

A History and Theory Reader

new media

old media

Edited by Wendy Hui Kyong Chun & Thomas Keenan



new	media
old	media

A History and Theory Reader

Edited by

Wendy Hui Kyong Chun &
Thomas Keenan

0098031

Published in 2006 by
Routledge
Taylor & Francis Group
270 Madison Avenue
New York, NY 10016

Published in Great Britain by
Routledge
Taylor & Francis Group
2 Park Square
Milton Park, Abingdon
Oxon OX14 4RN

© 2006 by Taylor & Francis Group, LLC
Routledge is an imprint of Taylor & Francis Group

Printed in the United States of America on acid-free paper
10 9 8 7 6 5 4 3 2 1

International Standard Book Number-10: 0-415-94223-3 (Hardcover) 0-415-94224-1 (Softcover)
International Standard Book Number-13: 978-0-415-94223-2 (Hardcover) 978-0-415-94224-9 (Softcover)
Library of Congress Card Number 2005014486

No part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Library of Congress Cataloging-in-Publication Data

New media, old media : a history and theory reader / edited by Wendy Hui Kyong Chun, Thomas W. Keenan.

p. cm.

Includes bibliographical references and index.

ISBN 0-415-94223-3 (hardback : alk. paper) -- ISBN 0-415-94224-1 (pbk. : alk. paper)

1. Mass media--History. I. Chun, Wendy Hui Kyong, 1969- II. Keenan, Thomas, 1959-

P90.N52 2005
302.23'09--dc22

2005014486

informa
Taylor & Francis Group
is the Academic Division of Informa plc.

Visit the Taylor & Francis Web site at
<http://www.taylorandfrancis.com>
and the Routledge Web site at
<http://www.routledge-ny.com>

Acknowledgments

The idea for this volume stemmed from an international conference entitled *The Archaeology of Multi-Media* at Brown University in November 2000, which was generously supported by the Malcolm S. Forbes Center for Research in Culture and Media Studies, the Department of Modern Culture and Media, the Office of the Provost, the Pembroke Center for Teaching and Research on Women, the Scholarly Technology Group, the Multimedia Lab, the Watson Institute for International Studies, and the Dean of the College. We thank all of the sponsors, as well as Alexander Russo, Susan McNeil, and Liza Hebert, without whose hard work the conference would never have happened. We are also grateful to James Der Derian, Julia Flanders, and the entire faculty of the Department of Modern Culture and Media for their invaluable contributions to the discussion.

Thanks to them and to Melanie Kohnen for her excellent work in indexing and formatting the text. The path from the conference to this collection has been facilitated by grants by the Malcolm S. Forbes Center and Brown University's Office of the Vice President for Research, as well as a fellowship from the Radcliffe Institute for Advanced Study at Harvard University and a Henry Merritt Wriston Fellowship from Brown. Thanks to Peter Krapp for his translations. We also thank our editor at Routledge, Matthew Byrnie, for his interest in this project and for his supreme patience and support.

Some of the chapters in this volume have been previously published, and we are grateful to the original publishers and copyright holders for their permission to reprint them.

Thomas Y. Levin, "Tones from out of Nowhere": Rudolph Pfenninger and the Archeology of Synthetic Sound," *Grey Room* 12 (Summer 2003). ©2003 Thomas Y. Levin. Used by permission.

Vannevar Bush, "Memex Revisited," *Science Is Not Enough* (New York: William Morrow & Co., 1967). ©1967, William Morrow & Co. Used by permission.

Cornelia Vismann, "Out of File, Out of Mind," *Interarchive: Archivarisches Praktiken und Handlungsräume im zeitgenössischen Umfeld/ Archival Practices and Sites in the Contemporary Art Field*, Ed. Beatrice von Bismarck et al. (Köln: Verlag der Buchhandlung Walther König, 2002). ©2002 Verlag der Buchhandlung Walther König. Used by permission.

Wolfgang Hagen, "The Style of Sources: Remarks on the Theory and History of Programming Languages," first published in German as "Der Stil der Sourcen: Anmerkungen zur Theorie und Geschichte der Programmiersprachen." In *Hyperkult*, Ed. W. Coy, G. C. Tholen, and R. Warnke (Basel u.a.: Stroemfeld 1997). ©Wolfgang Hagen. Used by permission.

Alexander R. Galloway, "Protocol vs. Institutionalization," *Protocol* (Cambridge: MIT, 2004). ©2004, MIT. Used by permission.

