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# REPEAT



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## *Xerophonics: Copying Machine Music (Slight Return)*

The ubiquitous workplace photocopier, with its rat-a-tat clacks and circular whirs, almost dares the sleep-deprived graduate student or nine-to-five office worker to find something like a groove in its alien drone. Anthropologist Stefan Helmreich's *Xerophonics* project, released on CD in 2003, through independent label Seeland Records, calls the photocopier's bluff and actually makes music of its sounds, stitching together richly rhythmic (and sometimes perversely danceable) compositions from the sonic profiles of common models. Helmreich employed a modest arsenal of tools in his construction of the thirteen tracks on *Xerophonics*—copying machine sounds were captured in situ with a Realistic Miniset-20 recorder, and these recordings were processed and manipulated with an Ensoniq EPS sampler—but these pieces unfold with a seductive intricacy. *Xerophonics* discloses a rich sonic microcosm at work in the photocopier: one usually left to warble on the periphery of awareness. Never has a Xerox DocuColor 12 sounded this *funky*; never has a Panasonic FP-7742 so convincingly rivaled early industrial music.

*Xerophonics* has been rattling around in my ears for several years now, and during the conception of *Thresholds 47*, it loomed large in my mind; here was a project dedicated to the *sampling* of the punishingly *repetitive* sounds of *copying* machines: an effective infinite regress of repetition. In the spirit of our issue, which

has elsewhere asked scholars to reflect on past projects, my below interview with Helmreich dives back into the finely textured world of *Xerophonics* and its myriad influences. Please Xerox and share it.

*Xerophonics: Copying Machine Music* can be downloaded in its entirety at [https://doi.org/10.1162/thld\\_a\\_00686](https://doi.org/10.1162/thld_a_00686)

WALKER DOWNEY: Let's discuss the conceptual genesis of the project. As I understand it, the idea first came to mind while you were hunched over a Panasonic photocopier in the offices of NYU.

STEFAN HELMREICH: More or less—though there were earlier data points, no question. I'd been fascinated by photocopiers since I was a kid, running off homemade comic books for friends, and, along the way, discovering all the weird mistakes these devices could help me make. When I got to graduate school and found myself spinning off rafts of copies of grant proposals, class readings, and other stuff, I rediscovered some of those odd effects. More than that, though, because I was now often photocopying really long documents, I began to tune into the range of rhythms these machines could generate. I became fascinated by the repeating sonic effects of processes such as staple sorting, auto-tray switching, double-sided copying, and more. Then, yes, one day at NYU—where I held a postdoc position before coming to MIT—I found myself considering these sounds as possible compositional elements. Some of reviews of the *Xerophonics* CD tagged the results as “dance music for the disaffected office drone,” “grindcore for fanzine formatters,”

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1. Selena Hsu, “Review of *Xerophonics*,” *Splendid Zine*, 2003, last accessed April 1, 2003, <http://ww3.splendidzine.com/review.html?reviewid=32573443113111984>; Magazine staff, “Review of *Xerophonics*,” *Careless Talk Costs Lives*, March/April 2003, 37; Christopher Weingarten, “Weird Record: He Watches Channel Xerox; review of *Xerophonics*,” *CMJ*, March 2003,

- 13; Ethan Smith, “Is It Live, or Is It CopyMax?” *WIRED*, March 2003, 61.
2. Hillel Schwartz, “De-Signing,” *Critical Quarterly* 43, no. 2 (2001): 57–59.
3. Kenneth Goldsmith, “Sounds for the Future Present: Not All Glitches Are Accidents,” *New York Press*, June 18–24, 2003, 46.

“surprisingly danceable coffee-break disco,” and “motorized cacophony.”<sup>21</sup> Those all seem right to me, since I was seeking, in part, to work with and amplify some of the repetitive rhythms of everyday office and academic life.

