# "Ruthless Criticism of All that Exists": Marxism, Technology, and Library Work

*Sam Popowich*

### Introduction: The Place of Machines

In a paper presented to the Society of American Archivists (SAA) in 1968, Jay Atherton reassured his audience that "automation has in it no more danger to human dignity than did the wheel, the steam engine, or the electric generator."[1] It is ironic, given our current concerns over anthropogenic climate change, that Atherton should have chosen those examples to support his claim of the positive promise of technological change. For Atherton, the practical effect of automation "lies in the human beings who attempt to make use of it or administer those who do, and not at all in the nature of automation itself"[2]; automation is "nothing more than an 'extension of man.'"[3] In the end, Atherton is arguing from a techno-utopian position couched in pragmatic language against those in his profession who fear that their professional practice is about to be completely demolished through automated processes.

The crude, if useful, dichotomy between these two positions is dramatized by Nick Dyer-Witheford in the conflict between two nineteenth century personalities: Charles Babbage ("capitalist-computer-savant") and Karl Marx. Babbage, a philosopher, mathematician, and inventor, designed

---

1 J. Atherton, "Automation and the Dignity of the Archivist," *Canadian Archivist* 2, no. 1 (1970): 56.

2 Atherton, "Automation," 56.

3 Atherton, "Automation," 57.

the mechanical precursors to today's computers, the "Difference Engine" (1822) and the "Analytical Engine" (1837). In 1835, Babbage wrote a work of political economy in which he applied his theories of mechanical calculation to the division of labor in factories. In an extremely early and succinct description of automation, Babbage wrote:

> The object of the present volume is to point out the effects and the advantages which arise from the use of tools and machines, to endeavour to classify their modes of action, and to trace both the causes and the consequences of applying machinery to supersede the skill and power of the human arm.[4]

For Marx, the replacement of human labor by machinery was the main tactic used by capital to reduce the cost of labor. In his study of "struggle in high-technology capitalism," entitled *Cyber-Marx*, Dyer-Witheford writes: "Babbage and Marx were both prophets of today's information society. But their prophecies are radically opposed, one promising the technoscientific consolidation of market relations, the other the dissolution of that rule."[5] In many ways, the tension between these two views, between the technological theories of Babbage and Marx, are even clearer today, and are being played out in the world of library technology, and of technological capitalism more broadly.

Atherton, in his address to the archivists, suggests that the ways in which archivists' practice is changed by automation depends on how they choose to understand technology itself. In other words, practice is determined by an *a priori* theoretical choice: "The man in charge of an automated system is not a slave to a machine; he is master of it. It stands to serve his wishes."[6] In this view, archivists simply have to choose how they view technological change; Atherton argues that they should choose the utopian view.

Nearly two decades into the twenty-first century, our understanding of technology and the relationship of theory to practice is not nearly so black and white. As the 2008 financial crisis showed, even bankers themselves are slaves to the automated processes they developed, rather than masters of them.[7] and yet, the threat, if not to the "dignity" of librarians,

---

4 Charles Babbage, *On the Economy of Machinery and Manufactures* (London: John Murray, 1836), 1.

5 Nick Dyer-Witheford, *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism* (Urbana & Chicago: University of Illinois Press, 1999), 4.

6 Atherton, "Automation," 58.

7 David Harvey, *The Enigma of Capital and the Crises of Capitalism* (Oxford: Oxford University Press, 2010), vi-vii.

then at least to their skills and professional status, remains strongly felt. Already in 2007, a librarian could write that with the rise of automation, "many have begun to question the need for librarians,"[8] and in 2017 this remains a common argument in the ongoing narrative of library budget cuts.[9] The threat of the reduction of work to its simplest and most mechanical, leading to "re-proletarianization"[10] of various economic sectors, many of which were considered too intellectual, complex, or affective for automation, is rapidly coming to pass.[11] The fears surrounding the replacement of human labor by machine, gently disparaged by Atherton, have proven to be well-founded[12] and it appears that machines, far from being an "extension of man," standing by to support our work, have indeed begun to replace human beings.[13] From a practical perspective like Babbage's, the replacement of human labour by machine is a question of efficiency, a practical question; the political aspect is beside the point. For Marx, however, the automation of human labor is precisely a theoretical, political question, since it involves issues of power, freedom, justice, and society. Over the course of this chapter, we will look at how library automation has developed since the late 1960s, how the Marxist theoretical approach can help us understand and navigate the "digital vortex"[14] of twenty-first-century technology, and how all of this affects the professional practice of librarians and information workers. In the end, I hope that this chapter not only outlines some of the issues around the critical practice of technology in librarianship, but is itself an intervention in that practice. The chapter is divided into two main

---

8 Casey Schacher, "The Threat of Deprofessionalization," *Library Worklife,* November 2007, http://ala-apa.org/newsletter/2007/11/16/libraries-without-librarians.

9 Nick Martin, "U Of M, Union Disagree Strongly On Library Staff Cuts," *Winnipeg Free Press,* October 6, 2016, http://www.winnipegfreepress.com/local/u-of-m-union-disagree-strongly-on-library-staff-cuts-382525141.html.

10 Dyer-Witheford, *Cyber-Proletariat*, 14.

11 Angela Hennessey, "'As Well or Better than Humans': Automation set for Big Promotions in White-Collar Job Market," *CBCNews*, February 28, 2017, http://www.cbc.ca/news/business/automation-jobs-canada-computers-white-collar-1.3982466; Dan Tynan, "Actors, Teachers, Therapists – Think Your Job is Safe from Artificial Intelligence? Think Again," *The Guardian*, February 9, 2017, https://www.theguardian.com/technology/2017/feb/09/robots-taking-white-collar-jobs.

12 Andrew Hough, "'End of the Librarian' as Staff Sacked for Automatic Check Out Machines," *The Telegraph*, September 29, 2009, http://telegraph.co.uk/news/uknews/6239766/End-of-the-librarian-as-staff-sacked-for-automatic-check-out-machines.html.

13 Larry Elliott, "Millions of UK Workers at Risk of Being Replaced by Robots, Study Says," *The Guardian*, March 24, 2017, https://www.theguardian.com/technology/2017/mar/24/millions-uk-workers-risk-replaced-robots-study-warns.

14 Nick Dyer-Witheford, *Cyber-Proletariat: Global Labour in the Digital Vortex* (Toronto: Between the Lines, 2015), 19.

sections, the first focusing on Marxism as a critical theory, the second on library and information technologies.

## Part One: Marxism and Critical Theory

### Marxism as Critical Theory

2017 marks the 150th anniversary of the publication of the first volume of Marx's *Capital*, the crowning achievement of his intellectual project. Far from being a historical curiosity, an obsolete or dead theory, Marxism continues to be relevant well into the twenty-first century. The recession of 2008, the imposition of worldwide austerity, military and refugee crises in the middle east—even Brexit and the presidency of Donald Trump—have spurred Marxist evaluations as varied as Dyer-Witheford's account of "cyber-proletarianization"[15] and Moufawad-Paul's reorientation of Maoism.[16] Sales of Marx's work and that of other Marxists remains strong and there are regular calls vindicating Marx's project.[17] Given that the world is significantly different than it was in Marx's day, this raises the question of how and in what way Marxism can be thought of as a critical theory relevant to today's capitalism, and what implications it has for librarianship and information technology.

In a narrow sense, "critical theory" refers to the project of the Institute of Social Research in Frankfurt (the Frankfurt School), the term coined by the Institute's then director Max Horkheimer in 1937. For Horkheimer, the Frankfurt School project differed from the Marxisms of the Second International (1889–1916) and, more importantly, the Soviet Union, which dominated much of the critique of bourgeois society, especially among communist parties under the control of the Comintern. Horkheimer saw "critical" as opposed to "traditional" theory as "an attitude which aims at… an emancipation and at an alteration of society as a whole," although "it lacks the pragmatic character which attaches to traditional thought as a socially useful professional activity."[18] Critical Theory did not restrict itself to theoretical aims; its aim was nothing less than the liberation of humanity: "The issue… is not simply the theory of emancipation; it is the practice of it as well."[19]

---

15 Dyer-Witheford, *Cyber-Proletariat*, 12.

16 J. Moufawad-Paul, *Continuity and Rupture*: *Philosophy in the Maoist Terrain* (Washington: Zero Books, 2016).

17 Terry Eagleton, *Why Marx was Right* (New Haven, CT: Yale University Press, 2011).

18 Max Horkheimer, "Traditional and Critical Theory," in *Critical Theory: Selected Essays* (New York: Continuum, 2002), 208.

