

Imperfect Sound Forever

A letter to a young phonographer

ABSTRACT What is phonography? In this essay, Christopher DeLaurenti, a phonographer with three decades of experience, maps an axiomatic 13-lesson pedagogy through an abbreviated history of field recording, from Jesse Walter Fewkes in 1890 to Tony Schwartz in the early 1960s. This paper surveys various meanings and uses of the term *phonography* from a text published in 1701 to the formation in 2000 of the phonography listserv, an online community of makers of field recordings. The author, himself an early member of the phonography listserv, discusses three traits to define phonography as a community in the early 2000s: inexpensive recording equipment; a community of knowledge; and the “easy fidelity” made possible by portable and lightweight Digital Audio Tape (DAT) and MiniDisc (MD) recorders. The author contrasts the traits of phonography with elements of soundscape composition as articulated by Barry Truax, Hildegard Westerkamp, and Andra McCartney. The paper concludes by proposing possible elements of post-phonography, including remote control recording, the possibility of voice print identification, and the generation of unimagined data. **KEYWORDS** field recording, phonography, microphone, soundscape composition, location recording, studio recording, sound studies

Dear L_____,

I am glad you enjoyed the course, but I am happier to hear that you want to continue. We only spent two weeks making field recordings; that’s too little time, I know. A computer music course is indeed an unexpected venue to learn about chronicling or capturing sound or making what Michael Pisaro erroneously deems “a reduction”¹ or telling what Rick Altman rightly calls “the story of a sound event.”²

You want to know what I could teach you if there was more time. Here is a long missive that I send out every few years to students who ask about going further—emended, extended, and customized to reflect our discussions. Grappling with big questions such as listening as a form of critical inquiry, the (non)materiality of sound, and the merit of R. Murray Schafer’s foundational term “soundscape” as well as what seems comparatively trivial—locating a practical pedagogy of field recording—requires criss-crossing eras through multiple disciplines including biology, ethnomusicology, film production, philosophy, sound studies, and music.

There is another complication. Two kinds of invisibility permeate field recording: The transparency of the technology and the concomitant absence of the person pressing the Record button. How did I learn to be invisible? While learning how to make field recordings, I have had to stitch together bits and pieces from technicians, self-trained

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artists, and scholars from all of the aforementioned disciplines. To mangle an apothegm prized by Luigi Nono: There are no paths, only pathfinding.

Some tips and tactics only become relevant in the field. To learn, one must do, from anticipating wind by watching blades of grass bend and treetop leaves drift to running an additional recorder in parallel at a lower input volume level to record unexpectedly loud transients without distortion. It is perhaps a cautionary tale that I have to relate to you that someone such as myself, having worked in the field for only a bit more than 25 years—and often failing at field recording since the late 1980s—is wary of trying to summarize everything.³

I am a phonographer, and you might be one too. When I tape small microphones to my skull, or button up a stout vest with sewn-in mics, or strap a stereo pair to my homemade mic boom, I hope my recordings become much more than what some scholars have summarized superficially as “affective and carefully observed and heard”⁴ audio files or categorized as a “hyperreal synopsis of events.”⁵ Instead, I venture into the world to ask, Who is heard? Who has? Who is here? and Why are we listening to this right now? Listening and recording is a form of inquiry, an investigation or at times an interrogation, of current crises and events. Much of my work originates in ad hoc, improvised, or liminal spaces: Orchestra intermissions, tunnels, forensically amplified digital audio, and political protests.⁶ Peter Cusack, a London-based sound artist, researcher, and improviser, identifies one of my early pieces, *N30: Live at the WTO Protest, November 30, 1999*,⁷ as an example of “sonic journalism” in which “attentive listening on location can reveal sonic threads running through the narratives and issues under examination.”⁸

This missive is long. Your thumb (or finger) may tire from scrolling or swiping. Don’t read it all at once. Jump from one heading to another. There’s no tl: dr. Along with the PDFs I sent, you should continue drifting through the ocean of anthologies devoted to establishing sound studies as an academic discipline: *The Auditory Culture Reader*,⁹ *Hearing History*,¹⁰ *The Sound Studies Reader*,¹¹ *The Oxford Handbook of Sound Studies*,¹² the mammoth four-volume *Sound Studies: Critical Concepts in Media and Cultural Studies*,¹³ *Music, Sound and Space*,¹⁴ *Keywords in Sound*,¹⁵ *The Routledge Companion to Sounding Art*,¹⁶ and *The Routledge Companion to Sound Studies*.¹⁷ In addition, near-countless sound studies articles and landmark monographs such as *The Tuning of the World* by R. Murray Schafer,¹⁸ *The Soundscape of Modernity* by Emily Thompson,¹⁹ and Jonathan Sterne’s *The Audible Past*²⁰ entangle sound and the soundscape with other sensory, cultural, and material aspects of the world.

Yet after reading all of those pages, the voices of artists—especially those who make field recordings—remain missing or barely afloat in those oceanic texts. Spending time in the field, recording with microphones, and listening will help you become an astute, intuitive listener, a perpetual “sound student.”²¹ As suggested by Sterne,

Sound students produce and transform knowledge about sound and in the process reflexively attend to the (cultural, political, environmental, aesthetic . . .) stakes of that knowledge production.²²

Here are my stakes: In this letter I want to remind you why the microphone is not the ear. I also want to propose a counter-history of the origins of field recording; this pillar-to-post chronicle serves mainly to present a series of lessons I have learned as a sound student—some grounded in theory, others resulting from training, reading dusty journals, waiting for a leaf to move, or holding a microphone steady while staggering through clouds of tear gas. Genre enfolds history, style, people, and possibility: I hope this missive introduces the genre of phonography and what I provisionally call post-phonography.

THE MICROPHONE IS NOT THE EAR, BUT AN EAR

Rather than pore over microphone spec sheets, use your ears to remind yourself that the microphone is much more than an extension of ourselves or what media theorist Marshall McLuhan calls a “technological simulation of consciousness.”²³ Do you remember the exercise “Find a Binaural Soundscape” we did in class? This exercise will enable you to bypass and perhaps understand what McLuhan identified as “the never-explained numbness that each extension”—in this case the microphone—“brings about in the individual and society.”²⁴ You will need headphones and a recorder with attached (“on-board”) microphones or an external, cable-connected microphone (not your phone!):

Wear your headphones in (or over) one ear in a quiet place.

If you have an external, cable-connected microphone, place it on a stand (or on a table atop a towel so it doesn’t roll away).

Put the recorder in Record mode.

Set the Record volume at the nominal level, i.e. before the advent of noticeable hiss or system noise in your headphones.

If you hear nothing, adjust your headphone level, which must remain unchanged during this exercise.

Memorize the Record volume level (usually a number).

Turn the Record volume level all the way down to 0.

Begin recording.

Rub your hand against your shirt or other garment and listen.

Hold the recorder’s microphones close to your body (or stand or sit as close as possible to the microphone, if connected to the recorder by a cable).

While rubbing your hand against your shirt or other garment gradually increase the Record volume level, either gradually or incrementally.

Find a level where your ear-with-a-headphone seems almost as loud as what your ear-without-a-headphone hears acoustically. Can you find a balance between your two ears?

Keep rubbing; raise the Record volume level so your ear-with-a-headphone is a little bit louder.

Verbally list or quietly memorize differences in timing, timbre, etc. Depending on the position of the microphone, your ears will hear the same sound very differently. You may find that no ear is identical to another.

Try this exercise with a voice, object, or soundscape.

To re-orient your ears, perform CALFRAS²⁵.

Continually wearing headphones while recording is called monitoring. You might remember me in class shouting, “Monitoring is not listening!” But for the first few months of making field recordings, wear headphones. Once you can imagine how your microphones portray sounds in the soundscape, you will acquire an intuitive knowledge of what the ear-with-a-headphone sounds like. I seldom wear headphones when recording, except to briefly check for the presence of a signal, adjust stereo balance (if desired), and set (then forget) the Record volume level.

Avoiding headphones makes me a better listener. Composer and theorist Cathy Lane declares, “Technology can help us to LISTEN it can also help us not to LISTEN.”²⁶ Wearing headphones continually means that my ears not only monitor what my microphones are recording, but due to acoustic leakage—also called “bleed”²⁷ by audio engineers—I also hear a sliver of the acoustic soundscape. Without headphones, I can remember and treasure what I hear, even if the recording fails. I seek to remember the soundscape well enough so that I can EQ or otherwise process the recording to match my memory of the soundscape, not my memory of the soundscape heard through headphones. Treat EQ and dynamic compression like Proust’s madeleine: a bright or muffled EQ to match the vivid presence or aloof periphery of what you recorded; and dynamic compression (and maybe a minuscule amount of reverb) to imbue proximity or unfold a sense of distance.

As an extension of the ears, microphones can be considered an apparatus, which, according to Giorgio Agamben, “must always imply a process of subjectification, that is to say, they must produce their subject.”²⁸ Even though an apparatus such as the microphone may be a tool in which “one realizes a pure activity of governance devoid of any foundation in being,”²⁹ the inanimate, being-less microphone only captures what master nature recordist Bernie Krause calls “the consequences of sound.”³⁰ The implied—and illusory—dominance or control of recorded sound heard by your microphone need not necessarily make you a “subject.” “Our ears have the capacity to discriminate; microphones don’t,”³¹ observes Krause. This difference originates in sensory adaptation—in this case, the rapid subsuming of ambient sound to the periphery of our attention and memory.³² In a contemporary indoor environment, for example, your ears will usually ignore and soon forget HVAC drones, distant road noise, the hum of the refrigerator, conversations of strangers, and other steady sounds that not only seem to recede into the background but mask smaller, delicate sounds.

Sensory adaptation is physiological, rooted in the brain, the resonance of the ear canal, and the resulting maximal sensitivity of the ear between 2kHz and 5kHz. But this immediate (or sometimes gradual) inattention is also cultural; Anne Carson writes in her classic essay, “The Gender of Sound”: “It is in large part, according to the sounds

people make that we judge them. . . . These judgments happen fast and can be brutal.”³³ As my grandfather said, “No one trusts a handsome, good-lookin’ fella who squawks like a donkey.” We unknowingly rely on our ears not only for the concomitant facts of time, geography, and causation but also to confirm, ignore, or reject identities of accent, age, class, ethnicity, race, gender, and nation.³⁴

As an apparatus, the microphone is vulnerable. In his *Memoirs* the pioneering nature recordist, broadcaster, and advocate Ludwig Koch (1881–1974) states that “the conditions needed by the microphone are quite different from those governing human hearing.”³⁵ Here is just one of many possible examples: Outdoors, you will hear how very strong wind distorts the microphone’s diaphragm so completely that all sound is masked and distorted like a sizzling frying pan; by contrast, the average ear’s much more sensitive auditory system can discern nondistorted sound amid surges of whooshing, smothering heavy wind.

By performing the foregoing exercise before you venture into the field—and while you are in the field—as well as recording without headphones, trying the lessons in the “Where’s the Manual?” section below, and devising other personal ear-cleaning strategies, your microphones need not be a numbing extension or subsumed apparatus.

Your ears will liberate you: When listening to his field recordings made during a trip to Siberia, composer and theorist Tim Hodgkinson “began to realize that a recording always gave you more than what you had asked for.”³⁶ Instead of the “reduction” postulated by Pisaro of an “immersive sensual experience of an environment,”³⁷ Hodgkinson’s “more” results from pointing the microphone. Field recording opens a path toward “an enactment of difference”³⁸ and convergence among what you heard, what you recorded, and what you remember.