WD: It’s a great “origin story,” because that experience—of rote copying, stapling, and printing—has been universal to most academic and professional spheres for, what, the last half century? There’s a quiet, quotidian relatability there, but of course, the project works to blast that open: the sounds that usually slide beneath the register of attention are made strange through “displacement” and “amplification” (to use Hillel Schwartz’s terms).<sup>2</sup>

SH: Yes, what *are* photocopying sounds? What do they make us think about as we distractedly take them in? And how might displacing and amplifying them—putting them on an album like *Xerophonics*—help us learn about them? One of the early reviewers of the album, Kenneth Goldsmith, writing in the pages of the *New York Press*, read the project—alongside [The User]’s *Symphony #2 for Dot Matrix Printers* (2002)—as a sign of nostalgia for a time before the clickety-click quiet of laptop typing and laser printing. He heard *Xerophonics* as an historical “commentary on the phenomenon of writing made audible,” suggesting that it harkened back to Erik Satie’s use of a typewriter in his 1917 “Parade,” or Leroy Anderson’s 1950 “The Typewriter.”<sup>23</sup> I think that’s right, that the project was about the weird displacement in time and history that many of us feel at photocopiers these days, when so much of the rest of our document lives are about soundless PDFs or emails that depart from our virtual mailboxes with those weird simulated whooshing sounds (are we supposed to be hearing paper airplanes, as the accompanying “send” icon

suggests?). The photocopier’s status as a living relic appealed to me (fig. 1).

I also, as I got deeper into the project, became interested in the wider archaeology of photocopiers. Gathering the sounds of machines to sample—which I did using a tape recorder, another living fossil—I undertook a kind of field survey of machines around Manhattan. The NYU machines turned out all to come from one company, Kinko’s machines from another. One could map regions of the city—I became particularly fixated on Chinatown, Midtown, and Harlem—by cataloging their populations of copying machines. So, if there’s a culture of the copying machine—to adapt Schwartz’s “culture of the copy” phrase—there’s also an institutional sociology that shapes which machines end up where and when.<sup>4</sup>

WD: I invoked Schwartz’s work earlier because you included a quote of his from *The Culture of the Copy*, which you just mentioned, in the original liner notes to *Xerophonics* (fig. 2). You’ve also, though, turned to his work on or around authenticity elsewhere, dialoguing with his 2001 “De-Signing” essay in your 2006 *Grey Room* article “The Signature of Life.” Can you speak to how your academic work might have informed this project? Were there threads in your scholarship in the early two-thousands—on simulation and Artificial Life, for example—that fed into its development?<sup>5</sup>

SH: Maybe. But I didn’t immediately think of *Xerophonics* as having any connection to the anthropological work I was finishing up at the time on Artificial Life and the computer simulation of biological systems, though it wouldn’t be difficult to say that both projects were about cultures of machinic replication—of documents, of theories about vitality. Still, other intellectual curiosities—mostly about music, sound, noise,

4. See Hillel Schwartz, *The Culture of the Copy: Striking Likenesses, Unreasonable Facsimiles* (New York: Zone Books, 1996).

5. “Whereas Artificial Intelligence attempted to model the mind, Artificial Life workers hope[d] to simulate the life processes that support the development and evolution of

such things as minds.” Stefan Helmreich, *Silicon Second Nature: Culturing Artificial Life in a Digital World* (Berkeley: University of California Press, 1998), 8.

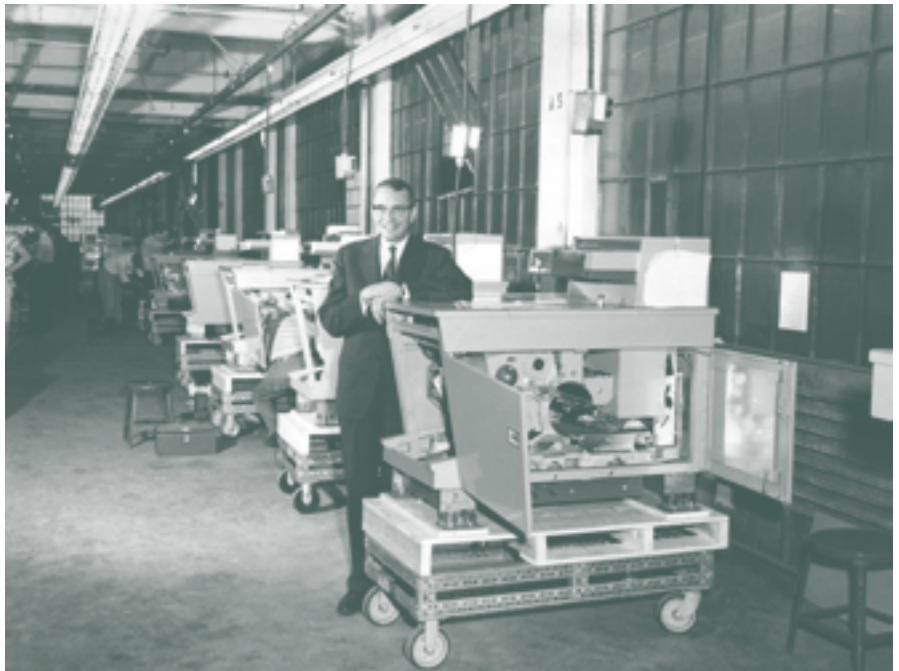


fig. 1 *Above*, Photograph demonstrating an early xerographic printer, showing Chester Carlson (*center*), inventor of xerography, and Joseph C. Wilson, Xerox CEO from 1946 to 1966. Courtesy of the Xerox Corporation.