19 Horkheimer, "Traditional and Critical Theory," 233.

In a broader sense, critical theory can refer to a host of social and political interventions that appeared after the fall of the Berlin Wall, generally out of various Marxist or post-Marxist currents. In his survey of the landscape of contemporary critical theory, Razmig Keucheyan identifies a rejection of value-neutrality as a common characteristic of critical theories, along with an insistence on the totality of social critique.

> Critical theories are theories that more or less comprehensively challenge the existing social order. The criticisms they formulate do not concern particular aspects of this order, like the imposition of a tax on financial transactions… or some measure relating to pension reform. Whether radical or more moderate, the 'critical' dimension of the new critical theorists consists in the general character of their challenge to the contemporary social world. Some, like classical and contemporary Marxists, tend to adopt the standpoint of the 'totality', in the belief that the global character of capitalism requires that critique should itself be global.[20]

## *The Dialectic*

Marxist theory is critical not only in the sense that it critiques the world as it appears to common sense, but also in that it forces us to critique our own common sense understanding of the world. It does this by insisting on the priority of the *dialectic*, which is both a way of understanding change in the world, but also a way of seeing theory and practice as inseparable parts of the process of change itself. The dialectic, in many ways, runs counter to the dominant logic, the common sense way of thinking about things.

The idea of a "common sense" ideology, a dominant logic that obscures the way society functions, has long been part of the Marxist project. For Antonio Gramsci, for example, common sense is "the uncritical and largely unconscious way of perceiving and understanding the world that has become 'common' in any given epoch"[21] while for Louis Althusser, common sense is the ideology that structures human beings and fits them into capitalist society.[22] For both Gramsci and Althusser, ideology, which is so common as to be invisible, is required both for the exercise of hegemony and for the reproduction of social relations over time. More recently, Fredric Jameson

---

20 Razmig Keucheyan, *The Left Hemisphere: Mapping Critical Theory Today* (London: Verso, 2014), 2–3.

21 Editors' note in Antonio Gramsci, *Selections from the Prison Notebooks*, ed. and trans. Quintin Hoare and Geoffrey Nowell Smith (New York: International Publishers, 1971), 322.

22 Louis Althusser, "Ideology and Ideological State Apparatuses," in *Lenin and Philosophy and Other Essays* (New York: Monthly Review Press, 2001), 118.

has characterized postmodernism as "the cultural logic of late capitalism"[23]: in the same way that there is a Marxism for every historical moment,[24] so too is there a dominant, hegemonic ideology, one which remains more or less unquestioned and unconscious. Each common sense, in order not to be recognized and unmasked as an ideology, must *appear* to be eternal and unchanging. The dialectic, on the other hand, insists on the historical, always-changing nature of social forms, and therefore of the ideologies proper to those forms. In 1873, Marx writes that the dialectic "regards every historically developed social form as in fluid movement, and therefore takes into account its transient nature not less than its momentary existence."[25] The dialectic also recognizes the mutual dependence of theory and practice: just as theory informs practice by rooting it in reflection, practice informs theory by giving it the experience of labor.

*Fetishism*

According to the common-sense view, which takes phenomena like library technologies in isolation, the connection between a phenomenon and both its socio-political and historical contexts is obscure, unclear, a mystery. In order to address this issue, Marxists point to other examples of mystification present in the capitalist world. The most famous example of an ideological demystification is Marx's analysis of the "fetishism of commodities" at the end of chapter one of *Capital*. The fetish character of commodities is the condition in which a commodity—a book, for example—appears to be a simple thing when looked at in isolation. It has metadata, a title, content, dimensions, etc. But when we begin to think about the material history of a particular book, the means of production and the labor of the various people (not just the author) that went into producing it, the commodity appears to be very complex indeed. It is, in Marx's view, one of the functions of ideology to hide this complexity from the people involved in it, especially the exploited who, once their exploitation is unmasked, would rebel against it. For the book—or technology—is not merely an object, it is the embodiment of myriad social relations which, if they are not obscured, make the functioning of capitalism impossible. Capitalism, like all modes of production, requires being seen as natural, as the normal order of things, hence the mystification of

23 Fredric Jameson, *Postmodernism, or, the Cultural Logic of Late Capitalism* (Durham, NC: Duke University Press, 1991).

24 Fredric Jameson, *Marxism and Form: Twentieth-Century Dialectical Theories of Literature* (Princeton, NJ: Princeton University Press, 1971), xv; Dyer-Witheford, *Cyber-Marx*, 6.

25 Karl Marx, *Capital: A Critique of Political Economy, Volume 1* (London: Penguin, 1976), 103.

complex social relationships must also be the norm (hence, too, the occasional pronouncement of the "end of ideology"[26]).

Libraries — like the books and technologies within them — are themselves fetishized, not only by members of the profession, but by university administrators, city councils, and the public at large. We are trained through long exposure to capitalist ideology to think of libraries as independent entities when in fact they too are complex networks of relationships between people.[27]Once this has been recognized it becomes impossible to separate the relationships that directly constitute a library (librarians, other library workers, administrators) from the community and wider network of relationships that form a country at work, engaged in colonial occupation, domestic resistance, anti-racist and anti-sexist struggle, or the acceptance and support of refugees.

What is true of physical objects is also true of concepts. Technology is also not an independent entity but a system of relationships between people with a history and a socio-economic context. On the one hand, today, in a world of immaterial labor and digital technology, it is very easy to forget the material underpinnings of all technology. (A good example of this is how the terrible working conditions and exploitation of Amazon warehouse workers is obscured by the immateriality of Amazon's services.)[28] Marx's concept of historical materialism,[29] on the other hand, is predicated on the interdependence of humanity and its tools. Particular technologies arise out of and determine material human cultures. The connection between our material existence and our social and intellectual structures is of vital importance to Marxist theory. As Raymond Williams has stated, "the social and political order which maintains a capitalist market, like the social and political struggles which created it, is necessarily a material production."[30]

---

26 Dyer-Witheford, *Cyber-Marx*, 16–17.

27 Georg Lukács theorized this process as one of *reification*: "a relation between people takes on the character of a thing and this acquires a 'phantom objectivity', an autonomy that seems so strictly rational and all-embracing as to conceal every trace of its fundamental nature: the relation between people." Lukács, *History and Class Consciousness: Studies in Marxist Dialectics* (Cambridge, MA: MIT Press, 1971), 83.

28 Emily Jane Fox, "Amazon Reportedly Has Scoreboards To Shame Its Workers," *Vanity Fair*, March 8, 2016, http://www.vanityfair.com/news/2016/03/amazon-warehouse-theft; Hamilton Nolan, "Inside an Amazon Warehouse, the Relentless Need to 'Make Rate'," *Gawker.com*, June 6, 2016, http://gawker.com/inside-an-amazon-warehouse-the-relentless-need-to-mak-1780800336; Hilary Osborne, "Amazon Accused of 'Intolerable Conditions' at Scottish Warehouse," *The Guardian*, December 12, 2016, https://www.theguardian.com/technology/2016/dec/11/amazon-accused-of-intolerable-conditions-at-scottish-warehouse.

29 The classic formulation of historical materialism is in Karl Marx, *A Contribution to the Critique of Political Economy* (Moscow: International Publishers, 1979), 4.

30 Raymond Williams, *Marxism and Literature* (Oxford: Oxford University Press, 1978), 93.

In 1923, however, Georg Lukács wrote "it is not the primacy of economic motives in historical explanation that constitutes the decisive difference between Marxist and bourgeois thought, but the point of view of the totality."[31] This focus on seeing phenomena as interconnected, of never losing sight of the bigger picture, lies behind the Marxist insistence on "the political" in every discussion. Today, we recognize that it is a mistake to try to consider gender, race, class, or sexuality in isolation from the wider structures of society[32] but to Marxists, even such seemingly apolitical phenomena as the design of library space, the policies of room and equipment booking, or time-management in meetings, are political, given that they cannot be understood or evaluated—critiqued—without reference to structures of power, domination, exploitation, and the material conditions of existence of all people. To Marxists there can be no such thing as neutrality; any claim to neutrality exposes the political even while it ostensibly denies it.

The idea of neutrality—political, social, or economic—is a good way in to thinking about the relevance of Marxism for critical librarianship. The lineage of critical librarianship, including the Progressive Librarianship movement and the ALA Social Responsibility Round Table, holds the non-neutrality of libraries and technology as self-evident. This point of view is constantly confronted with the insistence on neutrality by a dominant library ideology, which we might well call the ideology of library leadership; indeed, we are often engaged in "discursive struggle"[33] over precisely this question. Recently, the (non-)neutrality of libraries, technology in general, and algorithms in particular have been hot topics within critical librarianship,[34] so it seems as if this issue of library neutrality must always be confronted anew.

