7. Media Archaeology and Critical Theory of Technology

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Abstract
This chapter examines the ways in which media archaeology addresses technological change. The term media archaeology encompasses a range of different approaches and attitudes to technology, from those that seem to embrace a certain kind of technological determinism to others that use archaeological perspectives to critique the idea of progress and produce nonlinear accounts of technical history. The aim here is to place these accounts in the wider context of critical theory of technology. The chapter pursues this argument through a close reading of the work of Walter Benjamin, Wolfgang Ernst and Bernard Stiegler.

Keywords: Benjamin, Ernst, Stiegler, Media Archaeology, Critical Theory

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It is crucial to understand that media archaeology is both a new way of studying media and also a new way of thinking about technology. In this sense, it can also be seen as a return to the concerns of what has become known as medium theory (Meyrowitz, 1985, p. 16). Media archaeology focuses more on the apparatus itself as a mode of recording and organizing experience, as well as the cultural practices surrounding its use. As Wolfgang Ernst puts it, ‘[it] concentrates on the non-discursive elements in dealing with the past: not on speakers, but rather on the agency of the machine’ (Ernst,
2005, p. 591). However, at the same time as embracing the technological constitution of media, media archaeology also questions existing *doxa* surrounding media-technological developments. That is, it interrogates traditional narratives about technical development or teleological accounts of progress, emphasizing instead discontinuities or the cyclical nature of change (Parikka, 2012). Media archaeology highlights the material form of media apparatus and devices at the same time as questioning the way we think about technological transformation.

As such, and as will be argued here, one might well see media archaeology as a form of philosophy of technology and one that has a particular relationship with what one might call ‘critical theory of technology’. In order to develop this argument, I will examine the relationship here between media archaeology and the work of Walter Benjamin, Wolfgang Ernst, and Bernard Stiegler.

**Walter Benjamin and Media Archaeology**

Given the preoccupations of contemporary media archaeology just described, it is perhaps no surprise that it has drawn inspiration from the work of Walter Benjamin. The connections between media archaeology and the work of Walter Benjamin’s *Arcades Project* are, in some ways, rather obvious. In *What is Media Archaeology?*, Jussi Parikka highlights Benjamin’s ‘cultural historical method which itself takes waste, rubble and ruins as its starting point for a multi-layered excavation of the slow emergence of modernity’ (Parikka, 2012, p. 90). Media archaeologists often undertake, as Parikka puts it here, a ‘multi-layered excavation’ of apparatus such as Sony Walkman portable cassette players, 16mm film projectors, early home computers, children’s stereoscopic viewers, and old video game consoles that would frequently, in a contemporary world of planned obsolescence, be considered rubbish. Their seeming obsession with recently obsolete forms of media mirrors Benjamin's own interest in the disappearing world of the nineteenth-century Parisian arcade. However, as I will argue here, the dialogue between Benjamin and media archaeology is more than simply superficial and points to the continuing influence of Frankfurt School critical theory on the way in which contemporary media technology is understood.

The Parisian arcades that interested Benjamin were largely built in the 1820s and the 1830s. By the time Benjamin was writing, the arcades were already in decline, having been supplanted by new forms of mass consumption such as the department store. As Susan Buck-Morss points out, the arcades of Benjamin’s time had been transformed from ‘consumer dream
worlds’ to ‘commodity graveyards’ (Buck-Morss, 1991, pp. 37–38). Their shops were full of bric-a-brac that had ‘lost even the logic of their original place on the market’ such as ‘types of collar studs for which we no longer know the corresponding collars and shirts’ and their hairdressers advertised out of date coiffure (Buse et al., 2006, pp. 31–32; Benjamin, 2002, p. 872). And yet, in these decaying arcades Benjamin saw the potential for a remarkable kind of historical study, one which could clear the ‘terrain of the nineteenth century’ of the ‘undergrowth of delusion and myth’ (Benjamin 2002, pp. 456–457). As with the media archaeologist’s interest in forms of media that represented a dead end, for example, like Sony Betamax, or the cinema of attractions as a forms of cinema that could have been, it was precisely the obsolescence of the arcades that was of interest to Benjamin. Retrieving the debris of the past provided a way to challenge historicism understood as the history of the victors (Benjamin 2003, p. 391). In this way, it allowed the historical materialist to interrogate victors’ history as also the ideology of the dominant class. As Benjamin puts it in ‘On the Concept of History’, ‘empathizing with the victor invariably benefits the current rulers’ (Ibid.). Focusing on the ‘losers’ of media history is a way for media archaeology to challenge dominant narratives of succession and development (for example, the idea that magic lantern projection was merely a precursor to the moving image film, or that the cinema of attractions must be seen as a nascent form of classical cinematic narrative) (Elsaesser, 2004). Equally, both Benjamin and media archaeology wrestle with the question of how things could have evolved differently. As Howard Caygill argues, Benjamin’s historical account is ‘qualified continually by counterfactual imaginations of other possible outcomes, a method exemplified by his treatment of the arcade’ (Caygill, 1998, p. 144).

