influence of Schopenhauer.
15. Douglas Smith, 'Introduction' to Nietzsche, *BT*, trans. Smith, p. vii. The German text of *The Birth of Tragedy* is at *gutenberg.spiegel.de/buch/die-geburt-der-tragodie-3261-14*.
16. According to Kittler, the relationship of voice and writing originates with the alphabet: '[e]ver since the Greeks invented an alphabet with vowels that also served the purpose of musical notation [...] its system of communication has rested on the interconnection [*Verschaltung*] of voice and writing.' See 'Signal-to-Noise Ratio', p. 170.
17. Nehamas argues that 'Nietzsche inevitably confronts his readers with two sets of paradoxes.' See *Nietzsche: Life as Literature*, p. 1.
18. J. P. Stern writes that 'this history of Greek tragedy emerges as a paradigm for every other cultural development.' See *Nietzsche*, p. 45.
19. The chorus sang to a double-pipe player; the actors spoke but in a stylized fashion. See Richard Buxton, 'Tragedy' in the *Oxford Encyclopedia of Aesthetics*, vol. 6, p. 167.
20. Nietzsche refers to 'the medium of music' (*BT* 6, p. 41; 'das Medium der Musik').
21. Babette Babich remarks that 'Nietzsche's most routinely "scientific" or scholarly discovery concerned the prosody or musical intonation of ancient Greek and it was this discovery that served as the basis for his emphasis on the importance of "music" in *The Birth of Tragedy*.' See 'On the Phenomenology of Music and Word in *The Birth of Tragedy*', p. 4.

22. Christoph Cox, 'Nietzsche, Dionysus, and the Ontology of Music', p. 507.
23. For Innis, Sophoclean tragedy represented the 'power of the oral tradition [...] at its height.' See *Empire and Communication*, p. 95.
24. '[T]he form and sound as well as the content of Nietzsche's language is of key importance' in *BT* (Smith, 'Introduction', p. xxiv). Nietzsche 'frequently seeks to exploit in his writing the sound effects available through assonance, alliteration, and internal rhyme. Associations between ideas are often established through sound-effects rather than argument' (p. xxv). In the 'Attempt at Self-Criticism', Nietzsche writes that '[i]t should have *sung,* this "new soul"—rather than spoken!' (p. 6).
25. See *UM*, pp. 258-264 and *Counterblast* (1969), pp. 100-108.
26. As Bernard Stiegler notes, the myth of Prometheus and Epimetheus reflects both the defining nature for the 'human' of technicity and its forgetting; see the discussion in chapter 11 above.
27. Johanna Drucker, 'Art', in *Critical Terms for Media Studies,* p. 7.
28. This distinction had been broached in 1886, the year of the second edition of *BT*, when John Everett Millais allowed his artwork Bubbles to be used as part of the ad campaign for Pear's soap (see Drucker, 'Art', p. 7).
29. Kittler, 'World-Breath', pp. 122-137.
30. See Cavell, *MS*: '[w]hile [conceptualism] has been characterized as "dematerialized", this formulation gets at only one part of a dynamic that also involved the (re)materialization of the contextual *ground* of the art object' (p. 177).
31. As David Gunkel and Paul A. Taylor write in *Heidegger and the Media*, '[m]ediation [...] is the original and normative state of things and the immediate is only formed by way of negating what is always and already available by way of mediation' (Kindle Locator 586).
32. 'The world is not the way it seems. There are no colors, there are wavelengths, there are no sounds, there are vibrations in the air, and actually there is no air, there are chains of atoms in space, and "atoms" is just an expression for linkages of energy that lack either a form or a fixed location, and what is "energy" anyway? A number that remains constant throughout all changes, an abstract sum that remains inalterable, not substance, not ratio: pure mathematics. The more attentively one looks, the emptier it all is, and the more unreal that emptiness is. For space itself is no more than a function, and model of our minds. And the mind that creates these models? Don't forget: nobody inhabits the brain. No invisible being wafts through the nerve endings, peers through the eyes, listens from within the ears, and speaks through your mouth. The eyes are not windows. There are nerve impulses, but no one reads them, counts them, translates them, and ruminates about them. Hunt for as long as you want, there's nobody home. The world is contained within you, and you're not there. "You", seen from the inside, are cobbled together on a makeshift basis: a field of vision amounting to no more than a few millimeters, and already dissolving into nothing

at the outer edges, containing blind spots, and filled with mere habit and a memory that retains very little, most of it invented. Consciousness is a mere flicker, a dream that nobody is dreaming.' Daniel Kehlmann, *F*, p. 57.