Reduction becomes revelation. To re-map Salome Voegelin’s astute reading of the agential realism of Karen Barad: Microphones become “at once the apparatus and material” of sound and listening due to where and how you position the microphone—in tandem with the microphone’s polar pattern, frequency response, transducer type, self-noise, and signal-to-noise ratio as well as its ineffable qualities (“vibe” or “character,” in the argot of audio engineers). In turn, the convergence of your memory, microphones, and recording “perform the reality of their meeting by opening different resonant spaces in listening, in architecture and in music”³⁹—and sound.

BATMAN’S BROTHER

Everyone (and I mean EVERYONE) I know who makes field recordings wonders about their forerunners. The mythic, inchoate origin stories of field recording parallel the retconning and complete revision of superhero origin stories in comics and films—yes, Batman had a brother.⁴⁰ This confusion has three aspects: The fetishization of dates as a tempting replacement for the still-foggy history of making audio recordings outside the studio or parlor; the persisting confusion among field, location, and studio recording; and the decades-old discourse of (not) teaching field recording.

Media scholar Mitchell Akiyama pinpoints the first appearance of “field recording” in a 1933 issue of *The Journal of the Society of Motion Picture Engineers*.⁴¹ In class we examined a 1927 article in *Transactions of the Society of Motion Picture Engineers* that includes “field recording.”⁴² The usage of the term reveals far more than a date: In those two and other contemporaneous instances, “field recording” appears like Athena, fully formed with a clearly understood intent and purpose—and without explanation, as if no further discussion is needed.⁴³

By contrast, American scholars who pioneered taking the wax cylinder phonograph out in the field to record various Indigenous and Native peoples in North America—Jesse Walter Fewkes, Alice Fletcher, Benjamin Ives Gilman, Frances Densmore, et al.—wrote “field notes” and discussed venturing into “the field” to conduct “field work” but did not use the term “field recording” in a frequent, significant, or meaningful way in print.

I suspect “field” and “recording” were both too broad to conjoin into a compound word; “field” permeates popular and “serious” music publications from the late 19th to the mid-20th century (e.g., “publishing field,” “entertainment field,” “songwriting field,” etc.). Similarly, “recording” connoted multiple shades of meaning, primarily referring to the transferring of knowledge to the written word and standard Western music notation. I believe “recording” was thus too broad to merely denote a specific practice with the phonograph. Trawling through thousands of pages in *The Journal of American Folk-Lore (JAF)* from 1889 to 1922, “the journal of choice for professional ethnographers publishing text-based research,”⁴⁴ I discovered that sentences such as

As the field for gathering material widens, or, rather, deepens, the greater the necessity of recording, where possible, all facts as to the source of the information.⁴⁵

map the notion of “recording” to annotating, archiving, cataloguing, chronicling, describing, diagramming, phonetically parsing, transcribing, and otherwise inscribing information by standard hand writing, shorthand, or on a typewriter. Fragile, noisy, and requiring skill to operate, the wax cylinder phonograph was far from a dominant or ordinary method of “recording.” As H. M. Belden wrote in 1912, “all who can record the music of our living song-ballads, whether by the ordinary notation or by phonograph, can contribute.”⁴⁶ Almost always found as a footnote in *JAF*, the phonograph was a minor tool. A few *JAF* contributors were adamantly skeptical. John Comfort Fillmore observed in 1895:

I have found that the most satisfactory way, by far, of studying the songs of our aborigines is to write them down from the singing of Indians, not from phonographic records.

There are at least two reasons for this: one is that, assuming that the Indian sings his song exactly as he intends to sing it, the phonograph must be manipulated with the greatest care, or the record will still misrepresent him; for the slightest change in the rate of speed causes a corresponding variation in pitch.

At best the phonograph represents the song somewhat imperfectly; but records unskilfully taken are apt to misrepresent it, sometimes to the point of caricature.⁴⁷

FIELD, LOCATION, STUDIO RECORDING

The second locus of confusion regarding the history of field recording arises from the conflation of field, location, and studio recording. We commonly assume that studio recording transpires in sheltered and otherwise controlled and controllable environments, from “nothing more than bare rooms with a partition between the man operating the recording machine” in the 1890s,⁴⁸ to acoustically treated rooms teeming with vintage instruments, to your bedroom studio (or wherever your laptop is). In the studio, it seldom rains.

By contrast, location recording attempts to transport the control, stability, and potential of the studio to somewhere else.⁴⁹ Put bluntly by location sound guru Michael Tierno, “The only thing you’re doing when you record location sound is gathering assets for the final sound mix.”⁵⁰ Try applying Tierno’s formulation of location recording to many of those pioneering ethnographers and folklorists: Swap out “final sound mix” for “conference paper,” “journal article,” or “book” while replacing “assets” with “someone else’s cultural property”⁵¹ or a more genteel kind of asset such as “knowledge.”

But the circumstances of those recordings could veer into a field recording, which can be defined as recording in an unstable, ad hoc, and unpredictable context, often by un- and self-trained scholars, scientists, artists, and explorers.⁵² Frances Densmore recounts compromising and deviating from her usual laboratory-based location recording practices when making, tantalizingly, something close to what we might consider today to be a field recording:

Henry Thunder, a Winnebago, refused to sing unless he could record in a grove, where he could see in all directions and be sure that no one would overhear him.⁵³

Field recording compels the recordist to embrace multiple and significant kinds of unpredictable factors—and extremely variable results. Luc Ferrari, composer of the pathbreaking proto-soundscape composition *Presque Rien No. 1* (1967–70), observes: “An outdoor sound is fugitive. One wonders, will it return?”⁵⁴ Ferrari, an avid maker of field recordings, elaborates:

Take, for example, a donkey that brays, and you miss making a recording of it because you were not ready. You then have to seek out a place where a new bray could sound even better than what you first heard. But will it bray again? And at that moment, while waiting for the donkey, you discover other things—the cicadas, the brushing of the wind against the grass—until three hours later the donkey decides to bray again. So during this time a massive amount of things have taken place and given you the opportunity to creatively record them.⁵⁵

Material circumstances or more broadly, affordances, augmented by a careful attention to media history should stymie any easy tripartite division of field, location, and studio recording. Today, old studios would not be considered proper studios—sites where sound and listening could be controlled—but mere “locations.” “The earliest spaces used for recording were inventors’ laboratories and machine shops, rooms in office buildings,” states audio production scholar Susan Schmidt Horning.⁵⁶ Early (and many

contemporary) studios were far from soundproof. While recording classic sides for the Gennett label in the 1920s, Louis Armstrong, Jelly Roll Morton, and everyone else who recorded in that “single-story shed nestled among factory buildings and railroad tracks”⁵⁷ had their sessions interrupted by a passing train.⁵⁸

What was recorded remained contingent on recording technology. Jonathan Sterne observes that “recording did not simply capture reality as it was; it aimed to capture a reality suitable for reproduction.”⁵⁹ Acoustic recording horns required close proximity; drums and other percussion instruments were excluded from or modified for the recording process.⁶⁰ Later, microphones used in tandem with electrically powered disk- and early magnetic recording were much more sensitive. The advent of electrical recording meant close-up recordings could sound intimately if not viscerally present; loud panoramic sounds such as an orchestra in a studio environment could be captured at a distance with two or three microphones.⁶¹ In the 1960s sturdy microphones and portable, popular reel-to-reel (and later cassette) tape recorders⁶² enabled rapid (and possibly real-time) movement while recording.

But from one artist holding the microphone to another, I want to propose a personal, ahistorical definition of field, location, and studio recording—a definition rooted in your experience of the soundscape, what you are hearing and feeling. The field is wherever you are holding (or placing) a microphone in a soundscape where you and your fate feels unstable, ad hoc or unpredictable, perhaps rooted in an uncertain environment, a fluctuating soundscape, while fumbling with (or without) equipment (bring extra batteries!), etc. Making a location recording requires a confidence born of training and tested expertise, often abetted by external material support. In studio recording, what is to be made and heard remains somewhat in doubt, but almost nothing else is; you can rest assured it won’t rain.

REMEMBER THE PROTEST YOU RECORDED?

You told me that as a young woman of color you were terrified, fearful for enough reasons to be read aloud forever. You were making a field recording. (Thank you for remembering my warning about mounting a microphone on a pistol-grip. Based on my experience recording at protests, I have issued this warning to each class, in every workshop since I started teaching.) That person next to you wielding a steady microphone boom and wearing huge headphones was making a location recording. Those guys from the network a few feet away, on the other hand, were making a studio recording without umbrellas; they had a stoutly packed van filled with world-class equipment (and snacks and umbrellas), and security (OK, one beefy guy in a black polo shirt but “security” nevertheless), while enjoying a livable day-rate or an actual steady job. To warp the phrase from Rick Altman that started this letter, a field recording is your story of a sound event. The field is defined by who you are, what you have, and where you are.

Whichever form it assumes, the uncertainty inherent in making a field recording opens a potential route to liberation, where the microphone is truly yours. Let’s return to the idea of the microphone as an apparatus. Giorgio Agamben writes, “Here lies the vanity of

the well-meaning discourse on technology, which asserts that the problem with apparatuses can be reduced to the question of their correct use.”⁶³ Field recording can thwart the peeling away of the self and contravene the standard, habituated use of an apparatus such as the microphone. Agamben uses the adjective “larval”⁶⁴ to explain that “desubjectification” produces a stunted, near-vegetative subject; consider Marshall McLuhan’s “never-explained numbness”⁶⁵ an almost close cognate of this idea. Agamben warns:

Those who make such claims seem to ignore a simple fact: If a certain process of subjectification (or, in this case, desubjectification) corresponds to every apparatus, then it is impossible for the subject of an apparatus to use it “in the right way.” Those who continue to promote similar arguments are, for their part, the product of the media apparatus in which they are captured.⁶⁶

You can desubjectify or perforate the numbness of field recording by using the microphone as a means to focus your attention, hone your memory, and continually challenge your assumptions of what to record. Pointing a microphone does not obligate you to press Record. Let’s desubjectify ourselves a little bit:

Lesson 1: Venture into the field, point the microphone, don’t press Record (depending on the recorder you might need to be in Pause mode), and monitor through headphones. How does merely holding or being with the microphone transform what you hear? Did pressing the Record button induce calm, anxiety, or anticipation?

What follows is my attempt to root a practical pedagogy of field recording in a counter-history of those who took recording equipment into (what they considered to be) the field.

WHERE’S THE MANUAL?

In the beginning, there was no manual. Helpful field recording tutorials or first-person testimonies from those with experience taking recording devices into the field were scarce in the first century of field recording in the United States. Here I survey, consolidate, and update useful advice offered by pioneering ethnologists, folklorists, ethnomusicologists, anthropologists, and ornithologists, including Jesse Walter Fewkes, Benjamin Ives Gilman, Frances Densmore, Hugh Tracey, and Laura Boulton, along with two notable figures outside of academia, Ludwig Koch and Tony Schwartz. This is not a canonical list but a pillar-to-post counter-history leavened with helpful lessons for listening and field recording.

Tracing a lineage of taking recording equipment out of the studio is not easy; pioneering recordists were seldom helpful in print. In her landmark history, *A Spiral Way: How the Phonograph Changed Ethnography*, Erika Brady discovered that amid all of the articles in *The Journal of American Folk-Lore* from 1890 to 1935, only 12 substantially mention the phonograph, despite the fact that “external evidence demonstrates that members of the society were using it regularly.”⁶⁷ Brady suggests that those ethnographers avoided “making conspicuous use of the machine and reporting on its use”⁶⁸ because the phonograph “attracted attention to the inevitable artificiality of the encounter.”⁶⁹ Guidance, or

mere hints, were few and far between, as if the process—akin to “field recording” in the motion picture industry trade journals—was self-evident, unworthy of discussion and critique. I have found no evidence that researchers did not want to help rivals or possible competitors, though this remains a possibility.

