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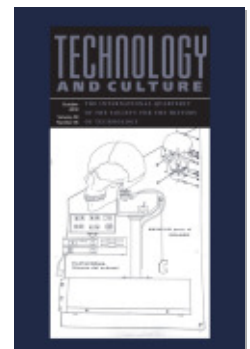
Shift CTRL: Computing and New Media as Global, Cultural,
Sociopolitical, and Ecological

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Shift CTRL

Computing and New Media as Global, Cultural, Sociopolitical, and Ecological

THOMAS S. MULLANEY

We are living in a golden age for the study of information and language technologies in the modern period, and perhaps even more so for the study of computing and new media. Sustained by enduring engagements with Book History, Actor-Network-Theory, the Social Construction of Technology (SCOT) program, and Science, Technology, and Society (STS)—but also rejuvenated by concerns with cultural techniques, material semiotics, the aesthetics of bureaucracy, paperwork studies, media archaeology, neo-cybernetics, software studies, platform studies, and more—scholars have grappled with subject matter as diverse as the origins of the card catalog, the MP3 file format, French revolution-era paperwork and bureaucracy, xerography, TCP/IP protocol, spam, and more.¹

Such variety conceals an underlying homogeneity, however. With important exceptions, recent studies have focused predominantly on the Western world, and within that, typically the English-language/Latin-alphabetic environment. By way of perspective, of the more than 120 titles published on five influential MIT Press series—“Inside Technology,” “History of Computing,” “Infrastructures,” “Software Studies,” and “Platform Studies”—only five focus in any sustained way upon Asia, the Middle East, or Africa.² Meanwhile, in the relatively new yet highly influential “Elec-

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1. Markus Krajewski, *Paper Machines*; Lisa Gitelman, *Paper Knowledge*; Alexander Galloway, *Protocol*; Finn Brunton, *Spam*; Jonathan Sterne, *MP3*; Ben Kafka, “The State of the Discipline”; Matthew S. Hull, *Government of Paper*; Ben Kafka, *The Demon of Writing*.

2. Dinesh C. Sharma, *The Outsourcer*; Basile Zimmermann, *Waves and Forms*; Amit Prasad, *Imperial Technoscience*; Richard Rottenburg, *Far-Fetched Facts*.

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tronic Mediations” series on the University of Minnesota Press, not a single monograph-length study deals with computing, gaming, or electronic mediation anywhere in the Non-Western world.³ In sharp contrast to the long tradition among Early Modernists of engaging with Non-Western information societies, then, once we reach the twentieth century, the world beyond Europe and North America almost ceases to exist.⁴

The reconceptualization of computing and new media along global lines is easier said than done, of course. As chronicled in more familiar Euro-American contexts, the emergence and proliferation of digital computing and its descendants played a critical role in transforming the social, political, cultural, and economic fabric of western Europe and the United States. By comparison, scholars have much to do if we are to understand with comparable depth how such technological artifacts and systems shaped, and were shaped by, historical and cultural experiences in Asia, Latin America, Africa, and the Middle East. There is good reason to try and accelerate this historiographic reorientation, however. If the vanguard of artificial intelligence research once resided in the defeat of Russian Garry Kasparov by chess-playing Deep Blue, now it lies in the 2016 defeat of Korean Lee Sedol at the “hands” of Google’s *go/weiqi/baduk*-playing system AlphaGo.⁵ In the very same year, China took top prize as the global leader in supercomputing for the seventh time in a row, with its Sunway TaihuLight clocking a theoretical peak performance of 125.4 petaflops, or 1,254 trillion floating point calculations per second.⁶ Meanwhile, banking systems long reliant upon state-governed infrastructures are rapidly being displaced on the African continent by the cellphone-based money transfer system M-Pesa—the largest mobile money business in the world.⁷ And

3. The citation of these series and presses is by no means implied to be a comprehensive view of scholarly publishing on computing and new media, nor to imply that important work has not been published in other venues. Readers are encouraged to examine compelling recent work on gender and race, for example, by scholars such as Marie Hicks and Safiya Noble. Safiya Umoja Noble, *Algorithms of Oppression*; Marie Hicks, *Programmed Inequality*. This special issue is also by no means the first to call for more global approaches to computing and new media. See, for example, James W. Cortada, “How New Technologies Spread.” However, it remains worthy of our attention that such a conspicuous absence of certain themes and foci should be found across a collection of flagship and emergent series.