For Marxists, historical and political contexts are not merely enhancements or supports to a critical perspective, they are fundamental to it. Libraries—especially public and publicly funded academic libraries—along with other social institutions like the military, industry, and government—form a social whole and can never be looked at entirely in isolation. This social whole is political in the sense that class, race, gender, and other inequalities are part of its structure. Marxists don't see bringing these things in as "adding politics" into a discussion; they see trying to analyze a phenomenon in isolation as leaving politics out. In Lukács'

31 Lukács, *History and Class Consciousness*, 27.

32 Judith Orr, *Marxism and Women's Liberation* (London: Bookmarks Publications, 2015), 146–52.

33 Fredric Jameson, *An American Utopia: Dual Power and the Universal Army* (New York: Verso, 2016), 6.

34 Chris Bourg, "Library Technologies and Social Justice," (keynote address, The Access Conference, Fredericton, New Brunswick, October 4, 2016), https://www.youtube.com/watch?v=p7LKKSOA5DU.

words, "the dialectical method aims at understanding society as a whole"[35] even when we are "only" talking about libraries or technologies. As Marx wrote in an 1843 letter, what we are aiming at is a "ruthless criticism of all that exists."[36]

*Marx's Theory of Technology*

For Marx and Engels, the historical importance of the capitalist class consisted in bringing about the complete transformation of the economy from feudalism to industrial capitalism. The development of new technologies was both a condition of that transformation and a consequence of it, as competition between capitalists required constant technical innovation in order to keep the cost of labor down (i.e. to remain competitive). Marx recognized that under capitalism, technology became less a tool of a human worker than *itself* an automated worker only monitored by a human being. As a result, the activity of the human worker becomes subordinated to the needs of the machine: "the worker's activity, reduced to a mere abstraction of activity, is determined and regulated on all sides by the movement of the machinery, and not the opposite."[37]

In this view, technological advance replaces human activity—human labor—with machinery, thus making it appear as if that activity, that work, is a characteristic of the machine. What was true in the industrial world of Marx's day is even more true in the world of ubiquitous digital technologies and their "disruptions" (e.g. linked semantic data, social graphs, "big data," machine learning, etc.). Marx's focus was on the technologies of heavy industry; for us, technology is, paradoxically, present everywhere but less visible, woven into the fabric of immaterial labor[38] in the global north and west. From social media platforms to the privacy/surveillance antagonism, Big Data, open-source software and SciHub, technology is implicated in our daily lives very differently than it was in Marx's day.[39] It is easy to forget that technology is never absent. When Twitter and Instagram announced that "most relevant" content would be substituted for the traditional chronological display, users condemned the former, which they called the "algorithmic" display, implying that chronological display was non-algorithmic.

---

35 Lukács, *History and Class Consciousness*, 27.

36 Karl Marx, "For a Ruthless Criticism of Everything Existing," in *The Marx-Engels Reader*, ed. Robert C. Tucker (New York: Norton, 1972), 13.

37 Karl Marx, *Grundrisse: Foundations of the Critique of Political Economy* (London: Penguin Books, 1993), 693.

38 Michael Hardt and Antonio Negri*, Empire* (Cambridge, MA: Harvard University Press, 2000), 29.

39 Ursula M. Franklin, *The Real World of Technology* (Toronto: House of Anansi, 1999), 34.

"Sort by date and time" is just as algorithmic as "sort by relevance" but, partly because the details of a chronological algorithm are generally understood, the mystification of capitalism (the obscuring of social relations by making them seem like objective things) here creates a false dichotomy between a threatening "technological" model and a non-existent "human" one—the focus, as we have seen, of Atherton's address to the SAA.

Technology, then, is a mediation point between the worker and the world. Tools are the equipment we use to transform the world around us through labor, and technology in a broad sense can be equated with all the tools that are not parts of our physical bodies (though even that line is becoming increasingly blurred with the rise of "wearables" like Fitbit, and cybernetic implants[40]). To talk about technology in libraries, therefore, we have to talk about how technology mediates library labor; we have to talk about the politics of library work.

## Part Two: Library Technology and Automation

### Instrumental Knowledge, Technology, and Values

The Western Enlightenment tradition, which informs the modern library profession, values practice—especially technical proficiency—above all else. André Cossette, in an "essay on the philosophy of librarianship" originally published in 1976 writes:

> That the professional literature leaves questions of philosophy to the side in order to limit itself to questions of technique... I am stating emphatically that librarianship has been pointed in a resolutely scientific direction. This orientation, sufficiently well established to mark a point of no-return, no longer permits us to identify the discipline as an agglomeration of techniques without any coherence. It is necessary to clarify, at the same time, that the conceptual scheme of librarianship is still relatively undeveloped.[41]

Instrumental knowledge, knowledge that can be used as a tool in the domination of and control over the natural world, is given pride of place. Horkheimer and Adorno, writing during the Second World War, argued that the capacity of technology under capitalism to dominate the forces of nature became an end in itself. Critical thought became surplus to

---

40 Emma Byrne, "Cybernetic Implants: No Longer Science Fiction," *Forbes,* March 11, 2014, https://www.forbes.com/sites/netapp/2014/03/11/cybernetic-implants-not-sci-fi/#3ae64ee377ba.

41 André Cossette, *Humanism and Libraries: An Essay on the Philosophy of Librarianship* (Duluth, MN: Library Juice Press, 2009), 2.

requirements, a barrier to the instrumental domination of the world. Theoretically engaging with practical activity is, in this view, beside the point, because the practical effect of the activity is of primary importance.

> Knowledge, which is power, knows no limits… Technology is the essence of this knowledge. It aims to produce neither concepts nor images, nor the joy of understanding, but method, exploitation of the labor of others, capital.[42]

This is evident today in the un- or under-theorized practice of librarianship, a practice which sees itself as primarily technical, its agents primarily technicians; this applies mainly to technology (library systems) and what is still called "technical services" (cataloging and "bibliographic control"), but applies to many other areas of the library. Under-theorization is both cause and effect of the robust if erroneous belief that libraries and library workers must and can be "neutral." Precisely because technological change appears to us as something external to our relationships and practices, it is something we must react to, as to a force of nature.[43] The very "value-free"[44] understanding of technology in wider capitalist society supports a value-free evaluation of technologies and their effects on professional practice. The instrumental rationality critiqued by Horkheimer and Adorno, which cares nothing for comprehension or understanding, but is only concerned with the practical, wealth-creating aspects of technology, remains in full force. To use Marxist language, the exchange-value of technology is all that matters; use-value must never be too deeply interrogated. This leads to a mystification of the profit motives of technological change as, for example, when Ursula Franklin in her 1989 Massey Lectures sees technological development as an end in itself rather than the drive for higher corporate profits through automation.[45] As Barbara Fister writes, taking a position not much different from Atherton's thirty years before, "it's not easy to know, from one moment to the next, whether the effect technology is having on our lives is good or bad," concluding positively that while

---

42 Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment: Philosophical Fragments* (Stanford: Stanford University Press, 2002), 2.

43 Maurice P. Marchant and Mark M. England, "Changing Management Techniques as Libraries Automate," *Library Trends* 37, no. 2 (1989): 469.

44 The idea of "value-free" sociology comes from Max Weber. See Wilhelm Hennis, "The Meaning of '*Wertfreiheit*': On the Background and Motives of Max Weber's 'Postulate'," *Sociological Theory* 12, no. 2 (1994): 113, doi:10.2307/201858.

45 Franklin, *Real World*, 74–5, 84.

> Hard times make us ask hard questions… if we answer them honestly and make choices that, within constraints, are the best for the institution we may find the library a far, far better place than it has ever been before.[46]

Fister was writing in 1998, in the context of a rise in demand for technology in libraries that was amounting to a "crisis in technology support."[47] The demand for more technology has not abated, if anything it has increased, and yet, to my mind, we have not answered those hard questions, due to an inability or unwillingness to really theoretically engage with our technologies and the relationships in which they are implicated. Our tendency to see technological change as something outside our professional and social relationships has made us primarily reactive, always trying to catch up, rather than critically interrogating technological change, which might allow us to regain some agency and control over that process.

The view of technological change as something that happens to us is driven by the requirement of expanding capitalist accumulation to hide or mystify the dynamics of this accumulation, or at least to make these dynamics appear to follow natural laws of their own. Indeed, Dyer-Witheford has discussed the strain of "information revolution" discourse, which argues that "machines are the real makers of social change."[48] The split between theory and practice, and the privileging of the practical, thus becomes an important component of capitalist ideology, as exemplified not only by Babbage, but by the "neutral" and "apolitical" posture of librarianship. Indeed, as we will see, Hannah Arendt has argued that, prior to the rise of capitalism, the privileged term in the theory/practice hierarchy was not practice, but theory.

