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Green Smokestacks?

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Technology has been both a key index of modernity and its doom-laden portent, a bravura blend of magic and reason, of confidence and hubris. It is a secular religion, offering transcendence in the here and now—through machinery rather than political-economic activity. For women, it has often promised to reduce domestic labor while in fact precipitating new and onerous tasks, via machines that have been dominated in their design and execution by men (Dinerstein 2006; Nye 2006; Wajcman 1991).

Media studies is not immune to the fascination with technology. Consider utopic cybertarians, who claim that individuals can control their destiny through the internet; or discussions about women's uses of radio talkback in post-authoritarian polities (Wajcman 2004; Winocur 2002). We all celebrate the fact that women surpassed men worldwide as participants in massively multiplayer online games or virtual worlds in 2001, and note that they comprise 39 percent of electronic gamers in the US, and more than 50 percent in Korea (Malaby 2006; Taylor 2006, p. 93).

But women's involvement with media technology is not simply a story of consumption. It includes production and post-consumption, too. While women are responsible for over half the electronic purchases in the US, when it comes to manufacturing these goods, they outnumber men four to one (Cowie 2001; Twist 2005). This sexual division of labor applies equally throughout the life cycle of most media gadgets, from assembly to disposal (Figure 1). It is characteristic of a "gender formulation" across the global electronics industry (Cowie 2001; Koh, Chan & Yap 2004; Smith, Sonnenfeld & Pellow 2006). The environmental context for women laboring in the chain of media production and post-consumption is also important—and in need of further research. The biological and neurological effects of toxic materials contained in media components are not completely understood, but enough is known to alert media studies to their gendered environmental burden. In the brief comments that follow, we offer a few examples from the feminized nexus of media technology, labor, and the environment.

In the early 1970s, knowledge workers were announced as the new core of First-World economies, thanks to information-based industries that promised endless gains in productivity, and the purest of competitive markets (Bar 2006, p. 351). This would be a brand new day of green industries. And indeed, the high-technology service and cultural sectors of today's "new" economy supposedly represent clean business: a post-manufacturing utopia for workers, consumers, and residents, where the by-products are code, not smoke. The Australian Council for the Humanities, Arts and Social Sciences even refers to a "new post-smokestack era of industry" (2006).

Women who have worked on shop floors making media technology might laugh at these stainless-steel fantasies, and give knowing shrugs to the *Misfortune 100: Top Corporate Air Polluters in the United States* report, which ranked media owners at numbers 1, 3, 16, 22, and 39 (Political Economy Research Institute 2004). For women have long been at the forefront of the labor process and environmental impacts. For instance, when RCA moved its radio and TV plants from Camden to Bloomington to Ciudad Juarez, in search of

Figure 1
Worker melting solder from circuit boards over a coal-fired stove in Guiyu, China (photo courtesy of Basel Action Network, copyright Basel Action Network 2008)

ever-cheaper labor, company elders sought a workforce of young, unmarried women. This strategy had little to do with biology (AKA the docile and nimble-fingered girls found in the litany of management prayer books). Rather, it was about an ideology of gender that had taken hold in the electronics industry by the 1930s (Cowie 2001, pp. 17–18). Likewise, the first large-scale computing projects relied on female technicians. They were labeled under the sign of their "lab leaders" (such as "Cecil's Beauty Chorus" and "[John] Holberton's group") or by the names of the machines they used ("scanner" or "ENIAC" "girls") (Light 1999, p. 459). Behind these patriarchal erasures lay health and safety issues. A pattern of environmental poisoning can be traced to the time when female radio assemblers were exposed to dangerous fumes as they wired, crimped, and soldered (men supervised the process, and tested the products) (Cowie 2001, p. 17). In addition to a similarly "fast and unvarying pace of work" on the line, their contemporary counterparts are still exposed to toxic gases, acids, and solvents (Koh, Chan & Yap 2004, pp. 180–183).

At the other end of the life cycle, the accumulation of post-consumer electronic hardware throughout the world has caused concern because of its potential seepage into landfills, water sources, and bodies. Electronic waste (e-waste) is the fastest-growing segment of municipal clean-ups in the First World and one of the biggest sources of heavy metals and toxic pollutants in US trash piles. E-waste salvage yards burn plastics and wires and leach or grill circuit boards before dumping them in streams (Figure 2). Across the US, perhaps sixty million PCs and their detritus are seeping through landfills or being burned in incinerators, while the transition to exclusively digital broadcasting in 2009 will see 270 million outdated analog TVs hit landfills (Basel Action Network & Silicon Valley Toxics Coalition 2002; Pelta-Heller 2007; Shiva 2002).

Figure 2
Picking through piles of e-waste in Guiyu, China (photo courtesy of Greenpeace 2008)

And more than 80 percent of electronic junk is being exported to the poorest quarters of the world. A hundred thousand PCs entered Lagos each month in 2006—75,000 of them unusable other than as scrap. California alone shipped about twenty million pounds of e-waste that year to Malaysia, Brazil, South Korea, China, Mexico, Vietnam, and India. Much recycling in the Third World is done by pre-teen Chinese, Nigerian, and Indian girls, picking away without protection at discarded First-World televisions and computers in order to find precious metals, then dump the remains (Figure 3). The metals are sold to recyclers, who care little about the destruction to soil, water, and workers that are caused by the dozens of poisonous chemicals and gases in these dangerous machines. The city of Guiyu, China's principal dump, boasts more than five thousand electronic recycling businesses; and 82 percent of the city's children aged under 6 have lead poisoning (Lee 2002; Miller 2007; Shabi 2002; Tong & Wang 2004; Wong, Wu, Duzgoren-Aydin, Aydin & Wong 2007, pp. 435, 441).

As we scan the literature on media technology, from the gendered histories of early national radio and intercontinental cable (Douglas 1987; Johnson 1988; Winseck & Pike 2007), to today's promises of "clean" machines, unfettered communication, and pleasure for all, we must ask ourselves about the women workers who make and unmake the bulk of this media gadgetry. We need to know more about the impact of these technologies on their lives and the environment. Attention to the materiality of women's labor must be part of how media studies evaluates new technologies that have been designed for life enhancement and democratic fulfillment. We must look to examples of women environmental activists, such as US Progressive-era reformers and conservationists (who promoted "municipal housekeeping" of clean air, soil, and water) and the five "Radium Girls" of 1927. They died from cancer within a few years of filing suit against their employer, but taught the public to beware the atom and distrust radiation (in this case, the use of radium for faddish glow-in-the-dark watch dials) (Clark 1997).

Figure 3
Women dismantling circuit boards in New Dehli, India (photo courtesy of Basel Action Network, copyright Basel Action Network 2008)

The stories of these women are not to be found in masculinist tales of media innovations that are supposedly driven by the will to realism, inventiveness, or nation-building. Consider Charles Knight, a major player in the nineteenth-century US book industry and popular press. He famously referred to the advent of the train, the telegraph, and the photograph as "a victory over time and space" (quoted in Briggs & Burke 2003, p. 104). It is true that by the 1890s, as vast a country as the United States ran "on the same clock of awareness ... within a homogeneous national space" designed to homogenize conduct (Carey 2003, p. 186). But such hyper-masculinist combinations of domineering overreach and utopian imagination neglect to note that this was also a victory of mechanical and chemical processes. It began a long decline of the environment, via deforestation, global warming, and bio-accumulative toxins polluting the globe's air, soil, water, and food. In place of the old stories, we need instead to focus on the impact of media technology on a feminized global assembly (and disassembly) line. This must be a new chapter in media studies, with gender at its core.

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