

# Framing the Contested History of Digital Culture

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“Nothing is so remote from us as the thing which is not old enough to be history and not new enough to be news,” Gilbert Keith Chesterton pointed out in 1923.<sup>1</sup> Yet today historians are more and more taking this transitional period as their subject of study. Consider Thomas J. Sugrue on Barack Obama and the legacy of the civil rights movement, Bethany Moreton on Wal-Mart as an example of Christian free enterprise, or the *Journal of American History* publishing a special issue on the 9/11 terror attacks in September 2002, only a year after the tragedy.<sup>2</sup> This issue of *Radical History Review (RHR)* explores this transitional, recent period of history as it relates to digital culture at the beginning of the twenty-first century, a period characterized by a post-9/11 growth in the use of electronic surveillance by states and governments, a surge in the use of social media by social movements, rising online activism, or “hacktivism,” and charged debates about the impact of digital research tools and digital information on the nature and practice of scholarly research. In a rapidly changing digital information and communication world, we believe that radical scholars from all fields, including history, must take seriously the challenge of documenting, examining and analyzing, historicizing, and, where necessary, contesting the political, cultural, and historical trajectories that are presently unfolding.

Some historians have cautioned against a “presentism” within history scholarship, where contemporary concerns shape investigations of past eras.<sup>3</sup> Too old to be news, but too young to be the object of conventional historical scholarship, the

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study of digital culture requires its own methodology and approaches. Just as we should appreciate that the study of different periods of history may require different methodologies, we should not judge contemporary people and movements by the standards of a historical past that has already been analyzed in hindsight by digging in analog archives. In an introduction to a collection titled *Doing Recent History*, Renee C. Romano and Claire Bond Potter define “recent history” as “histories of events that have taken place no more than forty years ago” to those “less than a decade old” and as phenomena that have a long history but are ongoing in the present.<sup>4</sup> They also note that historians tend to neglect to explore the methodological issues arising from working on events falling within this time frame. In addition, rapid changes in technology—such as the creation of born-digital archives and the soon-to-be obsolete devices used to read them—also affect the historians’ craft. Since archives of contemporary records may not be available yet, historians exploring recent history have to rely for their research on methods such as oral history, as well as approaches and methods developed in anthropology, sociology, or media and cultural studies. As a result, researchers of recent history must embrace working in interdisciplinary ways—as is illustrated by the articles featured in this issue of *RHR*.<sup>5</sup> In this introductory, framing chapter, we stake out some of the key themes radical scholars must explore and address as they work to understand, and to give historical meaning to, recent, contested histories of digital culture.

### **Internet and Property**

Scholars in a variety of fields, including history, anthropology, sociology, science and technology studies, and media studies, have debated whether the history of the Internet’s development should be cast in terms of oppression or liberation. A prehistory of digital culture encompasses earlier media forms, such as eighteenth-century magazines; nineteenth-century broadsides, telegraph, telephone, and radio and television. As Carolyn Marvin points out, all mass media forms were a new medium at some point and inspired utopian and dystopian predictions regarding their social, political, or economic impact.<sup>6</sup> The history of the Internet both mirrors and complicates this tendency. Historians following Paul N. Edwards’s thinking emphasize that behind the development of the Internet is “the closed world” of US military funding and state control of computer science research, all confined in its early years to a handful of universities and geared toward surviving nuclear war. For Edwards, the development of the Electronic Numerical Integrator and Computer (ENIAC) and the Defense Advanced Research Projects Agency network (ARPANET) in the 1940s and 1950s defines the development of the Internet. In contrast, scholars such as the founder of cybernetics, Norbert Wiener, have noted connections between human relationships and computer code. Fred Turner, drawing on Wiener’s work, emphasizes the existence of interdisciplinary collaboration between computer scientists and social scientists in these same “closed” projects. Turner, for instance,

draws a genealogy from these collaborations in the earliest days of the Internet to the 1960s counterculture represented by the *Whole Earth Catalog*, and commodified digital utopianism as exemplified by the ideas presented in *Wired* magazine today.<sup>7</sup>

This tension, between government and corporate control of the digital world, on the one hand, and intellectual collaboration, on the other, persists today. On the one side, corporate industries have extended the reach of intellectual property while aggressively seeking to preserve their ownership of online content through extended copyright limits and encryption technologies. In 1998 the Copyright Term Extension Act increased copyright terms for individual authors to life plus 70 years, and for corporate works to 120 years after creation or 95 years after publication, whichever is greater. The same year, the Digital Millennium Copyright Act (DMCA) outlawed software that breaks encryption protections and allowed copyright holders to demand that content posted without permission be taken off-line without testing for “fair use” cases—such as use for education or criticism.<sup>8</sup>

On the other side of the issue, the “free and open-source software” and “free culture” movements have created new institutions to foster collaboration and share information. Free software projects such as Linux (an operating system) and Apache (a web server) bring together programmers who share expertise, resources, and code. The “geeks” participating in these projects follow what anthropologist Gabriella Coleman calls the “hacker ethic”—an evolving, and sometimes contradictory, set of principles that include, but are not limited to, information sharing, decentralized collaborative governance, distrust of authority, and an understanding of programming as an art form. This moral code underlying these approaches draws on liberal doctrines of free speech and of copyright as a means to encourage innovation—as written into the US Constitution and the Bill of Rights.<sup>9</sup>

Media piracy has long thrived in Western and non-Western countries worldwide: today users everywhere turn to programs such as BitTorrent that allow them to share files over the web without storing them on one central server. In 2003 the Electronic Frontier Foundation (EFF), a digital rights advocacy nonprofit based in the United States, estimated that over 60 million Americans had used file-sharing software programs. By then, as a response, the Recording Industry Association of America and the Motion Picture Association of America (MPAA) had sued over twenty thousand US music and video downloaders. According to the International Intellectual Property Alliance (IIPA), as of early 2010 Canada was hosting four of the top ten file-sharing sites in the world, Switzerland allowed downloading from international peer-to-peer sites, Russia had licensed several infringing pay-per-download music services, China had emerged as home to the largest community of illicit music and video downloaders in the world, and street markets of pirated music, films, TV shows, software, and games flourished in Mexico, Argentina, and Chile.<sup>10</sup>