33. Compare: 'in the course of all unveiling of the truth the delighted gaze of the artist remains perpetually fixed on the truth which has been unveiled but remains even now a veil' (*BT* 15, p. 81).
34. Aaron Ridley remarks that 'the late Nietzsche remains committed, just as the early Nietzsche had been, to the view that life must, in some sense, be construed and conducted *as* an aesthetic phenomenon if it is not to be merely intolerable.' See 'Nietzsche and the Arts of Life', *The Oxford Handbook of Nietzsche*, p. 415.
35. The Greek *aisthētikos* is from *aisthēta*, 'perceptible things', from *aisthesthai*, 'perceive'. See the *OED*, 'aesthetic'.
36. Daniel Came remarks that 'a life without illusions is both psychologically impossible, and, as a goal, one that will lead to a suicidal nihilism.' See '*The Birth of Tragedy* and Beyond', in *The Oxford Handbook of Nietzsche*, p. 223.
37. 'Nietzsche's *Übermensch* [...] is one who has overcome his own "human, all too human" nature,' write John Richardson and Ken Gemes in their 'Introduction' to *The Oxford Handbook of Nietzsche*, ed. Gemes and Richardson, p. 12. Alexander Nehamas comments that the 'character Nietzsche sometimes calls the *Übermensch* is essentially aware of the fluidity of the personality. And it is this fluidity that accounts for Nietzsche's emphasis on constant "self-overcoming" when he introduces the *Übermensch* in the Prologue and in the opening section of *Zarathustra*. The fluidity of character in turn explains why the eternal recurrence can function as the "highest formula of affirmation that is at all attainable".' See *Nietzsche*, pp. 158-9.
38. Randall Havas writes that, '[a]ccording to Zarathustra, our "highest hope" should be the overman—that is, to be over man. But that does not mean that we are to become someone *other* than who we are. The goal, as Nietzsche puts it elsewhere, is to become what one is.' See 'The Overman', *The Oxford Handbook of Nietzsche*, p. 482. I read this in terms of McLuhan's suggestion that we become human *through* our technologies. The sexual metaphor prevailing in *BT*—tragedy being produced by the 'coupling' of Apollo and Dionysus—is likewise found in McLuhan's *UM* in the argument that media are biotechnical. Man, for McLuhan, is 'the sex organs of the machine world, [...] enabling it to fecundate and to evolve ever new forms' (p. 46), which, like Nietzsche's metaphor, extends biology beyond the heteronormative: the libidinality of media reproduces the 'human' by producing ever new mediations.
39. Frank Kermode wrote in his review of *GG* that '[w]e suffer, as Nietzsche says Socrates suffered, from a split between mind and heart, whereas tribal man is oral and perpetually "entranced".' The review, 'Between Two Galaxies', was originally published in *Encounter* in 1963 and reprinted in G.E. Stearn, ed., *McLuhan: Hot and Cool*, p. 175.

40. Paul Edwards notes that '[w]e have it on Wyndham Lewis's own authority that the "paramount influence" upon him before World War One was Friedrich Nietzsche.' See 'Wyndham Lewis and Nietzsche', pp. 203-217. McLuhan has an essay in the same volume in which he analyses the 'Lewis idea of the vortex as a mask of power [that] relates both to art and to technology as an organizing centre for the absorption and expression of human energies. Whether it be a city, a newspaper, a poem, or a painting, Lewis regarded it as a vortex, a significant expression of human energy.' See 'The Lewis Vortex', pp. 167-170.
41. Reviewing this book (written by a former University of Toronto student) in a Catholic journal, McLuhan had to walk a narrow line between Lewis's 'paganism' and Catholic humanism, and he admits that 'I may not be untypical of most Catholics in having been slow to apprehend this matter' (p.98).
42. All of these pursuits, McLuhan states, ended in a 'blood bath' (p. 90). McLuhan repeatedly references the Nazi death camps when discussing the negative implications of machine culture.
43. Werner Sombart (1863-1941) was an economist who began his career as a Marxist praised by Engels and went on to embrace Nazism; under the acknowledged influence of Nietzsche, he coined the term 'creative destruction', and with Max Weber and Edgar Jaffé edited the leading sociology journal in Germany, the *Archiv für Sozialwissenschaft und Sozialpolitik*, in which Weber published the essays that became *The Protestant Ethic and the Spirit of Capitalism* (1905). See Peter Ghosh, *Max Weber and the 'Protestant Ethic'*. Harold Innis cites Sombart in *The Bias of Communications*, p. 16.
44. Writing to Havelock in 1970, McLuhan states that *Preface to Plato* suggested to him that 'the phonetic alphabet, by upgrading the visual powers of man after many centuries of the dominance of aural culture, may have scrapped the poetic arts of tribal man and also retrieved the autonomous human entity. […] Today, as we step up the tribal resonance again by electric technology, the importance of those fifth-century events seems to take on increasing significance' (*Letters*, p. 406).
45. Communication was not the focus of McLuhan's media theory; he considered '[c]ommunication, in the conventional sense, [to be] difficult under any conditions. […] [C]ommunication takes place only inadequately and is very seldom understood. […] There is a kind of illusion […] that communication is something that happens all the time, that it's normal. […] In the sense of a mere point-to-point correspondence […] this is the rarest thing in the world.' See the 'Dialogue with G.E. Stearn', p. 292.
46. *King Lear* introduced 'remediate' to the English language, with the meaning of 'make better', deriving perhaps from the *membrana media*, or middle layer in a blood vessel; this reflects the notion of the bodily humours and the prime role of sanguinity. See chapter 3, 'McLuhan and the Body as Medium'.
47. McLuhan, Fiore and Agel sound this note as well at the beginning of *MM*: '[t]he medium […] of our time—electric technology—[…] is forcing us

