

Review Essay

Ecology and Concepts of Technology

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Baron, Dennis. *A Better Pencil: Readers, Writers, and the Digital Revolution*. New York: Oxford UP, 2009. Print. 280 pages.

Blair, Kristine, Radhika Gajjalaand, and Christine Tulley. *Webbing Cyberfeminist Practice: Communities, Pedagogies, and Social Action*. Cresskill: Hampton Press, 2008. Print. 401 pages.

DeVoss, Dànielle Nicole, Heidi A. McKee, and Richard (Dickie) Selfe, eds. *Technological Ecologies and Sustainability*. Computers and Composition Digital Press. 2009. <http://ccdigitalpress.org/tes/>

Selber, Stuart, ed. *Rhetorics and Technologies: New Directions in Writing and Communication*. Columbia: U of South Carolina P, 2010. Print. 232 pages.

Writing, writing studies, and composition studies are inconceivable without technology, or at least a concept of technology. And, of course, the intersections of digital technologies and writing have been central to research in rhetoric and composition since before 1983, the year Kathleen Kiefer and Cynthia L. Selfe published the first issue of *Computers and Composition*, and six years after the release of the Apple II, the first successful, mass-produced home computer. As Stuart A. Selber notes in the introduction to his collection *Rhetorics and Technologies: New Directions in Writing and Communication*, it is difficult to imagine rhetorical activity untouched by ongoing developments in writing and communication technologies” (2). Some, including me, might even characterize composition studies as a technological field. Yet, with the inextricable bond between writing and technology in mind, the richness of composition studies’ technological research is often hamstrung by the limits of two primary lines of inquiry: first, the debate as

to whether or not technologies, digital technologies in particular, are beneficial or detrimental to writing/writers, and, second, how might writers and teachers of writers *use* technologies as *tools* to *improve* their writing and teaching of writing. That is to say, in much of composition studies, various computer and digital technologies are understood primarily as apparatus, as external elements used in the making of writing, not necessarily as indistinguishable from the writing or even as writing. Technology in composition studies is most often a prosthetic, a device, and a provision. In the review that follows, I address technology not as a tool or an assembly of tools to be used, but as a concept that is, at times, indistinguishable from concepts of writing. As R.L. Rutsky explains, “For all the discussion of the implications of technological change, remarkably little attention has been devoted to possible changes in the *conception* of technology” (2, emphasis in original). The inquiry into a concept of technology, of course, emanates from Heidegger’s “The Question Concerning Technology” in which Heidegger considers the “essence of technology” which “is by no means technological” (311). To frame a conceptual approach to technology and writing, I offer four maxims regarding writing and technology:

1. Writing and technology are spatial.
2. Writing and technology are ecological.
3. Technology is not a tool independent of a user.
4. Writing is not independent of technology.

In the pages that follow, I examine four recent book-length works that take up technology as central to rhetoric and composition. My intent in this review essay is not to identify what we might find “useful” about what each book offers (and, each does offer much), but how they, as contributions to a collective disciplinary construction of *Technology* push our concepts beyond the familiar and often reductive user/tool metaphors. Of course, these texts are not somehow unique among the many others published recently that have considered technology within the frame of rhetoric and composition—I’m thinking, for instance of books like Bradley Dilger’s and Jeff Rice’s *From A to <A>: Keywords of Markup*, Byron Hawk’s and Ollie Ovieda’s *Small Tech: The Culture of Digital Tools*, Amy C. Kimmea-Hea’s *Going Wireless: A Critical Exploration of Wireless and Mobile Technologies for Composition Teachers and Researchers*, Collin Gifford Brooke’s *Lingua Fracta: Towards a Rhetoric of New Media*, and Lynn Worsham’s and Gary A. Olson’s *Plugged In: Technology, Rhetoric and Culture in a Posthuman Age*, as well as many others from outside the field that influence our view of technology within (Rutsky, for example). Nonetheless, each of the four

books I address here is exceptional in its individual objectives, and each also stands to influence, whether intentionally or not, composition studies' concept of *Technology*.

NARRATIVE

As a matter of context, I want to begin this review essay with an abridged technology-literacy narrative, an explanation of sorts regarding my interest in technology and writing, or more accurately, technologies of writing, what M. Jimmie Killingsworth calls a “techno-autobiography” and my colleague Greg Ulmer would call an “electracy narrative.” Think of this as similar to the kinds of literacy narratives we so often ask our students to write, only framed as a technological or digital literacy narrative.

In 1982 when I was in the ninth grade, my parents purchased an Apple II for the family. Given that the cost of an Apple II at the time was somewhere between about \$1300 and \$2500 and that my parents were both earning faculty salaries, the investment was substantial. By late 1983, the Apple II was traded in for an Apple IIe with two Disk II drives and a copy of Word Star 3.0. I remember this because at my parents' insistence, on Saturday afternoons my brothers and I were driven to local computer club meetings to learn how computers work, to learn what we could use them for, and to learn the latest news and rumors about the guru-Steves from out West: Jobs and Wozniac. I also remember this because, among other things, those computer club meetings taught us how to disassemble and reassemble our machines, a skill for which I got in trouble after hiding the Afikoman inside the computer one Pesach.¹

By 1984—the same year in which Dr. Egon Spengler publically announced in *Ghostbusters* that “print is dead,” even though the Apple II had only been introduced seven years earlier and Wordstar only six years earlier—our school had an established computer lab, where we learned to program in Basic. Our father had learned Fortran as his “foreign language” requirement in graduate school (which apparently he used to predict and bet on horse races fairly successfully), and he encouraged us to learn programming. I recall two things about computer class: learning how to program our own versions of the classic 1982 Sirius Software, Inc. game “Snake Byte” and, inspired by the 1983 film *War Games*, getting in trouble for using the class modem to try to hack into other computers, which we never actually succeeded in doing. I also remember that by 1983 (tenth grade), I fulfilled all of my school writing assignments on the Apple IIe and printed them on a slow and annoyingly-loud dot matrix printer that sat adjacent to our computer desk in the living room. I also remember an

ever-growing prevalence of screens: after school and weekends at the arcade, in front of the Atari at home, or playing “computer games” on my friend’s father’s computer at the War College where he worked. Games and writing seemed the primary use for the machines. The club meetings confirmed such use-value.