In the United States, the “copyleft” movement, which includes the Free Soft-

ware Foundation (FSF) and Creative Commons, among others, drew upon collaborative practices in free software and fan communities to develop licenses that allow authors to waive some or all of their rights, making use of their content by users more flexible. FSF founder Richard Stallman developed the General Public License (GPL), while Lawrence Lessig, a constitutional legal scholar, consulted open-source developers when he first conceptualized Creative Commons.<sup>11</sup> Although Stallman and Lessig disagree on the value of each other's approaches to copyright, these and other copyleft projects draw upon the "pragmatist" view of the Anglo-American common law tradition, articulated by Olive Wendell Holmes, Jr., who argued that "the life of law has not been logic; it has been experience."<sup>12</sup> This emphasis on practice, anthropologist Christopher Kelty argues, makes the free software and free culture movements a "recursive public," which constantly reinvents its own technological, legal, and moral conditions of existence.<sup>13</sup>

US government action and court decisions on copyright and intellectual property issues have, in some instances, taken into account the widespread presence of such popular practices. In 1986, in a case brought by Universal Pictures against Sony for its Betamax videocassette recording (VCR) format, the US Supreme Court agreed with VCR owners that recording television programs on their machines was fair. Ruling in favor of Sony, the Supreme Court extended the fair use provisions of the 1976 Copyright Act to include video time shifting, finding that Sony was not liable for potential copyright infringement by Betamax users given that many lawful uses of the technology were also possible. The Court's decision was not unanimous and, some argue, was actually contradictory, yet it seemed to concur with Judge Holmes in that this ruling relied not on logic alone but also on the practical knowledge of VCR users' experience.<sup>14</sup>

The ethics embedded in free software practices sometimes influence legal decisions on digital property. In 2005, in *MGM v. Grokster*, the Supreme Court ruled that Grokster, a peer-to-peer file-sharing service, was liable for its users' music piracy even though lawful uses of its services were also possible. This ruling contradicted the Betamax decision and led to the development of takedown software systems like Google's Content ID. Between 1999 and 2003, the MPAA and Adobe used the DMCA to initiate high-profile arrests and lawsuits targeting a Norwegian, Jon Johansen, and a Russian, Dmitry Sklyarov, for authoring software that could break the content scrambling protection (CSS) on DVD discs and Adobe e-books. These cases, later dismissed, inspired hacker protests that established a notion that software code qualifies for legal protection as free speech. This notion then informed legal arguments by Lessig, Yochai Benkler, and other digital rights advocates, in what Coleman, following legal theorist Robert Cover, calls "jurisgenesis" — a process whereby lay communities invent new legal meanings and institutions. In July 2010, the Copyright Office and the Librarian of Congress, charged by the 1976 copyright law to clarify fair use, declared that it is legal to jailbreak iPhones and to

circumvent CSS encryption on DVDs to create remix videos. Both rulings chip away at DMCA restrictions and attendant legal reasoning.<sup>15</sup>

In the global context, however, digital moral economies often come into conflict with legal codes governing the relationships between the United States and the rest of the world. The anarchist antiglobalization movements, active since the anti-World Trade Organization (WTO) protests in Seattle in 1999, have adopted the open-access model of decentralized collaborative governance. The IIPA, conversely, condemned foreign nations for practices that would be legal in the United States: Israel, for “overly broad” fair-use provisions, and Indonesia, Brazil, and India for using open-source software to run government agencies.<sup>16</sup>

### **Open Access and Historical Scholarship**

Access to academic knowledge, including research in history, has faced similar issues of access and piracy. In 2008, the *New York Times* reported, American students grew “angrier than ever before about the price of textbooks,” with many texts beyond students’ reach at more than \$200 a copy. This outrage inspired a range of nonproprietary solutions, from pirate sites such as the now defunct Textbook Torrents, to open-access journal publishing ventures such as the Public Library of Science that make the latest academic research freely available for unrestricted use, to open-source projects like Connexions, a collaborative site that lets members create free teaching “modules” that can be combined into textbooks. The current successes and ongoing ambitions of the open-access movement expand the scholarly community so that it includes unaffiliated researchers and scholars in non-Western universities, who do not otherwise have access to the existing commercial article databases.<sup>17</sup>

The phrase “open access” denotes freely available scholarly research publications. It was coined in December 2001 at a meeting sponsored by the Open Society in Budapest. The foundational documents of the movement include the Budapest Open Access Initiative (February 14, 2002), the Bethesda Statement on Open Access Publishing from the Howard Hughes Medical Institute (June 20, 2003), and the Berlin declaration on Open Access to Scientific Knowledge, which originated from the Max Planck Society (October 22, 2003). Grassroots open-access initiatives began at least ten years earlier with arXiv, a preprint platform for the sciences, launched in 1991, and the Social Science Research Network, a similar platform for social scientists, begun in 1994. Advocates developed two models of open access. The first, “gold open access,” where scholars pay to publish their articles in peer-reviewed open-access journals, is an option that is more common in the sciences; the Public Library of Science is the best-known publisher of many such journals. The second, “green open access,” where peer-reviewed journals allow academics to self-archive their articles on personal or institutional websites after publication, is more common in the humanities.<sup>18</sup>

While individual historians have been advocating for open-access policies, institutional responses from historical organizations and journals have been contradictory. In 2005, in *Perspectives*, Roy Rosenzweig, then research director of the American Historical Association (AHA), asked, "Should historical scholarship be free?" His answer was yes.<sup>19</sup> Anthony Grafton wrote in his introduction to a posthumous collection of Rosenzweig's essays, *Clio Wired*: "Every time an independent scholar reads an article or review in the newest issue of *American Historical Review* [AHR] without having to pay . . . he or she hears Roy's voice and profits from his passions: his love of history, his belief that everyone should share it, and his uncanny ability to make the dream of universal access come partly true."<sup>20</sup> In fact, Rosenzweig succeeded only in making AHR articles open access; reviews remained gated, since they were viewed as being more relevant to professionals than to the public at large. More importantly, soon after his death, the AHA Council gradually went back to gating the articles. Currently, JSTOR provides free access to AHR articles published between 2004 and 2007, the former being the year Rosenzweig's policy was passed, as well as public domain issues published prior to 1923. Later issues are available only by subscription from EBSCO (with twelve months' delay) and the Oxford University Press online collection.