to reconsider and re-evaluate practically every thought, every action, and every institution formerly taken for granted' (p. 8).

48. 'Regarding Tragedy and Comedy, any factor that alienates an individual from his environment archetypalizes him as tragic. […] Comedy, on the other hand, seems to imply the reverse movement of the individual toward the group.' See McLuhan and Watson, *CA*, p. 178.

49. Kittler likewise invokes Durrenmatt, 'whose guidelines for comedy dictated that things always have to be presented a bit worse than they actually are. Ultimately, elements of tragedy may creep in, as in the case of *Discourse Networks*. I myself am not too happy about the fact that everything in that book ends in the noise of machines.' See 'The Cold Model of Structure', p. 384.

50. Kittler remarks that '[s]pectacles, telephones, and streets bridge what, ever since Roman times, has been called "distance" and has little to do with remoteness. […] However, in such "involvement" [*Bewandtnis*], as the wonderfully precise term has been ever since *Being and Time*, they are media. […] As if in order to prove *Being and Time*, McLuhan called all media—from Freud's prosthetic spectacles to Heidegger's visual walkware [*Gehzeug*]—"extensions of man". Whether this is true remains an open question.' Quoted from 'Martin Heidegger, Media, and the Gods of Greece', in *The Truth of the Technological World*, p. 294. 'De-severance' is a Heideggerian term. 'According to Heidegger, the existential spatiality of Dasein is characterized most fundamentally by what he calls *de-severance*, a bringing close. "De-severing" amounts to making the farness vanish—that is, making the remoteness of something disappear, bringing it close (*Being and Time*: 23: 139). This is of course not a bringing close in the sense of reducing physical distance, although it may involve that. Heidegger's proposal is that spatiality as de-severance is in some way (exactly how is a matter of subtle interpretation […]) intimately related to the "reach" of Dasein's skilled practical activity. For example, an entity is "near by" if it is readily available for some such activity, and "far away" if it is not, whatever physical distances may be involved. Given the Dasein-world relationship highlighted above, the implication (drawn explicitly by Heidegger, see *Being and Time* 22: 136) is that the spatiality distinctive of equipmental entities, and thus of the world, is not equivalent to physical, Cartesian space. Equipmental space is a matter of pragmatically determined regions of functional places, defined by Dasein-centred totalities of involvements (e.g., an office with places for the computers, the photocopier, and so on—places that are defined by the way in which they make these equipmental entities available in the right sort of way for skilled activity). For Heidegger, physical, Cartesian space is possible as something meaningful for Dasein only because Dasein has de-severance as one of its existential characteristics. Given the intertwining of de-severance and equipmental space, this licenses the radical view (one that is consistent with Heidegger's prior treatment of Cartesianism) that physical,

Cartesian space (as something that we can find intelligible) presupposes equipmental space; the former is the present-at-hand phenomenon that is revealed if we strip away the worldhood from the latter.' See Michael Wheeler, 'Martin Heidegger', *The Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/heidegger/.