*Below*, Joseph C. Wilson with the Xerox 914, the first automatic office copier to make copies on plain paper, at a rate of seven copies per minute. Courtesy of the Xerox Corporation.



fig. 2 Design of *Xerophonics: Copying Machine Music*, CD booklet with tracklist and liner notes, released on February 25, 2003 through Seeland Records (Seeland 524).

and property in the age of digital reproduction—*did* shape the project. I was interested, for example, in *Xerophonics* as a compositional experiment in what it would mean to copy the sound of copying—a kind of meta-comment on sampling and on the ownership of sound. Here, Schwartz’s *The Culture of the Copy* was a huge influence. I later gave Schwartz a copy of the CD, and he ended up writing about it in a talk he gave titled, “Ones of a Kind and Originopoly.” Here’s a passage:

*Consider Stefan Helmreich’s recent album, Xerophonics. . . . On the CD are thirteen cuts, each of which replays sounds made by a different copying machine. Ones of a kind. . . . So even the literal sounds of literal copying drift away from the meanings and contexts we had been certain of, becoming something else, something other.*

*An old trick, this elemental turnabout, this de/recontextualized listening, but nonetheless cautionary: original and copy are binary stars pulling at each other in dynamic and decaying balance; is there any point to debating which should be subsumed by which?*

*Originopoly is my term for the political, economic, and theological strategy that, like radical fundamentalism in legislation, education, and religion, denies the commonalty of our standing in aftermaths that gradually, inevitably drift away from any original. Originopoly wants both to exalt the first fleeting instance into an eternity and to control the direction of every aftermath. . . .<sup>6</sup>*

I was also interested in how *Xerophonics* could, in its form, call attention to some of the earlier musical works by which it was inspired and which, in some way, it sought to repeat—even if, of course, with a difference. It will not have escaped the notice of some listeners that the CD’s subtitle, *Copying Machine Music*, is a pun on Lou Reed’s famous noise LP, *Metal Machine Music* (1975), for instance.

What else academic or conceptual? I was keen to think about copying machines as material artifacts—and as artifacts that never fully worked as advertised. In any long copying job, things inevitably go wrong. They glitch. I had been interested in the aesthetic of the glitch at least since the experimental music group Coil had released their *Worship the Glitch* EP in 1995, an event that music writer Rob Young picked up on in *The Wire* in a 1999 piece he wrote called (what else?) *Worship the Glitch*.<sup>7</sup> Glitch as an approach and species of music was, in retrospect, an interesting switching point between those genres of industrial music that made use of power tools, oil drums, and sheet metal and those genres of electronica that inquired into the sound of errors possible to realize with electronic devices (fig. 3). Think of Kraftwerk, but with busted synthesizers. I wanted to get at errors in repetition, thinking of them as sources of invention.

WD: How, then, might your thinking around *Xerophonics* have predicted (or even shaped) your later scholarly engagements with sound and sound studies? You’ve written, for example, on the crucial roles sound plays in scientific working environments (notably submarines), and in its attention to the audible “sickness and health” of machines, *Xerophonics* does reveal the manner in which sound brokers our collaborative “work” with copiers.<sup>8</sup>

6. Hillel Schwartz, “Ones of a Kind and Originopoly,” (talk presented at the Conference on Originalkopie/Praktiken des Sekundären, Universität zu Köln—Kulturwissenschaftliches Forschungskolleg: Medien und Kulturelle Kommunikation, May 24, 2003).

7. Rob Young, “Worship the Glitch,” *The Wire* 190 (December/January 1999/2000): 52–56. See also Laura U. Marks, “Arab Glitch,” in *Uncommon Grounds: New Media and Critical Practice in North Africa and the Middle East*, ed. Anthony Downey (New York: I.B. Tauris, 2014).