## Algorithm and Process

Examples of the generalized under-theorization of information technology have been found recently in such examples as Microsoft's "racist chatbot"[49] and Facebook's trouble with its news algorithms.[50] Research projects that do

---

46 Barbara Fister, "Balancing the Trade-Offs: Pros and Cons of Library Technology," *Library Issues* 19, no. 1 (1998), http://www.libraryissues.com/LI9809.asp.

47 Fister, "Balancing the Trade-Offs."

48 Dyer-Witheford, *Cyber-Marx*, 13.

49 Samuel Gibbs, "Microsoft's Racist Chatbot Returns with Drug-Smoking Twitter Meltdown," *The Guardian*, March 30, 2016, https://www.theguardian.com/technology/2016/mar/30/microsoft-racist-sexist-chatbot-twitter-drugs.

50 Caitlin Dewey, "Facebook has Repeatedly Trended Fake News Since Firing its Human Editors," *The Washington Post*, October 12, 2016, https://www.washingtonpost.com/news/the-intersect/wp/2016/10/12/facebook-has-repeatedly-trended-fake-news-since-firing-its-human-editors.

theorize these kinds of technological developments, such as Safiya Noble's work on algorithmic bias,[51] rarely inform library practice (although this too is starting to change).[52] In the library context, this lack of application of theory to practice often takes the form of an uncritical adoption of "best practices" and processes that profess to be neutral, value-free, or evidence-based, without being critical of how these processes themselves reinforce political and social structures. Indeed, the insistence on process over critique is both cause and effect of the lack of theorization, eliminating the discursive space where this kind of critical thinking and discussion might take place.[53] We are beginning, however, to see more critical engagement with how our technological processes intersect with wider currents, and how technological decisions can support or undermine both professional and personal values, as in Ruth Kitchin Tillman's recent editorial for the *Code4Lib Journal*[54] and Christina Harlow's stirring keynote for the 2017 Code4Lib Conference.[55]

Explaining the ways in which technology intersects with other aspects of our professional, organizational, and socio-economic cultures is one of the ways Marxism can contribute to a critical understanding of library technology. In the cases just referred to — Microsoft's chatbot and Facebook's news algorithms — technology tends to be thought of as an independent entity, something with characteristics and properties that define it independent of human beings. While Marx, as we have seen, focuses on the fetishization of commodities in general, the process can just was well be applied to technology. Fetishization means that the social relations between people *appear* as the relationships between external things (for example, between Facebook and a news gathering algorithm). Technologies are products of human labour and ingenuity, but they appear to move through the world on their own, and rather than being under our control, in fact appear to control us.[56]

When technology is fetishized, we might admit that individual technologies change over time, but we continue to consider such technologies merely as exemplars or instances of something called *technology*: an ideal

---

51 Safiya Umoja Noble, "Just Google It: Algorithms of Oppression," (presentation, Douglas College, University of British Columbia, December 8, 2015), http://ikblc.ubc.ca/safiyaumojanoble-2/.

52 Matthew Reidsma, "Algorithmic Bias in Library Discovery Systems," *Matthew Reidsma* (blog), March 11, 2016, https://matthew.reidsrow.com/articles/173.

53 Alan Harnum, "Unsolicited Technical Advice for Toronto Public Library from Someone Who Used to Work There," *Alan Harnum* (blog), September 14, 2016, http://www.alanharnum.ca/libraries/technology/2016/09/14/unsolicited-technical-advice-for-tpl.html.

54 Ruth Kitchin Tillman, "Editorial: Introspection as Activism, or, Getting our Houses in Order," *Code4Lib Journal* 35 (2017), http://journal.code4lib.org/articles/12232.

55 Christina Harlow, "Resistance is Fertile: Building a Manualfesto for LibTech," (presentation, Code4Lib, Los Angeles, CA, March 9, 2017), https://youtu.be/xRuPShYelm4?t=1h14m59s.

56 Marx, *Capital*, 166–67.

phenomenon, external, and without a history of its own. In many ways, technology is thought of as an extension of the natural world, something neutral with respect to human relationships and, in the dominant logic of capitalism, something to be dominated and controlled.[57] This position, however, can lead to technologies having a greater cultural weight than is appropriate; recurring fears over the death of the book,[58] for example, or the replacement of traditional information technologies with contemporary ones (the internet, ebooks, games, etc.).[59] What we are really concerned about are changes in social relationships, but we see the problem as changes in the technologies themselves. Technological change in this model is out of our hands: technological innovation is a function of the technology, not of the social relationships that produce it. However, once we start looking at technology more critically, and especially once we start to see the process of technological change as part of a system of larger social processes, we can see that in fact technological change — the "supersession" of the paper codex, for example[60] — happens in particular social and historical circumstances. As circumstances change, so too do the forms of information technology occupying particular social positions. While particular technologies may be concrete objects that have properties and characteristics, *technology* is not. Rather, it is a relationship between people, a relationship that exists within a social whole.[61] As book- and information-historian Paul Duguid suggests, "to offer serious alternatives to the book, we need first to understand and even to replicate aspects of its social and material complexity"[62]; and what applies to the book applies equally to technology writ large. The social complexity of technology takes on concrete form and is given a label when both its history and its position in society is ignored or forgotten, when it becomes "natural," taken for

---

57 Franklin offers yet another view in *The Real World of Technology*.

58 Leah Price, "Dead Again," *New York Times*, August 10, 2012, http://www.nytimes.com/2012/08/12/books/review/the-death-of-the-book-through-the-ages.html; Tania Kindersley, "The Death of the Book, Again," *The Guardian*, April 17, 2002, https://www.theguardian.com/books/booksblog/2007/apr/17/thedeathofthebookagain.

59 "Are E-Books Killing Reading for Fun?" January 23, 2014, http://www.npr.org/2014/01/23/265239102/are-e-books-killing-reading-for-fun; Padraig Belton and Matthew Wall, "Did Technology Kill the Book or Give it New Life?" *BBC News,* August 14, 2015, http://www.bbc.com/news/business-3371596; Alexis C. Madrigal, "The Next Time Someone Says the Internet Killed Reading Books, Show Them This Chart," *The Atlantic,* April 6, 2012, http://www.theatlantic.com/technology/archive/2012/04/the-next-time-someone-says-the-internet-killed-reading-books-show-them-this-chart/255572/.

60 Paul Duguid, "Material Matters: The Past and Futurology of the Book," in *The Book History Reader*, eds. David Finkelstein and Alistair McCleery (London and New York: Routledge, 2006), 495.

61 Georg Lukács, "Technology and Social Relations," *New Left Review* 1, no. 39 (1966): 27–34.

62 Duguid, "Material Matters," 495.

granted, untheorized. Traditional, non-dialectical logic requires that these relationships be defined and labeled in order to operationalize them, subdue them, within the current mode of production in order to obscure the social relationships that underpin them. Why should the social relationships be obscured? Why should capitalism insist on the primacy of practice over theory? We will address these and other questions below.

*Information Technology and Libraries*

The value-free view of technological change is predicated on an abstract idea of innovation that seeks to bracket changes in technology from other social and economic developments. An increasing rate of technological change has been felt in librarianship since the early 1990s. In 1993, John Buschman wrote "that information technology is changing libraries and the library profession is not in question,"[63] suggesting that information technology was a new arrival on the library landscape, a self-contained entity that had a one-way causal effect on the profession. In recent years, our understanding of information technology has broadened to include pre-internet automation, like MARC and the integrated library system (ILS)—and even the book itself.[64]

The history of information technologies in libraries can be divided into two phases. The first phase, which began in the 1970s and achieved its peak in the 2000s, was a period of automation and computerization of traditional library tasks through hardware and software applications. More recently we have seen the rise of computer programming as an important skill among library workers. Workshops like Ladies Learning Code and Software Carpentry are hugely popular (though not without criticism[65]), as are online tutorial systems like a CodeSchool and CodeAcademy, and MOOCs from Coursera and EdX.

These two phases can be understood as corresponding to Marx's concepts of the formal and real subsumption of labor under capitalism[66], concepts Marx adapted from the logical system of Hegel. In conditions of formal subsumption, existing labor practices are taken over by capital, turned into profit-making enterprises without changing the practices themselves. In the case of librarianship, technologies are applied to existing processes and

---

63 John Buschman, "Introduction: Why Do We Need a Critical Approach to Information Technology in Librarianship?" in *Critical Approaches to Information Technology in Librarianship: Foundations and Applications*, ed. John Buschman (Westport, CT: Greenwood Press, 1993), 2.

64 Jeremy Norman, *From Gutenberg to the Internet: A Sourcebook on the History of Information Technology* (Novato, CA: historyofscience.com, 2005).

65 Miriam Posner, "We Can Teach Women to Code, but That Just Creates Another Problem," *The Guardian,* March 14, 2017, https://www.theguardian.com/technology/2017/mar/14/tech-women-code-workshops-developer-jobs.

