Theory, Culture & Society http://tcs.sagepub.com/

Afterword: Cultural Techniques and Media Studies

Jussi Parikka

Theory Culture Society 2013 30: 147 originally published online 12 August 2013 DOI: 10.1177/0263276413501206

The online version of this article can be found at: http://tcs.sagepub.com/content/30/6/147

Published by: \$SAGE

http://www.sagepublications.com

On behalf of: Theory, Culture and Society

Additional services and information for Theory, Culture & Society can be found at:

Email Alerts: http://tcs.sagepub.com/cgi/alerts

Subscriptions: http://tcs.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.com/journalsPermissions.nav

>> Version of Record - Oct 16, 2013

OnlineFirst Version of Record - Aug 12, 2013

What is This?



Afterword: Cultural Techniques and Media Studies

Theory, Culture & Society 30(6) 147–159

© The Author(s) 2013
Reprints and permissions: sagepub.co.uk/journalsPermissionsnau
DOI: 10.1177/0263276413501206
tcs.sagepub.com



Jussi Parikka

University of Southampton, UK

Abstract

This text reflects cultural techniques in relation to other concepts in cultural and media studies by addressing their relation to selected Anglo-American and French discussions. It also investigates the relation of cultural techniques to more recent material and speculative turns. Suggesting that the cultural techniques approaches introduce their own important material dimension to media-specific analysis of culture, the article argues that cultural techniques should be read in relation to recent post-Fordist political theory and explorations of the post-human in order to develop conceptual hybrids that are able to inject politics into media theoretical accounts, as well as excavate histories of cultural techniques of cognitive capitalism.

Keywords

cognitive capitalism, cultural techniques, Foucault, German cultural studies, Kittler, materiality, media studies, media theory, new materialism

П

What are cultural techniques? The texts in this collection offer several responses, ranging from detailed historical accounts to discussions of the ontological span of the concept. Some address how cultural techniques teach bodies to behave, others are more concerned with the links between human and non-human agencies. In these concluding remarks I would like to tackle cultural techniques from the other end. I am less interested in what went into the concept than what could – potentially – come out of it. That is, in these afterwords I will focus on connectivity rather than genealogy. I want to offer some speculations as to the directions where the notion might theoretically guide us and how we can make productive use of certain similarities between this – in many regards – rather

Corresponding author:

Jussi Parikka, University of Southampton, Park Avenue, Winchester, SO23 8DL, UK. Email: jussi.parikka1976@gmail.com http://www.sagepub.net/tcs/ German intellectual product and related strands in Anglo-American and French theory habitats. As mentioned at the very beginning of the introduction, this issue itself is meant to be both an archive and a toolbox; in that spirit, we should open up the agenda to some past and contemporary discussions concerning technology, materiality and, for instance, cultural critique of capitalism.

But to start with a point that was highlighted in several contributions: to understand the concept of cultural techniques requires a certain familiarity with the role played by media technologies. Despite the fact that the focus on cultural techniques appears to indicate a move beyond the earlier focus on media, technologies are still part of the picture, though in rather unusual ways. What cultural techniques scholars talk about – doors, servants, animals, law, swarms – are not really media in the sense understood in Anglo-American media studies. The detailed research undertaken by the contributors reframes the question 'what are media studies?'. This is a task that Friedrich A. Kittler (2009) mapped out in his own particular way, though despite its obvious indebtedness to his work, cultural techniques research cannot be reduced to an afterglow of Kittler.

What then *are* media? There is no direct answer to this. Instead, German media studies has been more about expanding the limits of what we understand as media. Such perspectives have wanted to expand the range of disciplinary formations included in media analysis and the areas media studies can tap into. To quote one of the key writers, Bernhard Siegert, much of the early generation of German media theory was guided by a prolonged exercise in carefree trespassing – digging up 'sources that had remained out of bounds to the humanities without worrying about any underlying "concept of media" (an issue nowadays raised by every wiseacre)' (2008a: 28).