In the fall of 2012, the AHA took a few more steps back in its open-access policies. In September, the so-called Finch Report, a study of open access commissioned by the British government, prescribed a gold open-access model where authors would pay for publishing their articles. Since then, British universities and publishers moved to adopt this model.<sup>21</sup> It has worked well in the sciences but, many argue, is not viable for humanities, because humanities grants are much smaller and do not anticipate publishing expenses. It also creates a double standard for students, junior scholars, and independent researchers, who may not have grants at all. In the United States, green open access has instead been informally adopted as the standard. The American Psychological Association's style guide explicitly requires journals to let authors archive their articles on their own websites or in institutional repositories. In 2012 the Modern Language Association changed its copyright agreements to make the same sort of thing possible for its members and their journals.<sup>22</sup>

The AHA responded to the Finch Report with a statement that cautioned against open access altogether, arguing that journals need a viable business model for editing and processing manuscripts in the open-access model.<sup>23</sup> Electronic subscription models proposed by Oxford University Press, which publishes AHR, and services such as JSTOR and Project Muse barely cover editorial expenses, after one factors in processing of manuscripts, peer review, copyediting, and book review work. More recently, the debate flared up again when hacker Aaron Swartz committed suicide on January 11, 2013. Swartz was caught trying to download the entire JSTOR collection of academic articles through a Massachusetts Institute of Technology (MIT) network. While JSTOR refused to prosecute, MIT collaborated with

the police, and Swartz faced million-dollar fines and up to fifty years in jail. In the debate that ensued, editors of the Russian history journals *Kritika*, *Russian Studies*, and *Slavic Review* pointed out that journal publication is only 10 percent cheaper when the print version of the journal is eliminated. While all agree that post-Soviet readers, both independent scholars and those affiliated with cash-strapped post-Soviet universities, should have free or discount access, editors of Russian journals, oddly, opt for discounted mail subscriptions instead of Internet protocol-based free online access from countries in the former Soviet Union.<sup>24</sup> Given the importance of major publications for tenure, few junior scholars could afford alternatives such as the one proposed by Dan Cohen: to get rid of conventional peer review via projects such as PressForward, which would “crowd-source” the peer-reviewing process after publication.<sup>25</sup> Ten years later, the answer of most historical journals to Rosenzweig’s question, “Should historical scholarship be free?” is no.

### **Historical Archives and the Digital Humanities**

Unlike journals, digital historical archives embraced open access from the beginning. Since the mid-1990s, organizations such as the Center for History and New Media at George Mason University, the American Social History Project at the City University of New York, and the Institute for Advanced Technology in the Humanities at the University of Virginia have been offering scholars and the general public historical archives on subjects from the Salem witch trials to the September 11 attacks and the Bracero Mexican workers program during World War II.<sup>26</sup> Online historical archives include international collaborative grassroots projects such as the Marxists Internet Archive; large-scale nonprofit activist projects such as Densho, an archive on Japanese American internment; and university-based projects such as the Martin Luther King, Jr., papers at the King Institute at Stanford University and the Pacific Northwest Labor and Civil Rights Projects at the University of Washington.<sup>27</sup> These digitization and online collection projects continue the long tradition of activist history in digital media.

At the same time, born-digital archives present thorny problems for historians. Scholars of contemporary history and future historians of our era will have to deal with the abundance of electronic records, such as 6 million e-mail messages per year from the Clinton White House or military intelligence records that include more than “1 billion electronic messages, reports, cables, and memorandums.”<sup>28</sup> Moreover, the relevance of some digital records is in dispute. When the Library of Congress agreed to host the archive of all Twitter messages, many critics questioned how useful these records would be for future generations. “Just because something can be easily stored doesn’t mean that it should be,” one observer opined. Other scholars point out that given changes in historiography, especially since the arrival of subfields such as the history of the working class, gender and sexuality, race, and colonialism, we simply do not know what records future historians will find useful.<sup>29</sup>

Historians of the twenty-first century will have to “text mine” digital sources, using algorithms to find useful patterns in the sea of data.

To analyze digital data, historians may have to acquire additional training in algorithmic processes and perhaps even programming. Digital archives and search-ranking algorithms structure the way we access news and conduct research, from the Google Scholar search engine to facial recognition and text-mining algorithms used by digital humanities scholars. Research on contemporary social movements especially relies on data provided via the Internet in general and social media in particular. Just one example: during the Arab Spring, Egyptian protesters broke into President Hosni Mubarak’s state security buildings, and the first place they posted the scanned secret police files was on Facebook.<sup>30</sup> Research into the politics of algorithms has already shown that the study of Twitter can provide insight not only into the dynamics of popular protest—Twitter posts documented recent major political upheavals such as Wikileaks and Anonymous leaks, Occupy Wall Street protests, and upheavals in Tunisia and Egypt—but also into the institutional constraints for information processing. As Wikileaks, the Arab Spring, and the Occupy movements unfolded, Twitter users repeatedly complained that the service did not “trend” these seemingly globally important events—they didn’t appear on the most popular tweets list. At the time, Tarleton Gillespie asked, “Can an algorithm be wrong?” His answer was, basically, yes. He explained that Twitter programmers chose to build the algorithm that only registered short-term spikes in themes, not the themes that persist and slowly build momentum.<sup>31</sup> Twitter is thus incapable of seeing social movements: if it existed in the mid-twentieth century, it would have trended the Watts riots, but it would have completely missed the “long civil rights movement” crucial for understanding why the riots happened.

But that does not mean that all algorithms cannot see historical social change; it means that Twitter’s particular algorithm has been designed specifically, if unintentionally, to ignore it. Gillespie argues that the Twitter algorithm’s social blindness—it could see Justin Bieber’s haircut but couldn’t see hundreds of people in Zuccotti Park—was an unlucky by-product of Twitter’s programming. “These algorithms are not perfect,” he argues. “They are still cudgels, where one might want scalpels.”<sup>32</sup> We need to understand their limitations and ways to improve their analytical power.