- Tara McPherson, "Reload: Liveness, Mobility, and the Web," *Visual Culture Reader 2.0*, Ed. Nicholas Mirzoeff (New York: Routledge, 2003). ©2003, Routledge. Used by permission.
- Lev Manovich, "Generation Flash," "Generation Flash," *rhizome* (www.rhizome.org), 2002. ©2002 Lev Manovich. Used by permission.
- Julian Dibbell, "Viruses Are Good For You," *Wired* 3.02 (February 1995). ©1995, Julian Dibbell. Used by permission.
- Anders Michelson, "The Imaginary of the Artificial: Automata, Models, Machinics — On promiscuous modeling as precondition for poststructuralist ontology," in *Reality/Simulacra/Artificial: Ontologies of Postmodernity*. Ed. Enrique Larreta (Rio de Janeiro: Universida de Candido Mendes, 2003). ©2003, Universida de Candido Mendes. Used by permission.
- An earlier version of Mary Ann Doane, "Information, Crisis, and Catastrophe" appeared in *Logics of Television: Essays in Cultural Criticism*. Ed. Patricia Mellencamp. Bloomington: Indiana UP, 1990. ©1990, Indiana UP. Used by permission.
- A longer version of Geert Lovink, "Deep Europe: A History of the Syndicate Network" appeared in *My First Recession* (Rotterdam: V2_Publishing/NAi Publishers, 2003). ©V_2Publishing/NAi Publishers. Used by permission.
- Vicente Rafael, "The Cell Phone and the Crowd: Messianic Politics in the Contemporary Philippines," *Public Culture* 15:3 (2003). ©2003, Duke UP. Used by permission.
- Lisa Nakamura, "Re-mastering the Internet: the Work of Race in the Age of Digital Reproduction," *Cybertypes* (NY: Routledge, 2003). ©2003, Routledge. Used by permission.
- Mark Wigley, "Network Fever," *Grey Room* 4 (Summer 2001). ©2001, Mark Wigley. Used by permission.

Contents

	Acknowledgments	ix
	Introduction: Did Somebody Say New Media? WENDY HUI KYONG CHUN	1
Part I	Archaeology of Multi-Media	11
1	Early Film History and Multi-Media: An Archaeology of Possible Futures? THOMAS ELSAESSER	13
2	Electricity Made Visible GEOFFREY BATCHEN	27
3	“Tones from out of Nowhere”: Rudolph Pfenninger and the Archaeology of Synthetic Sound THOMAS Y. LEVIN	45
Part II	Archives	83
4	Memex Revisited VANNEVAR BUSH	85
5	Out of File, Out of Mind CORNELIA VISMANN	97

6	Dis/continuities: Does the Archive Become Metaphorical in Multi-Media Space? WOLFGANG ERNST	105
7	Breaking Down: Godard's Histories RICHARD DIENST	125
8	Ordering Law, Judging History: Deliberations on Court TV LYNNE JOYRICH	133
Part III	Power-Code	155
9	The Style of Sources: Remarks on the Theory and History of Programming Languages WOLFGANG HAGEN	157
10	Science as Open Source Process FRIEDRICH KITTLER	177
11	Cold War Networks or Kaiserstr. 2, Neubabelsberg FRIEDRICH KITTLER	181
12	Protocol vs. Institutionalization ALEXANDER R. GALLOWAY	187
13	Reload: Liveness, Mobility, and the Web TARA MCPHERSON	199
14	Generation Flash LEV MANOVICH	209
15	Viruses Are Good for You JULIAN DIBBELL	219
16	The Imaginary of the Artificial: Automata, Models, Machinics—On Promiscuous Modeling as Precondition for Poststructuralist Ontology ANDERS MICHELSEN	233
Part IV	Network Events	249
17	Information, Crisis, Catastrophe MARY ANN DOANE	251
18	The Weird Global Media Event and the Tactical Intellectual [version 3.0] MCKENZIE WARK	265
19	Imperceptible Perceptions in Our Technological Modernity ARVIND RAJAGOPAL	277
20	Deep Europe: A History of the Syndicate Network GEERT LOVINK	287

21	The Cell Phone and the Crowd: Messianic Politics in the Contemporary Philippines VICENTE L. RAFAEL	297
Part V	Theorizing “New” Media	315
22	Cybertyping and the Work of Race in the Age of Digital Reproduction LISA NAKAMURA	317
23	Network Subjects: or, The Ghost is the Message NICHOLAS MIRZOEFF	335
24	Modes of Digital Identification: Virtual Technologies and Webcam Cultures KEN HILLIS	347
25	Hypertext <i>Avant La Lettre</i> PETER KRAPP	359
26	Network Fever MARK WIGLEY	375
	Afterword: The Demystifica- <i>hic</i> -tion of In- <i>hic</i> -formation THOMAS KEENAN	399
	Contributors	409
	Index	413

Introduction

Did Somebody Say New Media?

Wendy Hui Kyong Chun

When the first encounter with some object surprises us, and we judge it to be new, or very different from what we formerly knew, or from what we supposed that it ought to be, that causes us to wonder and be surprised; and because that may happen before we in any way know whether this object is agreeable to us or is not so, it appears to me that wonder is the first of all the passions; and it has no opposites, because if the object which presents itself has nothing in it that surprises us, we are in nowise moved regarding it, and we consider it without passion.