8. On the submarine soundscape, see Stefan Helmreich, “An Anthropologist Underwater: Immersive Soundscapes, Submarine Cyborgs, and Transductive Ethnography,” *American Ethnologist* 34, no. 4 (November 01, 2007): 621–41.

SH: That's a good question. Yes, sound can be used as a diagnostic of how well machines are working. In the liner notes of *Xerophonics*, I quoted Julian Orr's ethnography of photocopying machine repairers—and maybe that's worth reproducing here:

*One set of sounds indicates where the problem occurs ... and yet another indicates that the controlling logic has just crashed. In older machines, the succession of noises narrates to the experienced ear the progress of the operation, and should it fail, the last noises suggest where to look for the problem. Perhaps more obvious are the sounds of mechanical distress, as mechanisms bind, bearings go bad and squeal, or pins slip out to stop the rotation of a shaft completely while an overzealous drive belt thumps away, skipping one tooth at a time.*<sup>9</sup>

So yes, I suppose the sound of machines as indicative of their desired and situated use started to fascinate me around the time of *Xerophonics*. I had also started thinking (along with many others) about how noise could be interpreted, not just as malfunction, but also as critique, as an opening to questions about “proper” functioning. I think now, most immediately, about a sound piece called *ARCTICNOISE*, in which sound artist Geronimo Inutiq remixes an Indigenous media archive (fig. 4)—the Igloolik Isuma Video Archive (which has recently come into the hands of the National Gallery of Canada)—in juxtaposition with and as a critical interruption of Glenn Gould's famous 1967 radio essay “The Idea of North.” In a recent article in an anthropology journal about this work, Kate Hennessy, Trudi Lynn Smith, and Tarah Hogue examine

“Inutiq's critical engagement with signal, noise, and glitch to re-present the North—as well as the archive—as an unstable, dynamic idea, instead of a static apparatus of the colonial imagination.”<sup>10</sup> You can listen to one version of the piece here: <https://culanth.org/articles/952-em-arcticnoise-em-and-broadcasting-futures>. So, noise as critique.

WD: *Xerophonics* nicely binds together (or at least brings into collision) two distinct artistic genealogies: on the one hand, it slots into a lineage of sample-based music stretching from Steve Reich and King Tubby to John Oswald and J Dilla; on the other, as you've acknowledged, it evokes the visual art of the sixties and seventies that latched onto the ease and elasticity of the photocopier: zine culture, Mail Art, and new mixed-media practice.

SH: Yes, and it was also meant in part as a contribution to at-the-time-in-play conversations about sampling, reperformance, and fair use. I'd bring Vicki Bennett's “People Like Us” project into this conversation, too. She's been doing astonishing audio-visual collage since the early nineties, cross-wiring sound and vision in inspiring ways.

*Xerophonics* was released on the Seeland label, which was stewarded by the group Negativland, famous for, among many other things, being sued by U2's nineties record label, Island Records, for releasing an album they called *U2*, which featured a hilarious sampladelic version of “I Still Haven't Found What I'm Looking For” (<https://www.youtube.com/watch?v=dV3hdfd01Xc>). *Xerophonics* was also meant as a rip-off of Oswald's *Plunderphonics* (1989), a work that had appeared on the Seeland label (though, as it happened, it had been circulating prior to its Seeland release in the company of a photocopied booklet of collaged copy art, making the cross-

9. Julian Orr, *Talking About Machines: An Ethnography of a Modern Job* (Ithaca, NY: Cornell University Press, 1996), 98.

10. Kate Hennessy, Trudi Lynn Smith, and Tarah Hogue, “*ARCTICNOISE* and Broadcasting Futures: Geronimo Inutiq

Remixes the Igloolik Isuma Archive,” *Cultural Anthropology* 33, no. 2 (2018): 215.