One location for historians to turn to in confronting digital data is digital humanities, a field where knowledge of coding and algorithms is a requirement. Digital humanities have been justly credited with opening public access to scholarly research, creating new jobs and careers for humanities scholars in and beyond academia, and pioneering new methods of collecting and processing data, such as the creation of digital archives, text mining, and visualization. Nevertheless, there is still a disconnect between the radical history tradition, focused on power relations, and digital humanities, where the fight for open access and collaboration often



overwhelms concerns for underlying social inequalities. While pioneering digital humanists in the 1990s vowed to share the task of interpreting history and society with lay audiences, today builders of digital tools and archives herald a noninterpretive, “post-theoretical age,” analogous to the cataloging and collating trend in late nineteenth- and early twentieth-century science.<sup>33</sup>

Digital humanities scholars often tout the need for experimentation or launch pilot projects that demonstrate potential but are not meant to progress beyond the trial stage, and perhaps for this reason the critical insights these projects provide have been minor so far. For instance, one promising data-mining study, *With Criminal Intent*, analyzed the Old Bailey database of trial records of the central criminal court in London from 1674 to 1913. The results included the frequent mention of coffee in poison cases and a rise in plea bargains from the second quarter of the nineteenth century on. These two findings still need to be explained; they may not be, however, because the project ran out of funding and the scholars moved on.<sup>34</sup> Another well-known text-mining project, on the works of Agatha Christie, at the University of Toronto, confirmed that Christie had Alzheimer’s—by her early eighties, her vocabulary decreased and her use of indefinite nouns increased; both features are signs of the illness. According to press reports, this discovery proved more useful for medical research on the disease than for the study of literature.<sup>35</sup>

On the other hand, scholars who use computational methods sometimes overstate their power or understate their problematic provenance. Franco Moretti, in his influential book *Graphs, Maps, Trees*, proposes that “distant reading,” via data mining of thousands of texts, will replace conventional reading of individual novels.<sup>36</sup> However, once after a talk Moretti was forced to admit that the computational analysis he described in his book would not have been possible without his reading several novels closely in the first place.<sup>37</sup> An innovative online historical project, *The Real Face of White Australia*, uses facial-recognition software to find and catalog documents on nonwhite immigrants and indigenous residents in Australian archives. But the site does not consider that software used by the project has roots in algorithms originally developed for surveillance purposes and built on the very assumptions about exclusion, appearance, and race that the project is trying to contest.<sup>38</sup>

The current trend toward increased government secrecy makes it all the more important to consider the fate of stolen archives and the practical and ethical question of digital preservation and analysis of state surveillance sources that have often been obtained illegally or preserved on a volunteer basis. Stolen online archives include collections maintained by activist organizations such as Wikileaks, for example, of US military dispatches and diplomatic documents, as well as documents archived informally, such as the New York City Police Department’s video files of the crackdown on Occupy Wall Street protesters, released on torrent networks by Anonymous, an informal hacker collective.

Scholars of US imperialism and social movement history working with digi-

tal archives—including stolen data provided by transparency groups like Wikileaks and Anonymous—could benefit from digital humanities methods such as text mining and visualization. Unfortunately, they do not have the technical expertise to fully examine these archives. Jeremy Kuzmarov used Wikileaks’ US war logs and diplomatic dispatches for his book *Modernizing Repression*, which describes how American officials trained police in occupied territories and client nations, from the Philippines to Latin America, Iraq, and Afghanistan. Kuzmarov employed two research assistants to go through the Wikileaks documents and find data relevant to a small part of his book.<sup>39</sup> To read and analyze the entire set without the help of digital tools would be nearly impossible. But digital humanities researchers do not seem to be interested in materials and questions concerning US imperialism or radical history in general. We are left with the gap between political commitment, on the one hand, and technical knowledge, on the other. In 1939 sociologist Robert S. Lynd titled his book about the place of social science in American culture *Knowledge for What?*<sup>40</sup> One could ask the same question of the digital humanities. This question is all the more urgent because of the contradictory ways institutional and intellectual constructions of digital media reshape social movements and labor relations.

### **Communication Technologies and Social Movements**

In tandem with the way digitization is changing the way history is recorded and studied, digital communication technologies and the Internet are active presences within social and political processes that are constitutive of history unfolding. The Arab Spring, and subsequent Occupy Wall Street movement, drew international attention to the contemporary confluence of digital media communication technologies and modern national and transnational social movements. For *at least* two hundred years, protest movements have complemented their direct actions and face-to-face organization with the creation and circulation of various forms of media, including leaflets, broadsheets, and newsletters (and, more recently, posters, films, videos, or web-based materials), that are designed to communicate within or beyond the social movement so engaged. Indeed, the emergence of modern mass social movements is closely tied to the emergence of the mass media. Social movement theorist Sidney G. Tarrow argues that although protests in one form or another have been a feature of social life since time immemorial, mass social movements as we understand them today did not emerge until the 1700s. He proposes, “In [earlier] conflicts over bread, belief, land and death, ordinary people tried to correct immediate abuses or get even with those they hated, using routines of collective action that were both direct and inspired by their grievances.”<sup>41</sup> Because these actions tended to rely on specific local responses to specific local conditions, they “could not bring together broad coalitions of actors on behalf of general claims or create a general repertoire of collective action.”<sup>42</sup> Tarrow argues that this changed in the late eighteenth century when the widespread availability of print media made the

formation of long-distance communication networks possible, networks that underwrote the building and maintenance of dispersed, heterogeneous social movements. As a diffusion of ideas that occurred in this way grew, the nature of political protest changed from isolated instance-specific forms of resistance (such as grain riots, land occupations, or tax revolts) into the standardized forms of political protest we understand today (including the public meeting, boycott, petition, mass demonstration, and barricade).<sup>43</sup> In this way, by virtue of the employment of mass media tools, standardized modular forms of political protest emerged, and scattered groups of people were to combine together to orchestrate sustained challenges to existing conditions or authorities. Indeed, long before the transnational antiapartheid and anticorporate movements of recent decades, a growth in long-distance media communication supported the development of some of the earliest transnational movements for political change, including the nineteenth-century abolitionist and Irish independence movements and the suffragette movement of the late nineteenth and early twentieth centuries.

With the development of electronic and photography-based media from the mid-nineteenth century onward, as well as the refinement and accelerated deployment of these media forms in the twentieth century, new communication tools became available to social movements. However, just as there is sometimes hesitancy regarding the adoption of digital technologies by some on the left today, there was also sometimes resistance with regard to the adoption of earlier communication technologies. For instance, within a few years of the invention of the cinema, US corporations and manufacturing consortiums were sponsoring the production of educational films lauding the benefits of consumerism and the American way of life or encouraging workplace safety, while depicting troublesome labor organizers as extremists and subversives. The most ambitious corporate filmmaking program was launched by the Ford Motor Company, which operated its own in-house motion picture department. By 1916, Ford was releasing over 4 million feet of film a year, including “short reels of assembly line production, management improvement techniques, . . . and scenes of happy workers frolicking at company-sponsored outings.”<sup>44</sup> Similarly, with the onset of the First World War, the warring nations quickly employed film as a weapon of propaganda. By 1916, the German high command considered film to be the best propaganda means for sustaining support for the war, while in Britain, propaganda documentaries and pro-war newsreels became a regular feature of the cinema-going experience.<sup>45</sup>