At stake in this interest in the obsolete and counterfactual is the question of progress. In Convolute N of the Arcades Project, Benjamin outlines as one of its methodological objectives, ‘a historical materialism which has annihilated within itself the idea of progress’ (Benjamin, 2002, p. 460). As Buck-Morss suggests:

The Passagen-Werk is fundamentally concerned with debunking mythic theories of history whatever form their scenarios may take – inevitable catastrophe no less than continuous improvement. But Benjamin was most persistent in his attack against the myth of automatic historical progress. In his lifetime, at the very brink of the nuclear age and the twilight of technological innocence, the myth was still largely unshaken, and Benjamin considered it to be the greatest political danger. (Buck-Morss, 1991, p. 79)
Benjamin underlines the danger in ‘On the Concept of History’, where he argues that the German working class has been corrupted by the illusion that ‘factory work ostensibly furthering technological progress constituted a political achievement’ (Benjamin, 2003, p. 393). This illusory nature of the ‘progress’ has an historical dimension; Benjamin observes that during the nineteenth century the concept of progress no longer functioned as a form of critique (Benjamin, 2002, p. 476 [N11a,1]). By the latter half of the nineteenth century a powerful mythic form had evolved, where historical progress was simply equated with technological change. Benjamin sees the World Expositions as examples of this mythic form. Beginning with the Great Exhibition of 1851 in London and its famous Crystal Palace there was an almost ‘viral proliferation’ of these Exhibitions and World’s Fairs in the period from then onwards; ostensibly, they were concerned with ‘peace, education, progress’ but, in reality, celebrated industry, commodity culture, and national production (Buse et al., 2006, pp. 122–123). Benjamin was suspicious of the idea that technological improvement in itself could improve quality of life for the working class. Technological innovation offered a seductive alternative to real social change. As Buck-Morss argues, ‘[the] message of the world exhibitions as fairylands was the promise of social progress without revolution’ (Buck-Morss, 1991, p. 86).

An attack on linear accounts of progress shapes much media-archaeological endeavour. As Wanda Strauven (Strauven, p. 72) points out, Thomas Elsaesser’s influential (2004) account of new film history as media archaeology exemplifies an approach that emphasizes discontinuities and ruptures within the development of media and media technology. Elsaesser historicizes and radicalizes new film history’s argument that early cinema needed to be seen as a ‘cinema of attractions’ rather than a precursor of narrative cinema. His account therefore emphasizes the importance of interrogating all teleological accounts of media history. Elsaesser argues that the new film history valorized early cinema partly out of a desire to challenge the hegemony of classical cinema. Scholars of film history in the 1970s and 1980s linked the pre-1917 cinema of attractions to contemporary developments in post-classical film in order to reverse the relation between ‘norm’ and ‘deviance’: ‘early cinema appears – flanked by the powerful, event-driven and spectacle-oriented blockbuster cinema – as the norm, making the classical Hollywood cinema seem the exception’ (Elsaesser, 2004, p. 84). Elsaesser calls for a radicalization that not only displaces classical cinema, as the dominant model for understanding film history, but also critiques all teleological accounts of media history, including the contemporary one enshrining digital ‘convergence’. For as well as questioning the idea that
everything leads to cinema, one must now also query a logical progression between media developments:

Causal models, problem-solving routines or even evolutionary explanations are of little help. Cinema did not relate to the magic lantern in strictly causal terms nor did it ‘respond’ to it by solving problems that had arisen in the practice of magic lantern shows. It re-purposed aspects of magic lantern technology and parasitically occupied part of its public sphere. Television has not ‘evolved’ out of cinema nor did it replace cinema. Digital images were not something the film industry was waiting for, in order to overcome any felt ‘deficiencies’ in its production of special effects. (Ibid., p. 88)

In other words, this radicalized version of New Film History goes from undermining one particular ‘story’ about the evolution of narrative in classical cinema to interrogating stories of progress and development in general. Pulling at the thread of ‘early cinema’ turns out to unravel a whole web of assumptions about media history. This unravelling takes place in the context of an all-encompassing digital convergence that seems to eliminate different media forms and their histories. Elsaesser calls our digital era ‘a “now” for which there is no clear “before” or “after”’ (Ibid., p. 98). Our political imperative is no longer provided – as it was in the 1970s and 1980s – by Hollywood’s hegemonic dominance of narrative form but by the even more pervasive dominance of cognitive capitalism and its conquest of networked mobility and attention.

This digital ‘now’ requires an ‘archaeological perspective’, but not in order to understand the origin and development of media technologies ‘correctly’. Instead, this perspective is needed to hold media history open as a ‘determined plurality’ and ‘permanent virtuality’; one must think not in terms of the ‘past, present and future’ of media technology, but rather the ‘archaeology of possible futures and of the perpetual presence of several pasts’ (Ibid., pp. 99, 113). New Film History, with its emphasis on the ‘otherness’ of early cinema, provides a model of practice for media archaeology. This model emphasizes the discontinuities in media history in order to disrupt the idea of continuous technological development and progress.