—Rene Descartes, *The Passions of the Soul*, article 53

To be new is peculiar to the world that has become picture.

—Martin Heidegger¹

Emergence is always produced through a particular stage of forces.

—Michel Foucault²

The term “new media” came into prominence in the mid-1990s, usurping the place of “multi-media” in the fields of business and art. Unlike its predecessor, the term “new media” was not accommodating: it portrayed other media as old or dead; it converged rather than multiplied; it did not efface itself in favor of a happy if redundant plurality.³ The singular plurality of the phrase (“new media” is a plural noun treated as a singular subject) stemmed from its negative definition: it was not mass media, specifically television. It was fluid, individualized connectivity, a medium to distribute control and freedom. Although new media depended heavily on computerization, new media was not simply “digital media”: that is, it was not digitized forms of other media (photography, video, text), but rather an interactive medium or form of distribution as independent as the information it relayed.

Although the term “new media” has been used since the 1960s, it rose (and arguably fell) with dotcom mania, cyberspace, and interactive television. The signs of new media’s difficult times: the

New York New Media Association folded in 2003, its assets purchased by the Software & Information Industry Association and the address newmedia@aol.com given back to Mark Stahlman (who claims to have coined “new media”—in 2004 he was pushing the phrase “3-space”); clickz.com bought newmedia.com; many new media groups within corporate structures (Apple, Gannett, etc.) and many new media companies disappeared. Importantly, this demise does not coincide with the demise of media once called new, but rather with industry’s quest to survive and thrive after the “new economy” bubble and after new media’s wide acceptance. Does it, after all, make sense to have a New Media Group within Apple after 2003? New media’s decline in academia has been less precipitous, although the slippery term “emerging media” has gained momentum. From the start, new media studies sought a critical middle ground between commercial propaganda and intellectual conservatism. Film and television scholars, artists and humanities scholars eager to explore the potential of networked computation without necessarily engaging prior traditions of hypertext or humanities computing supported the term “new media.”⁴ Also, as the utopianism or dystopianism of early net studies became painfully clear, some scholars further distanced themselves by separating new media studies from “cyberstudies” (thus the rapid disappearance of William Gibson’s fiction from new media courses and readers). Cyberspace, not new media, was the mistaken term. Most importantly, new media has traction because of programs and jobs perpetuated in its name—it is a field with its own emerging canon and institutional space.

Much critical debate within new media studies has centered on: What is/are new media? Is new media new? What is new about new media?—questions arguably precipitated by the widespread acceptance of the term itself.⁵ Regardless, these debates produced many insightful histories for and theories of new media, which redrew disciplinary borders. For instance, Jay Bolter and Richard Grusin in *Remediation: Understanding New Media* linked all media from the Renaissance to Virtual Reality through “remediation,” “immediacy,” and “hypermediacy.”⁶ Others focused more closely on the “new” to establish historical continuity. Lisa Gitelman and Geoffrey B. Pingree in *New Media 1740–1915* (part of David Thorburn et al.’s *Media in Transition* series, which seeks to understand the aesthetics of cross-historical media transition) argued, “all media were once ‘new media’” and “emergent media may be seen as instances of both risk and potential.”⁷ Still others, such as Lev Manovich in *The Language of New Media*, expanded the definition of new media through formalist principles indebted to historical analysis. *The Language of New Media* emphasized the importance of programmability rather than computer display and distribution, while at the same time viewing new media as the product of the merging of computation with media storage (most importantly film). Following Manovich, Noah Wardrip-Fruin and Nick Montfort have compiled the comprehensive and definitively titled *The New Media Reader*, documenting and indeed creating new media history as the progressive marriage of computation and art, a marriage that produced the computer as an expressive medium.

All these texts are important and have influenced many of this collection’s chapters, but they all—inadvertently, purposefully, or ironically—grant computation, new or media a strange stability and obscure new media’s commercial history. Computation may be key to new media, but computation does not automatically lead to new media or to software. No one, as Wolfgang Hagen argues in “The Style of Sources: Remarks on the Theory and History of Programming Languages,” meant to create the computer as we know it, and the computer emerged as a media machine because of language-based software. This “communicative demand,” he argues, came from all sides: economic, organization of labor, symbolic manipulation. In terms of media, histories that reach from the Renaissance to the present day elide the fact that: one, although the word medium does stretch across this time period, its meaning differs significantly throughout; two, the plural-singular term “media” marks a significant discontinuity. According to the *Oxford English Dictionary* (OED), media stems from the Latin *medium* meaning middle, center, midst, intermediate course, intermediary (hence medium/average height and spiritual medium). In the fifteenth century, medium emerged as an intervening substance in English, stemming from the post-classical Latin phrase *per medium*