In 1988, I opted to spend my junior year abroad at the University of Stirling in Scotland. I was required by my Arthurian literature seminar professor to write six critical essays during the course. The assignments were particularly difficult for me as there were no computer labs or computers available to students anywhere on campus. After submitting my first written assignment, I received a notice delivered to my dorm room that I was immediately to see my professor in his office. Given that the professor always served port and biscuits in seminar to accompany discussions of various Vulgate Cycles, I did not figure such a summons could be all that bad. The professor explained that he was unable to grade my assignment since the handwriting was almost completely illegible; of what he could read, there were an overwhelming number of misspelled words; and the assignment was only about 2/3 the length he had expected. The paper was not, the professor explained, of the caliber he expected from seminar students. He offered neither port nor biscuits. In my defense and in my best American-youth (read: jackass) attitude, I explained that if the University would move out of the dark ages and provide students with contemporary technologies, I wouldn’t have these problems. Spelling, legibility, and word count should be noted and fixed by the machine, I explained. He dismissed me from his office rather abruptly, and I was forced to learn how to hand write academic essays for the first and only time in my life.

Two years later, as I began my Master’s degree program, I accepted an adjunct teaching position with a large proprietary college. My teaching assignment included a rotation of four courses: technical writing, introduction to computers, introduction to computer programming, and introduction to office skills and filing. In my mind, these classes were operationally the same.

The review essay that follows addresses four recent publications within rhetoric and composition, each of which focuses on “technology.” I note that I read three of these four texts in print form; I only read *Technological Ecologies and Sustainability* on screen—splitting screen time between my two desk tops, lap top, net pad, and smart phone. Likewise, I wrote this essay strictly on screen, using the same five screens I used to read the text. It is with these experiences that I address these four texts.

ECOLOGY

As I have said, I am not very interested in questions regarding whether or not technology in general or specific technologies can contribute to improving one's writing. The idea of improvement is too ambiguous, too a-contextual. No research that I am aware of has established a substantial corollary between a writer's "success" or "improvement" and the technologies she uses. In fact, I am unaware of any research that shows that contemporary digital technologies serve writers "better" than did older technologies or that one technology somehow trumps another in terms of success, as Dennis Baron discusses in *A Better Pencil*. These are historical arguments, not technological arguments. They are arguments about ease, not arguments about improvement, and are tantamount to arguments about who had a tougher time as a child, often reduced to familiar claims like "You think you had it bad? At least you had shoes. We had to walk barefoot uphill both ways in the snow for three miles every day, eight days a week." What does interest me, however, are the ways in which the field constructs concepts of technology (including the *belief* that technology improves writing) and the ways that such concepts intersect with how we theorize writing, teach writing, and develop and administer writing programs. Given that much of our concept of technology is now driven by the proliferation of networked technologies and our current locations within complex, hyper-circulatory networks, many compositionists have embraced ecological approaches to theorizing Technology, writ large, specific manifestations of technologies, and writing as it intersects with both.

Many of the scholars who have driven the current ecological imperative in writing studies and computers and composition have opened doors to disrupting composition studies' technological teleologies, allowing us to rethink technologies not as simply material or even as *techne*—which implies thinking with the intent of application. Technology can be thought of as encompassing more than the material manifestation of the technology but as an intellectual position both a priori and posteriori to the material. The intellectual reaction extends across everything from inventive emergence, to the idea of technology's use, to the ideas that lead to the development of the materials used in making the physical expressions of technology, to the ideas that lead to the economic approach to disperse technology, to how users think about integrating and employing technology, to the thinking that disrupts or alters the thinking about how technology is *intended* to be used, or that technology is even *used*—and, certainly, any thinking that is altered by technology. In other words, the intellectual reaction's catalyst is thought or, more specifically, posthuman thought.

Composition studies' frustration with this degree of technological interaction often results in over-simplification of the very idea of technology and the reduction of technology to tool, things used to make and teach the making of writing (tied, as well, to an anticipation of ease or efficiency). In a historical moment when technology becomes inseparable and indistinguishable from writing (though, it really always has been; it's just flagrant now), such reductions constrain what we might theorize about writing. That is, writing studies needs to take up a different kind of approach to technology that alters the ontological position of technology and that rethinks the production of writing both within the technosphere and in light of posthuman subjectivity. Ecology appears to be one approach that is invigorating such work in the field.

On the *Technological Ecologies & Sustainability* home page and portal to the e-book, editors Dànielle Nicole DeVoss, Heidi A. McKee, and Richard (Dickie) Selfe set the context of their collection in this way:

Together, computerized writing environments (e.g., physical spaces, hardware, software, and networks) and the humans who use and support such technologies comprise complex ecologies of interaction. As with any ecology, a human-computer techno-ecological system needs to be planned, fostered, designed, sustained, and assessed to create a vibrant culture of support at the individual, programmatic, institutional, and even national and international level. Local and larger infrastructures of composing are critical to digital writing practices and processes. In academia, specifically, all writing is increasingly computer-mediated; all writing is digital.

They explain that many institutions have difficulty sustaining ecologies of digital writing. Their collection is designed to ask how to “best plan, foster, design, sustain, and assess the complex ecologies framing the study and practice of digital writing that we do (or hope to do) as teachers, scholars, learners, and writers.” The collection, they explain, “refines our discussions of the many components of sustainability, providing contextual, situated, and flexible modes and methods for theorizing, building, assessing, and sustaining digital writing ecologies.” As *Technological Ecologies & Sustainability* is the first published work from Computers and Composition Digital Press, I am more than energized by these objectives.

