Introduction: Media Ecologies

This is a media ecology made in bits of paper: "What abstract poetry tried to achieve is achieved in a similar fashion, though more consistently, by Dadaistic painters, who played off actual real objects by nailing them or gluing them next to each other in a painting. Concepts can be played off against each other much more clearly this way than when their meanings have been translated into words."[1]

Kurt Schwitters was writing about sticking shoes, sausage wrappers, tickets, and wire to a backing board in order to conjure up or discern a relationship among them. Parts no longer exist simply as discrete bits that stay separate; they set in play a process of mutual stimulation that exceeds what they are as a set. They get busy, become *merzbilder*. This patch of text from the master of collage life also makes clear two themes key to this book.

First, the only way to find things out about what happens when complex objects such as media systems interact is to carry out such interactions—it has to be done live, with no control sample. Objects here should also be understood to mean processes embodied as objects, as elements in a composition. Every element is an explosion, a passion or capacity settled temporarily into what passes for a stable state.

Second, the effect of what Schwitters says is to make a fundamentally materialist account of the world. But it is not one that is limited to being naively instrumental or that suffers the blinding effects of positivism. It is a materialism that acknowledges and takes delight in the conceptuality of real objects. All objects have a poetics; they make the world and take part in it, and at the

same time, synthesize, block, or make possible other worlds. It is one of the powers of art or of invention more generally to cross the planned relations of dimensionality—the modes or dynamics that *properly* form or make sensible an object or a process. As it does so, other worlds gently slip into, swell across, or mutate those we are apparently content that we live in.

This book is about such work. It is written at a time when objects have explicitly become informational as much as physical but without losing any of their fundamental materiality. The chapters ahead are about this materiality, how it can be sensed, made use of, and how it in turn makes other elements or compositions tangible. This book asks: what are the different kinds of such qualities in media systems with their various and particular or shared rhythms, codes, politics, capacities, predispositions, and drives, and how these can be said to mix, to interrelate, and to produce patterns, dangers, and potentials? Crucial to such an approach is an understanding that an attention to materiality is most fruitful where it is often deemed irrelevant, in the "immaterial" domains of electronic media. The conceptual dematerialization of art, labor, or information have at particular moments made for revealing and productive epistemological ruses, but more can be done. Drawing on Nietzsche's grounding of thought in materiality, in the thickness of life, in his renowned Polish blood,[2] this book attempts to layer such insights with a sense of their own *fabrication*—a medial will to power made in the ontogenetic, reality-forming nature of a media and in its capacity for connection and use.

The term "ecology" is used here because it is one of the most expressive language currently has to indicate the massive and dynamic interrelation of processes and objects, beings and things, patterns and matter. At the same time, like Schwitters's scraps and scrag-ends, it is a term that obviously has a history.

Media Ecologies, Prior Art

The term "media ecology" is used and in circulation in a number of ways.[3] The term is chosen here because this multiple use turns it into a crossroads. Butting these two words up to each other produces a conjunction of two variables that are always busy with meaning. Their dynamism, however, always arises out of concrete conditions. The virtuality of such conditions, their possible reinvention or alternate state, their pregnancy with change and interre-

lation, is as deeply implied in this concreteness as much as it can be said to be subject to definition.

The term is ambiguous, too, given its number of different current uses. That these uses exist, that the present work does not attempt to find a "new" title for itself, is intended to enhance the way in which this book uses pre-existing objects as being more loaded than the new and innocent, and hence potentially more powerful when dimensions of relationality that are virtual to them (but that perhaps remain hidden) are brought to the fore or potentiated. It is not the intention of this book to spend its entire course fidgeting with a possible hermeneutics of the term, but a brief mapping of its concurrent uses will usefully serve to locate the areas of concern here.

"Media ecology," or more often "information ecology,"[4] is deployed as a euphemism for the allocation of informational roles in organizations and in computer-supported collaborative work. Commonly, it is used as a saccharine term for the "natural" structuring of the microscopic to macroscopic dimensions of class composition and command in a workforce. On the one hand, this is done on a mundane level, such as in the ordering and management of reception staff within an organization, making sure they have the location, communications filter-rating, and availability of all other staff at their fingertips. Of keen interest too in such contexts is how information flows are routed within an organization. So the term often also implies an inter-relationship with knowledge and time management processes, intellectual property regimes, database and software design, content control, access structuring, metadata, archiving, and the use and generation of new document and information types. A third, and related current is how auditing processes and "quality control" extend through informationalization into greater parts of contemporary work-patterns. In other words, the terms "media ecology" and "information ecology" are highly susceptible to interpretation as part of the jargon effluvia of the early twenty-first century. Underlying these terms, however, are key discussions about the development, contestation, and invention of life in the present day. Some of these issues will be discussed here, but somewhat at a tangent to the refrain of life, as a subset of a larger enterprise opportunity in which they are often found.