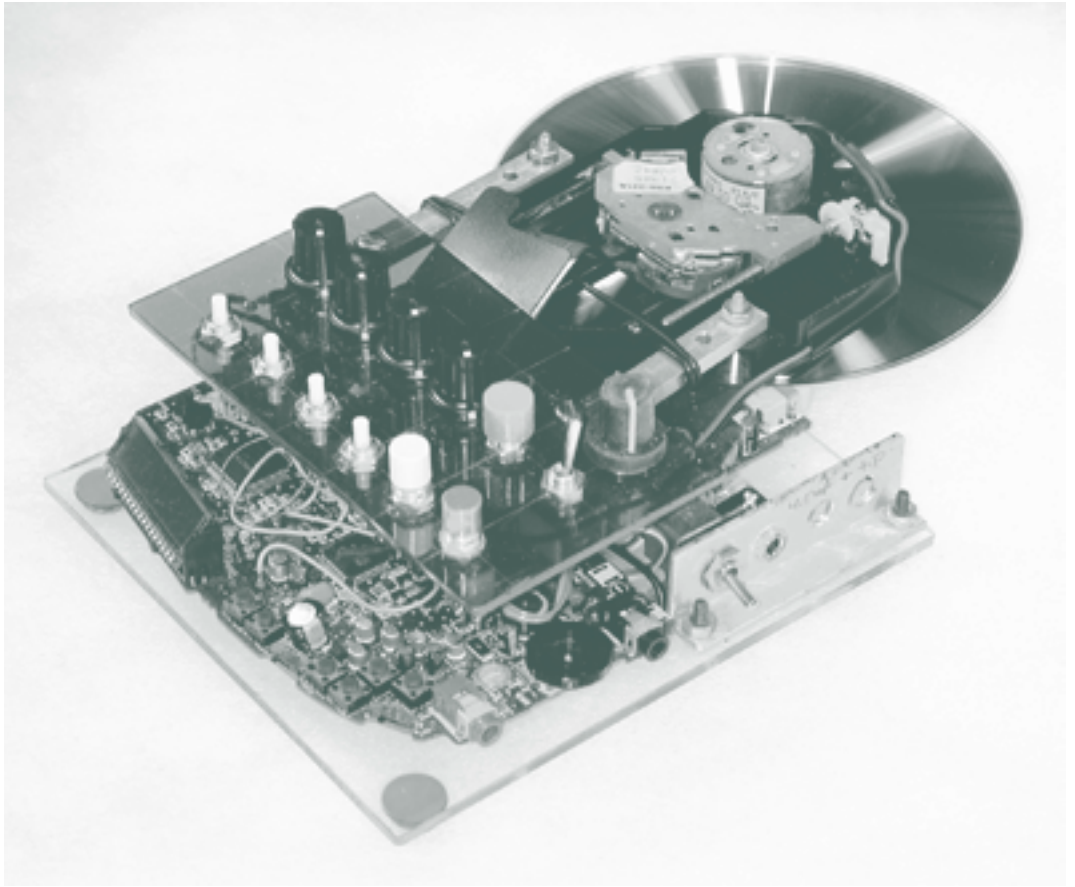


fig. 3 Photograph of *Sled Dog*, Nicolas's Collins' hand-scratchable hacked CD player, 2001. Collins is among the earliest figures associated with the musical genre of "glitch," which encompasses both works of extreme noise, such as Yasunao

Tone's compositions for "wounded" or damaged CDs, and the gentler, more ambient-leaning music of Oval (Markus Popp), Jan Jelinek, and Christian Fennesz. Photograph by Simon Lonergan.





fig. 4 Installation views of Geronimo Inutiq (madeskimo), *ARCTICNOISE*, at grunt gallery, Vancouver, BC, 2015. Photograph by Henri Robideau. Courtesy of grunt gallery.

media resonances between photocopy art and sample art explicit).

WD: You released *Xerophonics* under a “copyleft” license, effectively encouraging listeners to remix and repackage it. What motivated this decision?

SH: It was very much about inviting work and play around questions of fair use and fair dealing, about critiquing corporate ownership of popular culture, particularly in sound and music. I only ever came across a few remixes of the *Xerophonics* pieces, though. One mashed up my “Toshiba 2060” track with an ad for sneakers—that one was pretty cool and very much in the spirit of appropriating corporately created sounds (maybe the ad was for Nike?) in order to make new work. Another was by someone called DJ Morsanek, who incorporated one of my tracks into a piece called “I Made a Mess of Frank Denyer.” My favorite was not so much a remix as a reuse. A South Korean dance troupe called the Laboratory Dance Project worked with filmmaker YuSik Hwang to produce a time-stuttering dance movie to the tune of “Matrix 12510-12” (<https://www.youtube.com/watch?v=X1BGILP2yiE>).