Setting their definition of *sustainability* in accord with Bruno Latour's distinctions between *Social* and *social* and Latour's Actor-Network Theory (ANT), DeVoss, McKee, and Selfe contend that the relationships between non-human, technological actants (Latour's term) and human actors function within complex ecological systems. The editors and the contributors to

Technological Ecologies & Sustainability offer one of the most dynamic discussions of ecology to have surfaced in the ever growing attention to ecological methodologies in composition studies. Through a framework that is grounded in ecology and sustainability, this collection solidifies a key moment in which we recognize that to address writing, particularly when considered in conjunction with/as technology, all but requires ecological perspectives. I have argued elsewhere that ecological methodologies are rapidly becoming—and should become—the primary theoretical lens through which we study and teach writing. This collection stands as paramount to that discussion within computers and writing.

The editors smartly acknowledge that within the framework of sustainability one must always ask questions as to what is to be sustained and why, locating the question of sustainability in the realm of the political. Framed within such inquiry, the editors organize the collection into four sections which progress from focus upon individuals and classrooms to programs and institutions to global concerns. Part One, “Sustaining Instructors, Students and Classroom Practices,” acknowledges that “although the scholarly exploration and use of digital media is becoming more important in our disciplines, our commitment to teaching and learning and our need to understand the rhetoric and processes of 21st century literacy practices tend to drive our choices of technosystems” (9). The five contributions to this section might be best characterized as addressing constraints in the form of institutional limitations which often make it difficult for teachers and administrators to develop and sustain technological ecosystems. As most of us experience, long-term support for digital resources and program start up and support of available resources is often inconsistent and at risk of removal. Notably, Ryan Moeller, Cheryl Ball, and Kelli Cargile Cook smartly identify how such inconsistencies often make it difficult to recruit and maintain digitally-active faculty. Moeller, Ball, and Cook, through a three-way dialogue propose that sustainable digital ecologies within English departments must operate in constant flux, their changes influenced through the needs of faculty and changes in available technologies. In this way, Moeller, Ball, and Cook’s ecological model is one of a complex ecology, a fluctuating system that anticipates and reacts to actants and agents within and exterior to the system. Pragmatically, too, Moeller, Ball, and Cook provide specific advice for job seekers and departments to take into account in recruiting and job searches, advice that I find particularly relevant.

Part II, “Sustaining Writing Programs,” focuses on institutional entities, particularly on the administration of writing programs. This part of *Technological Ecologies & Sustainability* is likely to be of most relevance to

WPAs, though to read it out of context of the remainder of the collection would devalue what the contributors achieve. Michael Day's opening chapter in this section does a remarkable job of examining technological infrastructures and explaining "why technology matters to writing programs." Day also delivers insightful strategies for developing sustainable technocologies in writing programs that address attention to the global, the local, and the key stakeholders. Likewise, Patricia Freitag Ericsson, by way of the 1987 United Nations World Commission on Environment and Development Report *Our Common Future*, also known as the Brundtland Report, offers a "three-legged" framework for developing sustainable programs, which she then employs to describe and analyze the Digital Technology and Culture (DTC) degree program at Washington State University. Given her interest in rhetorics of sustainability and her detailed historical account of sustainability, Ericsson's contribution to the collection provides one of the most useful and substantial discussions of eco-tech to date. The piece, in fact, serves to ground the remainder of the collection in a historical context of sustainability conversations. When considered in light of Kip Strasma's environmental approach to sustainability, the two selections within the larger scope of this part reveal the necessity for sustainable thinking, ecological thinking, and environmental thinking in writing studies and writing/technology studies.

Part III, "Sustaining Writing Centers, Research Centers, and Community Programs" brings ecological and sustainability thinking into conversation with institutional structures that often exist independently of traditional departments, programs, or other structures. Given the prominent reputation of Michigan State University's Writing in Digital Environments (WIDE) Research Center, and the remarkable work that faculty and graduate students from this program have forwarded, James E. Porter's "Sustaining a Research Center: Building the Research and Outreach Profile for a Writing Program," is a wonderful articulation of how to shape and sustain digital writing initiatives like WIDE and the ways in which such research centers support and promote the writing program writ large. Given the success and reputation of WIDE, Porter's account is both pragmatically useful and historically fascinating. When read alongside Mike Palmquist, Kate Kiefer, and Jill Salahub's "Sustaining (and Growing) a Pedagogical Writing Environment: An Activity Theory Analysis," which explores the development of Colorado State University's Writing@CSU website, we begin to see not only the evolutionary history of particular programs, but the ecologies that connect them within disciplinary environments.

Part IV, "Sustaining Scholarship and the Environment," as the editors describe, "illustrates the inclination among computers and writing scholars

to look beyond our own borders and to rethink our place not only in the university but also in the world” (13). There are many facets of this collection that make it one of the most relevant, interesting, invigorating, and urgent publications in composition studies in the past decade. The editors and contributors should be commended for their courage, rigor, and foresight in engaging ecology and sustainability in relation to writing and technology. As a University of Florida Sustainability Fellow, an affiliate faculty to UF’s School of Natural Resources and Environment, an active member of UF’s Environmental Humanities group, and a compositionist who has actively researched and written about intersections of ecology, writing, and technology for more than a decade, I am encouraged by the work this collection puts forward. I am particularly encouraged to see that the final part of this collection includes the often overlooked issue of the material consequences of writing programs’ increased technological ecologies upon the world around us. Shawn Apostle and Kristi Apostle’s “Old World Successes and New World Challenges: Reducing the Computer Waste Stream in America” addresses the growing global problem of e-waste. As they explain, “If we continue to erode our natural environment, then sustaining our workplace environments—our computers labs, our classrooms, and the other spaces in which we teach and research—is much more than a local matter, especially when viewed from a global, ecological perspective” (332). Apostle’s and Apostle’s contribution echoes calls from Kip Strasma in Part II to include “A sensitivity to using available resources to reduce waste—for instance, the use of local resources, resistance to products with high levels of “embedded” energy, sensitivity to overall energy conservation, etc.” as part of his Leadership in Energy and Environmental Design (LEED)-inspired assessment tool for computers and writing programs (197). We must not overlook e-waste as a critical byproduct of how we build technological ecologies associated with our writing programs and departments, particularly since one of the problems associated with e-waste is that the Western world has primarily dealt with e-waste by shipping it to underdeveloped countries where it is dumped in massive heaps, often in geographical locations inhabited by a country’s lowest socio-economic classes (for more about e-waste see <http://www.gizmodo.com.au/2011/04/the-story-of-e-waste-what-happens-to-tech-once-its-trash/#more-449320> and <http://www.greenpeace.org/international/en/campaigns/toxics/electronics/the-e-waste-problem/what-s-in-electronic-devices/>) As it sits, in vast mountain ranges of rubbish, the e-waste leaches toxins into the ground, contaminating local drinking waters, soil, agriculture, and ultimately the population. And while I’m pleased to see e-waste taken up in this collection, Apostle and Apostel, Strasma, and every other contributor to *Technological Ecologies*

Ecology & Sustainability fail to acknowledge the ecological and sustainability problems that mar the production of the devices that become e-waste.

