

Book Reviews

Materiality is the Message?

Optische Medien

by Friedrich Kittler

Berlin: Merve, 2002, 331 pp.

Reviewed by Nicholas Gane and Hannes Hansen-Magnusson

Friedrich Kittler is one of the leading figures in German media theory today. His work has been at the cutting edge of media and literary studies for over 15 years (with particular impact in the US), given which it is surprising that only two of his major works have been translated into English to date: *Discourse Networks 1800/1900* (1990a [1985]) and *Gramophone, Film, Typewriter* (1999 [1986]). One reason for this is perhaps Kittler's dense and challenging theoretical style. Like McLuhan, Kittler's approach is deeply materialist in orientation and, above all, emphasizes the role of media technologies in structuring 'human affairs'. But, at the same time, Kittler breaks from McLuhan in important ways. Not least, he proposes the impossibility of *understanding* media as technologies, for technologies are said to create the conditions under which understanding, or interpretive activity more generally, may take place, rather than vice versa. Kittler's approach also breaks with other well-known media theorists such as Baudrillard or Lyotard, for it pays little attention to either the shifting logic of simulacral forms or to the forces of the capitalist market. Instead, Kittler focuses overwhelmingly on the hardware of media technologies, and on the conditions and possibilities to which they give rise. This review will give a brief introduction to this approach before focusing in detail on the arguments of his 1999 Berlin lectures, recently published (2002) under the title *Optische Medien* (Optical Media).

Basic Ideas

Kittler's work from the 1980s onwards, and in particular *Discourse Networks 1800/1900*, *Gramophone, Film, Typewriter* and *Draculas Vermächtnis* (Dracula's Legacy) (1993), offers a direct response to McLuhan's project of understanding media. Kittler (following Shannon's famous five-stage model of communication, which assigns the source, sender, channel, receiver and destination of communication a mathematical function) proposes that any medium or *channel* of communication is a material technology, and thus cannot be understood in an interpretive sense. For example: how is it possible to *understand* a message once it is coded into a signal? What could a pulse of electricity or a string of binary digits possibly *mean*? In the light of such questions, Kittler takes McLuhan's approach to be misguided, for while it might be possible to understand the effects

media introduce into social relations, the idea of understanding media in themselves (as technologies) is out of the question. This is because meaning, for Kittler (1986: 166), is little more than an ‘anthropocentric illusion’ and, if anything, is not intrinsic or prior to technology but rather made possible and in turn structured by its development (as both Shannon and Weaver [1949] suggest): ‘the dominant information technologies of the day control all understanding and its illusions’ (Kittler, 1999: xl). Given this, Kittler seeks not to *understand* media but rather to document their emergence so as to make visible the structures of communication that technology both introduces and makes possible (what David Wellberry calls a ‘post-hermeneutic’ approach [1990: vii–xvi]). The method here is deeply materialist in orientation (and again in complete accordance with the one proposed by Shannon and Weaver): to work within a ‘semantics-free space’ (Kittler, 1992: 67) by moving from a description of technology to questions of meaning rather than vice versa. What emerges from this method is a distinctly anti-humanist (or even post-human) stance, one quite different from the traditional, subject-centred approaches of thinkers such as Castells (2001). Kittler declares, for example:

What remains of people is what media can store and communicate. What counts are not the messages or the content with which they 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. (1999: xl–xli)

Kittler and McLuhan here reach a basic agreement: media theory, or what Kittler calls media *science* (*Medienwissenschaft*), is not to centre on either the way communications technologies are *used*, or the content of the messages that pass through them, but rather on the basic material structures of the technologies themselves and the changes they introduce into culture. This marks two important departures from Shannon’s theory of information, for first, Kittler pays detailed attention to the physical components of communication (rather than assigning them a mathematical function), and, second, he analyses communication systems not simply in terms of their ability to process and transmit data but also in their capacity for *storage*. And with this emphasis on storage or memory, information is treated less as probability function (as it was for Shannon and Weaver) than as a material property (which in many cases is no longer distinct from the material components that hold or transmit it).