Morsels of advice were offered by Jesse Walter Fewkes (1850–1930), whose field recordings “represent the first efforts to collect [recorded] music for scientific analysis.”⁷⁰ In 1890, at the dawn of field recording, Fewkes published⁷¹ what a subsequent pioneer, Frances Densmore, believed was the first article on the use of the phonograph for ethnological field work.⁷² Fewkes’s pathbreaking efforts with wax cylinder recording—which was, according to Fewkes, “in a state of perfection”⁷³—resulted in only one suggestion, one that phonographers the world over unknowingly follow to this day, which is to record a verbal slate:

These records were always accompanied by a statement on the cylinder of the subject, time and place, name of the Indian giving the testimony and that of the observer. This safeguard seemed necessary for future identification, as their labels might be displaced or lost, and by that means their value be impaired.⁷⁴

Lesson 2: Follow Fewkes’s advice and slate your recording, either before you point the microphone or when you think the recording is over. Make sure to mention the distance of the microphone from your desired source and the recording level; this will help you intuit the range and depth of your microphones. Your slate will help you sort through cryptic filenames generated by your recorder (each manufacturer has their own file-naming nomenclature) such as 201107_01.WAV or STG-007.wav or B14h52m19s13jun2009.wav.

Fewkes also noted “difficulties in the transportation of the phonograph from the railroad to the Zuñi,” whom he planned to record,⁷⁵ adding:

I found it convenient, however, to take with me the treadle machine, which is more practical for this kind of work than that furnished with the storage battery. The former is, moreover, more bulky, and on that account more difficult to carry over rough roads.⁷⁶

Lesson 3: Practice carrying your recording gear. Pack everything up (use my Field Recording Workshop List) and walk around for a few hours. Make an inattentive recording or two or heed Lesson 1. You will have a much better idea of what you really need to bring next time.

The most thorough advice in the early years of field recording was offered by the philosopher and ethnologist Benjamin Ives Gilman (1852–1933) in his 1908 monograph *Hopi Songs*.⁷⁷ In the first part of the second chapter, “Phonographic Method,” Gilman details his use of the phonograph by analyzing the variations in rotations of the wax cylinder⁷⁸ and intonation⁷⁹ in tandem with tracking battery consumption and his progress in transcribing, notating, and understanding the songs he recorded.⁸⁰ So detailed are Gilman’s notes that nearly a century later ethnomusicologist Helen Myers showcased Gilman as a still-relevant exemplar in her chapter “Field Technology”⁸¹ for the standard

textbook *Ethnomusicology: An Introduction*.⁸² As a source of instruction and guidance, Gilman was an outlier among those making recordings in the field.

Lesson 4: Read the manual. Do you know your recorder and microphones as well as Gilman knew his equipment? You should be able to identify and manipulate buttons, dials, sliders, cables, and compartment doors in pitch darkness with your fingers (to touch buttons and check connections) and your ears (to set or reset a Record level).

Another pioneering field recordist, Frances Densmore (1867–1957), offered few hints and guidance in her determined, precise, and voluminous texts. As a woman in a male-dominated field, Densmore had to compete and succeed decisively in order to receive ongoing funding and other renewable institutional support.⁸³ Musicologist Rachel Mundy reminds us that female scientists and song collectors such as Densmore “who collected specimens were in a position of power in their relationships with plants, animals, and artifacts; but in their professional relationships, they were often on uncertain footing.”⁸⁴

Lesson 5: Depending on your perceived identity, you might encounter bias, sexism, and/or racism in the field. If you are not a white man, others may assume that you lack competence or confidence. You will certainly encounter class-based technological bias: In my experience, those with the most (or most expensive-looking) equipment tend to be perceived as more competent, though this is seldom the case.

Unlike Fewkes, who enjoyed a relatively charmed career and contributed comparatively little, Densmore had to continually hustle for funds to support her expansive research. Tell doubters, “I know what I’m doing,” and continue your work.

One great gift of field recording is that you get to fail by yourself. No one else can discern—or define—your success or failure.

At the end of her career, Densmore was more forthright and generous. Writing in 1940 to a university-employed anthropology professor planning to record members of the Gros Ventres tribe, Densmore included a page-long appendix encapsulating her three decades of recording experience.⁸⁵ In “The Study of Indian Music,” Densmore also offers her instructive recollections to ethnomusicologists planning to record Native Americans.⁸⁶ In addition, she details her visionary update of Fewkes’ suggestion of slating, which is to record a tuning fork to imprint the Western standard concert pitch onto the phonograph cylinder.⁸⁷ Densmore’s suggestion to slate a test tone enabled the correlation of performer pitch with the cylinder’s (initial) speed of rotation. Although she did not employ the tuning fork test tone consistently,⁸⁸ Densmore foreshadowed the use of test tones for magnetic tape recording and playback. In 1948, audio engineers at Ampex recorded brief tones at specific amplitudes on tape⁸⁹ to calibrate the alignment and speed (and thus retain consistently accurate pitch and tempo) of magnetic tape machines.⁹⁰

Lesson 6: Help others when you can. Doing so compels you to summarize and solidify your own knowledge, which will eventually find nourishment from many artists and scholars in multiple disciplines.

Guidance for making field recordings also appeared sporadically in journals of anthropology and ornithology in the mid-20th century. The renowned ethnomusicologist Bruno Nettl wrote a page and a half directed “to the anthropological field worker for increasing the value of his music recordings” tucked away in the “Technical Notes” section of *American Anthropologist*.⁹¹ Nettl advises “holding the microphone close”⁹² but offers no specific technical advice. By contrast, Alan P. Merriam in the comparatively obscure, homemade *The Kroeber Anthropological Society Papers*⁹³ details the types of magnetic tape as well as extra equipment to consider along with specific recommendations about tape speed, tape length, and electrical power.⁹⁴

Ornithologists dreamed of taking the phonograph into the field, too, though they were similarly circumspect. In 1897, the Reverend P. B. Peabody hoped that one day it would be possible to “phonographically, retinize the songs of birds.”⁹⁵ In 1929, after teaming up with “a crew from a motion-picture corporation whose assignment was to record the singing of wild birds synchronized with motion pictures” in Ithaca, New York, Arthur A. Allen and Paul Kellogg began investigating techniques and equipment to record bird song.⁹⁶ The two Cornell professors found a patron and collaborator in Albert Brand, a retired stockbroker and fellow ornithologist.⁹⁷ Together, by 1932 they developed a quasi-portable recording apparatus “housed in a small closed Ford truck.”⁹⁸ Brand does caution, “there are a number of factors that enter into bird sound recording that make it much more complicated than the brief description just given would suggest.”⁹⁹

Brand then continues to dispense general advice about the weather and intrusion of nearby sounds,¹⁰⁰ but as a scientist, he remains indirect, cautious, and prudently understated: “It would seem that a new field for the student of bird life has presented itself.”¹⁰¹ Five years later, a lavishly illustrated 29-page article by Allen in a 1937 issue of *The National Geographic Magazine* focuses mainly on milestones of the expedition’s cross-country travelogue while noting the importance of camouflage and patience: “It is one thing however to invite an opera singer to step before the microphone and quite another to order a wild bird to do the same thing.”¹⁰²

Allen gives a few useful tips, including padding the sides of a microphone when dangling it from a tree¹⁰³ and placing the microphone as close as possible, even if precariously positioned.¹⁰⁴ Astonishingly, Allen mentions but does not explain one of the technological marvels of the expedition, the “sound reflector,”¹⁰⁵ also called the “parabolic reflector,”¹⁰⁶ which enables the pinpoint recording of sounds from more than a dozen feet away. Today, the account of daunting logistics mainly demonstrates that in the 1930s transforming a field into a location required a budget suited to wealthy men such as Brand and institutions such as Cornell University.

Unfortunately, the great nature recordist, broadcaster, and advocate Ludwig Koch (1881–1974) was and remains relatively unknown in the United States. As a child, Koch recorded an Indian songbird, the common or white-rumped shama, in 1889;¹⁰⁷ this field recording is considered to be the first known nature recording to survive.¹⁰⁸ Koch criss-crossed the UK on numerous expeditions to record birds and other wildlife.¹⁰⁹ He had the gift of communicating his work to a general audience on the radio and in print. Koch dispensed hard-won wisdom in his *Memoirs* and affirmed the importance of the recording

context, “that for call and song you must watch your bird in its natural surroundings.”¹¹⁰ Although Koch also made urban field recordings in Cologne and Leipzig¹¹¹ before exiling himself from Nazi Germany, he remains primarily known in the UK as an avuncular naturalist who “brought the sounds of wildlife to the masses through his work with the BBC and became a household name to listeners in the 1940s and 50s.”¹¹²

Lesson 7: If given the opportunity and platform, advocate for listening to the world, but develop an ethical code. My own code is too lengthy, personal, and detailed to reproduce here but boils down to taking risks without endangering anyone else; helping other people; and using what privilege I have for a greater good.

I try to exercise what I call “corporeal privilege.” After reading Paul Gorski’s analysis of white privilege,¹¹³ discovering Catherine Hakim’s concept of erotic capital,¹¹⁴ and witnessing arrests of short and slender people at various Occupy Wall Street protests in 2011 and 2012, I realized that the very size of my body—then an aerobically fit 6’4” and muscular 210 pounds—granted me abilities, privileges, and potential priorities when recording in the field.

My corporeal privilege¹¹⁵ means that I am a less-than-desirable target of American law enforcement, whose preference for what police sociologist Luis A. Fernandez calls “hard-line social control”¹¹⁶ includes swift and decisive arrest. Amid a crowd, I am less likely to be arrested¹¹⁷ because I am larger than most police officers and, based on what police officers have told me, my imposing frame would require more than one officer to safely subdue. And though I have always practiced nonviolence, police have no way to discern my practice. Corporeal privilege also confers the ability to enter crowds and other situations that might give a smaller or weaker person pause; to see and hear over massive crowds; to set or shove aside barriers in order to create avenues of escape; and to shield others.

By contrast, two famed researchers offered guidance that would be ethically controversial today: Hugh Tracey (1903–1977), an ethnomusicologist who collected songs throughout Central and Southern Africa, is worth quoting at length. Disturbingly, Tracey refers only to “Africans” in the article and never identifies a specific language group, nation, ethnicity, region, tribe, clan, village, band, family, or other identifying geographic or social unit.

On the other hand sudden shouts, yodels and ululations can shake you with dismay, as over-modulation on the tape is inevitable. African dancers have a mean habit of producing a tin whistle out of thin air like a conjuror and blasting all one’s hopes of a good recording. Whistlers have a strange belief that full blown signals on their infernal pipes are more than half the battle. They look like whipped spaniels when they are asked to blow discreetly, and I always hate asking them. One day a recording machine will be invented to cope with whistles at any distance, but that day has not yet arrived.