(through the medium of) in use in British sources since the thirteenth century. The term “media” (as opposed to mediums or medium) is linked to mass media: in the eighteenth century, paper was a medium of circulation, as was money; in the nineteenth century, electricity was a medium; in the late nineteenth and twentieth centuries, media emerged as the term to describe inexpensive newspapers and magazines and, in an affront to English and Latin, became a singular noun. The rise of media coincided with its portrayal as transparent rather than intervening, and although Friedrich Kittler himself does not engage the etymology of media, his argument in *Gramophone, Film, Typewriter* that these media displaced writing as the universal storage medium maps nicely onto the emergence of the term “media.”⁸ To be clear, to claim that media is an important discontinuity that calls into question fluid histories from the Renaissance printing press or perspectival painting to the present is not to claim that no overarching argument can ever be made about mediums or media. It is to say that any such argument must grapple with the ways that mediums have changed, rather than concentrating on the remarkable yet overdetermined similarities between entities now considered media.

The term “new” is also surprisingly uninterrogated. Those debunking the newness of new media often write as if we could all agree on or know the new, as if the new were not itself a historical category linked to the rise of modernity. The new should have no precedent, should break with the everyday, and thus should be difficult, if not impossible, to describe. If something is new—that is known or made for the first time—then we should, according to Descartes in his influential definition of the new, fall into a passionate state of wonder or surprise. The “new,” however, is described and explained all the time and describing something as “new” seems a way to dispel surprise or to create it *before* an actual encounter (actually using the Internet, for instance, is banal in comparison to its pre-mass usage filmic, televisual, and print representations). To call X “new” is to categorize it, to describe and prescribe it, while at the same time to insist that X is wonderful, singular, without opposite or precedent. This insistence more often than not erases X’s previous existence (case in point, the “discovery” of the “new world”). The Internet was not new in 1995, the year it arguably became new. Its moment of “newness” coincided less with its “invention” or its mass usage (in 1995 significantly more Americans had heard about the Internet than actually been on it), but rather with a political move to deregulate it and with increased coverage of it in other mass media. We accepted the Internet or new media as new because of a concerted effort to make it new, because of novels, films, television news programs, advertisements, and political debates that portrayed it as new, wondrous, strange.⁹

To be new, however, is not simply to be singular. The new contains within itself repetition: one of the OED definitions of it is “coming as a resumption or repetition of some previous act or thing; starting afresh” (this notion of repetition is also contained in the word revolution). “Make it new” is a stock modernist phrase and it exemplifies the type of repetition enabled by the new—the transformation of something already known and familiar into something wonderful. The new is “fresh, further, additional,” “restored after demolition, decay, disappearance, etc.” (OED). Along these lines, the Internet seemed to make old theories, dreams, and structures new again, revitalizing Athenian democracy, the bourgeois public sphere, deconstruction and capitalism. The Internet seemed to renew the new, and technology, with its endless upgrades, is relentlessly new. This “making new” reveals the importance of interrogating the forces behind any emergence, the importance of shifting from “what is new” to analyzing what work the new does. What enables anything to be called new and How does the new affect other fields, which it simultaneously draws from and repudiates?

To answer these questions, this collection brings together scholars working in new media, media archaeology, film, television, cultural and literary studies to investigate new media and the political, cultural, economic, and epistemological forces necessary to its emergence. Divided into five sections—Archaeology of Multi-Media, Archives, Power-Code, Network Events and Theorizing “New” Media—it argues that these forces cut across fields of race and sexuality, create new global political events, and impact, rather than solve, political problems. The texts in the “Archaeology

of Multi-Media” section re-think histories of “older” media, such as film, photography, sound and physical space in light of the computer screen, while at the same time analyzing the importance of these media to the emergence “new media.” The texts in the second section, “Archives,” examine the continuing relevance (or not) of archives to digitized media. The chapters in “Power-Code” analyze code and its relationship to the circulation knowledge and “empowerment,” for new media depends on the computer’s transformation from a calculator into a programmable communications medium. “Network Events” further questions knowledge and power, but rather than focusing on code or the computer, looks more broadly at the uses of networked media and transformations in media events. The texts in the final section, “Theorizing ‘New’ Media,” address the theoretical challenges posed by new media.