Siegert continues with a more warlike metaphor by referring to an invasion of walled and enclosed disciplinary gardens:

Confronted with insights into the medial conditions of literature, truth, education, human beings, and souls – insights that were beyond the reach of the hermeneutic study of texts – scholars of literature, philosophers, pedagogues, and psychologists were too offended by the sudden invasion of their nicely cultivated gardens to ask for an orderly theoretical justification for the onslaught. (2008a: 28)

The various articles in this issue offer good insights into how cultural techniques relate to the current state of media studies in Germany, which lost one of its internationally most finely tuned pieces of wetware with Kittler's passing in 2011, preceded by Cornelia Vismann's death in 2010. Several scholars have been smuggling in new media analysis

methodologies, but they also offer ideas that resonate with a range of cross-disciplinary approaches that the Anglo-American academic world is interested in: posthumanities, the non-human, questions of materiality and objects, the affective turn, media archaeology, historical methods and archives, as well as the role of anthropology (see Schüttpelz, 2006) in media studies. Theory can be said to have acted as a transatlantic bridge of sorts (Ernst, 2013: 23–31) from French theory to German media studies. This bridging also reminds us of the multiple versions of materiality mobilized in current media and technology theory debates across both sides of the Atlantic (for some recent North American discussions in cultural and media studies see Packer and Wiley, 2011).

However, we can expect the following reaction from cultural studies and cultural history scholars: what is so *new* about cultural techniques? The texts by Geoghegan and Siegert as well as the introduction by Winthrop-Young outline in more detail the relation *Kulturtechniken* have to concepts of culture and civilization, some of which no doubt will be familiar to Anglo-American scholars. As readers of Michel Foucault (technologies of the self), Marcel Mauss (techniques of the body), and British cultural studies (Raymond Williams et al.), we already knew about the close relation between bodily habits, modes of perception and (media) technologies. Foucauldian-inspired governmentality studies have shown a methodology to move from analyses of textuality to institutions and procedures of governance. Besides, we learned from Pierre Bourdieu that the habitus is a 'matrix of perceptions, appreciations, and actions' (Bourdieu, 1977: 83). In short, aren't (German) cultural techniques just like (Anglo-American) cultural practices?¹

To be sure, there are moments when some of the ideas put forward by our contributors seem almost too familiar. Much of the language and the accompanying conceptual apparatus appear to resemble British cultural studies, recent American contributions to science and technology studies, the cultural histories of the French school (for instance, the massive series History of Private Life edited by Philippe Ariès and Georges Duby), and writers such as Bruno Latour. History of the philosophy of technology has long discussions concerning the relations of culture and technology. From Karl Marx's various texts to early 20th-century sociology such as Max Weber (2005), the relations of economy, culture and technology have been debated with differing positions. Instead of just talking about the ways in which Ernst Kapp or Marshall McLuhan influentially modeled the interacting relations between humans and machines, we could turn to Siegfried Giedion's (1969 [1948]) inventive cultural historical take. It is engaged in mapping cultural techniques of modernity, and has been recognized in media archaeology (Huhtamo and Parikka, 2011; see also Darroch, 2010) too. Giedion maps the effects of mechanization in various fields of cultural techniques from crafts to techniques of space to 'comfort' and to agriculture – the same terrain where the earlier version of 'cultural techniques' comes from. 'Technique' becomes a binding concept across fields of culture from interior design to slaughter-houses. Through techniques we can talk about the material practices that sustain and enable 'culture', which necessarily involves humans and non-humans. Cultural techniques forge links between cultivation of environmental things and cultural realms.

When talking of 'techniques', one cannot bypass the significance of Jacques Ellul. While Ellul is not an essential part of the internal lineage of this particular German intellectual tradition, his work raises additional questions about the perceived novelty of the cultural techniques approach. Ellul, too, tends to emphasize the central role played by techniques and technology at the expense of social and economic forces. He is not happy to admit capitalism as the driving force behind modern social organizations. Instead, what drives culture are *techniques becoming machines*.

[T[he machine is deeply symptomatic: it represents the ideal toward which technique strives. The machine is solely, exclusively, technique; it is pure technique, one might say. For, wherever a technical factor exists, it results, almost inevitably, in mechanization: technique transforms everything it touches into a machine. (Ellul, 1964: 4)

Ellul's point forces a reconsideration of what we mean by 'technique'. Indeed, it pays attention to the interaction between machine and technique without conflating the two. Ellul also wants to distance himself from Marcel Mauss's notion of bodily techniques, which Mauss had described as a 'group of movements, of actions generally and mostly manual, organized, and traditional, all of which unite to reach a known end, for example, physical, chemical or organic' (1964: 13).