It is often worthwhile, I find, to record the activity which normally goes with a particular song or tune. If it is a dance, then I like to hold aside some of the dancers to do the singing while the others dance, in order to make sure the item does not flag for lack of active movement.¹¹⁸

Tracey not only adjusted the frame in making his field recordings but also commanded the proceedings, another example of Jonathan Sterne's subsequent contention that "recording did not simply capture reality as it was; it aimed to capture a reality suitable for reproduction."¹¹⁹

Lesson 8: Let those making sound teach you. In "Some Do's and Don'ts of Field Recording," Samuel B. Charters recommends "making an effort to get to know something about the life, the attitudes, the politics, even the local politicians in the surroundings."¹²⁰

Laura Boulton (1899–1980) was a buccaneering ornithologist and ethnomusicologist who brashly trumpeted, "I created my career."¹²¹ Her 503-page autobiography, *The Music Hunter* (1969), catalogues "thirty-five years of determined and dedicated effort to secure the tapes and records of the music of peoples on all five continents."¹²² Hoping to ingratiate herself with unspecified "tribes" who "were at first very distrustful of me and my recording machine,"¹²³ Boulton describes recording and "performing a gay French folk song" and then playing it back. "Nothing I could have done would have established me more firmly, more rapidly as a friend."¹²⁴ Although ostensibly specific, Boulton did not locate her technique geographically or chronologically. Such anecdotal imprecision was typical. Writing in 1999, Erika Brady stated that "even in recent years when ethnographic conventions concerning presentation of text have become more stringent, the actual process by which such texts are acquired often remains obscure."¹²⁵ By the late 1960s, a parallel condition arose in anthropology:

The ethnomusicological literature had grown and its mastery left anthropology students little time for technical training; the intellectual complexity of new theory—linguistics, phenomenology, information theory, cybernetics and semiotics—undermined interest in recording techniques, now taken for granted.¹²⁶

Lesson 9: Question your objectivity. You will inevitably record your own priorities. You may try to emulate Steven Feld's practice of dialogic editing, which "invokes a concern with authoritative representation; the power to control which voices talk when, how much, in what order, in what language"¹²⁷—nonetheless, an imbalance (or perhaps a mere difference) of ownership, technical skill, and perception will persist. Only one person can click Save. I have experienced this disjunct difference even between phonographers recording together at the same site just a few feet away. The enactment of difference, of authorship, is unavoidable.

Fewkes, Fletcher, Densmore, Lomax, Boulton, and others practiced what is now classified as "salvage anthropology."¹²⁸ For those ethnologists, ethnomusicologists, musicologists, and folklorists, field recording was an act of preservation, a bulwark against the disappearance or disfigurement of traditional music. Temporarily forgetting her custom of singing "a gay French folk song" to Indigenous peoples, Boulton recalled her "horror" at hearing "wandering Indonesian minstrels" in Jakarta run through "their favorite song, played over and over," which was revealed to be a number one hit for Frank Sinatra in

1946, “Five Minutes More.”¹²⁹ Tellingly, Boulton’s account repeats the lyrics of the song, but neither names the song nor credits the artist.¹³⁰

Today, we would not fault those minstrels for abandoning or betraying a tradition: “Ethnography as a practice is in fact an empty vessel that is shaped according to the priorities of the author.”¹³¹ As the esteemed ethnomusicologist Anne K. Rasmussen once instructed me, “Reception is the site for the creation of meaning in music.”¹³² By refusing to receive, Boulton made it clear she was seeking a specific, perhaps Edenic, temporally constrained past or, as Alan Lomax emphatically sought, a genealogically rich pocket of the present untouched by mass media. On his trip to Haiti in 1936, Lomax reported to his father: “The drumming is amazing and the stuff is all pure folk, with absolutely no radio, movie or phonograph adulterants.”¹³³ During the same trip, the alert-eared Lomax jotted “five or six radios going very loud” in his field notes,¹³⁴ hinting at what must have been a delicious, disruptive cacophony. In *Nettl’s Elephant*, a valedictory history of ethnomusicology, Bruno Nettel recalled:

Long ago, we eschewed popular music and music that exhibited cultural mixes as inauthentic; now we’re mainly interested in how musics and musical cultures affect each other.¹³⁵

As seekers of songs, Boulton and Lomax understandably missed forerunners of what David Novak has dubbed “World Music 2.0,” which maps “a world formed in the margins of global exchange” that “also records its mash-ups and overlaps, degraded sources and untraceable short-circuits.”¹³⁶

Lesson 10: Interstitial, ignorable, or unwanted sound such as the “five or six radios going very loud” Lomax heard would today be a vital, perhaps compelling document. Check your resistance and spend some time recording what you don’t want to hear.

Recordists outside of academia offered guidance for field recording, albeit spottily. Inexpensive mass-market paperbacks such as Arvel Ahlers’s *Family Fun in Tape Recording*¹³⁷ catered to the home recording hobbyist but had little to say about taking microphones outdoors. The most prominent adviser was Tony Schwartz, who “lived with a pronounced agoraphobia that prevented him from traveling beyond a small section of Manhattan, specifically the area known for much of his life as Postal Zone 19,”¹³⁸ which is “bounded on the North by 60th Street, on the South by the Times Square area, on the West by the Hudson River, and on the East by Fifth Avenue with the exception of Radio City.”¹³⁹

Yet beyond the confines of a small chunk of metropolitan New York, Schwartz first found fame on the radio. In 1946 he began a 26-year stint on the New York City airwaves, contributing to a morning show, *Around New York*,¹⁴⁰ and then hosting the “sound magazine” *Adventures in Sound*, on WYNC and later on WBAI.¹⁴¹ Schwartz also established his own person-to-person mail-exchange network to distribute and trade his homemade recordings.¹⁴²

In 1952, Schwartz began creating albums for Folkways Records¹⁴³ at the invitation of founder and president Moses Asch.¹⁴⁴ An advocate for amateur recording, Schwartz made sure that his Folkways LPs contained multi-page booklets that offered an expanded

definition of folklore that included “the non-commercial musical expression of people now living and working in New York 19.”¹⁴⁵ He also detailed his work procedures along with a photo of his surreptitious recording apparatus.¹⁴⁶ Much of his advice remains useful; for example: “To get around background noise in the street, get closer to your subject and lower the volume.”¹⁴⁷ In response to the wider availability of portable tape recorders, Schwartz’s last LP for Folkways included an advisory price list of recorders titled “For the guidance of the inspired.”¹⁴⁸ To record his 1961 Folkways LP *Sounds of London*, Samuel B. Charters mentions hiding his tape recorder “under a shapeless English duffle coat. The microphone was strapped to the left wrist inside the coat sleeve. Although there was some loss of fidelity this made it possible to record everywhere in the city.”¹⁴⁹ Unlike Schwartz, Charters did not include a photo or further advice. Schwartz’s price lists and procedures perhaps make him the first to offer field recording advice—though only applicable to the city—to a general, albeit limited audience.

From my vantage point, commercially available books—such as Koch’s *Memoirs* and Eric Simms’s *Wildlife Sounds and Their Recording*—were all but unknown in the United States. The aforementioned writings by Fewkes, Gilman, Densmore, Allen, and others gathered dust on library shelves. Schwartz’s Folkways Records LPs were always niche products; in the 1980s and 1990s the LPs with liner notes were scarce because they were held by collectors and never reissued on compact disc.

Lesson 11: Find more advice elsewhere.

Field recording advice became much more accessible after 2000, in Bernie Krause’s exemplary *Wild Soundscapes: Discovering the Voice of the Natural World* (2002)¹⁵⁰ and Frank Dorritie’s rare, expensive, and out-of-print *The Handbook of Field Recording* (2003).¹⁵¹ Recent guidance and recommendations can also be found occasionally in *Soundscape: The Journal of Acoustic Ecology* (which began publishing in 2000).¹⁵² Comparatively, *Field Notes* (four issues from 2008 to 2021)¹⁵³ and *Reflections on Process in Sound* (five issues from 2012 to 2017)¹⁵⁴ contain a trove of advice, suggestions, and wisdom. Each issue of *Field Notes* contains at least one article that discusses recording in the field. Similarly, every issue of *Reflections on Process in Sound* fulfills its title; artists reflect on technique, subject matter, and of course, struggle. All of these journals are free and easily downloaded.

Before those books and journals, I was inspired by Bernie Krause’s 1996 book and CD *Notes from the Wild*.¹⁵⁵ Krause’s mix of anecdote, tales, technical advice, and theoretical speculation rooted in his three decades in the field resonated with me, particularly his contention that:

Because the material is already changed by the process of field recording itself, and because the recorded sound is a mere fragment of the source material . . . the raw material must be edited, mixed and remixed to recreate the illusion of reality.¹⁵⁶

Lesson 12: Distinguishing between field recording, soundscape composition, and phonography will help answer the questions, Whose reality? and Which reality?

The often variable, usually tangential relationship of the term "phonography" to field recording also parallels the retconning Batman's brother, Thomas Wayne Jr., who (stay with me here) on a parallel Earth (Earth-3) is known as Owlman.¹⁵⁷ The unsettled usage and scattered origins of "phonography" open an entryway to reimagining what field recordings are and what they might become.

In 1701 John Jones, MD, published a work entitled *Practical Phonography*, "which was designed to assist persons to read and spell the ordinary longhand."¹⁵⁸ As one of countless quixotic plans to correct the centuries-old inconsistent visual orthography of the English language through oral spoken language, *Practical Phonography* and its author have remained obscure. In the mid-19th century, phonography became known as a means for transcribing oral dictation into writing. Sir Isaac Pitman, inventor of the most widespread version of phonography, deemed his system of stenography or "writing by sound"¹⁵⁹ or "phonography" in 1837¹⁶⁰ "because he claimed that his was the first shorthand based explicitly on the phonetics of English, rather than on its spelling."¹⁶¹

Pitman had many rivals. Pitman's chief American competitor and former disciple, Andrew Jackson Graham, "even used the term *phonograph* in 1858."¹⁶² Another rival, V. D. De Stains, published *Phonography*, a manual of "the art of writing the sounds both of speech and music"¹⁶³ in 1842. Pitman, Graham, and De Stains were by no means outliers; their respective methods of phonography were among many such "idiosyncratic systems of squiggles, lines, and dots"¹⁶⁴ some of which, including De Stains's *Phonography*, encompassed musical transcription.¹⁶⁵

Although devised 15 years before Édouard-Léon Scott de Martinville's "earliest surviving phonoautogram" made in 1857¹⁶⁶ and decades before Edison's tinfoil phonograph, the various systems of handwritten phonographic inscription confirm Jonathan Sterne's contention that "recording did not simply capture reality as it was; it aimed to capture a reality suitable for reproduction."¹⁶⁷ Douglas Kahn, echoing scholars of orality Walter J. Ong and Martin Jay, suggests the advent of phonography in the 19th century signaled "a dramatic shift in ideas regarding sound, aurality and reality."¹⁶⁸ Media historian Lisa Gitelman argues that "phonetic shorthand emphasized the oral character of language at the same time that it sought to perfect a technology for linguistic representation"¹⁶⁹; however, early phonography was designed to exactly capture and enshrine oral communication into the written word. Engendering "the separation of the word from the living present,"¹⁷⁰ speech transcribed with phonography made the aural disposable, forgettable, and available only as writing in permanent form. Early phonography captured an illusion of reality based only in heard language. Only what was written mattered.

Media scholars continue to connect phonography—a portmanteau of "the Greek *phonē* (sound, voice) with *graphē* (writing) or the related *gramma* (something written)"¹⁷¹—in various ways: to 19th-century modes of inscription,¹⁷² specifically to systems of writing designed to transcribe the spoken word through writing.¹⁷³ Phonography has also been employed broadly to track the artistic impact of consumer-oriented recording and playback devices¹⁷⁴ and to "define a period in our relation to music, a period

marked by a distinct set of attitudes, practices, and institutions made possible by a particular technology.”¹⁷⁵ More generally, phonography has been mapped to “the art of recorded music”¹⁷⁶ as well as to every technique for recording and “actualizing” sound in general.¹⁷⁷ Other scholars specifically employ phonography to denote a practice pertaining to the use of the wax cylinder phonograph and turntable gramophone in the late 19th and early 20th century,¹⁷⁸ or to turntablism in the late 20th century.¹⁷⁹ Sprawling, inconsistent usages of “phonography” leave the term ill-defined, flexible, and open, a perfect word for a community devoted to field recording to coalesce around—the phonography email listserv—in the early 2000s.

The Last Lesson: Find your community. Discussions with comrades will enrich and transform your work. Every community grows, and eventually evaporates.