Rather than present a unified theoretical front or create an inevitable historical trajectory, this book connects forms of media analysis that have usually been separated. It does so not for the sake of diversity, but rather to map the field of new media studies, for this mapping necessitates bringing together continental European media archaeologists, who have tended to concentrate on the logics and physics of hardware and software, and Anglo-speaking critics, who have focused on the subjective and cultural effects of media, or on the transformative possibilities of interfaces. Media Archaeology, indebted to the German scholar Friedrich Kittler, as well as the French Michel Foucault and the Canadian Marshall McLuhan, excavates the technological conditions of the sayable and thinkable and strongly critiques narrative media history. As Wolfgang Ernst explains, “media archaeology describes the non-discursive practices specified in the elements of the techno-cultural archive. Media archaeology is confronted with Cartesian objects, which are mathematisable things . . .”¹⁰ However, if cultural studies has been criticized for not engaging technology rigorously, media archaeologists often appear as “hardware-maniac, assembler-devoted and anti-interface ascetics, fixed to a (military) history of media without regard to the present media culture.”¹¹ They often seem blind to content and user practices. British, U.S., and Australian cultural/media studies’ insistence on technology as experienced by users highlights the importance of economics, politics, and culture and relentlessly critiques technological determinism. Refusing to adjudicate this debate, this book brings together the significant texts of both approaches to chart their surprising agreements and disagreements, common assumptions and uncommon insights, and through these map the field’s possibilities and blindnesses.

Approaches to the Multi-Media Archive

The archive is the first law of what can be said, the system that governs the appearance of statements as unique events. But the archive is also that which determines that all these things said do not accumulate endlessly in an amorphous mass, nor are they inscribed in an unbroken linearity, nor do they disappear at the mercy of chance external accidents; but they are grouped together in distinct figures, composed together in accordance with multiple relations, maintained or blurred in accordance with specific regularities . . . it is that which differentiates discourses in their multiple existence and specifies them in their own duration. . . .

This term [archaeology] does not imply the search for a beginning; it does not relate analysis to a geological excavation. It designates the general theme of a description that questions the already-said at the level of its existence: of the enunciative function that operates within it, of the discursive formation, and the general archive system to which it belongs. Archaeology describes discourses as practices specified in the element of the archive.

—Michel Foucault¹²

The “Archaeology of Multi-Media” and “Archives” sections take on Michel Foucault’s influential archaeology of knowledge. Treating knowledge-power as a grid, Foucault’s archaeology explores the ties between elements of knowledge and power.¹³ It seeks to defuse the effects of legitimacy by revealing what makes something legitimate and what allows for its acceptance. Archaeology examines the enunciative functions of the “already-said” and its relationship to the general archive, where the archive is “the system that governs the appearance of statements as unique events” that “differentiates discourses in their multiple existence and specifies them in their own duration.” Discourses are thus objects and practices that obey particular rules. Nothing, Foucault argues, can appear as knowledge if it does not conform to the rules and the constraints of a given discourse in a given epoch; and nothing functions as power unless its exertion complies with the procedures, instruments, means or objectives valid in more or less coherent systems of knowledge.¹⁴ Archaeology, as a systematic description of the discourse-object, focuses on regularities rather than moments of “originality.”¹⁵ It does not wholly ignore the unique, the original or the moment of “discovery,” but rather, even within these statements, it reveals the regularity that enables them and their differentiation. Archaeology is also fundamentally anti-humanist: it decenters consciousness by refusing a history of continuity, by refusing anthropology.¹⁶

Following Foucault, to pose the question of the archaeology of multi-media or multi-media as archive is to question the relationship between multi-media and knowledge, multi-media and power. However, it is also to question Foucault’s privileging of documents and discourse (Foucault argues that the emergence of this new history coincides with a crisis of the “document.” Instead of treating documents as mute but decipherable traces of consciousness, history now treats documents as *monuments*), for media, as Kittler has argued, limit Foucault’s project: “all of his [Foucault’s] analyses end immediately before that point in time at which other media penetrated the library’s stacks [because] Discourse analyses cannot be applied to sound archives or towers of film rolls.”¹⁷ Multi-media, through its simulacral multiplicity, arguably dis- or re-replaces documents (treated as monuments or otherwise); yet documents (as non-digitally manufactured texts) both disappear *and* proliferate (as heuristic devices). These simulacral differences also displace archival distinctions and perhaps archive the term “archive.” Thus, to put these sections under the rubric of “media archaeology” and to address this in writing is perhaps already too limited. However, rather than simply extending Foucault or Kittler (even though extension nicely implies distortion and disfiguration), these chapters use scholarly, popular, and technical notions of archaeology and archives as a point of departure in order to examine the relationship between memory and media, storage and mass dissemination, past and present. As well, these chapters register the signs and clues of our media and critical situation, as computers seem to be emerging as a new universal medium, changing power-knowledge within universities and beyond.¹⁸ So, even given Kittler’s critique, the “return” to archaeology seems itself overdetermined: archaeology’s privileging of rules and statements dovetails nicely with the operation of higher-level software languages—computers and archaeology reinforce each other’s truths.