The imperative to challenge the concept of progress in media history is therefore both scholarly and political. Benjamin’s materialist history is of interest to media archaeology for methodological reasons as well as critical ones. It is worth reflecting here on his historical method and particularly his concept of the dialectical image and what it offers to media-archaeological theory.
Benjamin's concept of the dialectical image aims to retrieve an object from the past by putting it in a new ‘constellation’ with the present (Buse et al., 2006, p. 31). For example, he wanted the arcades to be understood as harbingers of the consumer culture of his own time. Yet, he wanted them to appear without any sense of continuity or progress between their heyday and the era in which he was writing. Buck-Morss suggests that Benjamin frees the historical object from ‘history’s continuum’ in order to make visible both its fore-history, its ‘possibility’ or ‘utopian potential’, and its after-history, ‘the conditions of its decay and the manner of its cultural transmission’ (Buck-Morss, 1991, pp. 218–219). In a similar fashion, and noting its inspiration in Benjamin’s work, Elsaesser argues that media archaeology occupies itself with historical apparatus and practices in order to draw on ‘the resisting reminder of unfulfilled potential and the reservoir of utopian promise’ (Elsaesser, 2016, p. 206). For Benjamin, this new configuration of past and present in the dialectical image then enables ‘the unperceived significance of the past to appear as a force in the present’ (Ferris, 2008, p. 120). As Darrow Schecter suggests, through the dialectical image Benjamin is advancing a materialist approach to the ‘history of what has not yet happened’. Although this articulation might seem contradictory, the argument is in fact dialectical: ‘there is no history of the “already has been” without a history of the “not yet”: if the past has simply occurred and is irredeemably gone, then so too must the future be already written, and this linear determinism, [Benjamin] insists, is falsified by experience’ (Schecter, 2013, p. 83).

The dialectical image aims not to give us history ‘as it was’, but rather, through being brought into a constellation with our own time, to act as a form of historical truth that is also a form of revolutionary experience (Ross, 2015, p. 116). This experience is often presented by Benjamin terminologically in terms of political awakening; in The Arcades Project, as Bolz and Van Reijen put it, ‘it is as though capitalism’s dream sleep were waiting to wake up from its prehistory’ (Bolz and Van Reijen, 1996, p. 46). Media archaeology’s interest in the past stems equally from using it to confront the present. As Geert Lovink suggests, ‘[m]edia archaeology is first and foremost a methodology, a hermeneutic reading of the “new” against the grain of the past, rather than a telling of the history of technologies from past to present’ (Lovink, 2012, p. 8; Huhtamo and Parikka, 2011, p. 3). Lovink’s interest in this methodology stems directly from a concern with developments in contemporary digital culture and the need to write a ‘critical history of the present’. As he suggests, we are already a long way from the utopian-libertarian days when John Perry Barlow could declare the independence from world governments of ‘a civilization of
the Mind in Cyberspace’ (Perry Barlow, 1996). Indeed, as Edward Snowden's revelations have demonstrated, the internet age has greatly extended the power of government in terms of an unprecedented level of electronic surveillance which would have seemed barely conceivable a generation ago (Harding, 2014). These transformations have important implications for the critical project of understanding digital culture. As Lovink puts it,

Streams of messages about corporate collapses and cyberterrorism have replaced popular cyberculture. There is a rising awareness of backlash. A part of this new consciousness could be translated as Internet culture’s need to write its own history. It has to leave its heroic, mythological stage behind. (Lovink, 2012, p. 7)

Here, Lovink invokes history as a way to challenge the mythological foundations of the internet. Media archaeology, he goes on to suggest, provides a methodology with which digital criticism can confront this digital present with its past, motivated by the very specific political configuration provided by network culture. The physical (mechanical, optical, chemical) forms of ‘old media’ are also attractive in the digital age. Ernst argues that archaeological approaches are motivated by an apparent need to confront ‘virtual, immaterial realities’ with the ‘insistence and resistance of material worlds’ (Ernst, 2005, p. 589). Elsaesser interprets this project of confronting new media with old media, in a fashion highly reminiscent of Benjamin’s Arcades Project, as a call for ‘making a last stand against the tyranny of the new, for digging into the past, in order to discover there an as yet unrealized future’ (Elsaesser, 2016, p. 206). Media archaeology, from this perspective, lies as much in the need to rethink the present and future as it does on reinterpreting the past. It draws inspiration from Benjamin’s concept of the dialectical image as revolutionary experience, bringing the past into a new constellation with the present.