PHONOGRAPHY ONLINE

Sometimes pioneers aren’t pioneers. Although I have been grouped with sound artist Dale Lloyd and other initial members of the phonography listserv,¹⁸⁰ online discussions among artists about field recording had already been underway before I joined in 2001. So many discussions had been transpiring on other email lists (such as the lowercase listserv) that composer and sound artist Marcelo Radulovich set up the phonography listserv on August 16, 2000,¹⁸¹ to discuss the making and creative use of field recordings.¹⁸² Almost a year later, in an email with the subject line “fieldrecording.org or phonography.org,” Radulovich wrote:

The word PHONOGRAPHY was brought up by Joel Smith (who is in this list) in an email exchange we had about field recordings. I mentioned to him that those words: “field recording” did not accurately describe what it is that we do when we’re recording/capturing sounds. I mentioned how *National Geographic* always pops up in my head when I say or write the words “field recording.”¹⁸³

Radulovich recalled that the list’s “initial discussions related mostly to straight-up recordings, meaning, unprocessed/unaltered. Apart from minor edits and basic EQing we were going for the IT. This was the focus.”¹⁸⁴ But “IT”—presumably some kind of aesthetic transcendence—was never specified, never discussed on the phonography listserv. Some list members just wanted to make good field recordings. But that too was unspecified; rather than address or question the skills required to operate microphones, recorders, and other equipment, discussion focused on brands and models to try or to avoid. As for “phonography,” based on my longtime participation on the phonography listserv, the term was discussed haphazardly, which I summarize below.

Most phonographers I met in person or online in the late 1990s and early 2000s credited composer David Dunn for applying the term “phonography” to sound work created with field recordings as found in his book and compact disc set *Why Do Whales and Children Sing?*

The similarity of recorded sound to photography has been considered but “phonography” has yet to be taken seriously as a discipline beyond its commercial or scientific applications.¹⁸⁵

In an earlier version of his essay “Nature, Sound Art, and the Sacred” under the sub-heading “Hybrid Soundscape Compositions,”¹⁸⁶ Dunn connects his work to R. Murray Schafer and the World Soundscape Project; after summarizing a phonography-based project he laments, “My job was to pretend that I was not present in the situation in order to create a false representation of the reality. . . .”¹⁸⁷ But such skeptical realizations were infrequent in the early days of the phonography listserv.

Some of the discussion opened possibilities for the historical exploration of “phonography.” Composer Yannick Dauby mentioned “Charles Cros, inventor of the Phonograph (before Edison!), who popularized the word ‘Phonographie’ in France.”¹⁸⁸ Dauby also alluded¹⁸⁹ to François-Bernard Mâche, whose 1992 book *Music, Myth and Nature* offered an unexpected point of origin: “The art of phonography was born with the film *Week-end* by W[alter] Ruttmann in 1930.”¹⁹⁰ A few days later Marc McNulty contributed a dictionary definition of phonography, which included “a system of phonetic shorthand invented by Isaac Pitman in 1837 and so named by him in 1840.”¹⁹¹

McNulty’s post concluded with a link to a 3,500-word paper written by Lee B. Brown, a philosophy professor at The Ohio State University: “Documentation and Fabrication in Phonography.”¹⁹² Brown’s definition, “sound-constructs created by the use of recording machinery,”¹⁹³ was likely too vague to prompt any discussion on the phonography listserv.¹⁹⁴ Other definitions were discussed in person, as some of the phonographers on the list such as John Bain, Steve Barsotti, Yitzchak Dumiel, Mark Griswold, Doug Haire, Alex Keller, Dale Lloyd, Perri Lynch, Rob Millis, Toby Paddock, Jon Tulchin, and Jonathan Way lived in (or close to) Seattle, as I did. Along with discussing our own definitions of phonography, in pairs and groups we debated usages by Edison and several scholars as well as definitions by Dunn, Kahn, and listserv members Joel Smith and Yitzchak Dumiel.

In one late-night discussion, Dumiel¹⁹⁵ pointed out that in “The Phonograph and Its Future,”¹⁹⁶ Thomas Edison, who patented his invention as a “Phonograph or Speaking Machine,”¹⁹⁷ skirted umbrella terms such as “phonography” altogether. In Edison’s 1878 essay the only variant, “phonographic,” refers to books, clocks, and advertisements.¹⁹⁸ Published a decade later, the successor to Edison’s landmark article, “The Perfected Phonograph,”¹⁹⁹ contains two variants of phonograph, “phonogram”²⁰⁰ and “phonographic,”²⁰¹ both of which refer to an object—not a process—of recording.

On the recommendations of Alex Keller and Steve Barsotti, I read Douglas Kahn’s definition of phonography in the media studies classic *Noise Water Meat*. Kahn’s brilliantly enumerated “ideas of phonography,” specifically “all mechanical, optical, electrical, digital, genetic, psychotechnic, mnemonic and conceptual means of sound recording as both technological means, empirical fact, and metaphorical incorporation including 19th century machines prior to the invention of the phonograph”²⁰² was too encyclopedic—as well as more historical than actual and contemporary—for myself and others phonographers I knew to be useful, at least in the early years of the listserv.²⁰³

Phonography listserv member Joel Smith had the first official word in 2001:

The word “phonography” speaks to me precisely because, like “photography,” it is agnostic; I mean it’s factual rather than semantically loaded like “music” or “art”—words that signal worthy ambitions and hierarchies that may, or may not, help you hear (or see) fresh. “Phonography” (translated literally) says nothing but: soundwriting.²⁰⁴

Enshrined on the phonography.org site, Smith’s definition was ahistorical, favored no single aesthetic approach, as well as remained uncritical and “factual,” presuming the fidelity of the microphone as well as of the phonographer. This apparently self-evident notion of phonography remained agnostic toward recording equipment and strategies while implying undefined listening subjects—as if everyone listens *a priori* in the same way from the same perspective, as if every sound event tells the same story to every listener. This ideological, brief, and circumscribed definition was open-ended enough to welcome multiple approaches and interests as well as members whose command of English might not be able to navigate the theoretical language of Kahn et al. I believe this glossing over of theoretical concerns enabled a flowering of artistic growth for those on the list; it did for me.

SOUNDSCAPE COMPOSITION OR PHONOGRAPHY?

Here is my attempt to define phonography and to propose three traits that help define what phonography was in the late 1990s and early 2000s: Inexpensive recording equipment; a community of knowledge rooted in the phonography listserv, limited edition releases on CD and CD-R as well as streaming audio and the superb resources of MiniDisc.org; and the “easy fidelity” made possible by portable and lightweight Digital Audio Tape (DAT) and MiniDisc (MD) recorders. Later on, I contrast phonography with soundscape composition, noting that phonographers—as heard on the seven phonography.org compilation albums—hewed to a fixed frame, eschewed digital signal processing, and presented soundscapes singly instead of marshalling multiple soundscapes, locations, and vantage points.

This friendly consensus on the phonography listserv spurred my determination to articulate phonography as an artistic practice. I wondered: What made it possible for anyone to make field recordings now? How much did it cost and how might that price determine what was recorded? How was gear selected? I also wondered about other artists composing with field recordings. What might constitute the “great works” or at least instructive creations of phonography? Was there a canon? Was a counter-canon possible? Were those of us on the list just making another variety of (or simply rehashing) soundscape composition?

Barry Truax and Hildegard Westerkamp were the first to outline the nature of soundscape composition and compose pioneering works in the genre.²⁰⁵ Truax states that soundscape compositions focus on “the environmental context that is preserved, enhanced and exploited by the composer,”²⁰⁶ and later expanded “principles of the

soundscape composition as derived from its evolved practice” into “a well-developed model for the musical use of environmental sound.”²⁰⁷

- (a) listener recognizability of the source material is maintained, even if it subsequently undergoes transformation;
- (b) the listener’s knowledge of the environmental and psychological context of the soundscape material is invoked and encouraged to complete the network of meanings ascribed to the music;
- (c) the composer’s knowledge of the environmental and psychological context of the soundscape material is allowed to influence the shape of the composition at every level, and ultimately the composition is inseparable from some or all of those aspects of reality; and ideally,
- (d) the work enhances our understanding of the world, and its influence carries over into everyday perceptual habits. . . . Thus the real goal of the soundscape composition is the re-integration of the listener with the environment in a balanced ecological relationship.²⁰⁸

Westerkamp offers a shorter definition, affirming “that its essence is the artistic, sonic transmission of meanings about place, time, environment and listening perception. In my experience, the term eludes any further definition.”²⁰⁹

Andra McCartney, another indispensable theorist of soundwalking and soundscape composition, elaborates on Westerkamp’s open definition: “Soundscape composers can act as interpreters of the various languages of places, based on their knowledge of these places which is honed through the processes of listening, recording and composing.”²¹⁰

But many of us on the phonography listserv were up to something else in the early 2000s. Inexpensive recording equipment and the phonography listserv changed *who* could record as well as *how* recordings were made. The advent of the listserv’s community meant that knowledge—in tandem with tips and encouragement—was shared through online discussion, limited edition releases on CD and CD-R, and via streaming audio. Affordable, almost high fidelity technology meant that “meanings about place, time, environment and listening perception”²¹¹ could be placed in flux. Portable recording equipment, mainly the MiniDisc recorder, meant that new environmental contexts could be discovered, framed, and challenged as well as “preserved, enhanced, and exploited.”²¹²

Compared to previous decades, recording equipment, especially the MD, was inexpensive—on average from \$100 to \$300, cheaper used²¹³—portable, and easily researched for free online. Field recording was no longer restricted to professionals who could deduct equipment purchases on their taxes, moneyed hobbyists, or scholars fortunate enough to win funding for research such as John A. Lomax, who in 1937 reported that his “recording machine, including storage battery” was purchased for \$500 by the Library of Congress.²¹⁴ The “who” of phonography expanded widely due to lower prices and a broad marketplace connected by the Internet.

Online, eBay facilitated the thriving auction market for used portable MD recorders in the late 1990s and early 2000s. I won an auction for a used Aiwa AM-F70 MD on eBay

July 14, 2002, with a bid of \$58.01. In 1997, my then-employer purchased for my use a Tascam DA-P1 portable DAT²¹⁵ recorder, which had a list price²¹⁶ of \$1,899,²¹⁷ for about \$1,200, a differential price ratio of 20 to 1. Blank MiniDiscs were also cheap; I paid from \$1 to \$4 each, depending on the manufacturer. Every phonographer I knew in person or corresponded with substantively on the phonography listserv in the early 2000s told me that the substantially lower cost of recording equipment made their work as phonographers possible.

In addition, the astoundingly compendious site MiniDisc.org provided lucidly impartial, detailed information and technical specifications for every model of MD.²¹⁸ Reviews of recorders and accessories as well as links to vendors, a free archive of user manuals, tutorials, and FAQs constituted an easily circumnavigated body of knowledge that was comprehensive, yet welcoming. Members on the phonography listserv responded to individual queries with kind recommendations. A search for “advice,” “advise,” and “recommend” in the listserv archives confirms that in the first five years of the phonography listserv, a majority of posts on the listserv requested, offered, and discussed recommendations for microphones and MDs.²¹⁹

How were “meanings about place, time, environment and listening perception”²²⁰ in flux for those of us on the phonography listserv? The “how” of field recording separated phonographers from those working in soundscape composition in the 1970s and ’80s. For the phonographers of the mid- and late 1990s, fidelity, especially high- or close to high-fidelity was easier. Recording on MD seemed to peel away a discouraging layer of hiss heard on portable cassette recorders. Under the moniker “Quiet American,” Ximm offered a six-point list, “Why Minidisc is the Perfect Format for Travellers,” which begins with “bullet zero,” audio fidelity: “Contemporary minidisc compression is not an issue unless you are very rich, very sensitive, or doing professional work.”²²¹

Unlike magnetic tape (or nettlesome Start, Skip, and End IDs on DAT), MiniDisc indexing made it easy for anyone to mark, retrieve, and frame any sound almost instantly without rewinding.