Ellul argues that in the context of technological societies such an attachment to the body produces a theoretical shortcoming. This means that techniques are not only about manual (labor) but also increasingly about intellectual skills and organization. Indeed, despite differences Ellul is after such cultural techniques of the symbolic that are also of interest to various writers in this collection. But Ellul insists that these are especially prevalent in modern organized, rationalized and technological society. Interestingly, he is not dismissing the fact that the emphasis on intellectual labor increases the need for 'secondary manual labor and, furthermore, that the volume of manual operations increases faster than the volume of mechanical operations' (1964: 13). Such a perception – which is of great relevance to a range of current debates on cognitive capitalism to which I will return near the end of this text – is furthermore connected to Ellul's critique of 'tradition' in Mauss's definition. For Ellul, we are experiencing a change in our relation to techniques: we are not solely inheriting habitual modes of behaving and

techniques, but technology has created its own autonomous spheres of actions and expectations that are paralleled by these new techniques. The example of the simple technique of stepping on the pedal to make the car go faster is developed by Ellul, who discusses servo-mechanisms and the notion of feedback. Technology upsets and forces us to continuously be on the lookout and learn new habits and techniques (1964: 14). We do not always clearly perceive the role of techniques as simple causal actions that can be traced back to visible bodies like the foot on the pedal.

The German media-theoretical cultural techniques scholars would probably agree with a lot of this critique of Mauss. Siegert, in fact, raises similar points when discussing Mauss: counting, for instance, is a technique that 'always presupposes technical objects (be it one's own fingers), that predetermine the performance of the operation and thus the concepts derived from that operation' (Siegert, 2011: 15). Not all techniques involve the human body; one has to account for the abstract and mathematical realms as well. This approach is important for recognition of the mixed nature of the media cultural assemblages: when scrutinized more closely they appear to be meshes of human and non-human actors – an important dimension that brings a bit of Latour into German media theory (see Siegert, 2012).

П

The sustained focus on non-human actors in cultural theory is related to the rise of new materialist analyses as well as to methodologies emerging across the social sciences and humanities. For sure, over the last couple of years there has been no shortage of calls for a material and affective turn within cultural theory. New materialism emerged from various directions, including Manuel Delanda's work and feminist theory (Braidotti, 2006; Barad, 2007; Dolphjin and van der Tuin, 2012). Obviously, object-oriented ontology/philosophy (of Graham Harman, Levi Bryant, Ian Bogost and Timothy Morton) has received its share of attention in the past years. It has provided its own way of understanding the ontology of the non-human. In terms of the 'speculative turn', this has been described as follows:

[In] 'The Speculative Turn', one can detect the hints of something new. By contrast with the repetitive continental focus on texts, discourses, social practices, and human finitude, the new breed of thinkers is turning once more towards reality itself. While it is difficult to find explicit positions common to all the thinkers...all have certainly rejected the traditional focus on textual critique...all of them, in one way or another, have begun speculating once more about the nature of reality independently of thought and of humans more generally. (Bryant et al., 2011: 3)

Such new perspectives have generated fresh approaches as well as posited their own newness with rhetorical skill. Whereas much of such scholarly creativity accepts the necessity to move beyond the well-established textual paradigm that branded much of cultural studies and media studies, some of the 'speculative turn' neglects the alternative theories and methodologies that early on attended to the materiality of the world and the non-discursive. Indeed, a turn away from signifying practices not only resonates with the 1980s cultural studies discourse advocated, for instance, by Lawrence Grossberg (Wiley, 2005), it also prompts us to investigate whether there are other ways of dealing with the relationship between the textual and the non-discursive. Instead of neglecting the earlier histories of cultural studies, they might be able to provide some important clues to feminist and post-colonial themes. These are something that might provide an additional new direction to cultural techniques too.

Scholars in media studies and cultural techniques have continued the line of thought inherited from the likes of Kittler, who brought a different sort of 'materialism' into play than that on display in some of the current speculative philosophical discussions. This materialism takes into account the historically contingent nature of media technologies in the non-human assemblages. This may turn out to be an important contribution to philosophical discussions that lack sufficient insight into the constitutive role cultural techniques play in their theory formation.

In contrast to some recent philosophical discussions, German mediatheoretical accounts start their material investigations from more concrete historical assemblages rather than from an ontological position. As argued in the introduction to this special issue, their approach consists in part of an anti-Platonic move designed to reverse the priority of the ontological to favour the ontic – a move inspired by Heidegger's onticontological distinction. This point was underlined already in Winthrop-Young's introduction and accurately defined as follows: 'the study of cultural techniques provides a kind of flanking manoeuvre by relating the thinking of *Sein* (Being) to the processing and operating of bits and pieces of *Seiendes* (beings)'.