The articles in the first section, “Archaeology of Multi-Media,” rethink the archaeology of “older media,” such as film, photography and sound, while also investigating the importance of these media to the emergence of the digital as multiple. In “Early Film History and Multi-Media: An Archaeology of Possible Futures?” Thomas Elsaesser uses digitization as an impossible zero degree from which to displace himself from habitual ways of thinking and interrogate the ways in which early cinema challenges film history’s “from . . . to” narratives. With multi-media, he argues, the history of the cinema looks more like the archaeology of the Panopticon. Geoffrey Batchen in “Electricity Made Visible” argues that new media has a history as old as modernity itself. Computation and media storage met in the nineteenth century through the intersection of photography, Babbage’s difference engine, and telegraphy. Thomas Levin in “‘Tones From Out of Nowhere’: Rudolph Pfenninger and the Archaeology of Synthetic Sound” argues, through a reading of the early twentieth

century synthetic sound projects of Rudolf Pfenninger, that the loss of indexicality, which many associate with digitization, has a longer, analog history.

The "Archives" section explores more closely the possibilities and limitations of a multi-media archive, focusing on the relationship between archives, power and narratives of progress. It moves from Vannevar Bush's optimistic post-World War II view in "Memex Revisited" of future information processing technology as saving us from our ever-expanding archives (its unconsulted records threaten to bury us and our "civilization") to Cornelia Vismann's critical post-reunification assessment of such emancipatory dreams and of the physics and the symbolics of bureaucratic files in "Out of File, Out of Mind." The next chapter, "Dis/continuities: Does The Archive Become Metaphorical in Multi-Media Space?", contains Wolfgang Ernst's plea to archive the term "archive." According to Ernst, the computer has "an *arché*, a (archeo-)logics of its own" and does not order itself according to human perception: the term "multi-media" is a conceit produced for humans. In contrast, Richard Dienst in "Breaking Down: Godard's Histories" offers a materialist analysis of the human perception of images, digital or otherwise, through a reading of Jean-Luc Godard's *Histoire(s) du Cinéma*. To see an image as an image, Dienst argues, requires an enormous collective and cumulative effort over many millennia: images remain to be seen and it is our task to use images in the work of remembrance, critique and imagination in order to change the scope of life. Lastly, Lynne Joyrich in "Ordering Law, Judging History: Deliberations on Court TV" examines the way in which television can serve as a "mass" archive that scandalously spreads scandalous knowledge. Concentrating on Court TV (its time and its myriad parallels to law and soap operas), she argues that it can help us understand how "through various cultural and media forums... processes of knowing are offered and refused."

Power-Code-Network

Rather than focusing on the term "archaeology," the next three sections of the collection, "Power-Code," "Network Events," and "Theorizing 'New' Media" further examine the term "knowledge," for the rise of new media is intimately linked to the conflation of information with knowledge. Although the term "information revolution" preceded the Internet, information as revolutionizing capitalist society was not entirely regularized—popularized and accepted as true—until the Internet emerged as the mass medium to end mass media.¹⁹ This regularization made banal and perverted Foucault's own insights. If once the coupling of knowledge with power seemed critical or insightful, "knowledge is power" (different, as Thomas Keenan has argued, from knowledge-power) became the motto for Etrade.com and for the "knowledge economy" more generally.²⁰ "Knowledge is power" posits information as a commodity, but what is information and how did it gain such significance?

What is information? The only quantifiable definition of information stems from telecommunications engineering and seemingly has no relation to meaning and knowledge. Claude Shannon defines information as the entropy of a discrete set of probabilities; Warren Weaver, interpreting Shannon's work for a lay public, defines information as a measure of "freedom of choice," for information is the degree of choice (possible number of messages) within a system. As such, information is essential to determining the wire capacity necessary for relatively error-free transmission. As N. Katherine Hayles has argued in *How We Became Posthuman*, through this engineering definition, "information lost its body"—it became "extractable" from actual things.²¹ Of course, defining information in this manner also *created* information, transforming its meaning from the process of forming a person or a thing to something that can be transferred and processed (hence, although information lost a body, it was/is never entirely disembodied, since it always exists in a material form). But, we are still some ways from information as a *meaningful* non-exclusive commodity that defies laws of exchange and retroactively defines all storable knowledge as commodities.

Information transmission does, however, get us to modern, stored-program computers and thus to the rise of software, algorithm-based data-analysis, and information as potentially meaningful stored-data rather than entropy. The mostly unquestioned relationship between computers and information stems from the necessity to transport data from one location to another within a computational device. The coming together, Wolfgang Hagen argues, of von Neumann and Shannon. From this transmission or metaphorization (a metaphor is literally a transfer), software and information have become portable entities and computers (human or otherwise) information processors. Software—this thing extracted from hardware that Kittler has argued does not exist (everything comes down in the end to voltage differences)—has been crucial to the creation of the information society, to the new economy, to workers as knowledge workers or symbolic analysts who manipulate information. Software as commodity is key to knowledge as power: as the power to earn a good wage in emerging markets, if no longer necessarily in developed ones. Moreover, without computers understood as software-hardware hybrids, information would not be valuable: without the ability to process “information” efficiently, information would languish as so many factors to confuse human analysis (hence the promise and limitations of Bush’s analog memex). Software/information as a commodity has depended on expanded intellectual property rights and encryption. If information’s rampant reproducibility (a computer reads by writing elsewhere) once seemed to render intellectual property obsolete, new laws and technology make “fair use” almost impossible. Against these phenomena, free and open source software movements have emerged, movements that Kittler, in “Science as Open Source Process,” sees as key to the ongoing survival of the university.²² By emphasizing the free circulation of information, the Free Software Movement moves knowledge towards what Jean François Lyotard predicted it would be in a society of freely accessible information: the creative use of information. Information itself, Lyotard argued, is only valuable in a zero-sum game.²³