51. Oedipus was the heir of Cadmus, a point not lost on McLuhan.
52. The term is Wyndham Lewis', from his book *The Diabolical Principle and the Dithyrambic Spectator* (London: Chatto and Windus, 1931). McLuhan would be aware that 'panic' derives from 'Pan' who, in some myths, is the son of Dionysus.
53. It is perhaps this notion of the 'single space' of the alphabet that led Kittler to assert that '[m]edia theorists—that is, Marshall McLuhan and, in his wake, Vilém Flusser—made an absolute distinction between writing and pictures which, ultimately, was expressed in geometric terms: the one-dimensionality of printed books stood in clear contrast to the irreducible two-dimensionality of pictures' (p. 37). McLuhan in fact writes that non-pictorial space was 'two-dimensional' (*GG*, p. 16); the isolated visual sense produced the single viewing point and the illusion of three dimensions. The third dimension is a mediated perception, learned by separating figure from ground via reading; children who have not yet learned to read produce two-dimensional images. See Kittler, 'The Perspective of Print'.
54. Walt Whitman, 'I Sing the Body Electric', in *Leaves of Grass* (New York: Aventine Press, 1931), p. 97. The poem was invoked by Harold Rosenberg in his review of *Understanding Media*; see the 'Coda' in this book.
55. McLuhan explicitly rejects the Catholic understanding of Nietzsche in a letter to Walter Ong: '"God is dead" (Nietzsche) equals: God has abandoned the work of grace in creation? Prelude to incarnation as understood in pagan cults? At least so I hear from the inside boys. Catholic view of Neech [sic] would seem to be a bit off the beam there.' See *Letters*, p. 234. In *TVP*, McLuhan and Parker remark that the 'present concern with "the death of God" is very much related to the decline of visual culture' (p. 254).
56. 'Hamlet not only manifests the "simple, transparent, beautiful" (*BT* 7) Apolline qualities of tragedy, but also the unsettling truths of the Dionysian. As a tragic character, Hamlet manifests both Dionysian and Apolline forces.' See Katie Brennan, 'Nietzsche's Shakespeare', p. 116. Kristin Gjesdal argues that Hamlet represents for Nietzsche 'the Dionysian spirit within the conditions of modern life', in 'Modern and Contemporary Tragedy', *The Encyclopedia of Aesthetics* 6, p. 173.
57. Claude Bissell remarked that McLuhan 'maintained that, by understanding the effects of the media, we could control them, "even as the Greeks chose to alter the Dionysian fury with Apollonian detachment".' See 'Herbert Marshall McLuhan', p. 11.

58. James M. Curtis remarks that 'Nietzsche associates the Dionysian with myth, as McLuhan associates the new age of electricity with myth' in *Culture as Polyphony*, p. 88.
59. 'War and the fear of war have always been considered the main incentives to the technological extension of our bodies' (*UM*, p. 47); 'the alphabet produced militarism' (p. 71).
60. As McLuhan notes in his 'Foreword' to Innis' *Empire and Communications*, '[i]f Hegel projected a pattern of *figures* minus an existential *ground*, Harold Innis, in the spirit of the new age of information, sought for patterns in the very ground of history and existence' (p. v).
61. Kittler states that 'our senses [...] are themselves information technology by nature' in 'Signal-to-Noise Ratio', p. 170. Implicit in this comment is Kittler's rejection of McLuhan's insistence on the importance of the sensorium and of perception, although McLuhan's notion of sensorial perception was more complicated than Kittler credits. Sybille Krämer counters Kittler with the comments that '[o]ur senses are stimulated by media, which does not lead to the reciprocal case that media can be effectively described without reference to the senses. [...] Kittler develops [this] concept of media in connection with, but especially in latent opposition to, the father of contemporary media debates, Marshall McLuhan. [...] McLuhan's theories reflect the aspect of the escalating drive of media to surpass that is so crucial to Kittler in a way that does not exclude but rather incorporates man and the organization of his senses into this self-dynamism without thereby needing to fossilize man as the intentional subject of this wave of technologization.' See 'The Cultural Techniques of Time Axis Manipulation', p. 105.
62. As McLuhan puts it in a letter to Jacqueline Tyrwhitt, 'we have not been driven out of our senses so much [as] our senses have been driven out of *us*.' See *Letters*, p. 278.
63. The materialist aspect of applied physiology has a long history in which La Mettrie's *L'Homme Machine* has a special place that has been revisited in the era of cybernetics. As Aram Vartanian notes, 'the question of the *homme machine* has been thrust once more into the foreground of discussion [...] as a result of cybernetics. [...] [I]t is easily understandable that the man-machine idea would be raised to a new level of meaning, entering [...] on its golden age, with the construction of multipurpose digital computers. [...] The cyberneticians themselves, [are] concerned with the theory of machines which, by receiving, storing and communicating information in suitably controlled fashion, appear actually capable of forms of behavior hitherto thought to characterize only animals and human beings.' Among these cyberneticians, Vartanian cites C.E. Shannon. See Vartanian's 'Introductory Monograph' in *La Mettrie's 'L'Homme Machine'*, p. 134. Rosi Braidotti states that La Mettrie was a 'materialist humanist in the grand tradition of French enlightened materialism' and that his book is a classic

of 'post-anthropocentric Humanities and the status of the human.' See *The Posthuman*, p. 146.