Furthermore, there is a commitment to closely scrutinize the specificity of the material. Sybille Krämer and Horst Bredekamp start their article (originally from 2003) with the following statement: 'For a long time, perhaps for too long, culture was seen only as text'. What then if not text? Krämer and Bredekamp provide meticulous insights into the medial conditions of knowledge and the entanglement of aesthetics and epistemologies of the image. Indeed, while identifying the proximity of cultural techniques to certain cultural practices approaches, we can say that the willingness to fully engage technical cultures and mathematical formalisms is what specifies this as a very 'German' approach. It seems that cultural techniques are cultural practices enriched with mathematics and

a head-on engagement with technical and scientific cultural reality thrown in for good measure.

A similar move from textuality to materiality is visible in Bernhard Siegert's writings (e.g. Siegert, 2011). Cultural techniques scholars articulate materialities as historically changing sets of practices. This relates to a materialization of the textual, the discursive, social practices and human finitude in relation to non-human agencies. This approach is not interested in 'pure' ontology: that is, in an ontological domain of Being cleansed from any accidental features like weight, colour and other empirical, material facts. In media-oriented cultural techniques there is a persistent interest in the materiality of the world, in which media relate 'to ontological and aesthetic operations that process distinctions (and the blurring of distinctions) which are basic to the sense production of any specific culture' (Siegert, 2011: 14).

Cultural, aesthetic and mediatic operations are approached as historically situated. This also means that textuality is not discarded as an analytical approach but refined in relation to its material conditions. Indeed, for various generations of German media studies, 'writing' never exclusively referred to a signifying and semantic practice but to something altogether different that also connects to computational cultures. It starts with mathematics and programming.

For theorists such as Siegert, the work of Foucault (and, to a certain extent, that of Derrida) is taken only as a starting point rather than a frame of reference. Siegert is striving for much more detailed analyses that reveal an interest in materialities such as paper as well as bibliographic and typographic details like the point/full stop (*Punkt*). His (2003) *Passage des Digitalen* ('Passage of the Digital') is exemplary in providing a rich historical mapping of techniques of inscription. Its approach is both theoretically refined and sensitive to material differences that make a difference without being reduced to representations and signifying chains. This perspective forces us to broaden our understanding of the very notions of meaning and signification. Siegert articulates his cultural techniques approach as historical *ontology*:

There is no 'man' independent from cultural techniques of hominization, or anthropotechnics; there is no time independent from the cultural techniques of calendars, time measurement and synchronization; there is no space independent from cultural techniques of ruling spaces and so forth. This does not imply, however, that writing the history of cultural techniques is meant to be an antiontological project. On the contrary, it implies more than it excludes a historical ontology, which however does not base that which exists in ideas, adequate reasons or an *eidos*, as was common in the tradition of metaphysics, but in media operations, which work as

conditions of possibility for artefacts, knowledge, the production of political or aesthetic or religious actants. (2011: 15)

In other words, we are dealing with a media-ontological set of tools designed to unravel cultural techniques as material actions, skills, perceptions, and representations. Histories of knowledge, science and media are understood not through semiotic reading of texts but as complex spatial and temporal knowledge systems. The epistemological is entwined with the ontological. Cultural techniques are completely material: understanding them requires that we pay attention to everything from the characteristics of the inscription surface (what kind of paper used) to the wider spatial and temporal infrastructures.

In *Passage des Digitalen*, this task is articulated through a threefold materialization of techniques of the sign:

- 1. instead of semiotics, a focus on cultural techniques of reading, writing, signs, and counting
- 2. signs are actually in the world as *res extensa*. They have a material existence and are not ideal objects
- 3. sign practices are specific to certain institutional spaces.

Siegert is especially interested in the office, the ship, the atelier, the laboratory, and academia. (Siegert, 2003: 14).