66 Marx, *Capital,* 645.

workflows but things are fundamentally done the same way. In conditions of real subsumption, however, a fundamental change to labor practice takes place, in which processes and workflows are broken down, recombined, and intensified to better support the demands of capitalist logic.[67] As Chris Bourg has noted, this process is incomplete and ongoing[68]; it generally takes place through the implementation of increased automation.

Automation, by definition, involves replacing some or all of the work done by a human being by an automatic (i.e. machine) process. In addition, automation is the only way libraries can address the vastly increased (and ever-increasing) universe of bibliographic resources. The invention of MARC, for example, was necessary to automate the production of catalog cards[69]; the goal of modern developments like patron- or demand-driven acquisition is to remove human intervention from as much of the acquisition process as possible. This goal is rarely, if ever, the focus of the discourse of automation, which tends to prefer narratives of saving staff time, finding efficiencies, giving users more choice ("give 'em what they want"[70]), and speeding up the period between discovery and access ("save the time of the user"[71]). This conforms not only to the requirement for mystification under capitalism, but also to the tendency of library management to model itself on the dominant capitalist cultural logic. Karen Nicholson writes that this process

> reflects the growing influence of corporate aims and values (in other words, competition, profitability, risk, value for money, entrepreneurship) in the public sector under the neoliberal philosophy of New Public Management.[72]

The insistence on neutrality means that these justifications are often seen in a vacuum; to discuss the effects of automation on library labor,

---

67 Formal and real subsumption of labor under technology can be roughly equated with Franklin's "holistic" and "prescriptive" technologies. Franklin, *Real World*, 10.

68 Chris Bourg, "What Happens to Libraries and Librarians when Machines can Read All the Books?" *Feral Librarian* (blog), March 16, 2017, https://chrisbourg.wordpress.com/2017/03/16/what-happens-to-libraries-and-librarians-when-machines-can-read-all-the-books/.

69 Sally H. McCallum, "MARC: Keystone for Library Automation," *IEEE Annals of the History of Computing* 24, no. 2 (2002): 34–49, doi:10.1109/MAHC.2002.1010068.

70 Karen S. Fischer, Michael Wright, Kathleen Clatanoff, Hope Barton, and Edward Shreeves, "Give 'em What They Want: A One-Year Study of Unmediated Patron-Driven Acquisition of E-books," *College & Research Libraries* 73, no. 5 (2012): 469–92, doi:10.5860/crl-297; William H. Walters, "Acquisition and the Educational Mission of the Academic Library," *Library Resources and Technical Services* 56, no. 3 (2012): 199–213, doi:10.5860/lrts.56n3.199.

71 S.R. Ranganathan, *The Five Laws of Library Science* (London: Edward Goldston, 1931), 362.

72 Karen P. Nicholson, "The McDonaldization of Academic Libraries and the Values of Transformational Change," *College & Research Libraries* 76 (3): 330, doi:10.5860/crl.76.3.328.

structures of power, professionalization, and what the Annoyed Librarian dismisses as "non-library issues,"[73] is to bring politics into an otherwise purely technical discussion. It is not that the justifications for labor-saving automation aren't valid, but that by ignoring "the political" we miss out on critically important aspects of the problem.

*Technology and Library Work*

Returning to the dialectic, this concept requires us to be suspicious of dualisms precisely because "common sense" logic isolates phenomena into distinct categories. Some of the dualisms we've seen so far are algorithmic/non-algorithmic; technological/human; political/non-political; neutral/non-neutral. In the dialectical view, these binary opposites[74] obscure the mutual dependence of each term on the other, as well as the fact that these relationships change over time. Thus humanity's use of tools/technology is both a product of human ingenuity and also creates/modifies the minds, bodies, relations, and culture of humanity over the course of history.[75]

It would be easy to see Marxism merely as a technological determinism. However, as Steve Matthewman writes, to accuse Marx of a simple determinism would be to misunderstand his argument. For Marx,

> Technology is neither society's driver nor the source of all problems; the issue is technology's integration into society. Technological development is distorted under capitalism because it is impelled by the logics of profit and domination.[76]

If we ignore the elements of profit and domination in technological change and innovation — the development of MARC, for example, or patron-driven acquisition — then we are uncritically accepting the structures of exploitation and oppression inherent in capitalist society.[77]

Because in Marx's economic theory *only* human labor can create new value, the greater the proportion of machinery to labor power, the more

---

73 Annoyed Librarian, "ALA Debate on Non-Library Issues," *Annoyed Librarian* (blog), June 18, 2007, https://annoyedlibrarian.blogspot.ca/2007/06/ala-debate-on-non-library-issues.html.

74 The most well-known literary theory to deal with these kinds of binary opposites is deconstruction, but while deconstruction attempts to show that the dominant term in the opposition requires and is constituted by the subordinate one, Marxism sees each term as mutually constituting the other, with the details of that interdependence changing over time.

75 John Bellamy Foster, *Marx's Ecology: Materialism and Nature* (New York: Monthly Review Books, 2000), 202–03.

76 Steve Matthewman, *Technology and Social Theory* (London: Palgrave Macmillan, 2011), 38.

77 A similar argument has been made with respect to subject classification. See Hope Olson, *The Power to Name: Locating the Limits of Subject Representation in Libraries* (Dordrecht: Kluwer, 2002).

profitability declines. Marx called this proportion the "organic composition of capital"; in general, as the organic composition rises, capitalist profits decline, absent countervailing forces. This leads to a contradiction between desire to automate (to reduce labor costs) and the extraction of profit. The history of this process, as well as labor's struggles within it, provides great insights into capitalism in general and technological innovation in particular, as the work of Nick Dyer-Witheford attests. Innovation, rather than being rooted in an abstract notion of progress or entrepreneurship, becomes an integral part of the logical development of capitalist social and productive relations through the mechanism of class struggle.

Due to of their ubiquity and complexity, it is easy to see these dynamics as objective forces driving social change outside of human relationships. But when technology is recognized as subject to social forces (e.g. class struggle), as part of the culture of a particular mode of production, then it becomes clear that, contrary to what Atherton and Fister claim, technology drives not only deskilling and deprofessionalization, but also the techno-utopian outlook they espouse. The dialectical view of technologies as a set of relationships with their own specific history opens up the potential for an emancipatory use of technology without succumbing to techno-utopianism.[78]

However, the history of technologies in libraries has generally been one of conformity with, rather than resistance to, capitalist logic. In Karen Coyle's fascinating study of bibliographic models, for example, she distinguishes the data modeling aspect of cataloging from the technical implementation of the model, mirroring the capitalist bias against seeing things as an integrated whole. The technique of data modeling (from Cutter's 1875 goals of the library catalog through to the Functional Requirements for Bibliographic Records (FRBR) and beyond) is often distinct from the implementation of the catalog itself, demonstrating the "separation of concerns" prioritized by software engineering, but leading to a division between librarians and the developers who build our software. Librarians tend to be responsible for designing bibliographic data structures, but are rarely involved in the implementation of those structures in software, "lead[ing] to an awkward situation where the goals of cataloging may not be the same as the functions of the catalog as implemented."[79]

---

78 For a critique of techno-utopianism, see Evgeny Morozov, *To Save Everything, Click Here: The Folly of Technological Solutionism* (New York: PublicAffairs, 2014).

79 Karen Coyle, *FRBR, Before and After: A Look at our Bibliographic Models* (Chicago: ALA Editions, 2016), 35.

*Speed and Resistance*

I would go further and suggest that, more than merely "awkward," this state of affairs alienates library workers from technology, making it appear as an external force imposed on them without understanding or reflecting their needs, work, and values. This situation produced the oppressive and parasitic library technology vendor ecosystem of today (which includes exploitative price increases on the part of journal publishers, as well as the monopolistic practices of software suppliers), but it has its roots in the dominant capitalist logic of the last quarter of the Nineteenth Century. In 1875 library catalogs were produced as printed books that "had the same advantages as books themselves":

> they could be produced in multiple copies and were highly portable. A library could give a copy of its catalog to another library, thus making it possible for users to discover, at a distance, that a library had the item sought. The disadvantages of the printed book catalog, however, became more serious as library collections grew and the rate of growth increased.[80]

The year 1875 is significant in the history of capitalism as Western Europe was in the middle of a long depression (1873 – 1879), though the development of capitalism proceeded apace, thanks to the "unlocking" of markets through the process of imperialism. In *Age of Empire, 1875 – 1914*, Eric Hobsbawm writes of the rapid development of technology even in the midst of the depression:

> How much attention would serious lay observers in the second half of the 1870s have paid to the revolutionary advances of technology which were already incubating or being born at the time… Progress was most visible… in the capacity for material production and for speedy and massive communication in the 'developed' world.[81]