In a related sense, in that there is something of a shared predisposition to an uncomplicated but rather more spiritually troubled technological determinism, is another use of the term by a current surrounding media commentor and educationalist Neil Postman.[5] Here, "media ecology" describes a kind of

environmentalism: using a study of media to sustain a relatively stable notion of human culture. The intellectual background of this current includes Marshall McLuhan, Lewis Mumford, Harold Innis, Walter Ong, and Jacques Ellul—a vivid set of resources. Here, "ecology" is more usually replaced with the term "environment" or is used as a cognate term where the fundamental difference between the two concepts is glossed over. Echoing differences in life sciences and in various Green political movements, "environmentalism" possesses a sustaining vision of the human and wants to make the world safe for it. Such environmentalism also often suggests that there has passed, or that there will be reached, a state of equilibrium: that there is a resilient and harmonic balance to be achieved with some ingenious and beneficent mix of media. Ecologists focus rather more on dynamic systems in which any one part is always multiply connected, acting by virtue of those connections, and always variable, such that it can be regarded as a pattern rather than simply as an object. At times there is certainly an overlap of interests between this book and this current, particularly in attempts to investigate how media can be said to have certain kinds of causality. However, as with the business-oriented discussions of media and information management, much of the work in this second current is rather too often symptomatic of other, more fundamental shifts in cultural modes: how much longer until the ever-awaited fall of the book? Instead of providing a sing-along chorus to these changes, as the first current does for those parts of life falling under the regime of economics, the latter seeks too often only to trace them with the properly cultivated kind of detached horror. Their conceptual resources, however, have more to offer.

A third strand of use of the term is discernible in some of the most interesting parts of literary studies in recent decades in, for instance, the writings of N. Katherine Hayles,[6] Friedrich Kittler,[7] and others such as the critic and editor Joseph Tabbi.[8] These representatives of a thread of study in which literature becomes a part of a subset of media, and thus of discursive storage, calculation, and transmission systems, have fundamental insights to offer. Such work makes electronic or code-based logical composition and a developed theorization of interaction come into play with cultural analysis and production. Of particular use too is such work's discussion of domains usually roped off as science, its varied histories and philosophies. Such work also often serves to complicate and open up the possibilities to be found in the second thread. The interrelation of Kittler and McLuhan—despite the former's

amused anticipation of the moment when man is occluded and finally ignored by his "extensions"—is clear, for instance.[9] Where these thinkers gain perceptual and methodological power is in the introduction of, broadly speaking, poststructuralist concerns to the fundamentally humanistic, or even intrinsically religious, concerns of the "environmental" approach. It must be said, however, that here the specific term "media ecologies" is used largely either as an aside, or more precisely as something already accessible as a known object of reference. The context of this writing is to take this named thing, to take advantages of this reference in circulation, a scrap of phrase or concept-wrapper, and to make use of it, but also to test it and, one hopes, to extend its precision.

A key reference in doing so will be to make use of a sense in which the term ecology has also been extended in texts by Félix Guattari working among social movements that have themselves made such links. It will be clear from a scan of this book that Guattari, his serial collaborator Gilles Deleuze, as well as writers who have made their own uses of their work, such as Manuel De Landa and Howard Slater,[10] provide a persistent thread of reference. Guattari himself derives a great deal of conceptual ground from the cybernetician and anthropologist Gregory Bateson.[11] Guattari's use of the term ecology is worth noting here, first, because the stakes he assigns to media are rightly perceived as being profoundly political or ethico-aesthetic at all scales. Aligning such political processes with creative powers of invention that demand "laboratories of thought and experimentation for future forms of subjectivation"[12] also poses a demand for the inventive rigor with which life among media must be taken up. Equally, Guattari's repeated linkage and cross-fertilization of the three modes, "mental," "natural," and "social" of ecology[13] within "ecosophy"[14] provides insight into the way that any of these or other modes of an ecology always demand carrying over into another mode, another universe of reference, and always another, in order for these laboratories, whether in texts, persons, movements, or at other scales, to have any function.