Such an approach acknowledges the material and temporal nature of techniques. A reference to media archaeology would be tempting but we need to also pay attention to the differences between Siegert's approach and that of, for instance, Wolfgang Ernst (see Ernst, 2013, and Siegert, 2008b: 9). Siegert argues that the point of difference lies in their relation to signs/signals: for him, the Berlin situated media archaeology of Ernst desires to replace an analysis of signs with that of signals. For sure, Ernst's way of differentiating *Medienwissenschaft* – media sciences – from those of *Kulturwissenschaften* lies in the resolute demand that if we study media, we really need to study their modes of technical epistemology and how they process signals in a channel. Siegert's stance does not neglect the materiality of signals but adds to it a slight modification: we analyse signs as signals³ and our cultural accounts are embedded in understanding of the physical, engineering and technical aspects of media as techniques.

In terms of signal analysis, Shannon and Weaver's information theory is a constant reference point in these discussions. Siegert and a lot of cultural techniques scholars do not want to *replace* a cultural-based media analysis with information theory, even if they insist on the need to take into account the constitutive, technically engineered parts of reality. This approach resonates with recent discussions elsewhere, including US-based media studies. Duke University Press's new book series 'Sign, Storage, Transmission' is dedicated to exploring this material field of

media culture that still stems from a cultural studies understanding. For instance, Jonathan Sterne's MP3: The Meaning of a Format (2012) works its way towards a similar argument to that of cultural techniques scholars by focusing on the entanglement of bodily techniques (such as hearing and movement) with engineering, psychoacoustics and what Sterne calls 'perceptual technics'. When culture itself is conditioned by the engineered scientific, we need to be able to take into account such expansions of what we mean by culture in the age of high technology and science.

As the papers in this collection indicate, the genealogy of cultural techniques leads back through media pedagogy of the 1970s to agriculture in a way that almost parallels the evolution of media ecology since the 1970s and 1980s. In his introduction, Winthrop-Young speaks of the triple entry of cultural techniques. The way in which the concept derives from earlier material agricultural techniques of cultivation combines both the cultural and the natural domain (see for instance Geoghegan's as well as Krämer and Bredekamp's articles). Perhaps there is an interesting connection between the original sense of the term, which connected it closely to environmental engineering, with more recent media-related understanding and use.

It is in this wake where some of the recent animal studies and posthumanities discussions can find 'cultural techniques' a useful way to dig into the soil. In other words, if part of the modern media theory version of cultural techniques, represented for instance in the work of the Hermann von Helmholtz Center for Cultural Techniques in Berlin, was actually taking distance from the agricultural roots of the concept and gearing it towards more directly mediatic forms (see Geoghegan's article), perhaps we can and should reclaim some of those early connotations. In other words: could we envision a media-ecological twist to cultural techniques, which is partly already represented in Sebastian Vehlken's work? Would such an approach be able to talk about such media techniques that have to do with the alternative materialities of, for instance, electronic waste and related to animal studies (see Parikka, 2010, 2011). This does not necessitate going so far as to reinstate media theory as part of the Petzenkirchen Institute for Land and Research für Management (Institut Kulturtechnik Bodenwasserhaushalt), but considers the fact that issues of soil, water, waste and pollution are increasingly what we should take into account in a renewed sense of materiality of media theory of technological culture.

Ш

However, all these links and connections, convergences and divergences do not mean that the cultural techniques approach is without its short-comings. The most obvious issue is 'the political' (or lack thereof). While it was at times overly – and at times maybe naively – emphasized in

cultural studies, it seemed noticeably absent – and at times deliberately excluded – from German media theory. With its politically rather conservative stance and (especially in the case of the older Kittler) Euro- or Hellenocentric bias, the latter made sure it would not be mistaken for Marxist materialism or its more refined Frankfurt derivative. However, the German media studies approach might prove fertile when it comes to investigating the current practices of advanced capitalism as cultural techniques. The intellectual fertilization could work both ways: German media theory could incorporate recent analyses of post-Fordist production and enculturation techniques, while post-Marxist theories would profit from the historically detailed accounts of how cultural techniques process our aesthetic and ontological distinctions. Could we use the work done in Weimar, Berlin, Lüneburg and Siegen on technical media and image cultures to investigate how they consolidate certain operations and enforced habits of action/perception/memory in relation to capitalism?

Italian scholars such as Maurizio Lazzarato (2004, 2007) have been tracking the relation of forces of contemporary capitalism in relation to cognitive and affective capacities, yet their approach still lacks a nuanced view of the role of media. The elements are there, including the references to contributions by Bergson and Deleuze on media technologies from film to the digital, but they fall short of the accounts of German analysts. More broadly, this emphasis on the political also stems from Gilles Deleuze's notion of control societies, which has had its now well-recognized impact on theories of digital culture. However, Deleuze's initial text was very vague on details and the same vagueness has at times been transported to the subsequent elaborations of the concept, begging the question what exactly are the specific cultural techniques of control in the Deleuzian concept.