Kittler develops these arguments at great length in *Discourse Networks 1800/1900* and *Gramophone, Film, Typewriter*. These works centre on the idea of discourse networks or notation systems (*Aufschreibesysteme* – a term initially coined by Daniel Paul Schreber), by which Kittler means the networks ‘of technologies and institutions that allow a given culture to select, store, and process relevant data’ (1990a: 369). This definition is inspired by the writings of Michel Foucault, who, through the course of *The Order of Things* (2001) and *The Archaeology of Knowledge* (2002), showed that the anthropological construct of ‘Man’ was constructed through discourse – in the transition from the Classical to the Modern epistemes – rather than vice versa. But Kittler breaks from Foucault in important respects, for while he agrees that it is paramount to describe discourses in post-hermeneutical terms as *systems* (i.e. ‘from the outside and not merely from a position of interpretive immanence’ [1990a: 369]), he objects that Foucault privileges the study of the written word over the technological forms that give rise to, store and mediate

information (see Kittler, 1990a: 278). Beyond this, Kittler declares that, while ‘all discourses are information’, ‘not all information is discourse’ (1986: 157). Put bluntly, this means that information is not simply confined to the written word, something that is missed, he argues, by Foucault, who stops short of analysing media that emerged post-1850, beyond which date the sovereignty of writing over data storage and transmission began to wane. Faced by this lacuna, Kittler makes the following declaration:

All libraries are discourse networks, but all discourse networks are not books. In the second industrial revolution, with its automation of the streams of information, the analysis of discourses has yet to exhaust the forms of knowledge and power. Archaeologies of the present must also take into account data storage, transmission, and calculation in technological media. Literary criticism can learn from an information theory that has formalized the current stage of technical knowledge, and thus made measurable the performance or limits of information systems. After the destruction of the monopoly of writing, it becomes possible to draw up an account of its functioning. (1990a: 369–70)

Kittler’s analysis, then, works in two directions. On one hand, it examines the displacement of writing by ‘new’ media such as the gramophone and film. On the other, it treats both old and new (analogue and digital) media as material devices for the production, processing, transmission and storage of data. This includes books, which are rarely treated as such in traditional sociological theory and literary studies: ‘Meaning as the fundamental concept of hermeneutics and labour as the fundamental concept of sociology both bypass writing as a channel of information and those institutions . . . that connect books with people’ (1990a: 370). While Kittler himself says little about such institutions, his ‘post-hermeneutic’ concern for writing as a *channel of information* is clear. In a direct reference to Claude Shannon, he proposes that books be treated not as ‘emotional dispositions’ but as *systems* that are part of wider *information networks*, and elsewhere he talks of the ‘statistical dispersion’ of words (Kittler, 1990b: 13). Again, in this approach, it is not the content of books that is of primary interest, but rather the ways in which they process their data, starting with the ‘literal materiality of the letter’ (Kittler, 1990a: 371).

Optical Media

Kittler has recently broadened this analysis to include the study of what he calls optical media (*optische Medien*): media that produce fixed images that can be seen by the human eye at any point in their transmission. The focus of this study – a series of 14 lectures delivered in Berlin in 1999 and collected under the title *Optische Medien* – is hence early (analogue) forms of photography (pp. 155–95) and film (pp. 195–289) (which are strangely absent from his previous ‘History of Communication Media’, see Kittler, 1996) rather than the technologies of television (pp. 290–314) and computer (pp. 315–23), which are touched upon only in brief. The rationale for this, while never stated explicitly, is that optical media are those that create images that do not disappear in the communication chain or into the technology of communication itself. Kittler gives the following example:

Television in contrast to film is no longer optical. You can hold a film roll against the sun and see what each individual image shows. Admittedly, you can intercept television signals but you can no longer look at them because they only exist as

electronic signals. Only at the entrance and end of the transmission chain, in the studio and on the screen, have the eyes got something to feast upon [*haben die Augen eine mögliche Weide*]. Digital manipulation of images, by definition, eventually liquidizes what is left of the imaginary. (p. 316)¹

This position extends the arguments of *Discourse Networks 1800/1900* and *Gramophone, Film, Typewriter*, for it constructs a genealogy of media technologies that runs counter to Foucault's preoccupation with texts and archives. This genealogy explores the ways in which discourse, and more broadly the technology of writing, has been challenged (as the primary medium for transmitting and storing data) by competing optical technologies from the Reformation onwards. This analysis centres on the capacity for technologies to create different types of image, and to offer different possibilities for transmission and storage. This means, once again, that it is the power of particular technologies to shape the content of communication that is at issue, rather than the ability of humans to produce, use or manipulate these technologies. For Kittler, as for McLuhan, the medium remains very much the message.