Inventory of Parts

In addition to giving some context to the title, an introduction must make available a sense of the ways in which the book will treat its material and the means by which its argument is constructed. Below, each chapter is briefly

summarized, outlining its area of interest and the approaches, ideas, and activities used to mobilize the argument.

Chapter 1: The R, the A, the D, the I, the O: The Media Ecology of Pirate Radio

This chapter focuses on the media ecology of contemporary London-based pirate radio and its interweaving of various high- and low-tech media systems for the broadcast and intensification of music (at the time of writing, primarily garage, hardcore, jungle, and dancehall) and its networks. One of the concerns of this book is to develop arguments for a machine, digital, and electronic aesthetics. Such an aesthetics will take advantage of the perceptual capacities and methodologies of art. It should not, however, suffer the illusion that reflexive powers of invention are its unique purview. Pirate radio in London over the last decade has been the site of immense innovation. One example is the launch of jungle, now a superficially "dated" form but one of the most significant currents to have been produced in recent decades. But alongside music, the way in which the pirates have operated in terms of their mobilization of media systems also make demands on any discussion of media in combination and in excess.

Some of the the key themes to the book are introduced here. Deleuze and Guattari's "machinic phylum" provides for a sensual and technical aesthetics that can be developed in relation to media and music. The chapter also includes a reading of Stuart Hall's "Encoding/Decoding," a text that forms something of an transdisciplinary nodal point in cultural studies, linking as it does to information theory, but which can also be useful if reassessed in relationship to the concept of "Hylomorphism," the critique of a splitting of form and content or matter introduced by Gilbert Simondon and also developed in *A Thousand Plateaus*.[15] Whereas Hall's work has usefully illustrated the way in which media ecologies can be broken down into separate parts of a process, at each point undergoing treatment and filtering by specialization of interests, the machinic phylum provides a way of thinking through how elements of complex medial systems "cooperate" to produce something more than the sum of their parts. This tension, between the discrete or isolatable and the dynamic and multiplicitous, runs through the book. Finding ways to conceptualize and use the interplay between such states, rather than reduce them to two grand isolates, forms one of the key concerns of these chapters.

J. J. Gibson's systems-theorization of material "affordances" in ecological psychology[16] has been, partly since its introduction to design discourse by Donald Norman,[17] a key resource in thinking through the predispositions, capacity to combine, and inherent forcefulness of objects and organisms. Here it is put to work to trace how massively layered and interacting sets of affordances, embedded in technologies, music, and social networks in law and in people, shift and combine as part of thriving, inventive scenes.

The contemporary London pirate scene provides a rich lode of activity for thinking through the interrelation of self-organized cultural activity with media systems. The gendered, fleshy construction of technologized voices, the turntable as hip hop computer, the mobile phone as media assemblage, radio as unfinished project: this chapter follows through a sequence of the medial components of the media ecology establishing a means of understanding their traits and interrelations. The scope of the chapter is to develop the beginnings of the range and possibility of operating in media ecologies. Further chapters are thus set up with the task of working these seams in more detail.

Chapter 2: The Camera That Ate Itself

Where the work on pirate radio attempts to develop an account of multiply interlaced minoritarian use of media systems, chapter 2 narrows down to construct an approach to a single media object and its interconnections. Rather than making an initial mapping an "entire" media ecology, it focuses on an account of media aesthetics grounded in the conditions of a particular imaging technology—John Hilliard's 1971 series of photographs, *A Camera Recording Its Own Condition (7 apertures, 10 speeds, 2 mirrors)*. Following Vilém Flusser's concept of the camera as an "apparatus" that allows for media's being composed of multiple programs or drives, the chapter develops a relation between Karl Marx's observations of machine subjectivity in the *Grundrisse* and the interplay of mathematical, material, and social powers.