While *Technological Ecologies & Sustainability* effectively problematizes the idea of technology, there is an overbearing understanding that much of the discussion we now have about technology refers to computer technologies or digital technologies. Technology, that is, is often assumed to suggest a device, a material representation of the technological concept. Devices and machines play a prominent role in the discussions of this collection, yet there is no discussion within its screens that addresses the origins of these machines. Our computers, smart phones, net pads, tablets, e-readers, mp3 players, televisions, monitors, and every other “technology” addressed in this collection require minerals like gold, tin, tantalum, and tungsten to work. Each of these minerals must be mined, refined, and smelted, processes that can be environmentally destructive. Recently, in the midst of war and violence in the Democratic Republic of Congo (DRC), Uganda, and Rowanda, mines that supply the electronics industry with these minerals have become hubs of violence and abuse as warlords fight for control of the mines, which provide revenue they use to support their war efforts. Those who control the mines use rape, murder, and other violent acts to intimidate and force native populations to work in the mines. Our technologies, our writing programs, our computers and composition-based pedagogies, our innovations, this collection, and even our own individual writing remains, to some degree or another, complicit in the violence involved in how conflict minerals are extracted from these mines. I cannot here explore the full history of the relationship between computer technologies and conflict minerals (the HowStuffWorks website provides a useful overview at <http://money.howstuffworks.com/conflict-minerals.htm>), but I don’t believe we can or should address the e-waste problem or the development of sustainable technological ecologies in association with writing programs without taking into consideration every aspect of the technologies we consider part of those relationships, not just acknowledge them from the moment we extract them from their boxes and introduce them into our ecological networks. For, as we, along with the contributors to *Technological Ecologies & Sustainability*, work to envision the democratic possibilities of our institutional, technological ecologies, we have to acknowledge that the institutional limits, the environmental oppressions, and the human oppressions are themselves ecologically bound. If we are to embrace ecological and sustainable approaches to understanding our technologies, then I urge, as well, that we turn to both ecofeminism and cyberfeminism to acknowledge that all oppressions are related and that to end one form of oppression, we must end all forms.

CYBERFEMINSIM

Drawing from Carole Stable's observations regarding the use of reproductive and scientific technologies toward the oppression of women and the need "to 'harness' technology for our political agendas," "it remains unclear," Blair, Gajjala, and Tulley explain, "whether feminism has harnessed technology to its fullest power" (1). In doing so, they acknowledge the "ways in which makers and owners of technology view women as a monolithic category, at once objects and users of the 'master's tools'" (subtly acknowledging the absence of women within the identity frame of "maker," a point Claudia Herbst addresses in her contribution) (1). Of course, Blair, Gajjala, and Tulley use "harness" and "tools" here metaphorically, but the metaphor exposes the a priori understanding of technology as tool, as identifiable and separate, as something to be attached to an agent, either used by or upon the agent. The distinction of technology as other, as tool, as a thing to which other things might be harnessed, appears to me to be problematic, whether *technology* is understood as the material manifestation of technological ideas, the ideas themselves, or the ideas needed to bring about the manufacture of technological manifestations, that is, the concept of technology. Whether in acknowledgement that technology changes bodies in material and political contexts, changes the very notion of the self and the ideas of who "owns" bodies, who has rights to bodies and their biological functions (as Donna Haraway so clearly exposed) or informatics technologies which circulate, remix, and manipulate the very information through which we see the world, the assumed distinction between technology and subject—whether male or female, human or non-human—poses a kind of restriction upon how technology in general, and cybertechnologies in particular, can only be engaged as distinct from the subject. Certainly, Haraway's cyborg provides the opening to consider not the amalgam between the technological and the (Enlightenment) subject, but the chimera in which technology and subject become indistinguishable—though always political. *Webbing Cyberfeminist Practice*, in all of its vitalizing discussion, is undergirded by such distinctions; yet, within the contents of the text, we see hints that such distinctions are difficult to maintain and (should) collapse within not just cyberfeminist discourse, but all technological/ecological inquiry. It would be remiss, though, not to acknowledge that there is a political and embodied war going on regarding women's bodies, reproduction, and individual rights and that the choice to encourage such collapse or to deny such collapse may very well effect Cyberfeminist political positions.

I am invigorated by the contributions to *Webbing Cyberfeminist Practice*, but I am not this book's audience. I can be no more than a tourist in

its discussion²; my review of the text here, in this venue, does a disservice to the power of each contribution, to cyberfeminism, and to feminisms. By reviewing this book here, I neutralize the book's radical possibility; I make it academic. I render the discussions in it as tools, ideas to which I might harness my own ideas and thereby find ways to *use* the technologies in ways they were not intended. And, these discussions are technologies, concepts of technologies; they are the ideas and concepts that drive the very technology beyond the technology which the contributors to this collection strive to make visible. Of course, using technologies in ways not intended can be considered a cornerstone of innovation, but this cannot be the case in my reading of these essays in the context of a journal dedicated to the very kinds of "master's tools" like administration and management against which cyberfeminism must work. Here my appropriations are detrimental to the radical objectives of cyberfeminism.