In my experience, relatively low-cost microphones²²² connected to a portable MD recorder slightly thicker than a modern cell phone yielded a vivid presence and wider dynamic range audibly superior to cassette and comparable to DAT. MiniDiscs are hardier than cassette and DAT due to recording onto a sturdy magneto-optical disk instead of thin, fragile magnetic tape. But recording with the MD did not guarantee pristine high fidelity. Unlike cassette or DAT, MD uses various versions of ATRAC (“Adaptive Transform Acoustic Coding”), what Ximm called “contemporary minidisc compression.”²²³ ATRAC is a data compression algorithm.²²⁴ Depending on what is recorded, ATRAC can “take advantage of psychoacoustic effects such as masking” and “change the recorded signal according to the ear’s dynamic sensitivity.”²²⁵

Nonetheless, recording with an MD or a portable DAT Walkman such as the TCD-D8 was easier, less prone to conventional notions of failure. Stick a windscreen on your mic, point the microphone in the desired direction, and adjust the recording level: With a steady hand on the microphone (or boom, or grip), a decent recording was the probable

result, “free of technical flaws such as glitchy audio, a rustling microphone boom, and the thumping crackle of onrushing wind.”²²⁶

As can be heard on the seven full-length (at least 65 minutes) phonography.org CD-R compilations released between 2001 and 2005 and curated by Dale Lloyd on the Seattle label and/OAR,²²⁷ not only was fidelity easier, but also the frame was fixed. Phonographers were not creating montages but “straight-up recordings, meaning, unprocessed/unaltered”²²⁸ sonic snapshots of soundscapes tempered by the type, placement, and distance of the microphone in tandem with the duration—actual or culled—of the recording, “apart from minor edits and basic EQing.”²²⁹

Westerkamp’s proposed “meanings about place, time, environment and listening perception”²³⁰ were rooted by most phonographers on the phonography.org CD-R compilations to a single location, resulting in a fixed frame. Rather than “create a strong oppositional place of *conscious* listening,”²³¹ which Westerkamp proposes for soundscape composition, this static immersion serves as an invitation to focus on the details of one place, not many as in her classic 1989 work *Kits Beach Soundwalk*.²³² The lack of contrasting soundscapes within a single location enables the listener to perceive, delve into, and focus on a single place. The result is a stillness in listening, a recorded ear-witnessing of a single time and place. Heard over the course of a CD-R audio disc moving from one location to another, the panorama shifts from listserv member to listserv member, not within a single phonographer’s work. To repurpose a line describing one outcome of “audile technique” asserted by Sterne, “The space of the auditory field became a form of private property, a *space* for the individual to inhabit alone.”²³³

This singular space, an aural form of private property, harkens back to the fixed-frame nature of early recording, not only the one-take nature of early audio production in the studio²³⁴ but of field recording as well.²³⁵ In the early days of recording in the field with a wax cylinder phonograph, the frame was also delimited by time, three to four minutes with a maximum of five at a slower speed of rotation.²³⁶ The microphone—in this case the recording horn—did not move, fixing the frame: “Those making recordings had to be placed close to the recording horn . . . and instructed not to move.”²³⁷ Though it was possible to manipulate recorded audio before the advent of magnetic tape,²³⁸ ethnographers did not practice what media historian Patrick Feaster calls “phonomanipulation.”²³⁹ Sound was captured and framed in one take.

Recording with the wider dynamic range and frequency response of MiniDisc or DAT further encloses the frame: Anyone will discover that pressing then releasing the Pause button on a cassette, DAT, MD, or hard disk recorder out in the field will almost always result in an audible discontinuity. This preference for the single location and fixed frame also connects phonography to ethnographic field recordings whose purpose was and remains “translating their findings into condensed, itinerant forms”²⁴⁰ that can be transcribed and otherwise analyzed.

Phonographers recorded soundscapes singly for the phonography.org compilations. As Yitzchak Dumiel wrote in “What is Phonography?”, program notes for the inaugural performance of the Phonographers Union in 2002, “auditory events are selected, framed by duration and method of capture, and presented in a particular format and context, all

of which distinguishes a recording from the original event during which it was captured.”²⁴¹ By contrast, soundscape composers marshalled recordings from multiple recordists, locations, and vantage points, acting as “interpreters of places, based on their knowledge of these places which is honed through the processes of listening, recording, and composing.”²⁴²

Aside from a fixed frame, phonographers whose work was heard on the phonography.org compilations—the main way to hear the work of listserv members—also eschewed transformational digital processing such as granular synthesis or ethereal pitch-shifting, techniques that respectively permeate two foundational soundscape compositions, Barry Truax’s 1986 *Riverrun* and *Beneath the Forest Floor*, composed by Hildegard Westerkamp in 1992. Such processing can enrich “our aural perception of the soundscape and our experience of it”;²⁴³ however, after much discussion in early 2001 about the content and scope of the first phonography.org compilation, phonography listserv founder Marcelo Radulovich announced:

My vote is to keep the PHONOGRAPHY SERIES title for untreated stuff [. . .] it seems we would have a sharper focus if our releases as a group, concentrate on raw, unaltered recordings. Phonographies, just the sounds . . . photographs, as opposed to images enhanced/altered/distorted through Photoshop.²⁴⁴

The following year, Dale Lloyd curated two CD-R phonography.org compilation albums of “Compositions Using Field Recordings,” which, despite welcoming any and all forms of editing and digital processing, did not garner as much interest among listserv members. The remaining five full-length phonography.org compilation contributors abided by Lloyd’s request: “Please do not send composed, ‘post-capture processed,’ or overly manipulated recordings. Minor editing, EQ, and fades are OK.”²⁴⁵

Listening retrospectively to the phonography.org compilations suggests that those pieces share a great deal in common with three out of the four tenets of soundscape composition as outlined by Truax while being generally congruent with the viewpoints of Westerkamp and McCartney: The source material remains recognizable; the “listener’s knowledge of the environmental and psychological context of the soundscape material is invoked” and “the work enhances,” or at least attempts to enhance, “our understanding of the world.”²⁴⁶ And though phonographers did not use their knowledge of the soundscape “to influence the shape of the composition at every level,”²⁴⁷ instead hewing to a fixed frame, each phonographer, to my ears, also strived to present an “artistic, sonic transmission of meanings about place, time, environment and listening perception”²⁴⁸ while honing their work through “processes of listening, recording, and composing.”²⁴⁹ Phonographers captured still lifes in sound, an echo of the early decades of photography when subjects were instructed not to move.

What also set phonographers apart was their community—one open to anyone who subscribed to the listserv—inexpensive recording equipment, and easy fidelity, all in tandem with a collective effort to share field recordings confined within a fixed frame with only “minor editing, EQ, and fades.”²⁵⁰

I too made recordings with easy fidelity and within a fixed frame for most of the 1990s. But in the late 1990s I had begun rebelling against what Jonathan Sterne later named “audile technique,”²⁵¹ which, in Western culture “articulated listening and the ear to logic, analytic thought, industry, professionalism, capitalism, individualism, and mastery.”²⁵²

DEFINING PHONOGRAPHY: A MANIFESTO AND REVOLT

My first manifesto on field recording, “What is an aural safari?” attempted to enshrine a new direction for my practice, the phonography listserv, and field recording.²⁵³ What hubris! But the global village of the Internet seemed smaller then. In the long-since mapped world of *National Geographic* and its pictorial “photo safari” tours, “safari” represented an inward turn to the environment I knew, to home, the city.²⁵⁴ When “What is an aural safari?” appeared on the phonography.org website in late 2001, I summarized an approach to recording fidelity that had appeared in my work since 1997.

Inspired by Hildegard Westerkamp’s *Kits Beach Soundwalk*,²⁵⁵ I wanted to capture not only what I heard but also the act of recording itself. I hoped to attain what David Kolber describes in his analysis of *Kits Beach Soundwalk* as “the space to exist however she wants, and to use that space to express, to compose to make music.”²⁵⁶ Staking out a technological practice, I announced “I treasure the rare happenstance and compelling circumstantial polyphony of raw audio”²⁵⁷ and explained:

I try to incorporate—and when appropriate, affirm—the inevitable influence and presence of the recordist and recording gear both in the field and back in the studio. Aggressive editing (abrupt stops, dead silence, frenetic intercutting, obviously artificial polyphony, antiphonal spatialization, the traditional transparent crossfade) and audibly risky tactics (quizzing street hustlers, sidling up to riot police, bobbing through mobs), as well as the varying and variable fidelities of microphones, tape hiss, technical flaws (wind noise, boom rustling and even the off-mike intrusions of voices and incongruent sounds), and the deck itself all help relay the struggle, frustration, and (occasional) triumph of the hunt.²⁵⁸

I affirmed my “inevitable influence and presence” in two ways: The inclusion of my off-mike and sometimes stuttering voice in my sound works and “aggressive editing” with the aforementioned litany of techniques.²⁵⁹ Musicologist and soundscape composer Iain Findlay-Walsh notes:

As with *Kits Beach Soundwalk*, DeLaurenti’s pieces frequently include the recordist’s voice, however these vocal interjections are usually real-time responses, comments captured in reaction to changing environments and situations.²⁶⁰

My “real-time responses” emerged, if not erupted, from the havoc of recording on city streets, tracking revelers during Mardi Gras in New Orleans, and holding fast against police charges in *N30* in tandem with near-random, mapless wandering. I also was coping with dying batteries and other technical issues born of rapid movement and improvised recording made amid what documentary filmmakers Bruce Jackson and Diane Christian

ruefully descry as “an inverted funnel of declining possibility” where “every decision forecloses others and the possibilities become ever narrower.”²⁶¹

As surprising possibilities unfold in *Kits Beach Soundwalk*, Westerkamp is masterly. She exerts complete control of the studio, employing “such products as ‘bandpass filters and equalizers’ that those tiny voices and sounds may be heard again.”²⁶² By including an extract of *Concret PH* composed by Iannis Xenakis in 1958, Westerkamp models a confident access to the past. “In contrast to Westerkamp’s authorly reflections in *Kits Beach Soundwalk*,” continues Findlay-Walsh, “specific allusions to his role as recordist through the inclusion of direct spoken references . . . foreground DeLaurenti’s changing agency in a variety of everyday situations.”²⁶³

Affirming the presence of the recordist smashes through what phonographer Mark Peter Wright has condemned as “a contemporary wall of self-silence” and “overt or implied, self-dissolution.”²⁶⁴ This innovative affirmation likely originates with poet, novelist, playwright, anthropologist, and filmmaker Zora Neale Hurston (1891–1960). Crossing the boundary between the recording as objective, scientific evidence and participant observation, this polymath “tried as much as possible to be both investigator and subject, participating in the singing, learning the songs as she listened, and singing along with the singers and writing it down later.”²⁶⁵ Foreshadowed by Hurston’s practice, Wright’s proposed turn toward a “self-reflexive guise”²⁶⁶ echoes Dunn’s lament²⁶⁷ and Westerkamp’s call for soundscape composition to “create a meaningful place for listener and composer.”²⁶⁸

I too wanted to create such “a meaningful place” and I did so through “aggressive editing (abrupt stops, dead silence, frenetic intercutting, obviously artificial polyphony, antiphonal spatialization, the traditional transparent crossfade)”²⁶⁹ while moving the microphone, sometimes on the run. With these audibly exaggerated techniques, I attempted to extend the mobile acoustic mapping of place heard in *Kit Beach Soundwalk* and other soundscape compositions. Westerkamp’s brilliant response to Schafer’s discomfort with schizophonia—a (presumably) acoustic sound split from its electroacoustic reproduction—was to suggest that soundscape compositions

can and should perhaps create a strong oppositional place of *conscious* listening. Rather than lulling us into false comfort, it can make use of the schizophrenic medium to awaken our curiosity and to create a desire for deeper knowledge and information . . .²⁷⁰

Imperfect sound reveals an imperfect world. My edits should jolt the listener. In many of my sound works, especially *N30: Live at the WTO Protest, November 30, 1999*,²⁷¹ I sought not only to establish “a strong oppositional place of *conscious* listening”²⁷² but to stake out an oppositional soundscape, one that welcomed multiple perspectives by deploying “episodic and disjointed forms”²⁷³ that “can be understood as analogous to the perpetually shifting subject-positions of a person engaged in the sense-making processes common to everyday (auditory) perception and experience.”²⁷⁴

In my work, phonography means inverting “meanings about place, time, environment and listening perception.”²⁷⁵ The “place” was twofold: the soundscape as captured by my microphones in conjunction with the incongruous soundscape of hearing a recording

with occasional interjections of my voice, recording flaws, and edits. Translated to a visual metaphor, it is akin to seeing a photograph whose image includes the photographer's finger partially obtruding the lens. The presence and position within the frame of this supposed "error" becomes as important as (if not more important than) the ostensible subjects within the frame. The result, "perpetually shifting subject-positions,"²⁷⁶ was my attempt to shift the frame in real time to perturbate the listener's perception and dislodge the single position of an objective (or at least passive) listener.