In contrast, some American socialists were reluctant to embrace the cinema as a communication tool, seeing it instead as a harmful distraction that was poisoning the minds of the cinema-going masses, thereby preventing workers from engaging in class struggle. Some within this camp proposed that workers should stay away from the cinema altogether, viewing it as a site for the reproduction of a capitalist hegemony. Writing on the use of film by the international workers’ movement dur-

ing the early twentieth century, Bert Hogenkamp argues that during the 1900s and early 1910s the workers' movement was slow to accept film, preferring instead to focus on the workers' movement's traditional means of communication, the written and spoken word.<sup>46</sup> Similarly, during this period some American progressives appear to have also been reluctant to use film in their campaign efforts. Within the progressive camp, some viewed the cinema as a social vice linked to industrialization, moral decay, and the decline of the preindustrial social order.<sup>47</sup> Resistance to the use of the cinema was not universal within the Left, and from the late 1910s until the introduction of sound in the late 1920s, successful filmmaking was conducted by US socialist and left-wing workers' organizations. But the different positions taken by socialists and progressives, with regard to the adoption of the cinema, provide a lens through which to examine today's debates about the use of social media and other digital technologies by the Left. Then, as now, there was an array of issues to consider, including, during this earlier period, the corporate monopoly of film distribution, the interference of state and local licensing and censorship agencies, and the economic challenge of creating and sustaining a viable filmmaking endeavor that could serve the communication needs of socialism.

By the 1960s, television had arrived as the dominant news media in the United States, and network television played both a significant and a controversial role in shaping the social movements of the period, and the public's perception of these movements. While the three corporate television networks that dominated news broadcasting in the United States during this period did play a role in legitimizing for some Americans the demands of the moderate social movements of the time, notably the civil rights movement, more radical political positions consistently faced attack, underreporting, or distortion and misrepresentation by the corporate-controlled news media. Dissatisfaction with the messages generated by corporate media led to the launch of radical alternative information media channels such as the New Left-affiliated filmmaking group *Newsreel*, inaugurated in 1967 in New York City, while also further deepening the Left's long-standing distrust of mainstream media, and fermenting the launch of the range of independent media-making activities that straddled the 1980s and 1990s. These independent media activities, ranging from committed documentary production to the work of guerrilla video collectives, the launch of pirate and low-watt radio stations, zines and small press publishing, and the airing of community programming and activist videos on public access cable channels, are an important precursor to today's participatory and social movement use of digital media tools.

The genealogy of the actual entrance of digital communication technology into this fray is somewhat shrouded: some argue that the first use of digital communication by the Left can be seen in the 1980s when computers were put to use by labor unions; others argue that the earliest widespread instance of digital technologies use in support of a radical left agenda came with transnational organizing in

support of the Zapatista Army of National Liberation (Ejército Zapatista Liberación Nacional, or EZLN), following the 1994 uprising in Chiapas, Mexico.<sup>48</sup> Most agree that the 1999 mass convergence in Seattle in protest at the WTO Millennium Summit was a watershed moment in the use of digital communication technologies by the Left. The Seattle protest was the culmination of a decade of worldwide opposition to neoliberal policies that favor economic growth over the rights of organized labor, the poor, developing nations, or the preservation of the environment. The global anticorporate movement that rose in opposition to this agenda relied heavily on communication technologies to disseminate information to its dispersed constituents, to frame issues, and to bring its varied constituents together in Seattle and in subsequent convergences. With a sparse bureaucracy, decentralized decision making, and minimal hierarchy, the anticorporate movement seemed organizationally to mirror the decentralized organization and infrastructure of the 1990s Internet.<sup>49</sup> The use of the Internet by anticorporate activists leading up to and during the Seattle protests was so successful that a Pentagon-commissioned study coined the term “NGO [nongovernmental organization] swarm” to describe the “phenomenon of amorphous groups of NGOs, linked by the Internet, coordinating campaigns.”<sup>50</sup> The Pentagon’s report concluded that Internet-based organizing of this kind is extremely hard to stop since there is no clear decision-making chain that can be disrupted. While there is nothing new about the idea of long-distance or transnational political organizing, the introduction of Internet-based digital communication technologies has enabled the operation of transnational political advocacy networks on a scale not previously seen; at the beginning of the twenty-first century, the “number, size, and professionalism, and the speed, density, and complexity of international linkages among them has grown dramatically in the last three decades.”<sup>51</sup> Key to the operation of these nonstate actors is an ongoing exchange of e-mails, faxes, visits to Internet websites, the posting and viewing of videos, cloud storage of data, in addition to the circulation of physical materials such as journals, books, and DVDs.

The use of communication technologies by anticorporate activists during the convergence in Seattle provides an example of the kinds of potentialities offered by these technologies, potentialities that were developed further and refined by Occupy Wall Street and other postmillennium social movements around the world. In Seattle, communication technologies helped the anticorporate “movement of movements” physically come together, as well as playing a key role as the protests were unfolding. In anticipation that the mainstream corporate news media would either fail to report on the protest or depict protesters in an unfavorable light, a collection of activist independent media makers and technical-minded allies launched the Seattle Independent Media Center (IMC) in a downtown storefront as a means to generate and distribute independent citizen journalism-generated news reports about the event. Bringing together activists with experience in independent media, community radio, microradio, and the open-source movement, the establishment

of the IMC was an illustration of activist media convergence, with the IMC providing an infrastructure through which dozens of camcorder-equipped citizen journalists “could offer different perspectives on the week, using satellite broadcasts and the Internet to disseminate print, audio, and video journalism around the world.”<sup>52</sup> Once the Seattle convergence was over, the IMC model was launched worldwide as Indymedia, a loosely linked network of websites powered by open-publishing software where left-leaning citizen journalists can post their articles, images, or video clips, with minimal editorial intervention from each site’s administrators. While Indymedia never developed the kind of readership or audience that would allow it to become a serious threat to the corporate mainstream media, it has “become a critical resource for activists and audiences around the world, providing an extraordinary bounty of news reports and commentaries, first-person narratives, longer analyses, links to activist resources, and interactive discussion opportunities from around the world.”<sup>53</sup>

Feeding content to online citizen journalism sites such as Indymedia are camcorder-equipped activists, community organizers, citizen journalists, and international solo journalists, or “so-jos.” The activities of these contributors commonly have two goals. First, they seek to make available points of view and political perspectives not seen in the corporate-controlled media. And second, these activities are unself-consciously politically engaged by their design, and the media makers involved seek to “serve as an organizing tool within the activist community . . . and to help activists stay in touch with the worldwide movement.”<sup>54</sup> The digital video footage generated by independent citizen journalists is commonly multipurposed to serve a variety of communication needs: footage may be immediately uploaded to Internet-based video-streaming websites; integrated into radio or television broadcasts such as the daily broadcast news program *Democracy Now*, airing on the Pacifica Radio network and satellite-based Free Speech TV; used as evidence in legal cases or direct advocacy campaigns orchestrated by international NGOs or human rights organizations; or later used to create feature-length documentary videos that are designed to provide a comprehensive report on an event or occurrence.