The theoretical basis of this position is mapped out in detail in the first two chapters of the book: the author's 'Foreword' (*Vorbemerkung*) (pp. 7–21) and 'Theoretical Assumptions' (*Theoretische Vorannahmen*) (pp. 21–47). In the first of these, Kittler asserts the importance of media history for analysing the technology of the present. He says of the content of this work:

[it] shall convey an ethnological perspective on the artificial realms of images [*künstliche Bildreiche*] during the last 100 years. . . . In order to do this, one has to reach further and in the first step tackle the pre-history in which images could be drawn or painted but neither stored nor transmitted nor moved. (pp. 10–11)

Kittler talks of three steps in the historical study of optical media. First, the analysis of the pre-history of such media, as found in the linear perspective of Renaissance art, which itself was facilitated by the *camera obscura* (as a device for recording images) and the magic lantern (as a means for reproducing images). Second, Kittler traces the storage and movement of images to the 19th century, a century that started with the development of photography and ended with the technology of film. This is done by looking (albeit in brief) at the struggles that took place between (and within) different media of the time: photography against painting, cinema against theatre, and so on. Again, the aim of this exercise is consistent with Kittler's previous work: to reveal 'those effects which especially the development of film exerted on the ancient monopoly of writing' (p. 12). Third, and following on from this, he attempts to draw out the technical structures of film and cinema from their developmental histories (*Entwicklungsgeschichte*). This is done in great detail through a lengthy contrast of silent movies (*Stummfilm*) (pp. 218–62), film with sound (*Tonfilm*) (pp. 262–81) and then colour (*Farbfilm*) (pp. 281–9), in which particular attention is paid to the technological aspects of filming, lighting, directing and montage.

In the chapter of the book entitled 'Theoretical Assumptions', Kittler frames this historical work with the following declaration: 'The foundational concept [*Grundbegriff*] in the following histories and analyses is the medium in its technological sense, as developed by McLuhan, who built upon the work of Innis' (p. 21). Kittler initially lauds McLuhan for treating media as interfaces between technologies and bodies, arguing that 'this not merely dialectical but direct relation between technology and physiology should be picked up and continued' (p. 21). In

doing precisely this, however, Kittler at the same time inverts the basis of McLuhan's position, for technology rather than the body is taken to be the dominant force in this relation. Kittler explains: 'McLuhan, who by trade was a literary theorist, understood more about perception than about electronics, and for that reason attempted to think about technologies from the perspective of the body and not vice versa' (p. 21). This leads, in turn, to a radical, post-human reading of the historical development of media. Kittler draws on McLuhan's theory of remediation (which sees the content of new media in terms of the imploded structure of previous media forms [see McLuhan, 1964: 19]) to declare that all current technologies are built on previous technologies (p. 28), while at the same time arguing that traditional distinctions between form and content are no longer sustainable in a world of digital media (which reduce all cultural forms to binary code, which is both form and content). This move shifts the history of media away from traditional sociological discourses that focus on social production or human invention to look instead at the powers of technologies in themselves (particularly in their connections to war and to the body). Again, the logic of early information theory underpins this approach: 'Let us forget humans, language and sense and instead turn to the details of the five elements and functions of Shannon' (p. 44).

From this position, Kittler proceeds to conduct a sweeping analysis of the pre-history of optical media. This starts with the history of the *camera obscura* and linear perspective, which Kittler (pp. 52–6) sees as a reversal of early Greek and Arab optical science. This science understood the formation of images predominantly in terms of a movement from the eye to the light source rather than vice versa (an understanding that is clearly paralleled in humanistic theories of technology, which place the body in a position of control over media rather than the reverse). Kittler's interest is in how this understanding came to change, and how, through the course of the Renaissance, the application of new mathematical techniques (by figures such as Filippo Brunelleschi and Leon Battista Alberti) transformed drawing and writing, and, in turn, made the medium of photography possible. Kittler (p. 83) extends this history by looking also at the magic lantern, which 'reverses the function of camera obscura' by introducing a technology for sending or projecting images. This technology occupied an important place in the culture of the Counter-Reformation, for Kittler observes that whereas print was the primary technology of the Protestant faith, the Jesuit response worked through the creation of new godly images. He explains:

The search for a new medium to work against Luther's bible brought back the old religious images in a redressed or stronger form, no longer as icons or painted panels [*Tafelbilder*] on church walls, no longer as pious miniatures of saintly legends, but as psychedelic visions which the soldiers of Christ (as the Jesuits called themselves) could evoke more effectively (which means more unconsciously) than the old-fashioned drawings in this war of beliefs. (p. 96)