Interestingly, a few years after *Xerophonics* came out, I got an inquiry from Xerox—not a cease and desist order, but rather a question about whether I would be interested in the company posting *Xerophonics* tracks on their corporate website. I wrote back and said, “Fine!” Though I also observed that many of the tracks were not actually made from Xerox brand machines. I pointed them, too, to Creative Commons licenses and more particularly to the provisions of “share-alike” licenses, which give licensees the right to do whatever they want to do with a track (like put it on a website, and so on), but specify that whatever is rereleased also works under the same license ... inviting further copying. I never heard back from Xerox, and I never checked to see whether they used any of the work.

WD: In the fifteen years that have passed since you released *Xerophonics*, certain currents in electronic music have, strangely enough, come to emulate exactly the sort of sounds you brought together on the CD. (See, for example, the rugged “noise techno” of Powell, Eric Copeland, Container, and Prostitutes.) These new acts also gravitate, as you did, toward the occasional instability and dysfunction of machines—in their case, sampling decks and analog synthesizers. What might account for this trend? Did *Xerophonics* hit upon a latent impulse (aesthetic or otherwise) that’s just now being embraced?

SH: It felt at the time like it was an attempt to use a mundane machine to do what others had been seeking to do with grittier and more undisciplined machines. *Xerophonics* modulated into the key of the office those sounds that such noise-ish bands as the UK’s Throbbing Gristle and Germany’s Einstürzende Neubauten had earlier rendered with more frightening materials. (By the way, the name of Einstürzende Neubauten—which translates as “collapsing new buildings”—turned out to have an upsetting resonance in New York City in 2001, around the time I was making the *Xerophonics* album. One of my friends thought that the track called “Minolta EP 6001 CS Pro” was about the collapse of the Twin Towers.)

As for what what’s happening nowadays, with the sometime convergence of noise and techno? My first impression is that the technoise folk are a pretty white crew. I suspect that is important. My thoughts run immediately to Don DeLillo’s 1985 novel *White Noise*, which is about, among many other things, whiteness and unease: about everyday white innocence as a structure of feeling that depends upon the denial and forgetting of history—denial and forgetting that are always glitching—about whiteness as a simulation of serene social happiness—a simulation that is always, à la *The Matrix* movie (maybe its time for me to revisit the track “Matrix 12510-12”), de-rezzing

to reveal its dependence upon racialized social inequality. So ... if techno originated as a primarily black cultural form in the work of people like Juan Atkins, Derrick May, and Kevin Saunderson (influenced, to be sure by their repurposings of Kraftwerk), some techno might be interpreted as, in part, one recent white detour of the form.

And all this makes me think that *Xerophonics* can, from a certain angle, also be interpreted as irradiated by a glow of whiteness—and, just to be clear, I'm a white cis man, so certainly part of the demographic I'm aiming these comments at. The sampling play and politics of *Xerophonics* were not the sampling politics that hip-hop artists like Public Enemy and others grappled with back in the nineties, when so many black artists' recontextualization of samples was framed by racist commentators as theft, instead of homage or critique.<sup>11</sup> *Xerophonics* enacts a kind of white-collar crime, you might say, with stakes in its sampling that only partially overlap with other sampling histories. There are many, many genres, colors, tints, shades, and hues of noise.

The word *history* is probably doubly important, too, since 2018 is a really different moment for sampling politics than was 2003, with practices that used to be edgy now the common coin of commercial cultural production. As for musical interest in the occasional instability and dysfunction of machines that you point to, I'd say that isn't so new to techno, and I'd point to Bevin Kelley and Kristin Erickson of Blectum from Blechdom or to Jessica Rylan of Can't or to Antye Greie (aka AGF) as composers who have been bending circuits in rhythmic ways for a good while now.<sup>12</sup>

I like what you and your coeditor wrote in your call for papers for this issue

of *Thresholds*, that repetitions recruit “ever new publics and functions, accreting multiple lives and an unruly tangle of genealogies.” Listening back to *Xerophonics* has made me reconsider it as an historical document and think about the multiple genealogies within which one might put it and toward which it might yet be animated. I want to thank you for providing that opportunity and for your really provocative questions, which got at all kinds of stuff I hadn't considered before, generating all sorts of useful new noise for me to ponder!

11. Regarding hip-hop sampling as theft and homage see, respectively, Nelson George, *Hip-Hop America* (New York: Viking, 1998);

and Tricia Rose, *Black Noise: Rap Music and Black Culture in Contemporary America* (Hanover, NH; Wesleyan University Press).

12. See Tara Rodgers, *Pink Noises: Women on Electronic Music and Sound* (Durham, NC: Duke University Press, 2010).