I intended my aggressive edits to be congruent with the "audibly risky tactics,"²⁷⁷ which in essence entailed taking my microphones to where they are not supposed to be, such as abandoned tunnels (heard in *To the Cooling Tower, Satsop*), violent political protests (heard in a cycle of nine works 1999–2021), and orchestra concerts (*Favorite Intermissions*)²⁷⁸. The riskiest tactic of all may be my embrace of varying and variable fidelities of microphones, tape hiss, and technical flaws.

IMPERFECT SOUND FOREVER

Two kinds of invisibility permeate field recording: the transparency of the technology and the concomitant absence of the phonographer. Martin Spinelli contends that the "history of digital audio has been almost exclusively about silencing technology"²⁷⁹ with the promise of high-fidelity, true-to-life reproduction. Furthermore:

While analog media presented us with silence of a sort, at least when compared to the sound quality of electromechanical media, digital silence made obvious all of the noise that we had previously ignored.²⁸⁰

The remarkable hiss-free signal-to-noise ratios of DAT, MD, and other digital recorders are measurably more sonically transparent and less prone to deterioration and noise than analog systems.²⁸¹ Digital formats such as the MD, compact discs, and CD-Rs also silence the impermanence of technology. Eternal durability is enshrined by an immutable stream of decoded ones and zeros that putatively embody the first advertising slogan of the compact disc, "perfect sound forever"²⁸²—an echo of the utopian marketing language of Edison, who promised "the faultless fidelity of an instantaneous photograph"²⁸³ almost a century earlier. The famed cases of disc rot (a.k.a. "bronzing") from PDO discs made in the UK from 1988 to 1993,²⁸⁴ along with difficulties in digital data migration due to technological obsolescence,²⁸⁵ varying lifespans²⁸⁶ of CD-R and DVD-R dyes,²⁸⁷ and models of accelerated aging tests sanctioned by the ISO²⁸⁸ make this embodiment unproven, probably fictive, undeniably commercial, and purely ideological.

Transparent technology also requires an invisible operator to abet the illusion of perfect sound. Heeding the observational, third-person perspective inherent in high-fidelity audio, paid professionals who offer advice about making field recordings recommend avoiding (or subsequently editing out) off-mike (i.e., suddenly distant and muted) sounds²⁸⁹ and the smothering rumble²⁹⁰ or white noise-like hiss²⁹¹ of wind. The corporeal body must also be mute;²⁹² in his liner notes to Ruth Happel's compact disc *Loons of Echo Pond*,²⁹³ Bernie Krause wrote admiringly, "Ruth switched on her recorder and just lay

quietly, unmoving on the ground for hours at a time.”²⁹⁴ Hands should firmly remain still to avoid imparting handling noise via the mic or boom pole.²⁹⁵

Gordon Hempton, another renowned and pioneering nature recordist, reminds us that out in the field, the entire body must be silent—even when “a football field away”²⁹⁶—from shallow, silent breathing²⁹⁷ and surface-caressing footfalls²⁹⁸ to quiet, plain-textured clothing²⁹⁹ and, for me, a well-considered diet, lest intestinal creaks and borborygmi dapple the recording. The resulting audio recording should have no incongruous shifts where “the stereo image swings around unrealistically as the mic moves.”³⁰⁰ Ideally, the stereo imaging should be “dramatic, and that insects, birds and mammals appear to move naturally through the aural space.”³⁰¹

You can hear examples of how I use varying and variable fidelities of microphones, tape hiss, and technical flaws online for free.³⁰² The opening minutes of *N30: Live at the WTO Protest, November 30, 1999* are rife with handling noise, off-mike sounds, wind distortion, and bursts of hiss due to clumsy level adjustments. Microphones clearly crunch during several police assaults in *N30*, and distortion remains audible throughout several segments of street drumming. In my work, Findlay-Walsh cannily points out that microphone handling noises “occur frequently, marking beginnings or key transitions in his compositions.”³⁰³ I employ shifts in fidelity to emphasize particular sounds, favor or filter individual voices, and shape listener attention to “create a strong oppositional place of *conscious* listening.”³⁰⁴

As a manifesto, “What is an aural safari?” failed as a public document. While the desperation and moodiness of “What is an aural safari?” can be traced historically to the *flâneur*, who “serves as a focal device for organizing the wealth of the city’s sights and sounds into a panorama that presents the attractions in an orderly narrative,”³⁰⁵ I had hoped to inspire myself, my fellow phonographers, and indeed anyone bringing microphones out into the world.

But the disparate farrago of my proposed counter-canon³⁰⁶ and call to embrace multiple fidelities failed to sway the phonography listserv and field recording as a discipline. There was never any discussion of “What is an aural safari?” on the phonography listserv. In 2004, I did reiterate my views on phonography in a scholarly journal,³⁰⁷ but to no avail.

POST-PHONOGRAPHY

Here’s my forecast for phonography, or what will become post-phonography. Field recordings will be made increasingly by remote control, at one or more removes from the source; recording may be complicated by voice print technology; and phonography, though part of the increasing tsunami of profligate media-making, will continue to capture what I call unimagined data.

Almost every longform work I have made—from *Live at Occupy Wall St.* (2012) to *Fit the Description* (Ferguson, 9–13 August 2014) to *Live in Washington DC January 18–21, 2017* to *Rebellion Summer* (2020–21)—incorporates field recordings made by others from their cameras, voice mail messages left by friends, and other materials collated from

social media. In the future such recordings might be gathered by small unmanned aerial vehicles (UAV) equipped with microphones designed to filter out (or otherwise mitigate) noise from wind and motion. Soundscape-sensitive UAVs may capture and create (or in reverse, amplify and project a kind of Potemkin Village soundscape of) field recordings rooted in artificial intelligence, generating predicted sounds interpolated from massive archival databases.

One outcome of remote field recording has already been foreshadowed by law enforcement agencies using ShotSpotter, which employs acoustic sensors to triangulate and localize gunfire,³⁰⁸ and scraping of camera phone videos to identify those who participated in the storming of the U.S. Capitol on January 6, 2021.³⁰⁹ In my three decades of recording, I have only twice shot video or taken a photo of people's faces at any mass protest for fear of the ever-increasing accuracy of facial recognition technology. Popularized in the film *2001*, automated "voice print identification" is still viewed as unreliable by audio forensics experts;³¹⁰ as the interrogator in John Le Carré's spy novel *The Little Drummer Girl* says, "The ear selects, you see, dear. Machines don't."³¹¹ Regarding human-based software-assisted voice identification SpeechPro, makers of voice recognition software used by law enforcement, claim that the research on voiceprint identification "demonstrates the validity and reliability of the process when performed by a trained and certified examiner using established, standardized procedures."³¹²

Identifying individuals by voiceprint remains unreliable in urban environments due to the Lombard Effect. Also known as "Lombard speech," speakers raise and alter fundamental characteristics of their voices in loud and/or noisy environments.³¹³ According to recent research, "plain speech mixed with noise is significantly degraded when tested on noisy Lombard speech"³¹⁴ in audio-only speech recognition. Few researchers "have investigated the effect of the Lombard reflex on visual and audio-visual speech recognition and the results are not conclusive."³¹⁵ Yet the anonymity of a voice on the street may soon end unless activists develop a linguistic equivalent of dazzle camouflage.

Post-phonography tends to be seen as well as heard. You have already heard those aforementioned aspects of phonography—varying and variable fidelities of microphones, tape hiss, and technical flaws—on YouTube, Twitter, and TikTok, and more recently on Zoom video calls where each person is marked by a proportionally unique suite of those traits: Some voices glitch while others remain audible though frosted by hiss. Audio and video compression renders one person's voice as if underwater while delayed buffering slurs one-syllable words into two or three words, maybe with a bonus phoneme.

But unlike postmodernism, which emerged "as specific reactions against the established forms of high modernism,"³¹⁶ post-phonography has emerged from economic expediency in tandem with commodified friendships and other Internet-based networked social relations: Inexpensive cell phone videos made with tiny camera-mounted microphones; budget-conscious TV networks that, along with reduced (and sometimes contingently hired) technical staff, no longer fund news bureaus beyond a chosen metropole; and cheap speakers mounted in laptops, and earbuds—all of which have become essential in a time of protest and pandemic.

Post-phonography already conforms to Jameson's notion of effacement,³¹⁷ blurring boundaries between high and low culture; almost everyone, from the poor and precarious to the well funded, has lower expectations of audio fidelity. Not everything sounds "bad," yet variable audio fidelity is pervasive, far beyond the alternating binary soundscape of newsreader/location reporting on television and host/call-in guest on radio (and podcast). Far from undermining and thwarting the "relentless pursuit of naturalism"³¹⁸ endemic to most visual and sonic media, the avalanche of content—aural warts and all—instills McLuhan's "never-explained numbness."³¹⁹ Every media object, even content "produced" by a team of professionals, becomes another form or quickly forgotten moment ("hey, the body mic went dead we're just hearing the room mic!") of *verité*.

Making field recordings—as a phonographer, post-phonographer, or whichever label you choose or avoid—means defying (or joining) the tsunami, what media theorist Lisa Gitelman describes as the "extensive" use and prevalence of media. Unlike "intensive media" in which people "consume a little material repeatedly and with greater intensity" such as a family Bible or McGuffey Readers during 19th-century rural America, consuming media extensively means "moving quickly from one text to another."³²⁰ One byproduct of the intensification of our "disposable, profligate"³²¹ media-devouring culture is an increasing emphasis on the paratexts and epitexts. Identified by literary theorist Gérard Genette, the paratext encompasses "a certain number of productions, themselves verbal or not, like an author's name, a title, a preface, illustrations,"³²² while the epitext is concomitant, enfolding an author's (or maker's) public image, reception, reputation, and actions.³²³

From a grand vantage point, media and its makers seem fungible and replaceable. We are all water in a tsunami. Amid an ongoing flood of extensive media, an artist's epitexts (e.g., objectionable actions, statements, and characteristics)—whether true or false or somewhere in between—are enough to nullify interest in the artist and the artist's work. The inexorably tightening bond between the artist and their work will widen the entryway for AI-generated art, free of a creator with eventually disappointing character defects.

I don't have a surfboard, let alone an escape route for the tsunami. If you make field recordings and love it you should continue. I struggle to judge the merit of my own work (or what other artists make), but I am consoled by two possibilities: First, that I am recording and making unimagined data—objects that may be of use and benefit in ways that I cannot imagine—and second, that recording offers a route to freedom. Remember Henry Thunder?