Indeed, a range of the approaches in this collection can be read in relation to some discussions concerning the politics of digital culture and devices that are increasingly mediating our relation to ourselves and others via third-party corporations or security mechanisms. Cultural techniques of tracking, mapping and mining are among such examples of cultural techniques of securitized cognitive capitalism. Tracking of gestures becomes a crucial part of the digital surveillance mechanisms in contemporary societies of security; identity mapping (cf. Macho's article in this collection) provides a new mode of inscription for security industries and can easily be monetized through data-mining of the algorithmic identity production of social media. Indeed, such seemingly worn out cultural studies concepts as 'identity' are still actively mobilized, but in a very instrumental way as part of data-based marketing and composition of algorithmic identities (Cheney-Lippold, 2011: 167–8).

Besides the potential for analysing cultural techniques of cognitive capitalism and control societies, we can perhaps find a further radical

side to new cross-breedings of theoretical traditions. Marx's *Grundrisse* (1973) and 'The Fragment on Machines' have become a canonized reference point for recent political theory interested in technological culture and the General Intellect (see for instance Berardi, 2009), but perhaps there is potential in more combinations of media theory and political concepts. Besides analysis of capitalism, there are potentials for the histories of counter-techniques too. How can we map 'minor techniques' in the manner Deleuze and Guattari wrote about minor languages? Perhaps there is more potential for a radical version of cultural techniques which may expand on the mentioned 'triple entry' of cultural techniques in ways that multiply its potentials.⁴

Notes

- 1. Siegfried Zielinski (2010) used the notion of cultural technique in his extensive history of the video recorder, which was first published in the mid-1980s. Zielinski's media-theoretical writings have often been perceived as media archaeology, but we can see an interesting early link here already, influenced by the 1970s discussions of cultural techniques of new media ecologies (see Winthrop-Young in this collection). Furthermore, Zielinski represents a link to British cultural studies and the discourse of cultural practices through his theoretical debt to Raymond Williams et al. In general, there would be a lot to be highlighted about the connections of ideas between cultural techniques and even Foucauldian-influenced governmentality studies and similarly, for instance, to excavate more on this link to Williams as well as Tony Bennett's work in cultural studies. I will also leave out of this essay the bigger question concerning the relations of German media studies and North American media studies (see for example Peters, 2009).
- 2. Scholars such as Sterne (2006) have reminded us that we need to understand communication as *techné* where technique and technology are irrevocably tied together. There is no communication situation that does not involve crafts and materials: this sort of simple starting point can be seen as a historical, anthropological and theoretical guideline for humanities research. Such ideas bring situated materiality into theoretical play. Communication studies itself originates in the Aristotelian notion of *techné*: practical as well as embodied art and knowledge.
- 3. 'Also nicht Signal statt Zeichenanalyse, sondern Zeichenanalyse als Signalanalyse' (Siegert, 2008b: 9).
- 4. A thank you to Geoffrey Winthrop-Young and the reviewers for their feedback in revising this text.

References

Barad, K. (2007) Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning. Durham: Duke University Press.

Berardi, F. (2009) *Precarious Rhapsody: Semiocapitalism and the Pathologies of the Post-Alpha Generation*, trans. Bove A et al. London: Minor Compositions.