Cutter's rules, then, were developed in a world of increasing pace (Benz' motor-car patent was granted in 1879, the motor-boat was invented in 1886) as well as bibliographic output. Dealing with the increased speed of life and proliferation of printed material meant that "to Cutter, the catalog's main goal [was] to be an 'efficient instrument'"[82]. This drive towards efficiency would lead directly to the transformation of capitalist industry from that of the "professional worker" to that of the post-war "mass worker"[83]

---

80 Coyle, *FRBR: Before and After*, 48.

81 Eric Hobsbawm, *Age of Empire*, *1875–1914* (London: Abacus Books, 1987), 28.

82 Coyle, *FRBR*, 36.

83 Dyer-Witheford, *Cyber-Marx*, 72.

thanks to the implementation of Henry Ford's assembly line for automobile manufacturing in 1913. The value of efficiency, however, was not a "neutral" one: it was a value required for and driving the development of capitalism and capitalist society. Because he was part of the capitalist society of the 1870s, Cutter adopted efficiency as a primary value in a way that would have been completely foreign to pre-capitalist bibliographers. Efficiency, however, was an important component of Ranganathan's five laws,[84] MARC,[85] and patron-driven acquisition.[86]

The rise of computerization after World War II led eventually to the invention of MARC, moving library technology away from assembly-line work towards automation. MARC was approved as an ANSI standard in 1970,[87] laying the foundation for interoperability and computerized display of bibliographic records, and forming the basis of the first online catalog at Ohio University in 1975.[88] By the late 1970s — coinciding with the advent of "post-Fordist" "information society"[89] — libraries had embarked on a program of mass automation that led not only to innovations which fundamentally changed the profession such as the invention of the Integrated Library System (ILS) and computerized copy-cataloging, but also to the rise of a vendor ecosystem focused on providing computerized and online services to libraries (the first Dynix installation, for example, was in 1983[90]). Fears of deskilling and deprofessionalization proved warranted, however, as many cataloging departments found themselves downsized thanks to the efficiency of the new automated systems[91] and the outsourcing capacity they opened up.

---

84 Ranganathan, *Five Laws*, 362.

85 Henriette D. Avram, John F. Knapp, and Lucia J. Rather, *The MARC II Format: A Communication Format for Bibliographic Data* (Washington: Library of Congress, 1968), 1.

86 Stephen Arougheti, "Keeping Up With... Patron Driven Acquisitions," *Association of College & Research Libraries*, June 2015, http://www.ala.org/acrl/publications/keeping_up_with/pda.

87 Karen M. Spicher, "The Development of the MARC Format," *Cataloging & Classification Quarterly* 21, nos. 3–4 (1996): 86, doi:10.1300/J104v21n03_06.

88 Sammy R. Alzofon and Noelle van Pulis, "Patterns of Searching and Success Rates in an Online Public Access Catalog," *College & Research Libraries* 45 (1984): 110.

89 Dyer-Witheford, *Cyber-Marx*, 16–37.

90 Brooke Adams, "Dynix Chief Says Attitude is the Key to Success," *Deseret News*, August 31, 1993, http://www.deseretnews.com/article/307598/DYNIX-CHIEF-SAYS-ATTITUDE-IS-THE-KEY-TO-SUCCESS.html.

91 Ann O'Bryan and Kristi L. Palmer, "The Evolving Cataloging Department," (presentation, ALCTS discussion and interest groups meeting, San Antonio, TX, January 20–25, 2006), https://scholarworks.iupui.edu/handle/1805/705; Mary M. Rider, "Developing New Roles for Paraprofessionals in Cataloging," *Journal of Academic Librarianship* 22, no. 1 (1996): 26–32, doi:10.1016/S0099-1333(96)90031-2.

Since the 2008 financial crisis, we have been better able to see the effect of almost total automation in the centers of developed capitalism. The financial markets are automated with high-speed computer and network systems which function independently of human control; it was the immense speed and vast networks of this financial system that made the 2008 crisis so difficult to halt once it had begun. High-speed, just-in-time supply chains for capitalist enterprises—including library technology vendors—are able to be quickly and frequently moved around between low-cost, hyper-exploitative, and ecologically damaging zones of global poverty in order to maximize profits while providing consumer commodities for the global north and west.[92] The Internet Archive proposal to begin mass digitization in China is part of this global process of capitalist manoeuvring, even when the organization in question has non-profit status. The offshoring of "white collar" labor (in this case previously-skilled digitization work) indicates the encroachment of full-automation and capitalist profit-maximization strategies onto previously safe sectors of labor. White collar, immaterial, and affective labor—such as library work—had been spared this effect while capital moved less skilled work to cheaper zones, but once the low-hanging fruit had been dealt with, more expensive labor was then open to the same process of offshoring and reproletarianization. Wherever capitalism turns in order to reduce labor costs, labor eventually organizes and puts pressure on capital for higher wages, leading to a "circuit of struggle" between labor and capital that is both spatially global and sectorally total. As Dyer-Witheford writes:

> Everywhere cheapened labor has revolted, the option of technologically eliminating it returns to the table, enhanced by new generations of robots emerging from twenty-first century wars, and increasingly directed not just against manual work, but at the white-collar jobs of intermediate positions once imagined as secure.[93]

Information workers are squeezed into precarity and reproletarianization not only through this process of automation and offshoring, but by flooding the labor market with degree holders[94]; schools of library and information science themselves become subject to the logic of the capitalist marketplace.

---

92 Dyer-Witheford, *Cyber-Proletariat*, 85.

93 Dyer-Witheford, *Cyber-Proletariat*, 169.

94 Myron Groover, "On Precarity," *Bibliocracy* (blog), January 6, 2014, http://bibliocracy-now.tumblr.com/post/72506786815/on-precarity.

However, these processes may, counter-intuitively, also open space for resistance by combining a recognition of the proletarian nature of previously privileged labor as well as the potential for biopolitical and affective resistance identified by both Nick Dyer-Witheford[95] and Lisa Sloniowski[96] in the context of corporate universities. Indeed, Sloniowski suggests that the very immateriality of library work may allow particular forms of resistance to surface:

> Academic reference librarians must engage the concepts of critical information literacy and social justice in our teaching as key mechanisms for resisting market logic in education. We must continue to build broad and subversive collections and resist censorship and fight for intellectual freedom and freedom of expression. I would contend that by fostering spaces for dissent, civic engagement, nonneutrality, and even nonefficiency in our libraries and classrooms, we offer disruptions in the affective flow of the corporate university. Similar contributions can be made in the areas of scholarly communication and digital scholarship, calling attention to the ways in which authority is constructed and valued, and exposing the gears of knowledge production.[97]

Sloniowski's model of resistance demonstrates that the determinations of capital, while all-encompassing, are not total. There are always spaces of resistance within the cultures of the mode of production and those cultures are never applied evenly in space and time: capitalism produces and relies upon uneven regional development,[98] as well as changes in economic development over time. In addition to traditional material struggles (e.g. unionization, collective bargaining, and strikes), in the discursive and affective battles waged every day by critical librarians, it is crucial that we be able to provide alternative models, explanations, and demystifying analyses. Critique must not, however, be satisfied merely with analyzing the inequalities, oppressions, and repressions of a given system, it must offer at least a vision of another possible state of affairs. As Marx maintained in the well-known eleventh thesis on Feuerbach, the point of critique is not merely to understand the world but to change it.

## Conclusion: Theory, Practice, Politics

In addition to their differing views of the potential of technology, the Babbage-Marx dichotomy implies a further split between the priority of practice

---

95 Nick Dyer-Witheford, "Cognitive Capitalism and the Contested Campus," in *Engineering Culture: On 'the Author as (Digital) Producer,'* eds. Geoff Cox and Joasia Krysa (New York: Autonomedia, 2005), 71–93.

96 Lisa Sloniowski, "Affective Labor, Resistance, and the Academic Librarian," *Library Trends* 64, no. 4 (2016): 645–66, doi:10.1353/lib.2016.0013.

97 Sloniowski, "Affective Labor," 664.

98 Keucheyan, *The Left Hemisphere*, 114–15, 144–45.

(Babbage) and the priority of theory (Marx). That this dichotomy is, at least with respect to Marx, a false one will, I hope, become clear. However, it does raise the question of why such a dichotomy should exist in the first place, a question with a very long history indeed, as the work of Hannah Arendt demonstrates.

In her investigation into the nature of work and social activity, Hannah Arendt notes that the distinction between theory and practice has "been manifest… since the rise of political thought in the Socratic school"[99]. For the Greeks, freedom was the escape from the realm of human necessity (health, wealth, procreation, etc.) into political life (*bios politikos*)[100]. Only when a citizen is free of animal necessity can they participate in the life of the polis without compulsion, rationally.