Henry Thunder, a Winnebago, refused to sing unless he could record in a grove, where he could see in all directions and be sure that no one would overhear him.³²⁴

This observation made by Frances Densmore reads as a throwaway aside amid the thousands of pages Densmore wrote, but this precious scrap of resistance and Indigenous power is an example of "unimagined data," micro-epistemologies with potentially significant implications. Densmore's aside and Thunder's insistence suggests a reciprocal, if not defiant relationship to the act of recording and should prompt a new examination of the

recording relationship between ethnographers and their putative subjects, between technology and its users. Where else might defiance and resistance be located?

Here's my favorite formulation of listening as a route to liberation; Charles Mingus told jazz critic Nat Hentoff in the 1950s:

People are getting so fragmented, and part of that is that fewer and fewer people are making a real effort any more to find exactly who they are and to build on that knowledge. Most people are forced to do things they don't want to most of the time, and so they get to the point where they feel they no longer have any choice about anything important, including who they are. We create our own slavery. But I'm going to keep on getting through, and finding out the kind of man I am, through my music. That's the one place I can be free.³²⁵

Field recording opens a route to freedom, toward an awareness that guides and impels action, inspiring and teaching acts of resistance. I make field recordings to teach myself to listen, to liberate myself, to cope with living in a narrowing world, and to say what I and others feel without fear. Maybe you will too.

Good luck, and keep in touch! ■

CHRISTOPHER DELAURENTI makes sound works for installations, albums, live performances, and radio broadcasts including *N30: Live at the WTO Protest November 30, 1999* (2000); *Two Secret Wars* (2003); *Favorite Intermissions* (2007); *Live at Occupy Wall St.* (2012); *No Sound is Stolen: Fair Use Music 1983–2013* (2013); *Fit The Description (Ferguson, 9–13 August 2014)* (2014); *To the Cooling Tower, Satsop* (2015); and *subaudible phonography* (2020). He has performed live on countless stages from dingy bars and dives to tony venues including the Museum of Modern Art and the Whitney Biennial. DeLaurenti holds an MFA from Bard College and completed his PhD at Goldsmiths, University of London. During the last decade, he has taught courses and led workshops at William & Mary, Cornish, Harvard, Peabody Conservatory, School of the Art Institute of Chicago, Duke, UC Boulder, Cornell, and elsewhere. Much of his sound work is usually free and mostly online: <https://delaurenti.net>

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32. Carryl L. Baldwin, *Auditory Cognition* (Boca Raton, FL: CRC Press, 2012), 36.
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66. Ibid.
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68. Ibid., 60.
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70. American Folklife Center, *The Federal Cylinder Project: A Guide to Field Cylinder Collections in Federal Agencies. Studies in American Folklife* 3, vol 2, eds. Judith A. Gray and Dorothy Sara Lee (Washington, DC: Library of Congress, 1985), 3. Patrick Feaster, "The Origins of Ethnographic Sound Recording, 1878–1892," *Resound: A Quarterly of the Archives of Traditional Music* 20, nos. 1–2 (January–April 2001): 1, 3–7, chronicles other scholars who, antedating Fewkes, "envisioned using the phonograph for anthropology" (ibid., 3) in the field but did not succeed, including Eügan Zintgraff and Felix von Luschan.
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85. American Folklife Center, *The Federal Cylinder Project: A Guide to Field Cylinder Collections in Federal Agencies. Studies in American Folklife* 3, vol. 5., eds. Judith A. Gray and Edwin J. Schupman, Jr. (Washington, DC: Library of Congress, 1990), 386.
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 120. Samuel B. Charters, "Some Do's and Don'ts of Field Recording," *Sing Out!* 12, no. 3 (Summer 1962): 51.
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127. Steven Feld, "Dialogic Editing: Interpreting How Kaluli Read *Sound and Sentiment*," *Cultural Anthropology* 2, no. 2 (1987): 191.
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167. Sterne, *The Audible Past*, 236.
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183. Marcelo Radulovich, "fieldrecording.org or phonography.org, June 11, 2001, <https://groups.yahoo.com/neo/groups/phonography/conversations/messages/362> (accessed June 1, 2019). Emphasis in original.
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185. David Dunn, *Why Do Whales and Children Sing? A Guide to Listening in Nature* (Santa Fe, NM: EarthEar, 1999), 11.
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188. Yannick Dauby, "Re: [phonography] Digest Number 90." June 13, 2001, <https://groups.yahoo.com/neo/groups/phonography/conversations/messages/402> (accessed June 1, 2019).
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193. Ibid., 361.
194. This definition could easily include "reproducing" rolls and roll perforators made for player pianos. See Brian Dolan, *Inventing Entertainment: The Player Piano and the Origins of an American Musical Industry* (Lanham, MD: Rowman & Littlefield Publishers, 2009), 45–47; 95–96.
195. Yitzchak Dumiel, a.k.a. Du Yisa, né Isaac Sterling (1970–2013), instigated the first Phonographers Union performance in 2002 and wrote the group's manifesto. He also organized Seattle performances by Francisco López, mnortham, and other adventurous artists of the era. For a biography and explication of his polynyms see Aaron Sterling, "In Memoriam: Yitzchak Dumiel," undated, *Nanoexplanations: the blog of Aaron Sterling*. <https://nanoexplanations.wordpress.com/in-memoriam-yitzchak-dumiel/> (accessed March 19, 2021).
196. Thomas Edison, "The Phonograph and Its Future," *North American Review* 126, no. 262 (May–June 1878): 527–38.
197. Oliver Reed and Walter L. Welch, *From Tin Foil to Stereo: Evolution of the Phonograph* (Indianapolis and New York: Howard W. Sams & Company, 1959), 7.
198. Edison, "The Phonograph and Its Future," 534.

199. Thomas Edison, "The Perfected Phonograph," *The North American Review* 146, no. 379 (June 1888): 641–50.
200. Ibid., 646, 647, 649.
201. Ibid., 645, 647, 649.
202. Douglas Kahn, *Noise Water Meat*, 17.
203. Between 2002 and 2009 list members Catherine Clover, Andy Ditzler, Yitzchak Dumiel, Eric Leonardson, Mark Ragsdale, James Reynolds, and Bill Thompson mentioned, cited, or recommended Kahn's *Noise Water Meat*; however, Kahn's ideas were never discussed in depth beyond the initial poster's comments.
204. Joel Smith, "The Word "phonography" - Joel Smith (posted 6/12/01)," <http://www.phonography.org/word.htm> (accessed October 14, 2019).
205. Other composers active in the early years of the World Soundscape Project—Howard Broomfield, Bruce Davis, and Peter Huse (see Barry Truax, "Soundscape Studies: An Introduction to the World Soundscape Project," *Numus West* no. 5 (Spring 1974): 38)—have discographies of one or two hard-to-find solo works or releases and did not write extensively about composing.
206. Barry Truax, *Acoustic Communication* (Norwood, NJ: Ablex Publishing Corporation, 1984), 207.
207. Barry Truax, "Soundscape Composition as Global Music," Sound Escape conference text presented at Trent University, Peterborough, Ontario, July 1, 2000, <http://www.sfu.ca/~truax/soundscape.html> (accessed March 1, 2021).
208. Ibid.
209. Hildegard Westerkamp, "Linking Soundscape Composition and Acoustic Ecology," *Organised Sound* 7, no. 1 (2002): 52.
210. Andra McCartney, "Circumscribed Journeys Through Soundscape Composition," *Organised Sound* 7, no. 1 (2002): 1–3.
211. Westerkamp, "Linking Soundscape Composition and Acoustic Ecology," 52.
212. Truax, *Acoustic Communication*, 207.
213. For a price survey of the major makers of MD namely Sony, Sharp, Panasonic, and Aiwa see: http://minidisc.org/part_Recorders_Sony.html https://minidisc.org/part_Recorders_Sharp.html, http://minidisc.org/part_Recorders_Panasonic.html, and http://minidisc.org/part_Recorders_Aiwa.html (accessed January 12, 2021).
214. John A. Lomax, "Field Experiences with Recording Machines," *Southern Folklore Quarterly* 1 no. 2 (June 1937): 59.
215. Introduced in 1987, Digital Audio Tape is a fragile and obsolete format for making high-fidelity digital recordings onto a thin magnetic tape (see Luc Baert, Luc Theunissen, and Guido Vergult, *Digital Audio and Compact Disc Technology*, 2nd ed. (Oxford: Newnes, 1992), 20, 23), housed in a VHS-like cassette (see John Watkinson, *An Introduction to Digital Audio*, 2nd ed. (Oxford: Focal Press, 2002), 302–6). For a comprehensive review of DAT machines and portable recorders of that era see Gino Robair, "What's Up with DAT?," *Electronic Musician*, November 1, 1999; updated November 29, 2017, <https://www.emusician.com/gear/whats-up-with-dat> (accessed June 1, 2019).
216. Known in the UK as RRP ("recommended retail price") and in recent decades in the USA as MSRP ("manufacturer's suggested retail price"), list price is a fictive price point high enough for a retailer to discount without an actual loss of profit, and thus grant consumers the sense they are getting a discount.
217. Harris Broadcast Division, *The 1997 Harris Catalogue* (Richmond, IN: Harris Broadcast Division, 1997), 74.
218. As of this writing, <http://minidisc.org/> suffers from link rot to vendors and suppliers; however, the core information—manuals, prices, and equipment summaries—remains accessible (accessed January 12, 2021).

219. I base this contention of text searches made in October 2019: <https://groups.yahoo.com/neo/groups/phonography/search/messages?query=advise> and <https://groups.yahoo.com/neo/groups/phonography/search/messages?query=advise> and <https://groups.yahoo.com/neo/groups/phonography/search/messages?query=recommend> (accessed October 2, 2019). n.b.: Yahoo deleted their public Yahoo Groups archive on January 31, 2020: <https://www.searchenginejournal.com/yahoo-extends-deadline-for-deletion-of-yahoo-groups-data/340033/> (accessed January 14, 2021).
220. Westerkamp, "Linking Soundscape Composition and Acoustic Ecology," 52.
221. Aaron Ximm, "Thoughts on Field Recording," originally posted at <http://www.quietamerican.org/commentary.htm>, captured August 24, 2000 as <https://web.archive.org/web/20000824050540/http://www.quietamerican.org/commentary.html> (accessed March 9, 2021).
222. I purchased a "stereo tie pin" lavalier microphone model 33–3028 at Radio Shack on August 31, 2002, for \$32.63. Sony E55B lavalier microphones "cost about \$410 each" (Krause, *Wild Soundscapes* 2002, 77), a differential price ratio of 25 to 1.
223. Ximm, "Thoughts on Field Recording."
224. Ken C. Pohlmann, *Principles of Digital Audio*, 5th ed. (New York: McGraw-Hill, 2005), 488.
225. Ibid., 500.
226. Christopher DeLaurenti, "What is an aural safari?" [2001], <https://web.archive.org/web/20181002091107/http://www.phonography.org/safari.htm> (accessed March 10, 2021).
227. See <https://www.discogs.com/label/38571-phonographyorg> for a complete list (accessed March 3, 2021).
228. McGinley et al., "A Brief History."
229. Ibid.
230. Westerkamp, "Linking Soundscape Composition and Acoustic Ecology," 52.
231. Ibid., italics in original.
232. Hildegard Westerkamp, *Transformations*, compact disc, IMED 9631 (Montreal: emprintes DIGITALEs, 1996).
233. Sterne, *The Audible Past*, 160. Italics added.
234. Adam Patrick Bell, *Dawn of the DAW: The Studio as Musical Instrument* (New York: Oxford University Press, 2018), 8–11.
235. Morton, *Off the Record*, 147.
236. Brady, *A Spiral Way*, 22.
237. Morton, *Off the Record*, 147.
238. Feaster, "A Compass of Extraordinary Range."
239. Ibid.
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