From Media Apparatus to Sonic Time Machines

Media archaeology also shares with Benjamin's approach an emphasis on the discontinuous in history. Ernst articulates this very clearly in an article on the work of the art historian Stephen Bann entitled ‘Let There Be Irony: Cultural History And Media Archaeology In Parallel Lines’ (2005). He argues that whereas cultural (and art) history values ‘evolutionary continuities and soft transformations’ the archaeological approach focuses more on
ruptures within technological media. Ernst highlights here Bann's arguments about photography, especially as articulated in the latter's *Parallel Lines: Printmakers, Painters, and Photographers in Nineteenth-Century France* (2001). In this book, Bann argues against the case made by Benjamin, for example, that photography makes a break with existing forms of artistic production. Instead, he claims that photography emerged alongside, and competed with, other artistic practices such as engraving and lithography. For Bann, photography operated in an aesthetic and discursive continuum with these other forms of reproduction. He therefore disputes Benjamin's claim that photography is a ‘unique harbinger of a crisis in the relation between the original and the reproduction’ (Lang and Bann, 2013, p. 551).

Here, Bann's position compares interestingly with Jacques Rancière's broader argument about photography in relation to Roland Barthes's *Camera Lucida* (1993). The *punctum* that Barthes finds in the photograph, contends Rancière, is not the product of a technical ontology of the photograph as the ‘direct emanation of the referent’ (Barthes, 1993, p. 26). It is instead the mechanical reworking of an aesthetic of indifference that can also be found, among other places, in paintings of beggars by Murillo and Flaubert's *Madame Bovary* (Rancière, 2009, pp. 13–14). This problem around the 'rupture' of photographic reproduction can then be seen as dividing Benjamin and Barthes on one side from Bann and Rancière on the other. Ernst puts the question as follows: 'was there a smooth evolutionary progression from etching to lithography to photography, or rather, was there a dramatic break as a result of the difference between genuinely technological media, such as photography, and earlier cultural technologies?' (Ernst, 2005, pp. 587–588, his emphasis). For Ernst, how we resolve this question depends on the way in which we interrogate and work with the past. In particular, it depends on whether we adopt the discursive, aesthetic, and narrative-driven approach of cultural history, or instead media archaeology's focus on the non-discursive:

Photomechanical reproduction as a technology on the non-discursive level was a rupture in the fabric of pre-existing image-making ('because it is an indexical as well as iconic form; because it stops time, because it is machine-made'); on the level of discursive interface, it represented a continuation of older traditions in the reproduction of existing works of art and their circulation. (Ernst, 2005, p. 584; citing Solomon-Godeau, 2002, p. 220)

Rupture and discontinuity are essential for a media archaeological approach that emphasizes the technical and non-discursive aspects of media.
From this perspective, the shift from engraving to photography makes all the difference precisely because the human hand and interpretation has been replaced by a photo-mechanical process: Ernst insists that ‘the photograph is an assemblage of optical signals’ (Ernst, 2005, p. 593). This media-technical understanding does not in any way take away from Bann’s ‘discourse-oriented’ contention that photographic representation was not absolutely new but actually a continuation of existing cultural forms. Ernst believes that cultural history and media archaeology are instead operating on ‘parallel lines’, that ‘the two methods will continue to supplement each other without effacing their differences’ (Ibid., p. 601). Media archaeology, on this reading, does not supplant media history but operates instead on another analytic level.

Media archaeology, from Ernst’s perspective, implicitly involves a different relationship between technology and time from cultural history. It does this because it invokes the centrality of technology to the constitution of temporality. We are no longer in the domain of simply challenging narratives of technological progress which could be seen, after all, as a cultural historical activity. Rather we need to ‘listen’ to technology in a new way. In Sonic Time Machines (2016) Ernst argues,

> Just as musical culture tries to save sound itself from ephemeral temporality (favouring invariance), signal recording media for the first time in cultural history mastered the time axis, thus enabling arbitrary manipulation and repeatability. Phonographic recording is not historiography but signal storage. Any such graphic trace of an acoustic event cannot be considered sound. The implicit sonicity of an acoustic event depends on a temporalizing medium like the record player to make it explicit through time-sequential unfolding, just like cinema needs the projector to restore movement to otherwise discrete chrono-photographical film frames. Recording does not take place in or as historical time, but is a time operation itself. This makes it a privileged form of investigating tempor(e)alities. (Ernst, 2016, p. 22, my emphasis)

There are three points to underline here. Firstly, in sound recordings we are dealing with an ‘implicit sonicity’ that is not reducible to sound but rather to the ‘essential temporal nature’ of sound’s unfolding as a ‘physical vibrational event’ (Ibid., pp. 23–24). With the direct acoustic link between air vibration and the human body broken, implicit sonicity is what remains. Ernst comments, ‘[w]ithin an electronic system, sound exists implicitly’ (Ibid., pp. 25-26). Sonicity is not confined to the audible, but is ‘a mode of
revealing modalities of temporal processuality’ (Ibid., p. 27). Secondly, such recordings function not at the level of symbol, in the manner of musical culture, but of signal. Here, Ernst recalls his previous argument in the essay ‘Media Archaeography’ that sound recordings ‘contain – and thus memorize – a world of signals that operate beyond and below the cultural symbolism intended by the humans involved’ (Ernst, 2013, p. 59). In signal, media archaeology engages with ‘a physical layer below symbolically expressed culture’ that is specific to the media apparatus and their non-discursive registration of culture. Thirdly, in the sound recording we confront not just an object in historical time, but one that constitutes its own temporality; what is reproduced is not the symbolic musical or cultural content but the transience of time itself. Ernst’s concept of sonicity therefore points to the emergence in time-based media of an implicitly new relationship between technology and time.