- Bourdieu, P. (1977) *Outline of a Theory of Practice*. Cambridge University Press.
- Braidotti, R. (2006) *Transpositions: On Nomadic Ethics*. Cambridge: Polity Press.
- Bryant, L., Srnicek, N. and Harman, G. (eds) (2011) *The Speculative Turn:* Continental Materialism and Realism. Melbourne: Re.Press.
- Cheney-Lippold, J. (2011) 'A new algorithmic identity: Soft biopolitics and the modulation of control', *Theory, Culture & Society* 28(6): 164–181.
- Darroch, M. (2010) 'Giedion and explorations: Transatlantic influences on the Toronto School', a presentation at the Media Transatlantic Conference, 8–10 April 2010, UBC Vancouver. Available at: http://www.mediatrans.ca/(accessed 7 June 2013).
- Dolphjin, R. and van der Tuin, I. (2012) New Materialism: Interviews & Cartographies. Open Humanities Press.
- Ellul, J. (1964) *The Technological Society*, trans. Wilkinson J. New York: Vintage Books.
- Ernst, W. (2013) *Digital Memory and the Archive*, ed. and intro. Parikka J. Minneapolis: University of Minnesota Press.
- Giedion, S. (1969 [1948]) Mechanization Takes Command: A Contribution to Anonymous History. New York: W.W. Norton.
- Huhtamo, E. and Parikka, J. (2011) 'Introduction: An archaeology of media archaeology'. In: E. Huhtamo and J. Parikka (eds) *Media Archaeology: Approaches, Applications and Implications*. Berkeley, CA: University of California Press, 1–21.
- Kittler, F.A. (2009) 'Towards an ontology of media', *Theory, Culture & Society* 26(2–3): 23–31.
- Lazzarato, M. (2004) Les Revolutions du capitalisme. Paris: Les empêcheurs de penser en ronde.
- Lazzarato, M. (2007) 'Machines to crystallize time: Bergson', *Theory, Culture & Society* 24(6): 93–122.
- Marx, K. (1973) Grundrisse. New York: Penguin.
- Packer, J. and Wiley, SBC. (eds) (2011) Communication Matters: Materialist Approaches to Media, Mobility, and Networks. London/New York: Routledge.
- Parikka, J. (2010) *Insect Media: An Archaeology of Animals and Technology*. Minneapolis: University of Minnesota Press.
- Parikka, J. (ed.) (2011) *Medianatures: Materiality of Information Technology and Electronic Waste*. Open Humanities Press. Available at: www. livingbooksaboutlife.org/
- Peters, J.D. (2009) *Strange Sympathies: Horizons of Media Theory in America and Germany*. electronic book review, 2009/06/04. Available at: http://www.electronicbookreview.com/thread/criticalecologies/myopic (accessed 19 July 2013).
- Schüttpelz, E. (2006) 'Die medienanthropologische Kehre der Kulturtechniken'. In: L. Engell, B. Siegert and J. Vogl (eds) *Kulturgeschichte als Mediengeschichte (oder vice versa?)*. Weimar: Universitätsverlag, 87–110.
- Siegert, B. (2003) Passage des Digitalen. Zeichenpraktiken der neuzeitlichen Wissenschaften 1500–1900. Berlin: Brinkman & Bose.

Siegert, B. (2008a) 'Cacography or communication? Cultural techniques in German media studies, trans. Winthrop-Young G', *Grey Room* 29: 26–47.

- Siegert, B. (2008b) 'Erzklang' oder 'missing fundamental': Kulturgeschichte als Signalanalyse'. In: J. Kursell (ed.) *Sounds of Science Schall im Labor (1800–1930)*. Berlin: Max-Planck Institut für Wissenschaftsgeschichte, 7–20.
- Siegert, B. (2011) The map is the territory. *Radical Philosophy* 169 (September/October): 13–16.
- Siegert, B. (2012) 'Doors: On the materiality of the symbolic, trans. Peters JD', *Grey Room 47 (Spring)* 6–23.
- Sterne, J. (2006) 'Communication as techné'. In: G.J. Shepherd, J. St. John and T. Striphas (eds) *Communication As... Perspectives on Theory*. Thousand Oaks, CA: SAGE, 91–98.
- Sterne, J. (2012) MP3: The Meaning of a Format. Durham: Duke University Press.
- Weber, M. (2005) 'Remarks on technology and culture', *Theory, Culture & Society* 22(4): 23–38.
- Wiley, SBC. (2005) 'Spatial materialism: Grossberg's Deleuzan cultural studies', *Cultural Studies* 19(1): 63–99.
- Winthrop-Young, G. (forthcoming) 'Siren recursions'. In: S. Sale and L. Salisbury (eds) *Kittler Now: Current Perspectives in Kittler Studies*. Cambridge: Polity.
- Zielinski, S. (2010) Zur Geschichte des Videorecorders. Zehnte Ausgabe. Potsdam: Polzer.

Jussi Parikka is Reader in Media & Design at Winchester School of Art, University of Southampton. He has authored several books and articles on topics such as media archaeology, network culture and its accidents as well as animals, ecology and technology. Recently he has published *Insect Media* (2010) and *What Is Media Archaeology?* (2012) and has edited the collection of Wolfgang Ernst's writings, *Digital Memory and the Archive* (2013). He blogs at Machinology, http://jussiparikka.net.