> The realm of the *polis* [as opposed to the household] was the sphere of freedom, and if there was a relationship between these two spheres, it was a matter of course that the mastering of the necessities of life in the household was the condition for freedom of the *polis.*[101]

Until the modern period, it was theory (*bios theoretikos*, *vita contemplativa*) that took priority over practice (*vita activa*). "The term *vita activa* receives its meaning from the *vita contemplativa*, its very restricted dignity is bestowed upon it because it serves the needs and wants of contemplation."[102] Only as the political realm changed over time did politics itself come to be seen as part of the realm of necessity, of duties and obligations. For Arendt, the defining characteristic of the modern age is the reversal of the hierarchy, with practice becoming the privileged or valued term, and theory in some sense subordinate.

In Arendt's view, two of the main contributors to this reversal of the traditional hierarchy were Karl Marx and Friedrich Nietzsche. Through Marx's dialectical view of labor on the one hand, and Nietzsche's recognition of the irrational on the other, coupled with their shared promotion of action over contemplation, Marx and Nietzsche contributed to the re-evaluation of practice. In this, they were simply following the course laid out by Enlightenment reason itself, the "cultural logic" of nineteenth century capitalism. Marx's attitude towards labor, practice, and the active life, however, is more nuanced than Arendt's view allows. Arendt argues that, while the work of Marx and Nietzsche aimed at unifying (Marx) or destroying (Nietzsche) the distinction

---

99 Hannah Arendt, *The Human Condition* (Chicago: Chicago University Press, 1958), 18.

100 Giorgio Agamben draws the distinction between *zoē* ("bare life") and *bios* (political life), in *Homo Sacer: Sovereign Power and Bare Life* (Stanford: Stanford University Press, 1995), 1.

101 Arendt, *The Human Condition*, 30.

102 Arendt, *The Human Condition*, 16.

between theory and practice, in fact their reversal left the "conceptual framework"[103] of the distinction intact. However, the dialectic Marx adapted from Hegel is intended to *resolve* the contradiction between binary opposites, producing a new, third, term out of the antagonism between the first two. Thus theory and practice, in Marxist terms, only *appear* to be opposed to each other; in reality, the contradictions between the two can and must be resolved into a unified form of praxis. Indeed, Gramsci's view of Marxism as the "philosophy of praxis" only makes sense within this dialectical context, and would have been absurd prior to the development of the Marxist dialectic.

To return to the historical separation between theory and practice, we have seen how this split benefits the ruling class by characterizing practice as "value free." In order for its structures, processes, and practices to appear neutral, in order for them to continue to function smoothly, they must remain obscured, mystified, not open to theorization. An untheorized practice simply reproduces the inequalities and oppressions of the system even while it allows the system to keep functioning. For Marxists, however, it is not enough to "add" theory to practice. Theory and practice are part of a dialectically unified whole: our practices—our material life—informs our theory while our theory allows us to penetrate the mystery of our practices, explain them, and change them.

It should come as no surprise that I see librarianship as a praxis allowing for the dialectical unity of theory and practical activity. It should also be unsurprising that, since I have taken the position that neutrality is impossible, I feel this praxis must be committed to certain values and political positions, and that this commitment must be to what is often called "the subaltern," not just the working class of orthodox Marxism, but all the other subjects of emancipation who are part of the multitude of the exploited under neoliberal capitalism. Critical librarianship, for me, must be both a critique of institutions and practices, *and* a practice of solidarity with all those who, as subalterns, find it difficult or impossible to speak or act for themselves. This is, I suppose, a strategic position, which may lead to various tactical operations, but I see library workers as occupied with what Gramsci called the "war of position," that long, drawn-out conflict between capital and human beings which can end only with the overthrow of the inhuman. I hope this chapter, too, exists within that unified space of theory and practice and is a modest contribution to the project of commitment and solidarity that I imagine critical librarianship to be.

---

103 Arendt, *The Human Condition*, 17.

# Bibliography

Althusser, Louis. "Ideology and Ideological State Apparatuses." In *Lenin and Philosophy and Other Essays*, 85–126. New York: Monthly Review Press, 2001.

"Are e-books killing reading for fun?" January 23, 2014. http://www.npr.org/2014/01/23/265239102/are-e-books-killing-reading-for-fun.

Arendt, Hannah. *The Human Condition.* Chicago: Chicago University Press, 1958.

Arougheti, Stephen. "Keeping Up With… Patron Driven Acquisitions." *Association of College & Research Libraries*, June 2015. http://www.ala.org/acrl/publications/keeping_up_with/pda.

Atherton, J. "Automation and the Dignity of the Archivist." *Canadian Archivist* 2, no. 1 (1970): 56–58.

Avram, Henriette D., John F. Knapp, and Lucia J. Rather. *The MARC II Format: A Communication Format for Bibliographic Data.* Washington, DC: Library of Congress, 1968.

Babbage, Charles. *On the Economy of Machinery and Manufactures.* London: John Murray, 1836.

Belton, Padraig, and Matthew Wall. "Did Technology Kill the Book or Give It New Life?" *BBC News*, August 14, 2015. http://www.bbc.com/news/business-33717596.

Bourg, Chris. "Library Technologies and Social Justice." Keynote address at the Access Conference, Fredericton, New Brunswick, October 4, 2016. https://www.youtube.com/watch?v=p7LKKSOA5DU.

———. "What Happens to Libraries and Librarians when Machines can Read All the Books?" *Feral Librarian* (blog), March 16, 2017. https://chrisbourg.wordpress.com/2017/03/16/what-happens-to-libraries-and-librarians-when-machines-can-read-all-the-books/.

Buschman, John. "Introduction: Why Do We Need a Critical Approach to Information Technology in Librarianship?" In *Critical Approaches to Information Technology in Librarianship: Foundations and Applications,* edited by John Buschman, 1–12. Westport, CT: Greenwood Press, 1993.

Byrne, Emma. "Cybernetic Implants: No Longer Science Fiction." *Forbes,* March 11, 2014. https://www.forbes.com/sites/netapp/2014/03/11/cybernetic-implants-not-sci-fi

Cossette, André. *Humanism and Libraries: An Essay on the Philosophy of Librarianship.* Duluth: Library Juice Press, 2009.

Coyle, Karen. *FRBR, Before and After: A Look at our Bibliographic Models.* Chicago: ALA Editions, 2016.

Dewey, Caitlin. "Facebook has Repeatedly Trended Fake News since Firing its Human Editors." *The Washington Post*, October 12, 2016. https://www.washingtonpost.com/news/the-intersect/wp/2016/10/12/facebook-has-repeatedly-trended-fake-news-since-firing-its-human-editors.

Duguid, Paul. "Material Matters: The Past and Futurology of the Book." In *The Book History Reader*, edited by David Finkelstein and Alistair McCleery, 494–508. London: Routledge, 2006.

Dyer-Witheford, Nick. *Cyber-Marx: Cycles and Circuits of Struggle in High-Technology Capitalism.* Urbana: University of Illinois Press, 1999.

———. "Cognitive Capitalism and the Contested Campus." In *Engineering Culture: On 'the Author as (Digital) Producer,'* edited by Geoff Cox and Joasia Krysa. New York: Autonomedia, 2005.

———. *Cyber-Proletariat: Global Labour in the Digital Vortex.* Toronto: Between the Lines, 2015.

Eagleton, Terry. *Why Marx was Right.* New Haven, CT: Yale University Press, 2011.

Elliott, Larry. "Millions of UK Workers at Risk of Being Replaced by Robots, Study Says." *The Guardian*, March 24, 2017. https://www.theguardian.com/technology/2017/mar/24/millions-uk-workers-risk-replaced-robots-study-warns.

Fischer, Karen S., Michael Wright, Kathleen Clatanoff, Hope Barton, and Edward Shreeves. "Give 'em What They Want: A One-Year Study of Unmediated Patron-Driven Acquisition of E-books." *College & Research Libraries* 73:5 (2012): 469–92. doi:10.5860/crl-297.

Fister, Barbara. "Balancing the Trade-Offs: Pros and Cons of Library Technology." *Library Issues* 19, no. 1 (1998). http://www.libraryissues.com/LI9809.asp.

Foster, John Bellamy. *Marx's Ecology: Materialism and Nature.* New York: Monthly Review Books, 2000.

Fox, Emily Jane. "Amazon Reportedly Has Scoreboards To Shame Its Workers." *Vanity Fair*, March 8, 2016. http://www.vanityfair.com/news/2016/03/amazon-warehouse-theft.

Franklin, Ursula M. *The Real World of Technology*. Toronto: House of Anansi, 1999.

Gibbs, Samuel. "Microsoft's Racist Chatbot Returns with Drug-Smoking Twitter Meltdown." *The Guardian*, November 11, 2017. https://www.theguardian.com/technology/2016/mar/30/microsoft-racist-sexist-chatbot-twitter-drugs.