For Ernst, sonicity opens up new modalities for dealing with the past. In a manner somewhat analogous to the way in which digital humanities are opening up novel ways of working with the textual archives, software can read and analyse time-based media archives in new ways (Ernst, 2016, p. 130). As Ernst points out, archives of recordings such as Europeana currently only allow searches based on title, keywords, or other metadata explicitly added by archivists. New search algorithms will eventually allow searching within the sonic ‘content’ of the recordings themselves where ‘the search engine itself becomes an archaeologist of sonic knowledge’ (Ibid., p. 134). As Ernst observes:

Contrary to traditional musicology, which is based primarily around semantic analysis, a signal oriented archive will no longer list songs and sonic sequences according to their authors, subject time and space of recording. Instead, digital sound data banks will allow acoustic sequences to be algorithmically systematised according to genuinely sonic (i.e. wave-based) notions and computing (techno-mathematical) criteria rather than traditional musical topoi. Such a change reveals new insights in the non-symbolic characteristics of music as sound. (Ibid., pp. 133–134)

This affords a re-structuring of both the sonic archive and the forms of knowledge derived from it. The shift from symbol – semantic, sono-cultural – to signal – implicitly sonic, non-cultural, statistical, stochastic – also represents a move away from historical musicology to ‘systematic musicology’. Ernst sees phono-graphy as the foundation for these new ways of working with the media archaeological archive. Phonography represents a new kind of
'scriptural memory' inaugurated by the first mechanical recording devices, one which ‘stood apart from alphabetic writing because of its capacity to record and replay the temporal axis itself using audio-visual signals’ (Ibid., p. 141). Electro-magnetic recording and digitization have greatly extended the opportunities for analysis and signal processing of recordings. However, these new forms of understanding themselves derive their insights from recording as a new time-based form of memory.

Ultimately, this new epistemology of the sonic is therefore also an ontology: the sonic archive simply embeds the past in a different way from the textual archive. It stores not only the ‘cultural semantics’ of musical or voice ‘content’, but also ‘technological knowledge’ of the historical materiality of its production (Ibid., p. 113). What becomes audible when an early wax cylinder recording is played is not only the intentional recorded matter but also the ‘noise’. This noise is itself meaningful when heard with the right media-archaeological ‘ears’. It encodes the history of electro-mechanical recording machines by allowing us to listen to the apparatus itself. Ernst even suggests that such noise is, to use Proust’s term, a kind of mémoire involontaire (Ibid., p. 114). Ultimately, this sonic memory constitutes a shortcut between one time and another, providing a sonic time machine that allows the simultaneity of one time within another. Such a simultaneity is counter-historical; that is, it runs contrary to the normal interpretative practices of history. As such, Ernst observes, ‘[t]he goal of media archaeology is to dig into collections of early recording machines in a non-historical way (anti-hermeneutically)’ (Ibid., p. 114). The sonic time machine does not just allow a new interpretation of the past, it literally brings the past back to life in a way that evades traditional notions of historical interpretation. Media archaeology of early recordings therefore, ‘develops a different “hearing” of modern history, a notion of the past based on waves, simultaneous time and shifting soundscapes’ (Ibid.).

Stiegler and the Industrial Temporal Object

In a sense, there is a remarkable parallel between Ernst’s project and that which the French philosopher of technology Stiegler outlines in his multi-volume work Technics and Time. Stiegler similarly focuses on phonographic recording and its reorganization of temporal perception, arguing that the ‘fact of recording [...] is the phonographic revelation of the structure of all temporal objects’ (Stiegler, 2011, p. 21). He sees the phonographic recording as one of a novel class of ‘industrial temporal objects’ that usher in a new
‘industrialization of memory’ (Stiegler, 2008, pp. 9, 241). But what does Stiegler mean by an ‘industrial temporal object’? This concept relies heavily on a critical reading of the philosopher Edmund Husserl’s phenomenological analysis of time. In Husserlian phenomenology, consciousness is intentional, that is, it is consciousness of an object. The temporal object differs from other objects of consciousness in that they are not simply ‘unities in time’ but also ‘contain temporal extension in themselves’ (Husserl, 1991, p. 24). When listening to a melody, for example, the listener must retain previous notes as well as the current note, in order for the melody to be perceived as such. What goes for the melody applies equally at the level of each tone, in the perception of its duration. The temporal object can only be perceived in the ‘now’ of impressional consciousness through its constant modification by what Husserl calls ‘primary retention’ (Ibid., p. 29). Husserl, however, differentiates this primary retention from the more common understanding of memory as recollection which he regards as secondary. This secondary memory, or re-presentation, is further contrasted with image-consciousness, or, as John Brough puts it, ‘the sort of awareness that comes into play when we look at a photograph, contemplate a sculpture, or view a program on television’ (Husserl, 2005, p. xliv). Stiegler calls image consciousness ‘tertiary memory’ and argues, against Husserl, that it is constitutive in the construction of primary retention. He gives the example of repeated hearings of a gramophone record and the changing effect on the experience of melody. Stiegler argues:

Husserl’s phenomenological attitude consists of positioning consciousness as the constituter of the world, not something constituted by it. Since tertiary memory is a reality in the world, it cannot be constitutive of consciousness but must necessarily be derivative of a consciousness that has no real need of it. However, since the unique event of a temporal musical object, and the ability to repeat it technically, the link between primary and secondary retentions has become obvious: clearly, even though each time it is repeated it is the same temporal object, it produces two different musical experiences. (Stiegler, 2011, p. 21)

Both Ernst and Stiegler therefore position the advent of analogue recording as a decisive moment in the relationship between technology and time. For Stiegler, recording marks both an intensification in technics as the exteriorization of the human, but also a significant change in the technical constitution of memory, in what he calls tertiary memory, one which causes a general disorientation (Stiegler, 2008, p. 7). He contrasts analogue and digital
recording with older forms of memory technology, such as orthographic (i.e. linear, alphabetic) writing. Orthographic writing was the disruptive technology of classical Greece, one which Stiegler argues, citing John M. Dodds, ‘suspended the authority of traditional ethnic programmes’ ([Ibid.], p. 60). This disruption can be seen as an example of what, following Sylvain Auroux, he calls *grammatization*. Grammatization, in this context, means a process by which idiomatic differences and actions are standardized and discretized, as when, for example, out of a plethora of regional dialects a national written language is standardised. But, for Stiegler, the term grammatization applies equally to the replacement of skilled artisinal workers by a mechanical loom which standardises and discretizes the actions of weaving. Orthographic writing represents a ‘decontextualizing rupture’ with prior (e.g. pictographic) inscriptions, because it allows for a form of written memory that can break with its context and retain meaning. Rather than simply serve as an *aide mémoire*, ‘writing has become memory itself’ (Stiegler, 2008, p. 62). Paradoxically, however, the ability of orthographic writing to break with context also allows the text to be infinitely recontextualized (that is, read and reinterpreted) and lets individuals and groups differentiate themselves, or individuate themselves, through re-readings of the cultural memory preserved in it. This is a process that Stiegler calls *epochal redoubling* and, in the case of orthographic writing, it represents the evolutionary origin of what we recognize as the stable forms of Western knowledge and culture. In other words, while new forms of memory technology, which Stiegler calls *mnemotechnics*, are initially disruptive, ‘suspending’ ethnic groups and their traditions, they ultimately allow new forms of human culture to develop.

The techniques of analogue recording typical of twentieth-century media also represent a new form of tertiary memory. However, for Stiegler these new mnemotechnic developments, which he calls *industrial temporal objects*, are deeply troubling. This is partly because they have not (yet) been associated with a process of epochal redoubling ([Ibid.], p. 7). These new forms of technical memory, along with the tele-technologies that disseminate them, are the source of a large-scale *disindividuation*. Through standardizing cultural memory on a global scale, they rupture existing ‘programmes’ of cultural memory, such as national and ethnic traditions, educational institutions, and so on. They therefore disrupt the ways in which individuals and groups have previously *individuated* themselves, to use Simondon’s terminology. At the same time, they afford few opportunities for *reindividuation*; their consumers are illiterate, lacking the forms of media literacy that would be necessary for an epochal redoubling. For Stiegler, these industrial temporal
objects are associated with a general societal malaise (*mal-être*), which he describes in dramatic terms:

This loss of individuation, in which I persists as a yawning void, no longer moving towards a We who, being everything, the confusion of all possible Is in an undifferentiated flux (the totalitarian model of ‘community’), is condemned to dissolve into a globalised, impersonal One. [It] […] leads to immense existential suffering: in the most tragic cases, this *quasi-inexistance* produces multiple personalities, and the danger of taking deadly drugs, of violence, tribal or individual, and suicide, which in France has become the second most common cause of death in adolescents and the most common in young adults. (Stiegler, 2011, p. 5)