4. Notable works include Ann Blair, *Too Much to Know*; Mary Elizabeth Berry, *Japan in Print*; Robert Darnton, “An Early Information Society”; Brian Spooner and William L. Hanaway, *Literacy in the Persianate World*; Bhavani Raman, *Document Raj*; Sebouh D. Aslanian, “Port Cities and Printers”; Nile Green, “Persian Print and the Stanhope Revolution.”

5. Cade Metz, “Google’s AI Wins Fifth.”

6. Thomas S. Mullaney, “The Origins of Chinese Supercomputing”; Mullaney, “Security Is Only as Good as Your Fastest Computer.”

7. Paul N. Edwards. “On Infrastructure Time.”

bringing us full circle, many of the cellphones upon which this multi-billion-dollar economy runs still use T9 text input technology—a technology which, although invented in North America, found its first active user base in Korea via the Korean *hangul* alphabet. In short, the globalization of computing and new media history promises to offer us not only “more history,” but profoundly new historical perspectives, frameworks, and analytical challenges.

If scholars of computing and new media are struggling to keep pace with the global dimensions of their subject matter, so too are they still grappling with how best to theorize questions of materiality and ecology. Despite an insistence upon immateriality—of “virtual” reality and the “cloud”—digital computing and new media remain deeply embedded in altogether conventional infrastructural frameworks such as electrical grids, transportation routes, telephone and telegraph networks, water supply systems, and more. While digital computing and new media are no doubt central to the history of twenty-first-century post-industrial economies, they themselves remain inseparable from nineteenth- and twentieth-century industrial infrastructures.

The historicity of the contemporary information age poses challenges as well. Information has a history, a proposition which is largely unsurprising for Early Modernists, and yet remains a startling one for many of us in a technophilic age that portrays “information” as a timeless, elemental material—a kind of ahistorical substance waiting to be located, excavated, and pressed into the service of building post-industrial knowledge economies. To the extent that information has “history,” we are assured in the age of computing and new media, this history is purely a progressive one—of ever-more-powerful and ingenious modes of extraction and distribution—or a political one—of who owns such means of extraction and distribution at any given moment in time. As for the substance of “information” itself, this is fundamentally constant, and thus timeless, ahistorical, and culturally neutral.

As scholarship over the past two decades has laid bare, this view of information is deeply flawed. As Early Modernists in particular have demonstrated, present-day notions of the “information society” and “information overload,” so often associated with the contemporary age of computing and new media, have a much deeper history than is often assumed. Well before the advent of computing and the Internet—before telegraphy and typewriting, as well—purveyors of knowledge and truth in early modern Europe, Asia, and elsewhere spoke of their age in terms of overwhelming information overload (even if the term “information” itself was not invoked). An array of bibliographers, publishers, and others developed novel approaches and technologies designed to run parallel to, and help tame, the burgeoning information environment that constantly threatened

to burst its containers and leave humanity in the ironic condition of over-informed ignorance.⁸ Our present-day condition is but a chapter in the history of information, not the entire story.

The history of computing and new media, in short, poses many of the same challenges as do histories of information more broadly: the theorization of computing and new media as humanistic concepts, inflected by history, culture, gender, materiality, class, geopolitics, and language. Drawing upon underutilized and untapped archival, oral historical, and material object collections, as well as new perspectives, the authors in this special issue develop a set of shared themes centering around the concept of “shifting control.” At one level, shifting control references emergent and disruptive new modes of epistemic, legal, and even theological authority that formed in connection with the global rise of computation and new media, processes by which these technological systems and artifacts were not so much transferred as “translated” into social and cultural contexts often dissimilar from those of their inception—translation processes that empowered bold reconceptualizations of the technologies themselves. These transformations, the authors in this special issue demonstrate, helped both to make and unmake worlds by “shifting control” within a variety of social, cultural, political, and economic domains.

“Shifting control” references, as well, an historiographic intervention in which, beyond the particular case studies presented herein, the authors in this issue set out to develop new agendas for the study of computing and new media that go beyond conventional Euro-American, institutional narratives and toward ones that bring the wider human experience into our analytical purview. It is time that the historiography, archives, and theorization of computing and new media more fully reflects the inherently global, cultural, sociopolitical, and ecological dimensions of its subject matter, as well as the asymmetries that continue to be embedded therein.