In recent years, as is evident with the use of digital communication tools by Occupy Wall Street or in the Arab Spring, activities of this kind have been even further decentralized, and the speed of communication has been accelerated, with the introduction of social media sites and short message service (SMS) exchanges, in the form of texts and tweets. These media tools allow almost anyone to instantly broadcast anything they wish, with their messages reaching, potentially, large numbers of people. Crucially, as was well illustrated by the use of SMS by protesters in Egypt’s Tahrir Square, the almost instantaneous exchange of messages of this kind allowed participants to be enmeshed in a moment-by-moment media-driven preening process, one that kept protesters motivated, linked to and working with one another, and self-identified with the social movement they are a constituent part of.

Despite apparent benefits to social movements, the arrival of Internet-based organizing, online communities, and a proliferation of social media also pose challenging questions for social justice organizers and community activists. These range from questions about whether the proliferation of online information sources will increase political engagement or simply increase public epistophilia with regard to political affairs without an accompanying increase in actual political action, to concern that mouse-click online political engagement may do little to build robust movements for change or to establish the face-to-face interpersonal communities that will support such movements in the long term. Most thoughtful commentators recognize that communication technologies will not replace direct physical encounters between social movement participants or the need for movements to have a physical presence and an ability to occupy physical space.<sup>55</sup> At the same time, “it appears that today’s protest groups are in a better position than their forerunners to reach their adherents and sympathizers across large territories. The range of media they use has broadened, and internal communication has become easier, more effective, and cheaper.”<sup>56</sup>

### **Labor**

In a discussion of the contested meaning of digital culture it is essential to draw attention to some of the key, if commonly overlooked, ways that these technologies influence both the conditions and the nature of labor in the world today. The emergence of today’s information society is synonymous with the rise of neoliberal globalization and “economic postmodernization” or “informatization” of economic production.<sup>57</sup> The impact of informatization has been far reaching, including contributing to the emergence in economically advanced countries of a service-based economy. While cyberutopians may laud the benefits of economic development linked to the information economy and the global Internet-networked economic system, for the working people in the economically dominant regions of the global North there is a different history available. For these workers, the arrival of the information economy has been synonymous with a decline in employment and income as rapid global communication networks have enabled transnational corporations to comfortably shift their manufacturing operations to economically subordinate regions of the world, principally in Asia and Latin America. Using communication technologies both to coordinate their globally dispersed manufacturing operations and to capitalize on global markets, transnational companies have been able to deterritorialize their operations, thereby freeing themselves from national or local regulations and the reach of established organized labor; released from territorial ties, transnational corporations “search the world for competitive advantage in state incentives, weak labor organization and protection, minimal environmental regulation, favorable exchange rates, low wages, and sparse human-rights enforcement.”<sup>58</sup> Thus there is a corollary between the worldwide penetration of digital

communication networks, the rise of a service economy in economically advanced regions, and a decline of secure manufacturing jobs and organized labor in these regions. In addition, while cyberutopians herald communication technologies as an engine of economic growth, the growth repercussions from the arrival of communication technologies have not been evenly distributed, particularly in the United States. Instead, within an expanding service economy, workers have been driven into “various old forms of non-guaranteed labor, such as freelance work, home work, part-time labor, and piecework.”<sup>59</sup>

At the same time, with the majority of popular reports or scholarly studies of digital culture focused on “cognitarians” — those individuals or groups of individuals who work to produce and circulate information economy goods and services using media technologies — the experience of the workers behind the manufacturing of communication technologies and related consumer electronics devices are hidden from view.<sup>60</sup> The lives of those who mine and process the raw materials used in the manufacture of these technologies, assemble electronic devices on factory floors, or later dispose of them as e-waste are largely unknown by the consumers who purchase and use these products. In *Greening the Media*, a study of the impact of information communication technologies and consumer electronics on labor and the environment (reviewed in this issue of *RHR*), Richard Maxwell and Toby Miller argue,

The workers who actually make media technologies are rarely discussed in academic, business, or journalistic accounts of high-tech’s provenance — the technologies all seem to come from the geniuses at Apple, Sony, Google, and their ilk, who form an aristocracy of creative talent. The disappearance of labor is a classic illusionist effect of the fetish that Marx described over a century ago: the dirty work is concealed within the toys and machines that others use to relax as they fuss over “the tidy finished exterior of this equipment,” its power, and its speed.<sup>61</sup>

A full description of the global supply chains that service the production of communication technology and consumer electronics devices would record that the minerals needed for the production of highly desirable laptop computers, MP3 music players, and other devices are often supplied by artisanal and small-scale mining operations, a “notoriously harsh, low-tech, poverty-driven sector”<sup>62</sup> that today employs as many as 13 million workers around the world. Perhaps the most notorious example of the exploitation of labor in this way is the mining of the metallic ore columbite-tantalite, known as “coltan,” in the Democratic Republic of the Congo. In this instance, mining takes place in mines that are controlled by mercenaries who “have used threats, intimidation, murder, rape, and mutilation to enslave women and children for work in the mines, extracting profits to buy more weapons.”<sup>63</sup> Although conflict minerals are officially banned from sale on the international mar-



ket, they find their way into the global supply chain. Coltan is a core element in the components that operate computers, cell phones, MP3 players, and digital cameras.