Webbing Cyberfeminist Practice is organized into three thematic sections: "Forming Virtual Kinships" which examines cyberfeminist practices that operate outside of academic parameters, "Redrawing Academic Borders" which examines cyberfeminism within academic pedagogical spaces, and "Resisting Gendered Hierarchies" which employs "intersecting and complimentary perspectives from the feminist, queer, and postmodern" to describe a "range of empowering web building processes"(3). What strikes me first about the importance of this collection's organization, much like *Technological Ecologies & Sustainability's*, is its opening not in the classroom or in familiar academic places, but in public places not governed by academic constraints. The five selections and one response essay in the opening section reveal an intrinsic and unavoidable discussion of spatial concepts that buttresses all conversation within the collection. Cyberfeminism survives in cyberspace and can no more be theorized outside of the spatial than can writing. It is this collection's powerful acknowledgement of the spatiality of cyberfeminism and of writing that reveals the necessity of ecological and spatial-theory-driven methodologies in writing studies.

The first part of *Webbing Cyberfeminist Practice* contains an evident and important underwritten argument about writing and technology extending beyond the limits of the academy and the importance of looking beyond academic places to the places where women (and all citizen/subjects) write their lives. I must admit this section of the book made me uncomfortable, as I suppose is the intent. For example, the powerful contributions from Kris Nesbitt; Angela M. Haas; and Christa Downer, et al address digital spaces that memorialize the loss of babies before, during, or shortly after birth; online infertility support communities; and pro-anorexia web sites, respectively. These are essays about women's bodies and women's flesh and

part of my discomfort comes from the fact that these are messy and difficult conversations, and as Nancy K. Baym acknowledges in her response to the selections in the first part, “The messier reality the authors in this section point to is far more complicated than either utopian hopes for the Internet’s liberatory potential or dystopian fears of its ability to enhance oppression presume” (127). But this is the necessity here: to get messy, to mess things up, to make uncomfortable. This is the trace of cyberpunk within cyberfeminism.

Part Two, “Redrawing Academic Borders,” turns to spaces of cyberfeminist pedagogies, and in doing so problematizes the very idea of pedagogical spaces and the restrictions of (academic) borders. The critique of spatial boundary that permeates the five essays and response essay in Part Two seems to echo Ludwig Wittgenstein, when in *Philosophical Investigations* he writes, “If I surround an area with a fence or a line or otherwise, the purpose may be to prevent someone from getting in or out; but it may also be part of a game and the players be supposed, say, to jump over the boundary; or it may show where the property of one man ends and that of another begins; and so on. So if I draw a boundary line that is not yet to say what I am drawing it for” (§137). The contributors to this part of the collection ask not only whether feminisms can be located within cyberspace, but also “what makes particular pedagogical practices and the resulting student interaction either feminist or cyberfeminist? What role does technology play in enabling or constraining the potential for feminist practice in educational space?” (8) And, I would add, what characterizes a given space as pedagogical, or somehow more pedagogical than another space to warrant it be named as such?

In light of composition studies’ pedagogical imperative, the pieces in Part Two of the collection are of particular interest. Margaret Strain, Melissa Fore, and Kara Moloney’s “Is N E 1 There? Designing and Building Community Within/Across Classrooms and Institutions,” for example, presents the results of a qualitative study in which the authors “sought to discover the necessary qualities for creating and maintaining an e-community among four first-year writing students and their instructors at two universities” (186). Set in a research terrain more than familiar to composition studies—first-year writing students—this essay offers much more than the story of the qualitative study it presents. Instead Strain, Fore, and Moloney shed light on the very ideas of physical, psychological, and digital space and spatiality and the imbrications of reality and self within those ideas. In doing so, the authors also open important doors to reconsidering the myths of collaboration that have dominated composition studies’ pedagogical narratives since Kenneth Bruffee introduced them to the field. In many ways,

“Is N E 1 There?” represents an overall nexus within the collection, bringing together many of the critiques and conversations dispersed throughout the collection. “Is N E 1 There?” that is, might be read as pivotal, as a collaborative hub within the collection (interestingly, the piece is located at the physical center of the collection, as well, which I imagine is the result of the editors’ careful planning of the material outcome of the text).

Within Part Two, though, Claudia Herbst’s “Master of the House: Literacy and the Claiming of Space on the Internet” stands out.³ Her well-articulated claim that “in cyberspace, ownership of computer languages empowers men with authority over communication tools, as well as authority over the style and content of transactions” reveals how the man behind the curtain, the code writer behind the interface, maintains control by way of the undetectable act of code writing (135). Through a history of internet programming that reveals that “not a single woman has been credited with an internet technology that has entered the mainstream,” Herbst contends that “programming is a factor in the struggle for dominance in cyberspace” and that “gender imbalances in programming translate into gender imbalances in the use of the Internet” (137–38). And, as Herbst so carefully shows, “use of the Internet” entails a substantial degree of violence by way of cyberbullying and silencing for women users. By way of Peter J. Bentley, Herbst identifies a fundamental perceptual distinction made between “users of technology” and programmers, to the extent that the word “users” is derogatory to programmers. In this context, of course, *users* suggests a second class status, an infantilizing position of inability. It also suggests a lack of ownership; programmers, as makers rather than users, imply a claim of technological superiority and entitlement (not to trivialize, but, think: Sark from *Tron*). Given Herbst’s assessment, particularly when supported by her research regarding the numeric domination of male programmers in relation to the near equal numbers of male/female users, her call to action is resounding: “We should not settle for the mere integration of women into the male-dominated world online; integration falls short of granting women full authority. Rather, women need to become authors of technology and thereby self-assured proprietors of virtual spaces. As what we refer to as natural language is a product of man’s making . . . so are the majority of computer languages. Where man can make language, so can woman—we should facilitate it on a grand scale” (149–50). While I agree with Herbst’s assessment, her position may be limited by a traditional (masculine?) approach to thinking about maker/user divisions. The maker/user split relies on an outmoded concept of origin, a concept that rests squarely in non-dialogic (or limited dialogic) approaches to invention and innovation. This is the same epistemological tradition that has dominated sciences