Bibliography

- Aslanian, Sebouh D. “Port Cities and Printers: Reflections on Early Modern Global Armenian Print Culture.” *Book History* 17 (2014): 51–93.
- Berry, Mary Elizabeth. *Japan in Print: Information and Nation in the Early Modern Period*. Berkeley: University of California Press, 2006.
- Blair, Ann. *Too Much to Know: Managing Scholarly Information before the Modern Age*. New Haven: Yale University Press, 2010.
- Brunton, Finn. *Spam: A Shadow History of the Internet*. Cambridge, MA: MIT Press, 2013.
- Cortada, James W. “How New Technologies Spread: Lessons from Com-

8. Blair, *Too Much to Know*; Berry, *Japan in Print*; Darnton, “An Early Information Society.”

- puting Technologies.” *Technology and Culture* 54, no. 2 (April 2013): 229–61.
- Darnton, Robert. “An Early Information Society: News and the Media in Eighteenth-Century Paris.” *American Historical Review* 105, no. 1 (2000): 1–35.
- Edwards, Paul N. “On Infrastructure Time.” Presentation at “Shift CTRL: New Perspectives on Computing and New Media” conference, Stanford University, 6 May 2016.
- Galloway, Alexander R. *Protocol: How Control Exists after Decentralization*. Cambridge, MA: MIT Press, 2006.
- Gitelman, Lisa. *Paper Knowledge: Toward a Media History of Documents*. Durham: Duke University Press, 2014.
- Green, Nile. “Persian Print and the Stanhope Revolution: Industrialization, Evangelicalism and the Birth of Printing in Early Qajar Iran.” *Comparative Studies of South Asia, Africa and the Middle East* 30, no. 3 (2010): 473–90.
- Hicks, Marie. *Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing*. Cambridge, MA: MIT Press, 2017.
- Hull, Matthew S. *Government of Paper: The Materiality of Bureaucracy in Urban Pakistan*. Berkeley: University of California Press, 2012.
- Kafka, Ben. *The Demon of Writing: Powers and Failures of Paperwork*. Cambridge, MA: MIT Press, 2012.
- _____. “The State of the Discipline.” *Book History* 12 (2009): 340–53.
- Krajewski, Markus. *Paper Machines: About Cards & Catalogs, 1548–1929*. Cambridge, MA: MIT Press, 2011.
- Metz, Cade. “Google’s AI Wins Fifth and Final Game Against Go Genius Lee Sedol.” *Wired*, 15 March 2016. Available at www.wired.com/2016/03/googles-ai-wins-fifth-final-game-go-genius-lee-sedol/.
- Mullaney, Thomas S. “The Origins of Chinese Supercomputing, and an American Delegation’s Mao-Era Visit.” *Foreign Affairs*, 4 August 2016. Available at www.foreignaffairs.com/articles/china/2016-08-04/origins-chinese-supercomputing.
- _____. “‘Security Is Only as Good as Your Fastest Computer’: China now dominates supercomputing. That matters for U.S. national security.” *Foreign Policy*, 21 July 2016. Available at <http://foreignpolicy.com/2016/07/21/china-taihulight-sunway-encryption-security-is-only-as-good-as-your-fastest-computer/>.
- Noble, Safiya Umoja. *Algorithms of Oppression: How Search Engines Reinforce Racism*. New York: NYU Press, 2018.
- Prasad, Amit. *Imperial Technoscience: Transnational Histories of MRI in the United States, Britain, and India*. Cambridge, MA: MIT Press, 2014.
- Raman, Bhavani. *Document Raj: Writing and Scribes in Early Colonial South India*. Chicago: University of Chicago Press, 2012.

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- Rottenburg, Richard. *Far-Fetched Facts: A Parable of Development Aid*. Cambridge, MA: MIT Press, 2009.
- Sharma, Dinesh C. *The Outsourcer: The Story of India's IT Revolution*. Cambridge, MA: MIT Press, 2015.
- OCTOBER Spooner, Brian, and William L. Hanaway. *Literacy in the Persianate World: Writing and the Social Order*. Philadelphia: University of Pennsylvania Press, 2012.
- 2018 Sterne, Jonathan. *MP3: The Meaning of a Format*. Durham: Duke University Press, 2012.
- VOL. 59 Zimmermann, Basile. *Waves and Forms: Electronic Music Devices and Computer Encodings in China*. Cambridge, MA: MIT Press, 2015.