At the same time, strong connections are also said to exist between early optical technologies, such as the magic lantern, and the scientific cultures of the Enlightenment. For example, Kittler reads the physical poetry (*physikalische Gedichte*) of Barthold Brockes (and later Schiller and Hoffmann) as producing an author's perspective that enables its audience to view objects without seeing them. This question of seeing is also fundamental to Lockean and phenomenological philosophy (from Lambert to Hegel), which no longer asks 'how rays of light could enter the eye', but rather 'how the optic conditions of the world can be reconstructed out

of the data that are present in the eye as sensations' (p. 119). Such questions were posed by technologies such as the *camera obscura* and the magic lantern, and led, in turn, to the emergence of new trigonometrical theories of perspective. These proved to have a strong secularizing impact: 'As soon as one could state the differences that exist between objective world and subjective condition, the deception of the priests, which exploited this difference, was completely exposed' (p. 119). For this reason, optical media, are thus, for Kittler, seen to lie at the core not only of the Counter-Reformation but also the Enlightenment.

After 150 pages of pre-history, Kittler turns directly to the study of optical media in the third and most lengthy part of this book. He starts with photography, and opens with the following statement:

The camera obscura was the first technology for receiving images, and the magic lantern the first technology for sending them. The only thing non-existent before the development of photography was a technique for storing, one that allowed the transmission and then sending of received images across time and space. In order to develop, photography required (to come back to the here slightly misplaced function of Shannon) an appropriate channel. (p. 155)

Kittler's approach here is to give a detailed history of the technology of this medium. This history will be familiar to many, and runs from the discovery of basic photochemical processes (p. 159), through the development of lenses and scientific theories of light (pp. 162–3) to the inventions of Joseph Niépce (heliography) and Louis Daguerre (the fixing of images through the Daguerreotype) (pp. 168–76) and later William Talbot, who first produced photography on paper (pp. 176–82). Kittler's emphasis throughout this chapter is placed firmly on the technical histories that underpin the medium of photography as we know it today. More interestingly, he explores (if only in brief – pp. 182–95) the impact that advances in the technology of photography had on the techniques and styles of art and literature of the 19th century. Once the photograph could capture reality with greater precision than painting, Kittler observes that artists responded, in turn, by creating images that could not be produced through photography (thus paving the way for the emergence of abstract art). Meanwhile, in the realm of literature, new styles developed in response to the 'unimaginable materiality' of the photograph, in particular Balzac's 'bourgeois realism' (*bürgerlicher Realismus*) and Flaubert's *Madame Bovary*, which introduced new techniques for situating images, or what Kittler (p. 187) calls 'objective and consistent optical *Leitmotifs*', in texts.

Kittler's analysis of film proceeds along much the same lines by focusing on the technical features of this medium rather than on the content (the movie) that passes through it. Kittler observes, for example, that:

... film differs from photography in the sense that the finished product of the sender (the film in the box) is useless unless on the side of the receiver stands a projector working along the same measures and standards. The buyer of a photo does not need a camera. The buyer of a film, however, needs a showing room and projector. (p. 197)

This emphasis on the 'sender' and 'receiver' is again drawn from the communication theory of Shannon. Kittler (p. 198) argues that whereas Shannon's idea of the channel appears 'anachronistic and inappropriate' when applied to the medium of photography, quite the opposite is true for film, which 'comes close to this term'. Again, Kittler refuses to place humans at the centre of the technological universe,

and rarely, if ever, refers to either the source or destination of communication. Instead, he looks at the technical history of film (from silent, to film with sound and then colour), and at key technological advances that, in turn, transformed this medium (such as the turning of acoustic signals into optical signals, which enabled the bringing of sound and image together). Through the course of this history, Kittler (pp. 250–6), like Paul Virilio (1989), places great emphasis on the connection between technology and war, and, in particular, recounts the ways in which film was used during the First World War, both for spying and the spread of propaganda. At the same time, he also reminds us of the ways that the technology of film imprints itself onto the human body. He recalls, for example, that early techniques for moving images were based on the manipulation of the optic nerve (which allows us to see images for a short time after they have disappeared), while, more recently, colour film plays upon ‘physiological aspects of seeing’ (pp. 284–5), or, more specifically, the fact that the human eye sees in three colours. These instances are treated in turn (if only in brief) as part of the wider formation of *Medienverbund* (‘media connection systems’), in which different media technologies start by ‘singling out’ a human sense before then connecting to each other and combining in a system.