and technologies and is manifest in paradigmatic thinking. However, as Steven Johnson has explained, contemporary technological and scientific innovation can no longer operate under the myth of origin. He proposes, instead, a concept of platforming in which paradigms are not “shifted” as we have come to say, but are built upon, mutated, transformed, not by uniquely independent makers, but by collective, collaborative participation by users. In platform thinking there can be no distinction between maker and user as all users are, by their very engagement with technology, the collective makers, innovating, changing, and adapting nebular technologies to contextual uses, essentially re-inventing each technology as needed and extending a legitimate claim to ownership over those technologies. This, too, is the importance of hacking, a (sometimes subversive) act of programming to alter the intended purpose or function of a system. Some forms of hacking are an important part of innovation (hackers distinguish themselves from crackers who hack with malicious or self-interested intent). In this way, the concept of technology and the material outcomes of those concepts are always nascent, making “ownership” irrelevant and impossible; users and makers are indistinguishable and irrelevant categories.

Part Two of *Webbing Cyberfeminist Practice* is both rich and rigorous, and any summary I offer here can only gloss the significance of these five essays. In fact, I find Cynthia Selfe’s response at the end of this part particularly telling in her attempt to digest the lessons of these essays into two primary axioms. Yet, it is not her axioms, but two of the three corollaries she offers following the axioms that I find most telling. I address them here out of the context of her axioms, as they seem to me to function quite well as maxims on their own, not just in feminist context, but in all spaces of writing studies. Corollary 1: “Feminist teachers need to expand their own understanding of composing beyond the alphabetic, not only as *consumers*, but also as *designers* and *creators* of multimodal texts” (256) Corollary 2: “Feminist teachers need to understand digital and multimodal literacies in both *situated* and *ecological* terms—both locally and globally” (257). Of course, Selfe is (as she usually is) spot on about these issues, particularly given the set of principles she, Hawisher, and Berry establish in their contribution to the *Technological Ecologies & Sustainability* collection. And, of course, these corollaries are imperatives not just for writing teachers, but for all citizens. These maxims/corollaries are more than relevant not just to those already fortunate enough to have ventured into cyberspace to whatever degree, but particularly to those who have not, who have been denied access, and whose lives are invariably acted upon by the languages of the digital world. As I address momentarily, this is the power of cyberfeminism.

Part III, “Resisting Gendered Hierarchies,” turns to one of the collection’s primary questions regarding cyberfeminism: “how can we design and build action-based, technologically mediated networks for the benefit of marginalized populations”? With this question in mind, the five selections in this section take up a notion of resistance as an avenue toward the disruption of engrained hierarchies in digital spaces. For Mary Queen, such resistance is explored through the lens of transnational feminism applied to geopolitical areas of intense conflict to examine how digital representations might function as rhetorical action. Queen analyzes one Palestinian woman’s self-representation on the Web. As the editors explain, Queen addresses “‘e-merging’ subjectivities in relation to mobility/immobility and how legacies of colonial/imperial domination are central to processes of subject formation in online presences” (13). Similarly, Naida Zukic further develops transnational approaches in her analysis of the virtual community *Sehakia: The Voice of North African and Arab Lesbians*. The urgency of Zukic’s project grows from the “concrete, material ‘offline’ experiences of North African and Arab women, not merely out of theoretical speculations” (289). Zukic’s article is powerful, reminding us of the horrors of oppression while also echoing the claims of the essays in Part I regarding the need to look beyond classrooms to the places where women quite literally struggle to write their lives where they have been told not to write—or have lives.

Webbing Cyberfeminist Practice, like the other books in this review, and like nearly all research regarding writing and technology, is undergirded by metaphors of network, web, environment, space, system, and complexity. These metaphors reveal the inseparability of technology and ecology, or, perhaps more accurately, the current need to theorize technology from ecological perspectives. *Webbing Cyberfeminist Practice* is as much a book of ecology and spatial theory as it is a book of cyberfeminism, or, perhaps more accurately, it is as much a book of ecofeminism. That is to say, while ecofeminism is often cast simply as the common ground of environmentalism and feminism, its more complex agendas regard the overarching similarities of oppressions of women and nature, arguing that all oppressions operate in conjunction with one another and any struggle to end the oppression of women requires the ending of all forms of oppression. Ecofeminists, too, question the very divisions that contribute to oppressive ideologies: nature/culture, male/female, and nature/technology. From posthumanist perspectives, such divisions are erroneous. While cyberfeminisms’ activism is situated within digital spaces, we cannot overlook that such spaces are always already ecological locations and that whether feminism is situated within cyber-environments or “natural” environments, the objectives are indistinguishable.⁴

RHETORIC

At the beginning of this essay, I cited Stuart A. Selber as indicating the difficulty of conceptualizing rhetoric as untouched by writing and communications technologies; the reverse is, of course, also true. As editor of *Rhetorics and Technologies: New Directions in Writing and Communication*, Selber has brought together eleven remarkable essays that “invite readers to consider the ways in which rhetorics and technologies relate to each other—and to numerous other aspects, both material and symbolic, of writing and communication situations” (1). The contributors to the collection “assume a postcritical intellectual stance, meaning that technology is understood to be either an intrinsic or inescapable aspect of culture, an aspect that should be dealt with directly, seriously, and productively” (5). Given what I have already noted about the ways in which *Technological Ecologies and Sustainability* and *Webbing Cyberfeminist Practice* contribute not just to our understanding of the concept of technology but to an overwhelming recognition of the spatial and ecological dimensions of writing and technology, Selber’s collection is exemplary in its intrinsic ecological, spatial, and posthumanist approaches (despite what he labels as “human effects and interventions” (5) and an acknowledgement that “technologies, like rhetorics themselves, serve as interfaces for human relations and endeavors” (11).