64. McLuhan highlights the spatial effect, but that effect for him is acoustic (as in acoustic space), allowing printed poetry to once again represent 'the breath, the pauses, the suspension, even, of syllables' (*UM*, p. 259) and to approach the status of 'electronic music' (*UM*, p. 264). Closer to Kittler's concerns are McLuhan's emphases on the typewriter and 'woman'; the original title of *UM* was to have been 'The Electronic Call Girl' (Marchand, *Marshall McLuhan*, pp. 136-170) and she makes her appearance in the chapter on the typewriter (*UM*, p. 263).
65. Waters is quoted by Kittler in 'The God of the Ears', p. 56. It would not have been lost on Waters that 'Marshall' was the name of his amplifiers.
66. 'Messages are calculable, but not determinate. [...] [T]he maximum of information means nothing other than highest improbability' according to Claude Shannon's theory of information. See Kittler, 'Signal-to-Noise Ratio', p. 167.
67. The internal quotation in Greek—ē*thos anthropō daimōn*—is from Heraclitus.
68. Kittler writes that 'the fact that letters and numbers no longer coincide as they once did in Greek and Roman antiquity is beginning to vanish' in 'Thinking Colours and/or Machines', p. 48. And: '[i]n order to recite the hexameters of the Iliad, the invention and address [*Anschrift*] of vowels are indispensable; otherwise, no singer would know whether syllables should sound long or short.' See 'In the Wake of the Odyssey', p. 414.
69. See Jed Rasula, 'Poetry's Voice-Over': '[v]oice-over doubles the voice, splitting its allegiance in ways that can be traumatizing as well as humanizing', p. 275.
70. Geoffrey Winthrop-Young writes that '[s]omething of fundamental importance in the history of being happened in Ancient Greece, and all that has followed since both leads away from and remains stuck to it. And it cannot be taught in the conventional sense, it can only be passed on by a type of intoxicating infection: by listening to the right music from Wagner to Pink Floyd, or by reading the right authors—Homer, Nietzsche, Heidegger, and maybe Kittler himself.' See 'Implosion and Intoxication', p. 89.
71. As Foucault puts it, 'Oedipus is traditionally the one who was able to answer the riddle of the Sphinx, but could not solve the riddle of himself' (*LWK*, p. 239).
72. Midas' association with the domain of sight is powerfully conveyed by his fate of having all he touches turn to gold; the laughter of Silenus associates him with the acoustic. Foucault characterises the knowledge produced through listening as 'knowledge brought back from the distant place of the god' (*LWK*, p. 230).
73. Babette Babich notes that *Wissenschaft* is etymologically related, via *scientia*, to *videre*. See 'Nietzsche's *Gay Science*, p. 105.

74. Quoted by Milchman and Rosenberg, p. 45.
75. Quoted by Milchman and Rosenberg, p. 57, from Timothy O'Leary, *Foucault and the Art of Ethics* (New York: Continuum, 2002).
76. *Incipit tragoedia* occurs in the preface to the second edition of *The Gay Science* and in section 342; the prose section following it is repeated at the beginning of *Thus Spake Zarathustra*.
77. 'I am disconsolate when books aim to provide solace' states Kittler in his interview with Weinberger, p. 380.
78. Babich adds that 'Nietzsche aligns the gay science, as the art of the troubadour, with the ancient musical art of tragedy' (p. 104).
79. See Francesca Cauchi, 'Nietzsche's Zarathustra': 'just as Prometheus fashioned his figures in the image of the gods, so Zarathustra will endeavour to re-create man in the (Greek) god-like image of the *Übermensch*' (p. 258).
80. 'Tragedy [is] the form in which existence appears at its most fragile, [and] simultaneously the form in which existence appears at its fullest.' See Joshua Billings, *Genealogy of the* Tragic, p. 189.

Coda

1. McLuhan was proposing a *Sachphilologie*, expanding the domain of philology to include media in their material complexity; hence the chapters on roads, clothing, housing, money, clocks, bicycles, photographs, automobiles, games, typewriters and weapons. The term *Sachphilologie* is associated with August Böckh; see Suzanne L. Marchand, *Down from Olympus*.
2. McLuhan, *GG,* pp. 278-279.

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