Concluding Remarks

Like *Discourse Networks 1800/1900* and *Gramophone, Film, Typewriter, Optische Medien* is a dense and challenging read. It is packed full of historical and technical material, and offers a forceful alternative to the more humanistic readings of technology that are commonly found in mainstream sociology and media studies. At the same time, however, this is a deeply frustrating text. First off, there is a gap between the theoretical assumptions of the opening chapters of the book and the way that these assumptions are applied throughout the following text. What is missing is a sustained theoretical analysis of what optical media actually are (as opposed, say, to visual media), and this means more than simply recounting the histories of optical technologies. This problem comes out strongly in the final two chapters of the book, which focus on the television and computer. According to the logic of Kittler’s opening argument – that optical media produce fixed images that can be seen by the human eye at any point in their transmission – these media should be excluded from analysis for they reduce images to the play of electronic impulses or binary code. But still, with little explanation, Kittler concludes this book by tracing the technical history of first the television (pp. 290–314), and then the computer (in a mere eight pages, pp. 315–23). These chapters could be used to raise interesting questions about the connections between optical and post-optical media, especially as the material bases of post-optical media (the television or computer) are becoming increasingly blurred (especially with emergence of advanced graphical user interfaces). Elsewhere, Kittler implies that this is the case as he says that, with the computer, information is ‘transformed into matter and matter into information’ (1997: 126). But nowhere is this observation woven into his theory of optical media, or used to illustrate the separation of such media from new digital forms and, as a consequence, the question of media materiality (which seems to underpin the main thrust of the book) is left hanging. What is missing is a sustained theoretical account of the changing materiality of media systems with the emergence of digital technologies (particularly following Turing’s invention of the Universal Discrete Machine, see Kittler, 1996). Such an account would help explain exactly why the television and computer cannot be defined as optical media, and why such definition matters in the first place. In short, what is needed is a

tighter crossover between media history and media theory, so that the history informs, or at least enhances, the opening theoretical assumptions of the book. Without this, *Optische Medien* reads as little more than a summary of the emergence and development of different media (the histories of which most advanced readers are likely to already know), rather than as the critical and theoretical text it initially sets out to be.

This may, in part, be because this is a collection of lectures rather than a polished book in its own right. But, if this is the case, one cannot help feeling rather sorry for Kittler's students, for there is no clear narrative or argument that links these lectures together, and as a result they wander from one technical micro-history to another without any clear logic, and finally come to an abrupt end with the medium of the computer (the very point at which things, given Kittler's initial theoretical assumptions, become interesting). If there is a guiding thread to the book, it is the idea that media technologies structure the human body and human agency rather than vice versa. Kittler argues this with force elsewhere (1990a, 1999), but in this text it remains a *theoretical assumption* (Kittler's own term) rather than a fully developed position. What is missing is sustained analysis of the interpenetration of technologies and bodies, and of the interfaces between them (a question that is raised in the opening of 'Theoretical Assumptions', see above, but not pursued in any theoretical detail in the main body of the text). This would require some engagement with, or at least recognition of, other contemporary thinkers in the field, such as Donna Haraway and N. Katherine Hayles. Instead, for the most part, Kittler works in something of a theoretical vacuum (scattered references to McLuhan, Shannon and Virilio aside), and all too often skims across big issues that have been dealt with more fully by thinkers elsewhere. Of particular concern here is the way he deals with the complex connections of media technology to capitalist economy and culture. In other texts, most noticeably in the chapter of *Draculas Vermächtnis* entitled 'The Protected Mode' (translated in Kittler, 1999: 156–68), Kittler draws attention to the power circuitries (both capitalist and bureaucratic) that are embedded within the hardware of new media technologies. But in *Optische Medien* the question of power is nowhere to be found, and there are only fleeting references to the connections of (optical) technology and capitalist development. He mentions, for example, that in Germany the rights to early film technologies were monopolized by large electronic companies and banks (p. 272), and that the world market for film has since been divided into distinct geographical zones (quite often with their own technical differences). But nowhere does he discuss in detail the many ways in which the capitalist market both gives rise to and, at the same time, is enhanced by such media technologies (on this question other thinkers such as Lyotard are far stronger, see Kane, 2003). This might not be much of a problem for readers looking for a technical history and pre-history of photography and film, but for those more interested in the wider social and cultural conditions to which such technologies both contribute and are tied, this text is likely to disappoint.

Note

1. Translations of passages from the book under review are by the authors of the review.

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