Of course, the problem posed by these new *industrial* temporal objects is inseparable from the economic conditions under which they are produced. For Stiegler they represent nothing less that the ‘industrialization of memory’ (Stiegler, 2008, p. 9). He sees contemporary capitalism as not postindustrial, but rather *hyperindustrial*. The hyperindustrial era is one characterized not only by commodity production, but also by the extension of industrialization to memory, consciousness, and attention. However, the link between (hyper) industrialization and the *temporal* object is crucial here. This relationship can be best summarized by Stiegler’s enigmatic assertion that the gramophone record is ‘the phonographic *revelation* of the structure of all temporal objects’ (Stiegler, 2011, p. 21, his emphasis). This assertion underlines the importance of his reading of Husserl: the gramophone record presents us – for the first time – with the potential repetition in consciousness of an identical temporal object, for example, music. What goes for the gramophone record applies equally here to other forms of recording, such as the film. The repeated audition of a record, while sonically more-or-less identical, is never exactly the same conscious experience. Stiegler argues that this demonstrates that the relationship between primary retention, secondary memory and tertiary memory (or ‘image consciousness’) is not as Husserl depicts it. According to Husserl, primary retention is not a representation of the mind, but gives direct experience of the temporal object: we *must* retain the immediate past in order to ‘hear’ the melody at all. Secondary memory, on the other hand, is selective and imaginative: I may or may not recall a tune I heard last week (Keller, 1999, pp. 73–74). Stiegler argues, on the other hand, that repeated plays of the gramophone record show that previous listenings, as ‘secondary memory’, *modify* primary retention, for example, perception of the temporal object that is music. The identical
auditions afforded by recording technology illustrate that the imaginative selections of secondary memory shape primary retention itself. As Stiegler puts it, ‘[b]etween the two hearings, consciousness has changed because a clearing away has taken place: primary retention is a selection progress brought about through criteria that have been established during previous clearings away’ (Stiegler, 2011, p. 19). The role of selection in primary retention undermines Husserl's apparently decisive distinction between the direct experience of primary retention and the imaginative selections of secondary memory. Moreover, the ‘tertiary memory’ of the industrial temporal object plays a crucial role in this ‘phonographic revelation’. Stiegler points out that in Husserl's view ‘image consciousness’ (i.e. what Stiegler calls tertiary memory) is ‘not a memory of that consciousness […] it is an artificial memory of what was not perceived nor lived by consciousness’ (Ibid., p. 20). Since for Husserl only conscious lived experience constitutes phenomena, therefore image-consciousness or tertiary memory can only be derivative. Yet, for Stiegler the gramophone record ‘reveals’ the structure by which image consciousness or tertiary memory actually shapes the imaginary selections of primary and secondary memory. Far from being merely derivative, tertiary memory is, in fact, constitutive of the primary retention of the temporal object itself. For Stiegler, the phonographic revelation shows that consciousness, ‘is always in some fashion a montage of overlapping primary, secondary and tertiary memories', and that ‘experience' is always also composed of tertiary memories that have not in fact been lived or ‘experienced' by the subject (Ibid., p. 28).

Stiegler argues that the product of the industrialization of memory is, ‘a flux in which absolutely unique temporal objects appear, objects whose flux coincides with the flux of the consciousness it produces’ (Stiegler, 2008, p. 241). In contrast with previous forms of tertiary memory, such as orthographic memory, these industrial temporal objects decontextualize without offering any possibility of recontextualization, that is they globalize and generalize without allowing an idiomatic reappropriation at the level of the local, the community, the ethnic group.

Media Archaeology and Critical Theory of Technology

Both Stiegler and Ernst see in phonographic recording a new configuration of time and temporality. Both writers view this new configuration as marking a break with existing memory practices. But the consequences of this break are conceptualized differently by the two thinkers. My contention in this
essay is that their differences illuminate the relationship between media archaeology and critical theory of technology.

One obvious difference here is the emphasis that Ernst places (and, perhaps, media archaeology more widely) on the capacity for recording technology to give rise to non-cultural, non-discursive insights. For Ernst, the recording apparatus, along with its technical manipulation in the present, grants us a new non-cultural access to the past. But does he conceptualize too cleanly here the distinction between, on the one hand, content or symbolic interpretation and, on the other, apparatus and signal processing? Does this distinction not itself suggest a dangerously simplistic opposition between culture and technology? Certainly, if one argues, as both Stiegler and Derrida do in their essentially similar yet distinctive ways, for the essential technicity of culture then the apparent straightforwardness of this opposition becomes problematic. In short, if culture is always technical, if everything from systems of writing through the Gutenberg press and onwards are seen as memory technologies, or mnemotechnics as Stiegler has it, then it becomes difficult to separate the discursive from the technological, the cultural from the non-cultural. Implicit in Ernst’s insistence on the non-discursive dimension of phonographic recording is as sense that it represents a new technological form of memory and, therefore, can give rise to noncultural insights about the past. But for Stiegler, on the other hand, memory is always already technical. He argues that phonographic recording’s novelty lies not simply in it being a memory technology but rather in the fact that it represents a new epoch within memory technology, that of the industrial temporal object.