The chapters in “Power-Code” take on “knowledge-power,” offering parts of its grid, analyzing the rise of code and its relationship to the circulation knowledge and “empowerment”—issues posed in the previous section. Wolfgang Hagen, in “The Style of Sources: Remarks on the Theory and History of Programming Languages,” stresses the importance of unarchivable and unforeseen programming languages to the transformation of the computer into a media machine. Friedrich Kittler, in “Science as Open Source Process” and “Cold War Networks or Kaiserstr. 2, Neubabelsberg,” examines the institutional structures necessary for the emergence of software and cold war information networks. Tracing the relationship between power and code, Kittler provocatively argues that academic freedom will fall or stand with open source, for the free circulation of knowledge—without patents and copyrights—has always been crucial to universities. Hardware, on the other hand, is allied with secrecy, the military, and control.

The next five chapters debate the question of control, specifically the relationship between programming and agency, surfing and using. Lev Manovich in “Generation Flash” argues that programming in the early 2000s moved a new generation of artists away from the old and tired act of postmodern citation towards a new romanticism and a new modernist aesthetic of clean lines and transparent causality. In contrast to this vision of romantic creation, Alexander Galloway in “Protocol vs. Institutionalization” examines the control structures necessary for the so-called open circulation of knowledge, from theoretically open organizations comprising members of a relatively homogenous social class of techno-elites to TCP/IP, the protocol driving the Internet. The net, he argues, is founded on control, not freedom. Tara McPherson in “Reload: Liveness, Mobility, and the Web” weighs in on this debate by emphasizing the web as a technology of experience, rather than simply an effect of software. While critiquing the overblown promises made by commercial prophets of “convergence” during dotcom mania, McPherson argues that “choice,” “presence,” “movement,” and “possibility” are all terms that could describe the experience of web surfing. Julian Dibbell, writing during the heyday of artificial life, returns us to the question of code, but through alien code: viruses whose assertive presence drives fear in the heart of users who believe

they control their machines. Viruses, he argues, operate both as a virus-maker's signature and as a self-replicating program that denies authorship. Lastly, Anders Michelson in "The Imaginary of the Artificial: Automata, Models, Machinics—On Promiscuous Modeling as Precondition for Post-structuralist Ontology" argues that although the computer is based on "the image of man," it leads elsewhere. The "machinic" is now creative. It constitutes what he calls *the imaginary of the artificial*, "an inexplicit and poorly understood impetus for the creative articulation of the artificial."

The next section, "Network Events" further pursues knowledge-power, but rather than focusing on code or the computer, looks more broadly at global information flows. Transmission and "knowledge is power," it stresses, are not limited to computer buses or high-speed data networks. Concentrating on catastrophic media events and on the ways in which the media create a "we" and a "they," this section examines the possibilities and limitations of global mass media. It also delves into the various temporalities of media and mediated life, from Mary Ann Doane's analysis of television's reliance on the catastrophe (catastrophe allows U.S. television to mimic the experience of colliding with the real and to deny its reliance on capitalist economics) to McKenzie Wark's analysis of the limits of time-consuming traditional scholarship in "The Weird Global Media Event and the Tactical Intellectual [version 3.0]." According to Wark, catastrophic images are weird global media events: sudden irruptions of raw facticity that can redraw boundaries and reveal the time and power of the uneven media space in which they take place.

The next three chapters focus on the "communities" or audiences created by global media, as well as on popular and critical assumptions about the nature of technology and technological power. "We" may be unable to recognize the power of technology precisely because "we" want to see it as a direct cause and because "we" are formed in response to technology: "we" essentialize and fetishize technology, rather than examine the ways it amplifies forms of power with which "we" are already familiar. Arvind Rajagopal makes this point in "Imperceptible Perceptions in Our Technological Modernity," arguing that technology has become fetishized as the cause of racial and cultural difference in popular rhetoric and critical theory; but, as the 9/11 airplane flying terrorists and more positively activism on the part of "untouchables" in India reveals, global technology leaves no outside, leaves no one untouchable. Geert Lovink in "Deep Europe: A History of the Syndicate Network" exposes the fallacies of global communications as naturally solving the problems of history through a reading of Syndicate, an email list that sought to bridge East-West (Europe) through the notion of a "Deep Europe." Vicente Rafael in "The Cell Phone and the Crowd: Messianic Politics in the Contemporary Philippines" also interrogates media essentialism, power and dreams of contact, but through a reading of People Power II. Contemporary Filipino middle-class fantasies of the cell phone and the crowd, he argues, render the masses voiceless by viewing the cell phone and the crowd as simple transmitters of bourgeois justice.