One way in which the observation of these powers can be used is, via Antonio Negri, to make a rich and inventively political technological sensibility. Such a sensibility necessarily recognizes the embittering conditions of capitalism, but it is, through its access to the dimensions of possibility coursing through life and media, able to scorn them. The prince of affirmational scorn is, of course, Friedrich Nietzsche. His prescient grounding of philosophy in physiology and matter provides one of the key terms of reference here,

the possibility to develop a medial will to power. This concept provides a more nuanced account of medial drives, allowing them to be recognized as formed in composition with other elements and currents. As such, and as a side effect, it is also able to move beyond the rather static formulation of media determinism. Introducing Nietzschean concepts into the debate emphasizes the materiality of machinic life, a move that also demands other forms of knowledge and capacities of perception. Medial will to power also throws the possibility of any neutral account out of whack. "Perspectivalism," the cognition of the specific loadedness of accounts, drives, and methods, undergirds much of the continuing work. This is one of the key revelations of Hilliard's careful matrix of photographic feedback, but it also leads to an acknowledgment of Friedrich Kittler's development of discourse theory as proposed by Michel Foucault—itself a development of this key Nietzschean theme—to include its constitution by media systems. This chapter, owing much to these last two writers, sets up some of the key tools of the book. It is how they fold in on themselves and each other, what insights they demand and release, that sets its pace.

Chapter 3: How This Becomes That

This chapter contains accounts of the following works: *Embryo Firearms*, by Cornelia Parker—parts withdrawn from the first stages of gun manufacture and made available for viewing under the mechanism of sculpture; *The Switch*, by Jakob Jakobsen—the addition of an on/off switch to a residential area's street lighting; *BITRadio*, by Bureau of Inverse Technology—a pirate radio broadcast device that cuts into an "owned" frequency when pollutant particulates are detected as present in the air; and *by the way*, by Germaine Koh—a radio transmitter that rebroadcasts the sound of a car as it passes the site of an installation, again cutting into the frequency allocated to another broadcaster.

The chapter begins with a story told by Franz Kafka in which a city's phone system is "phreaked" in order to establish a particular social space. The city is layered by a system of interpretation, a code, which allows for certain activities within a wider set of constraints to occur. Following previous chapters the work continues to make an exploration of ways in which "hidden" dimensions of invention and combination are embedded and implicit in particular dynamics and affordances of media systems and their parts. These

core themes of the book are tested and expanded toward a discussion of cultural and political dimensions of industrialized and algorithmic material culture.

While chapter 3 develops ideas about the ways in which the capacities and behaviors of media objects, systems, and dynamics are changed, potentiated, and mobilized when brought into abnormal or inappropriately preformatted relations to each other, it is also useful to make some account of how such "normality" comes about, of its own underlying drives. These drives can be understood as the effect of a certain sort of will to knowledge. Alfred North Whitehead's concept of "misplaced concreteness" as a founding blind spot in modern science and technology is discussed as a form of simultaneously productive and constraining perspectivalism. It is a concept extremely appropriate to media. Whitehead identifies "misplaced concreteness" as Newtonian science's tendency to construct ideally isolated objects as the basis of knowledge. This chapter suggests the conceptual and material problematic of the "standard object," a serial element such as an ISO standard shipping container whose potential has been—for the purposes of particular compositional tasks—utterly stabilized, as being the result of such knowledge. The standard object is presented as providing the opportunity for understanding technicity and organizational systematicity in terms that recognize its affordances, and its crucial agency in modernity. But it is also a mode of knowing and producing that effects limitations on other forms of understanding and use. Such limitations have been crucial to the powers of scientific modes of thought, the means by which they test themselves and clarify the scope of their capacity to speak.[18] At the same time, standard objects are always in combination with other forms of life. They exist only as a "settlement" of powers, affordances, and interpretations. More is always to come.

Chapter 4: Seams, Memes, and Flecks of Identity

Cctv—world wide watch is a sequence of Web pages by Heath Bunting that is published on the irational.org Web site. Users are encouraged to watch feeds from four webcams. If they see a crime, they are to report it on an HTML form. The contents of the form are apparently sent via fax gateway to a nearby police station. In this chapter, each step of the Web site, whether cultural device, imaging system, or protocol, is followed through, as in the chapter on radio, in order to draw out and map its implications.

The chapter opens with a discussion of the memetic theory of cultural evolution. Here it is used to provide a potentially more fine-grained account of medial will to power. Its use is complicated by the misplaced concreteness introduced earlier. As an orthodox scientific theory, memetics suffers the problem of being, at least for the moment, unable to establish a definition of an isolated meme that can be used across cultures. This problem potentially threatens to scupper memetics as a research program. Without being able to be identified, how can a meme be monitored and shown to exhibit certain behaviors and qualities? Here, it is suggested, the *Cctv* site attempts to generate this same "problem" for surveillance. As information travels unevenly from street to image to network to text, what "fleck of identity" can be said to constitute proof? The problematic of the standard object and what escapes it are conjoined. While problematizing one putative standard object, the work relies absolutely on another, the Internet Protocol packet. Thus an opportunity is created to discuss, via "perspectivalism," the scale and mode in which objects can be said to exist or to operate. Chapter 4 asks how an account might be made of the ways in which such scales layer and interoperate in complex media environments, and how each scale comes with and creates its own dimensions of relationality: political, material, aesthetic, and other dynamics, which generate it and from whose perspectives it may be read. (The term "dimensionality" is used because, alongside those of extension that are obvious, any material element also corresponds and belongs to a multitude of other compositional forces and domains that place it in relation to others that may be virtual, affective, historical, and so on.)