Gramsci, Antonio. *Selections from the Prison Notebooks*. Edited and translated by Quentin Hoare and Geoffrey Nowell Smith. New York: International Publishers, 1971.

Groover, Myron. "On Precarity." *Bibliocracy* (blog), January 6, 2014. http://bibliocracy-now.tumblr.com/post/72506786815/on-precarity.

Hardt, Michael, and Antonio Negri. *Empire*. Cambridge, MA: Harvard University Press, 2000.

Harlow, Christina. "Resistance is Fertile: Building a Manualfesto for LibTech." Presentation at the Code4Lib Conference, Los Angeles, California, March 9, 2017. https://youtu.be/xRuPShYelm4?t=1h14m59s.

Harnum, Alan. "Unsolicited Technical Advice for Toronto Public Library from Someone who Used to Work There." *Alan Harnum* (blog), September 14, 2016. http://www.alanharnum.ca/libraries/technology/2016/09/14/unsolicited-technical-advice-for-tpl.html.

Harvey, David. *The Enigma of Capital and the Crises of Capitalism*. Oxford: Oxford University Press, 2010.

Hennis, Wilhelm. "The Meaning of '*Wertfreiheit*': On the Background and Motives of Max Weber's 'Postulate.'" *Sociological Theory* 12, no. 2 (1994): 113–25. doi:10.2307/201858.

Hennessey, Angela. "'As Well or Better than Humans': Automation Set for Big Promotions in White-Collar Job Market." *CBC*, February 28, 2017. http://www.cbc.ca/news/business/automation-jobs-canada-computers-white-collar-1.3982466.

Hobsbawm, Eric. *Age of Empire, 1875–1914*. London: Abacus Books, 1987.

Horkheimer, Max. "Traditional and Critical Theory." In *Critical Theory: Selected Essays*, 288–243. New York: Continuum, 2002.

Horkheimer, Max, and Theodor W. Adorno. *Dialectic of Enlightenment: Philosophical Fragments*. Stanford: Stanford University Press, 2002.

Hough, Andrew. "'End of the Librarian' as Staff Sacked for Automatic Check Out Machines." *The Telegraph*, September 29, 2009. http://www.telegraph.co.uk/news/uknews/6239766/End-of-the-librarian-as-staff-sacked-for-automatic-check-out-machines.html.

Jameson, Fredric. *Marxism and Form: Twentieth-Century Dialectical Theories of Literature*. Princeton, NJ: Princeton University Press, 1971.

———. *Postmodernism, or, the Cultural Logic of Late Capitalism*. Durham, NC: Duke University Press, 1991.

———. *An American Utopia: Dual Power and the Universal Army*. New York: Verso, 2016.

Joll, Nicholas. "Contemporary Metaphilosophy." In *The Internet Encyclopedia of Philosophy*, edited by James Fieser and Bradley Dowden. Last revised August 1, 2017. http://www.iep.utm.edu/con-meta.

Keucheyan, Razmig. *The Left Hemisphere: Mapping Critical Theory Today*. London: Verso, 2014.

Kindersley, Tania. "The Death of the Book, Again." *The Guardian*, April 17, 2002. https://www.theguardian.com/books/booksblog/2007/apr/17/thedeathofthebookagain.

Lukács, Georg. "Technology and Social Relations." *New Left Review* 1, no. 39 (1966): 27–34.

———. *History and Class Consciousness: Studies in Marxist Dialectics.* Cambridge, MA: MIT Press, 1971.

Madrigal, Alexis C. "The Next Time Someone Says the Internet Killed Reading Books, Show Them This Chart." *The Atlantic*, April 6, 2012. https://www.theatlantic.com/technology/archive/2012/04/the-next-time-someone-says-the-internet-killed-reading-books-show-them-this-chart/255572/.

Marchant, Maurice P., and Mark M. England. "Changing Management Techniques as Libraries Automate." *Library Trends* 37, no. 2 (1989): 469–83.

Martin, Nick. "U of M, Union Disagree Strongly on Library Staff Cuts." *Winnipeg Free Press,* October 6, 2016. http://www.winnipegfreepress.com/local/u-of-m-union-disagree-strongly-on-library-staff-cuts-382525141.html.

Marx, Karl. "For a Ruthless Criticism of Everything Existing." In *The Marx-Engels Reader*, edited by Robert C. Tucker, 12–15. New York: Norton, 1972.

———. *Capital: A Critique of Political Economy, Volume 1.* London: Penguin Books, 1973.

———. *A Contribution to the Critique of Political Economy.* Moscow: International Publishers, 1979.

———. *Grundrisse: Foundations of the Critique of Political Economy.* London: Penguin Books, 1993.

Matthewman, Steve. *Technology and Social Theory.* London: Palgrave Macmillan, 2011.

McCallum, Sally H. "MARC: Keystone for Library Automation." *IEEE Annals of the History of Computing* 24, no. 2 (2002): 34–49. doi:10.1109/MAHC.2002.1010068.

Morozov, Evgeny. *To Save Everything, Click Here: The Folly of Technological Solutionism.* New York: PublicAffairs, 2014.

Moufawad-Paul, J. *Continuity and Rupture: Philosophy in the Maoist Terrain.* Washington, DC: Zero Books, 2016.

Nicholson, Karen P. "The McDonaldization of Academic Libraries and the Values of Transformational Change." *College & Research Libraries* 76, no. 3: 328–38. doi:10.5860/crl.76.3.328.

Noble, Safiya Umoja. "Just Google It: Algorithms of Oppression." Presentation at Douglas College, University of British Columbia, December 8, 2015. http://ikblc.ubc.ca/safiyaumojanoble-2/.

Nolan, Hamilton. "Inside an Amazon Warehouse, the Relentless Need to 'Make Rate.'" *Gawker.com*, June 6, 2016. http://gawker.com/inside-an-amazon-warehouse-the-relentless-need-to-mak-1780800336.

Norman, Jeremy M. *From Gutenberg to the Internet*: *A Sourcebook on the History of Information Technology.* Novato, CA: historyofscience.com, 2005.

O'Bryan, Ann, and Kristi L. Palmer. "The Evolving Cataloging Department." Presentation at the ALCTS discussion and interest groups meeting, San Antonio, Texas, January 20–25, 2006. https://scholarworks.iupui.edu/handle/1805/705.

Olson, Hope. *The Power to Name: Locating the Limits of Subject Representation in Libraries.* Dordrecht: Kluwer, 2002.

Orr, Judith. *Marxism and Women's Liberation*. London: Bookmarks Publications, 2015.

Osborne, Hilary. "Amazon Accused of 'Intolerable Conditions' at Scottish Warehouse." *The Guardian*, December 12, 2016. https://www.theguardian.com/technology/2016/dec/11/amazon-accused-of-intolerable-conditions-at-scottish-warehouse.

Posner, Miriam. "We Can Teach Women to Code, But That Just Creates Another Problem." *The Guardian,* March 14, 2017. https://www.theguardian.com/technology/2017/mar/14/tech-women-code-workshops-developer-jobs.

Price, Leah. "Dead Again." *New York Times*, August 10, 2012. http://www.nytimes.com/2012/08/12/books/review/the-death-of-the-book-through-the-ages.html.

Ranganathan, S.R. *The Five Laws of Library Science.* London: Edward Goldston, 1931.

Reidsma, Matthew. "Algorithmic Bias in Library Discovery Systems." *Matthew Reidsma* (blog), March 11, 2016. https://matthew.reidsrow.com/articles/173.

Rider, Mary M. "Developing New Roles for Paraprofessionals in Cataloging." *Journal of Academic Librarianship* 22, no. 1 (1996): 26–32. doi:10.1016/S0099-1333(96)90031-2.

Schacher, Casey. "The Threat of Deprofessionalization."*Library Worklife*, November 2007. http://ala-apa.org/newsletter/2007/11/16/libraries-without-librarians/.

Sloniowski, Lisa. "Affective Labor, Resistance, and the Academic Librarian." *Library Trends* 64, no. 4 (2016): 645–66. doi:10.1353/lib.2016.0013.

Spicher, Karen M. "The Development of the MARC Format." *Cataloging & Classification Quarterly* 21, nos. 3–4 (1996): 75–90. doi:10.1300/J104v21n03_06.

Tillman, Ruth Kitchin. "Editorial: Introspection as Activism, or, Getting Our Houses in Order." *Code4Lib Journal* 35, January 30, 2017. http://journal.code4lib.org/articles/12232.

Walters, William H. "Acquisition and the Educational Mission of the Academic Library." *Library Resources and Technical Services* 56, no. 3 (2012): 199–213. doi:10.5860/lrts.56n3.199.

Williams, Raymond. *Marxism and Literature.* Oxford: Oxford University Press, 1978.