Within the pages of Selber’s collection *ecology* is not a framework term; it does not even appear in the index. Likewise, complexity theory is only referred to once and network theory not at all. Yet, *Rhetorics and Technologies* is deeply ecological in its approach and agenda. For example, Marilyn M. Cooper’s “Being Linked to the Matrix: Biology, Technology, and Writing” extends her consideration of ecology and writing well beyond its early critique of cognitive process models. Cooper theorizes writing as an “embodied interaction with other beings and environments. As a result, writing is as much a biological as a cultural practice” (18). For Cooper, writing describes “linguistic and technological practices, practices that function to elaborate cognitive ecologies” (18). “Writing in this sense,” she pronounces, “is what makes us human” (18). In developing this position, Cooper articulates three observations about writing as “a biological/cultural, linguistic/technological practice”: words and writing technologies are experienced as part of our brains and bodies; writing is always an ongoing process of interaction with other beings and objects; and “writing is a complex system organized by dense interactions of writers and their worlds” (19–20). Cooper’s is a dynamic ecology that brings not just complex ecology to bear upon writing, but by way of Latour’s concept of nature and Andy Clark’s refutation of posthumanism in *Natural Born Cyborg: Minds*,

Technologies, and the Future of Human Intelligence, also tacitly grounds her ecology within fundamental tenants of posthumanism. As Cooper puts it, “understanding writing as a complex system in which human interactions elaborate cognitive ecologies allows us to understand words and tools . . . as mediating our active engagement with our environment rather than asserting our control over it” (29). She continues: “Far from alienating us from the world and our own natures, words and tools connect us inextricably to others and to our environment and make us what we are, the animal who writes” (29).

Alongside of Collin Gifford Brooke’s landmark book *Lingua Fracta: Towards a Rhetoric of New Media* and Jenny Edbauer’s “Unframing Models of Public Distribution: From Rhetorical Situation to Rhetorical Ecology,” Cooper’s article is one of the most informative and interesting recent contributions to ecological thinking in writing studies, as is M. Jimmie Killingsworth’s contribution “Appeals to the Body in Eco-Rhetoric and Techno-Rhetoric.” Like Cooper, Killingsworth has been invested in ecological methodologies longer than most in the field. His book, co-authored with Jacqueline S. Palmer, *Ecospeak: Rhetoric and Environmental Politics* was one of the first to examine the environmental and ecological rhetoric. In his contribution to this collection, Killingsworth argues that “*Techno-rhetoric*—the study, practice, and teaching of electronic literacies, as in the fields of new media studies and computers and composition—may draw upon the same terminology as the rhetoric of place and environmental communication, or *eco-rhetoric*, but the aims of the two discourses still remain distinct” (77). But, as Killingsworth goes on to explain, we really are well-beyond simple dichotomies between “luddite and cyborg rhetoric” (77). Killingsworth proposes a complex systematic relationship between earth, organism, and machine. In his model, “the difference between eco- and techno-rhetoric frequently involves which part of the continuum one chooses for a focus” (78). Killingsworth is clear, too, that his model represents discourse, not organic or mechanistic life and that there cannot be a clear binary distinction between the earth-oriented machine-oriented approaches. Yet, Killingsworth is clear that despite the baggage of romanticist approaches, eco-rhetoric can provide a more thorough view of the spectrum, whereas techno-rhetoric “in spite of its greater likelihood to claim an affinity with postmodernism, too frequently turns out to be some version of Cartesian modernism in a terminological masquerade, weakly appealing to a posthumanist paradigm, environmental awareness, and embodiment” (78).

Grounded in a techno-autobiography, Killingsworth explores the concept of technology as prosthetic, as extensions to which the body is harnessed. Like Lev Manovich’s “Visual Technologies as Cognitive Prostheses:

A Short History of the Externalization of the Mind,” and other selections in Marquard Smith and Joanne Morra’s collection *The Prosthetic Impulse: From a Posthuman Present to a Biocultural Future*, Killingsworth works to understand distinctions between locating identity within a specific body and what it might mean to characterize technologies as external to those identities. Killingsworth argues that the discourses of techno-rhetoric often overlook many of the material consequences of computer-based technologies. Killingsworth emphasizes the need to account for bodies within techno-rhetorics and research regarding cyberspace and computer technologies. He carefully shows how some of the most prominent techno-rhetoricians fail to account for the body as central to brain-computer interfaces. For Killingsworth, techno-rhetoric independent of eco-rhetoric breeds forgetfulness of the presence of spatial, ecological, and bodily presence.

Both Cooper and Killingsworth make clear that if we are to forward any serious theoretical work relating to digital technologies and writing, we cannot ignore ecological methodologies in such work. While Cooper and Killingsworth’s contributions to *Rhetorics and Technologies* directly bring ecological methodologies to their consideration of technology, we should read the remaining nine contributions to the collection as equally invested in ecological approaches, no matter the degree to which they address or ignore the ecological dimensions of their work and of concepts of technology. Geoffrey Sirc’s “Serial Composition,” for example, is not about ecology, but is, nevertheless, deeply ecological. Sirc explores the relationships between a handful of events that have historical roots in 1963 and can be read as influencing and anticipating concepts of contemporary literacy.

HISTORY

To responsibly address ecological aspects of writing, technology, or any object of inquiry, methodologies should account for historical contexts as well as spatial contexts. Sustainability, for example, requires understanding historical context in order to account for the three convergent aspects of sustainable thinking: social, economic, and environmental. A number of the selections in *Rhetorics and Technologies*, as well as many in *Webbing Cyberfeminist Practice* and *Technological Ecologies and Sustainability* situate their claims within historical contexts. In fact, historical approaches and spatial approaches to inquiry have deeply influenced one another, and within writing studies such influences become evident in research designed to express the historical contexts of various technological developments. In *Rhetorics and Technologies*, for example, Johndan Johnson-Eilola’s “Among Texts” examines what it means to “read texts” that occupy tangled and

problematic spaces. Johnson-Eilola's concept of reading is postmodern, accounting for the ability to read any text by "tracing and retracing the slipping, contradictory networks of connections, disconnections, presences, absences, and assemblages that occupy problematic spaces (both conceptually and physically)" (33). Johnson-Eilola's historical sketches of the advent of various texts is insightful and interesting, as is his consideration of how texts are not only read as artifacts, but as spimes and the ways in which spimes have permeated the cultural history of technology. Whether familiar or unfamiliar with cyberpunk author Bruce Sterling's idea of spimes, devices that track and record their own history of use and interaction, or his notion of gizmos, cunning and complex devices, readers will appreciate Johnson-Eilola's adaption of Sterling's proposed devices as a way of describing historical and ecological interactions of the kinds of texts that can be read.