One possible escape from this impasse would be to see the Ernst’s sonic insights into audio archives not only as furnishing non-cultural insights, but rather as developing new forms of literacy in relation to the industrial temporal object. These new forms of literacy would consist in new ‘sonic’ tools and techniques for analysing the temporal object, new techniques for reading and understanding the electro-mechanical archive. In this wider sense, one might see media archaeology as promising some of the epochal redoubling that Stiegler finds lacking in relation to twentieth-century time-based media, that is, the opportunity to reread, recontextualize and re-individuate the media object.

However, beyond his strong assertion of culture’s originary technicity, Stiegler’s analysis of the industrial temporal object forms part of his wider critical project, that is, a pharmacological critique of contemporary technology (Stiegler, 2013). It is his explicit commitment to a critical theory of technology that most clearly demarcates Stiegler from Ernst and, perhaps,
beyond Ernst, media archaeology in general. My argument here is that media archaeology draws strongly on the critical theory of technology tradition, for example – as previously discussed – in its embrace of Benjamin. However its own commitment to a critical theory of technology is, at best, only implicit.

But what do I mean by critical theory of technology here? Perhaps the clearest contemporary formulation is found in the work of philosopher Andrew Feenberg who argues that it applies to theories that ‘affirm human agency while rejecting the neutrality of technology’ (Feenberg, 1999, p. 9). Feenberg draws particularly on Marcuse and Foucault to illustrate this position, but notes its affinity to a more general Frankfurt School claim that regards technology as ‘materialized ideology’ (Ibid., p. 7). As we have seen, Benjamin had a keen understanding of the illusory nature of technological progress; media archaeology has drawn on this critique in order to rewrite, for example, teleological accounts of the history of cinema. Yet, is there not a risk here that Benjamin’s wider critical project is reduced to simply a method for new forms of media study? Feenberg highlights a similar concern in relation to work in the social sciences around technology. Social constructivism, for example, works to open the black box of technology and demonstrate the social nature of apparently technological developments. In doing so, as Feenberg argues, it takes inspiration from the ‘left dystopianism’ of the 1960s and 1970s (e.g. Marcuse and Foucault), that is, critical theory. However its ‘narrow empiricism’ means that, too often, its analyses simply chart how a particular technological device wins social acceptance while remaining divorced from any wider social critique. As such its insights into technology become a ‘purely academic conception’ (Ibid., p. 12).

As Michael Goddard has commented, some forms of media archaeology share social constructivism’s desire to open the black box of technology. But this desire is often motivated more by a desire to understand its ‘physical workings’ than to illuminate its social uses and shaping by practice (Goddard, 2014, p. 11). Goddard identifies this approach particularly with Kittler. But we can we can equally see it at work in Ernst’s desire to supplant (or at least append) historical cultural interpretation with the non-discursive insights of signal processing and audio analysis. Indeed, despite Ernst’s argument about the ways in which recording technology reconstitutes temporal experience he draws implications which are primarily not ontological but rather methodological. Sonic signal processing seeks simply to mine the riches left in audio recordings by the material properties of apparatus and medium. Ernst is more interested in how sonicity and its media archaeological exploitation will transform musicology and sound archives than in the social dimensions of this new noncultural form of memory.
Ultimately, Ernst’s conception of sonicity can be seen as a new ‘literacy’ of temporal media. As such, it shares much in common with Stiegler’s commitment to a new media literacy of the industrial temporal object, something advanced at the Centre Pompidou’s Institut de Recherche et d’Innovation (IRI), where he is director, through software projects such as *Lignes de temps*, a tool for the critical analysis and annotation of films and other audiovisual media. However, whereas sonicity often simply seems to advance the new analytical possibilities latent in time-based media, Stiegler advocates a new literacy partly to counter the implicit dangers in their industrialization of memory. Without endorsing Stiegler’s argument, it is clear how, despite the similarities in their way of dealing with the temporal object of recording, Ernst’s approach ultimately misses this sense of media archaeology as critical theory of technology.

As we have seen, Ernst is excited by the recording’s ability to evade history, to create a short cut between the time of the recording and the time of its audition. Stiegler, on the other hand, sees in this dimension of the industrial temporal object the crux of a problem. In orthographic recording (i.e. the text) there was a constitutive delay between text and interpretation, allowing the text to be reinscribed, recontextualized, and allowing its readers to individuate themselves through its rereading. For Stiegler, the sonic time machine’s ability to provide a short cut between one time and another also risks a dangerous ‘short circuit’, threatening and supplanting interpretative history rather than supplementing it. It is the possibility for creative recontextualization and individuation that is lost through the ‘short cut’ of the industrial temporal object and its mass dissemination. In this sense, a media archaeology that remains true to Benjamin’s critical project needs to rewire the temporal ‘short circuit’ of the sonic time machine as a ‘long circuit’ of critique and interpretation.

Works Cited


About the author

**Ben Roberts** is Lecturer in Digital Humanities at the University of Sussex. He has published widely on philosophy of technology, particularly the work of Bernard Stiegler. He is currently completing a monograph for Manchester University Press entitled *Critical Theory and Contemporary Technology*. He is also leading an AHRC research network on automation anxiety.