After running for a while, the *Cctv* site received a cease and desist e-mail from the owner of one of the cameras it parasited. This letter in turn became part of the site. Such use of "documentation" allows the site to twist the dimensions of relationality that it exists in, to make others come in to view—even when such a view or perspective is owned. It also suggests an interesting set of approaches to material that is not registered as art but is produced in abundance by and around art systems. Another work, *A Media Art (Manifesto)*, founded on an arguably memetic exploitation of media perspectivalism, also exploits this mesh of possibility and provides a means of testing this culture of evidence.

Here, as with all of the chapters, the media ecology's materiality, the connections and uses made, missed, and implied, form a grounding part of the work. Webcams, their aesthetics, distribution, and their use, by, among

others, Wolfgang Staehle, are discussed starting from a simple account of their construction. Software and network systems such as those used by these cameras are usually understood to be value-free, simple utilities. Here, their compositional terms are taken up in order to test their affordances and limits.

It is also useful to locate the work in relation to another of its important contexts, namely, surveillance. Responses and additions to expanding processes of surveillance and an account of the developing typology of forms of monitoring, modulation, and control are also discussed in terms of their limits and powers, and the ways in which these are messed with or amplified by their existence and production within multiple dimensions of relationality. An aesthetics of layering, of adding complication and filtering, and of joining processes to networks is proposed, alongside that of forces and powers.

As a result of the several relations of dimensionality within which the work is seen as being made and operative, this chapter is rather longer than the others. Taking such work to exist in an expanded, "ecological" sense demands an effort at a making a nonreductive network of interpretation, with the unfortunate possible result of a certain arduousness. Children make their way around the world by responding with a ceaseless "why" to every explanation or grunt offered them. This chapter perhaps betrays the effects of the main methodological influences in my life at the moment, but I hope it benefits from the rather childish insistence on being able to take every path in a labyrinth simultaneously.

It is also in this sense, but within a much slower media ecology—that of books, one that ostensibly pays less attention to memetic buzz—that the present text is offered. An additional note should also be made on the way the following chapters at times employ different speeds, frames of reference, and narratologically different "voices." It is often customary in academic writing to spend pages of tangled and anguished excuse before the author dares drop a joke, which is then hurriedly attributed to someone else. This text itself is in a sense also an attempt at something akin to the paintings described by Schwitters. How can words, concepts, quotations, footnotes, the mechanics of a book, and the writings and accounts that evade them themselves be nailed down or glued to a page in a way that makes them reverberate? But more, how can conceptual worlds, different material practices, along variously restrained or absolutely *rude* interdisciplinary dynamics be satisfactorily brought together in a way that seeks not to develop a necessarily unifying

framework, but to hold in its hands for a few moments an explosion of activity and ideas to which it hopes to add an echo?

This last is a question of writing and of language itself as part of various media ecologies, one that provides an underlying question to the whole book. The question of language returns in several of the following chapters, in relation to and as materiality, as Deleuze and Guattari's formulation as "minor," or as the ur-form of a standard object, as a test case for meme theory and as the practice of MCs in the synthesizing of voices in the media ecology of pirate radio. It is a question that has the flexibility to be "reflexive," that is, to operate in second-order terms on itself. That is an advantage of writing. But in a consideration of a media ecology, it is also necessary to ask where these language-embedded and language-driven concepts and accounts go—where do the words end up? How do they operate as an engagement with a particular media ecology? In limited terms, they go into the hands of a few persons and are filed or registered in a number of archives and documentation and audit systems. Thankfully, they go too into the hands of readers who will make their own uses of them, even if only to soak up the coffee needed to keep themselves awake. A more fundamental question is how writing operates in relation to the other kinds of activity discussed. In this case, the question is not how these activities can somehow acheive an isomorphic relationship in which one confirms and absolves the other, but rather to find ways in which the one can trigger, make strange, and intensify the kinds of working and thinking done in each and in both.