Equally, a full description of these global supply chains would also record that although the international division of labor has largely driven electronics manufacturing jobs to economically subordinate regions, uneven development in the economically dominant regions of North America and Europe has also fostered growing class inequality. In a study of communication technology manufacturing in California, sociologists David Naguib Pellow and Lisa Sun-Hee Park argue that despite Silicon Valley's image as a technological and economic powerhouse—a place where garage inventors rose to become the captains of the new technology industries—"the Valley has an underside . . . [it] is of a place of considerable human suffering, preventable illness and premature death, the exploitation of thousands of workers, widespread ecological devastation, and increasing social inequality."<sup>64</sup> According to Pellow and Park, Silicon Valley's technology manufacturing workforce, made up primarily of Asian and Latin American immigrants, most of them women, is "among the country's most socially vulnerable, politically powerless, and economically exploited populations."<sup>65</sup> They argue that the semiconductor chips that power our radios, cars, watches, computers, clocks, and cell phones "come at a dear price for the people who manufacture them."<sup>66</sup>

Mirroring the hazardous conditions at the point where the raw materials to make communication technologies are extracted from the earth or where these devices are manufactured are the hazardous conditions at the point where these devices are disposed of at the end of their useful life. Today huge quantities of obsolete or nonfunctioning devices are shipped from the Global North to the Global South for disposal or crude recycling; "by 2007, over one-hundred-thousand personal computers were being dumped monthly in Lagos, Nigeria," about a fifth of the total dumped in Nigeria each month.<sup>67</sup> The e-workers who disassemble and recycle components from these devices, as with the millions of similarly tasked workers in Latin America, Asia, and elsewhere in Africa, are on a daily basis exposed to lead, cadmium, mercury, and other e-waste substances. These materials pose "serious health and safety risks for salvage workers: brain damage; headaches; vertigo; nausea; birth defects; diseases of the bones, stomach, lungs, and other vital organs; and disrupted biological development in children."<sup>68</sup>

### **Positivism and the Technological Sublime**

The deployment of digital communication technology devices and their related networks has received near rapturous welcome from cyberutopians and the adherents of positivism-centered neoliberal economic discourse. Illustrating the neoliberal position, Microsoft's Bill Gates famously coined the term "frictionless capitalism," to indicate an information-rich world where commodities flow effortlessly to consumers. Illustrating another version of cyberutopian thinking, Nicholas Negroponte in

his 1995 book *Being Digital* enthusiastically proposed that the Internet will democratize communication in our world, empowering people and ending centralized political power. He argued: “Media barons of today will be grasping to hold on to their centralized empires tomorrow. I am convinced that by the year 2005 Americans will spend more hours on the Internet (or whatever it is called) than watching network television. The combined forces of technology and human nature will ultimately take a stronger hand in plurality than any laws Congress can invent.”<sup>69</sup>

While Negroponte added the cautionary note that “in case [he’s] wrong” we should not immediately do away with the Federal Communications Commission as America’s media regulating agency, his vision is of a world where the use of digital technologies will so democratize communication that government regulation will cease to be necessary.<sup>70</sup> Illustrating another facet of cyberutopian thinking, this time from 1991, Michael Benedikt proposed that cyberspace would liberate us,

from the chain-dragging bulldozers of the paper industry, from the diesel smoke of courier and post office trucks, from jet fuel fumes and clogged airports, from billboards, trashy and pretentious architecture, hour-long freeway commutes, ticket lines, and choked subways . . . from all the inefficiencies, pollutions (chemical and informational), and corruptions attendant to the process of moving information attached to things . . . over, and under[,] the vast and bumpy surface of the earth rather than letting it fly free in the soft hail of electrons.<sup>71</sup>

Benedikt’s proposal for the future of the Internet has little to do with the advertisement-clogged Internet that has emerged since 1991 or with the dirty, polluting processes behind that making of the devices that generate and transmit his “hail of electrons.” Nonetheless, the image of a clean, world-improving Internet is largely intact today in many popular and scholarly discussions of digital media. Another version of cyberutopianism has been unleashed following the social upheavals in the Arab world and elsewhere in the first decade of the twenty-first century. In this version, tweeting, social media and Facebook, and other networking tools are the harbingers of democracy. This version of cyberutopian thinking was articulated and spread widely by mainstream media pundits in the aftermath of the Arab Spring, but it can also be found among academics and the Left. Thus, writing on the social movements of the Internet age, Manuel Castells enthusiastically proposes: “They came together. And their togetherness helped them to overcome fear, this paralyzing emotion on which the powers that be rely in order to prosper and reproduce, by intimidation or discouragement, and when necessary by sheer violence, be it naked or institutionally enforced. From the safety of cyberspace, people of all ages and conditions moved towards occupying urban space . . . as they claimed their right to make history.”<sup>72</sup>

If we look at the precursors to these digital technologies, the exuberant reception that digital media has received in many quarters will come as less of a surprise. Since its emergence in the nineteenth century, electronic communication has dovetailed with development-centered, positivist ideas of progress. Thus in the mid-1800s, with the arrival of the telegraph, some argued that rapid long-distance communication would serve to promote peace and harmony among the world's nations. In the early twentieth century, similar claims were made of wireless radio communication, and each of the new communication technologies deployed in the twentieth century, from film and radio broadcasting to television, and now the Internet, has been trumpeted as being a superior means for the advancement of knowledge and democracy, all despite the fact that under close scrutiny each can be seen to have equally served less laudatory and less enlightened purposes. Viewed historically, digital communication technologies are simply the latest in a line of communication technologies to be embraced as a technological sublime, thereby imbued with "a totemic, quasi-sacred power that industrial societies have ascribed to modern machinery and engineering."<sup>73</sup> A more reasoned understanding of digital media will emerge from a deeper understanding of both the history of the Internet and the discourses and ideological perspectives that shape our thinking about it. With regard to the former (and as noted earlier with regard to the work of historians Edwards and Turner), we should remember that although a dispersed corps of individual techies, hackers, students, community-based organizations, and policy activists were major contributors in the development of the Internet in the 1970s right through the 1990s, the origins of the Internet can also be traced to the military buildup of the 1950s Cold War.<sup>74</sup> Where positivist thinking about the Internet and related technologies situates them as harbingers of democracy, as a transparent forum for the circulation of ideas and the empowerment of the citizenry, or as tools of economic development, under examination it is clear that these understandings are shaped by ideology; here powerful connections have been built between the way we think about the Internet and its perceived value in the advancement of freedoms and democracy, both domestically and in an international context.