The last section "Theorizing 'New' Media" pursues knowledge-power by investigating new media's impact on scholarly knowledge. Each author in this section either offers new theories or terms in light of "new media," or argues against their necessity. Together, these chapters map out the disciplinary challenges posed by "new media" to disciplines from Asian American Studies to literary studies; from queer to architectural theory. Lisa Nakamura begins this section with "Cybertyping and the Work of Race in the Age of Digital Reproduction," which introduces the term "cybertypes" to describe the ways in which race and ethnicity proliferated in mainstream new media during the late 1990s. Cybertypes, she argues, alleviate white anxiety in the face of fluid and uncertain identity by concealing the West's colonization of global media and its domestic racist practices; cybertypes, however, are also after/images—a mind's eye projection of the real—and thus open the possibility of seeing differently. Nicholas Mirzoeff in "Network Subjects: or, The Ghost is the Message" similarly contends that new media changes visual subjects' relationship to their media. In an analysis that moves from the Enlightenment to the present day, Mirzoeff argues that the medium itself has become the object and subject of desire, and that the endless repetition of

visual selves leads to indifferent surveillance and indifference to surveillance. Ken Hillis in “Modes of Digital Identification: Virtual Technologies and Webcam Cultures” also addresses identity and desire from the Enlightenment to the present, but through the rubric of virtual reality and queer webcams. VR, he argues, blurs the boundary between the virtual and the real, leading us to reside not in the desert of the real, but rather in a magical world designed by humans for humans.

The next two chapters offer historical analyses that question the newness of new media, as well as various intellectual histories of it. According to Peter Krapp, many theories of new media portray it both as a radical departure and as a long awaited development, turning much of what new media has supposedly superseded into new media *avant la lettre*. This hindsight, Krapp argues in “Hypertext avant la lettre,” is the symptom of new media. Mark Wigley in “Network Fever” similarly interrogates the newness of network analysis, arguing that we are at the end, rather than the beginning, of network logic. Tracing the complex web of interrelations between architecture and information theory, Wigley argues that contemporary discourse about the net realizes nineteenth-century fantasies that were acted out throughout the twentieth century.

Did Somebody Say New Media?

Slavoj Žižek in his introduction to *Did Somebody Say Totalitarianism* argues that totalitarianism serves as an ideological antioxidant, taming free radicals in order to help the social body maintain its politico-ideological good health. Totalitarianism has been used to dismiss Leftist critique of liberal democracy as the “twin” of Rightist fascist dictatorship: “the moment one accepts ‘totalitarianism,’ one is firmly located within the liberal-democratic horizon.”²⁴ Thus, Žižek argues, totalitarianism “is a kind of *stopgap*: instead of enabling us to think, forcing us to acquire a new insight into the historical reality it describes, it relieves us of the duty to think, or even actively *prevents* us from thinking.”²⁵ Although new media is clearly different from totalitarianism, it too can function as a stopgap. The moment one accepts new media, one is firmly located within a technological progressivism that thrives on obsolescence and that prevents active thinking about technology-knowledge-power. The term itself has circumscribed debate to Is new media new, or What makes it new? As a whole, this collection refuses new media as a stopgap, probing into the historical reality it describes. These essays, with considerable cohesion and integration across a disparate set of fields, provide new points of reference for evaluating all those claims—political, social, ethical—made about the digital age. They share a prejudice against representations of digital media as rendering obsolete or converging all other forms of media; as solving or perpetuating various sorts of social and political discriminations and oppressions; as economic miracle, nightmare, or fraud. They also share a common prejudice against simply dismissing those utopian promises made on behalf of new media, choosing instead to analyze the import and effect of those promises. Committed to historical research and to theoretical innovation and themselves historically located, they suggest that in the light of digital programmability, seemingly forgotten moments in the history of the media we glibly call “old” can be rediscovered and transformed.

This collection thus seeks to shake loose current intellectual trajectories and common sense understandings of new media—what it was, what caused it to be, what it will be. It challenges its status as new *or* old, as converging *or* diverging, as revolutionary *or* reactionary, concentrating instead on what—culturally, technologically, ideologically—enabled such adjectives to be applied to the Internet and other media classed as new. It also concentrates on the actualities of the media itself—its hardware, its software, its user interface—and on the experience of using it, of being entangled within it. Most importantly, it refuses to see new media as a simple cause and its effects as limited to those who use it on a daily basis. We thus offer this collection of theoretical and historical texts not to settle, but to unsettle, the question of the relationship between knowledge, information, code and power.