While Johnson-Eilola's "Among Texts" provides an exciting way to consider how the technologies of texts have become interactively dynamic, or ecologically more complex, from historical perspectives, Dennis Baron, in *A Better Pencil: Readers, Writers, and the Digital Revolution*, presents one of the most savvy and interesting accounts of the connections between the histories of technologies, texts, and their readers and writers. As Baron explains it, *A Better Pencil* "looks at our use of computers as writing tools in light of the history of communication technology, a history of how we love, fear, and actually use our writing machines" (x). Baron initiates his historical inquiry in the heart of rhetorical studies, looking to *Phaedrus* to initiate his history of writing technologies and their relationship to communication. Baron's history is about not only the concepts of technology we develop, but how concepts of writing and concepts of technology intermingle in a complex, often indistinguishable relationship. Baron's history takes on the technophobia and techno-pessimism that has accompanied every technological advent related to writing, including writing itself. Baron provides a wealth of historical examples of technological developments and the resistance that has accompanied each.

Baron's history is not a nostalgic longing for the good old days of early writing technologies; it is a contextualization of how various concepts of writing technologies and responses to the digital age are, in fact, historically familiar reactions. Baron, of course, is a defender of technological development, and though he writes in positive support of various writing technologies—particularly digital technologies—Baron's historical account does not overlook the dangers that increased complexity in writing systems also risks. As he puts it, "technologies let us recreate the world and also lie about it" (116).

Those familiar with Baron's essay "From Pencils to Pixels: The Stages of Literacy Technologies" will recognize *A Better Pencil* as an elaboration of his original essay, and those who follow Baron's blog about language and technology *The Web of Language* will recognize Baron's familiar comforting, yet critical, writing style. Many may also recognize a familiar historical narrative. But ensconced in the familiar territory of Baron's work, what emerges is an important dialogue not just of history, writing, technology, or techno-pessimism, but of how these facets function in complex relationships to contribute to concepts of what technology might be. When read in dialogue with other considerations of writing and technology, *A Better Pencil* should be understood as more than a historical narrative, but an acknowledgement of the fact that the concepts of technology that drive our thinking about writing can never be read independently of complex ecologies. As Baron explains:

Maybe the most significant thing that we can learn from putting today's digital reading and writing in the context of five thousand years of literacy history, using past results to predict future performance, is that the digitized text permeating our lives today is the next stage, not the last stage, in the saga of human communication, and that it's impossible to tell from what we're doing now exactly where it is that we will be going with our words tomorrow. (246)

Baron's claim here, of course, is also a statement about sustainability, not necessarily material sustainability, but conceptual sustainability and the inevitable fluctuations that will arise as writing technologies evolve. His is a claim about the ecology of what comes next. Perhaps this is the overarching web these four books form, as well. These are all studies not only about the condition of technology and writing, but a deeply needed call regarding what comes next and what we as writing specialists, technology specialists, and writing technology specialists need to anticipate and what we can't anticipate. Computers and composition has been situated with rhetoric and composition as a sub-specialty, as a kind of inquiry that some in the field might engage. Likewise, whether through ecomposition or other avenues, ecological approaches to writing have also been situated as sub-specialties. Yet, what these four books make evident is that whether cast by the disciplinary identifier rhetoric and composition, composition studies, or writing studies, the study of writing cannot be separated from the study of technology. We see in these books (and other emerging conversations) the inseparability of writing and the concept of writing from the spatial, ecological, and technological. Beyond the biscuits and port, one of the other things that I most recall from that Arthurian literature seminar is the concept expressed

by Perceval, Ector, and others (most vocally in the 1981 film *Excalibur*) that “the land is Arthur; Arthur is the land.” The inseparability and the relational echoes for me in these books and is evocative of McLuhan’s famous message and medium principle: writing and technology are symbiotic. Composition studies must continue to account for such relationships, the spatiality of them, and the possibilities of what comes next.

NOTES

1. The Afikoman is a half-piece of matzoh that is eaten in the Passover Seder to signify the end of the festival meal. The custom of “stealing” the Afikoman is derived from a passage in the Gemara in which Rabbi Eliezer suggests that participants in the Seder should “grab” the Afikoman in order to encourage children to stay awake until the end of the Seder. It is now customary for children to steal and hide the Afikoman during the Seder and then exchange it for a ransom in order that the Seder may be concluded.

2. I acknowledge that this is a difficult line to walk. On the one hand I acknowledge that I cannot/should not have a voice here anymore than, say, vocal pro-life men really have in making institutional claims about women’s bodies. On the other hand, the issues at hand are not solely feminist issues; they have far-reaching global concerns.

3. Like the editors and authors of this collection, I am operating within established, masculinist forms of academic production and assessment here, and a certain degree of analysis, ranking, and categorization must inevitably occur, both in their texts and mine.

4. This is not to say that feminism needs to get its shit together and stop developing multiple approaches to what appears to be a singular project. Rather, my comparison is intended to follow the tenor of the review in total as I work to bring the richness of these four books together in conversation, to enunciate the importance of the ecological in the technological and vice versa. Within the frame of feminism such an enunciation seems to be particularly critical and similar to the calls for allegiance between feminisms that critique “science” and “technology” and ecological feminisms, an allegiance that gains particular strength within posthumanisms. For example, Nina Lykke and Rosi Braidotti, in the “Postface” to their 1996 collection *Between Monsters, Goddesses and Cyborgs: Feminist Confrontations with Science, Medicine and Cyberspace* take up such a position, looking to ecological feminism to provide more possibilities for feminist science and technology studies, to see hybridity between cyberfeminism and ecofeminism (though they don’t use these terms expressly).

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