Illustrating the deeply held belief that digital technologies advance freedom and democracy is the response of mainstream media pundits to social media during the Arab Spring and the labeling of Egypt's revolution a "Twitter revolution." In *Tweets from Tahrir* (reviewed in this issue of *RHR*), a record of the SMS exchanges between protesters in Cairo during the revolution, authors Nadia Idle and Alex Nunns agree that social media played a role in Egypt's revolution. They record that Twitter and the social networking site Facebook served as an "alternative press" by which information could be spread to thousands of people in an instant or shared between networks of friends.<sup>75</sup> Elaborating on this theme, they contend that in Egypt, where broadcast media is tightly controlled by the state, citizen journalists

played an important role in disseminating oppositional viewpoints and that “the Arab uprisings would not have happened at the speed and in the manner in which they did without social media.”<sup>76</sup> However, they argue, to reduce the revolution to an effect of social media communication by activists is nonsense: “There is a certain arrogance to the lazy Western description of a Twitter Revolution. It excuses commentators from seeking to understand the deep-seated causes of the uprising—the brutal economic reality for the majority of the population, the imposition of neo-liberal policies reducing job security and suppressing wages, the lack of opportunities for educated young people, the sheer vindictiveness of a Western-backed dictator as expressed through his police gangs.”<sup>77</sup>

The tendency to overestimate the importance of the social media to social movements has been noted by others: Dieter Rucht argues that because much of the Internet communication traffic of transnational social movements is open to everyone, while face-to-face organizing and interpersonal or other networks are less visible, “academic observers use it as their main source of information and therefore tend to overestimate the relevance of the Internet to these groups.”<sup>78</sup> Indeed, the image of social movements in other parts of the world embracing social media to advance freedom and democracy dovetails easily with the US government’s foreign policy agenda. Created as part of the United States’ Cold War arsenal, today “the United States has made promoting Internet access and freedom of use a top foreign policy goal in the expectation that Internet diffusion and enhanced citizen communication capabilities with help open up ‘closed societies.’”<sup>79</sup> Paradoxically, the image of the Internet as a place of open exchange and the advancement of democracy runs counter to the body of evidence that the Internet is becoming increasingly militarized as states quietly expand and adopt offensive and defensive information warfare capabilities, such as the 2006 launch of the United States Air Force’s US Cyberspace Command.<sup>80</sup>

Other narratives of the Internet and its unfolding nature are readily available. Arguing that the Internet is increasingly under the control of governmental and corporate power, Ronald J. Deibert writes, “Whereas once questions of Internet governance were largely determined by technical experts and engineers, today they are increasingly decided by politicians, government officials, lawyers, and military personnel.”<sup>81</sup> In the wake of 9/11 and the global war on terror, “legislation has been passed in virtually every industrialized country and in many developing countries that expands the capacities of state intelligence and law enforcement agencies to monitor Internet communications”; in this world, “the prospects for civic networking and democratic communications become increasingly fragile.”<sup>82</sup> Illustrating this trajectory, from the late 1990s to the present, the character of the Internet has significantly shifted from a network dominated by information-sharing dot-org websites to one where corporately owned dot-coms are, by traffic volume, the Web’s most visited locations. Michael Hardt and Antonio Negri argue: “These global networks

must be constructed and policed in such a way as to guarantee order and profits. It should come as no surprise, then, that the U.S. government poses the establishment and regulation of the global information infrastructure as one of its highest priorities, and that communications networks have become the most active terrain of mergers and competition for the most powerful transnational corporations.”<sup>83</sup> Others have noted that while the Internet does support a massive plurality of communication among the world’s populace, this is counterbalanced by the fact that “forty percent of the page views on the World Wide Web are being attributed to only ten Web sites,” and the design and operation of the web is largely in the hands of big corporations.<sup>84</sup>

Similarly uncertain outcomes have been discovered also by researchers focused on the study of specific features of digital media and its intersection with American and world society. Without question, the new flows of information enabled by a networked, digital world have changed the global mediascape, but the impact of these changes is less clear. Studying the intersection of digital media and political life, Richard L. Fox and Jennifer M. Ramos argue that it is often assumed that there will be a connection between increased communication through the opportunities afforded by the Internet and a strengthening of democracy. But they argue that how this connection actually operates is often not explained, and empirical analysis does “not uncover the results many expected.”<sup>85</sup> Thus while many assume that a heterogeneous array of online news sources, citizen journalism, videos on demand, the participatory blogosphere, and instantaneous messaging services will foster increased political knowledge and new forms of political engagement, this proposition remains generally unproven.

While digital media has enabled an explosion in the news and information sources available to the citizenry, the same process is also driving traditional journalism and investigative reporting, a watchdog of government and the private sector, from the scene. Indeed, in a mediascape where media sources are multiplying, there is evidence that interest in serious news is in decline, and many “citizens now turn away from politics and public affairs because of the ever-growing menu of entertainment options in the new media environments.”<sup>86</sup> In parallel with the decline in traditional media, an increase in media channels has led to the fragmentation of media audiences and the strengthening of personalized spheres of information where information consumers tailor the media they access to their “own personal interests and ideologies. In other words, people can navigate to the news in which they are interested and completely avoid information or viewpoints that run counter to their preexisting perspectives.”<sup>87</sup> This enables media consumers to exist in, what Todd Gitlin terms, “public sphericules” where they tailor the information they access to their existing worldview by turning to partisan information sources.<sup>88</sup> In contrast to the news programming delivered by broadcast stations in past decades, “Internet news sources are more likely than traditional media to cater to news con-

sumers of a specific political persuasion (e.g., liberal or conservative) or who are interested in narrowly defined political issues.”<sup>89</sup> This is apparent on the Internet, as well as on cable TV, as media channels attempt to appeal to narrower audiences.<sup>90</sup>

While positivist discourses of digital media tend to flaunt terms such as *democracy* and *knowledge*, digital communication technologies are up for grabs by proponents of all political persuasions, as was made evident in Sarah Palin’s use of her Facebook page to lambast US health care reform, using the argument that under Obama’s plan the elderly would be brought before “death panels” to determine if they should live or die.<sup>91</sup> Indeed, despite the important use of digital technologies by left social movements, digital humanities scholars, or advocates for open access and the free circulation of information, digital media remains a contested battleground where the victory of radical or progressive forces is perhaps impossible.<sup>92</sup> Even Anonymous, currently the strongest practitioner and proponent of hacking as a form of civil disobedience, organized “analog” mass picketing of the Church of Scientology offices across the globe in 2008, at the same time as it used online means of critiquing the secretive organization. As the Arab Spring and the Occupy movements demonstrate, hacktivism and social media complement but cannot replace grassroots organizing, mass demonstrations, strikes, and other time-honored analog forms of labor and political protest.

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