

Folk Media: Alan Lomax's Deep Digitality

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ABSTRACT *This article reconsiders American folklorist and broadcaster Alan Lomax as a medium theorist. I examine how Lomax's engagement first with the phonograph and then with digital computers came to inflect his understanding of "the folk" (or at least how this tendency is inscribed across his writings and projects). I also use Lomax's engagement with media to critique aspects of German media theorist Friedrich Kittler's work. I argue that Lomax's "deep digitality" is not an abstract, sovereign world of code rendering particular media finally obsolete (as it is for Kittler); Lomax simply sought to plug Gilles Deleuze & Félix Guattari's "nomad"—which he just calls "the folk"—into the machine. Lomax thus points toward a fascinatingly utopian assemblage of always-embodied voices and digital systems.*

KEYWORDS *Medium theory; Folk music; Cybernetics; New media; Electronic culture*

RÉSUMÉ *Cet article essaie de réévaluer le folkloriste et diffuseur Américain Alan Lomax comme théoricien en médiologie. J'examine comment l'engagement de Lomax a influencé sa compréhension du "folk" : d'abord avec le phonographe et puis avec les instruments digitaux (ou au moins comment cette tendance est inscrite sur ses écrits et projets). J'utilise aussi son engagement avec les médias de façon à critiquer des aspects de l'oeuvre du théoricien en médiologie Allemand Friedrich Kittler. Je plaide que la digitalité profonde de Lomax n'est pas un monde codé, abstrait et souverain (telle qu'elle est pour Kittler); Lomax cherchait simplement à brancher le "nomade" de Gilles Deleuze et Félix Guattari—ce qu'il appelle le "folk"—dans la machine. Ainsi, Lomax fait appel à un fascinant assemblage utopique de voix et systèmes digitaux qui sont perpétuellement incarnés.*

MOTS CLÉS *Théorie des médias; Musique folk; Cybernétique; Nouveaux médias; Culture électronique*

If any McLuhanites are listening, I challenge them to let me visit their mailbox every morning for a month, and remove the contents of all their letters, presenting them only with the empty envelopes. The envelope is not the message. Just a part of it.

– Pete Seeger (1972, p. 296)

Record grooves capture the vibrations of real bodies whose stupidity, as is well known, knows no boundaries.

– Friedrich Kittler (1997, p. 115)

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The modern computer, with all its various gadgets, and all its wonderful electronic facilities, now makes it possible to preserve and reinvigorate all the cultural richness of mankind.

– Alan Lomax (in Naimark, 1993)

It is possible that the late German media theorist Friedrich Kittler was not the biggest fan of folk music. Interested as he was in the ability of “technological media” to write and record on their own, the music he cites tends to feature gadgets prominently. “Tap my head and mike my brain / Stick that needle in my vein,” goes a song from Thomas Pynchon’s *The Crying of Lot 49* (quoted in Kittler, 1999, p. xxxix). Jimmi Hendrix, the guitarist who specialized in distortion and who was the self-proclaimed founder of an “electric church,” appears in *Gramophone, Film, Typewriter* (Kittler, 1999), and Pink Floyd’s coldly machinic recordings are touchstones across Kittler’s work on media (see Winthrop-Young, 2011). Indeed, the aspect of folk discourse that posits the possibility of sincere, unmediated communication (see Frith, 1981; Keightley, 2001) is precisely the kind of idealist notion that Kittler (1992; 1999) seeks to ground within the material “discourse networks” that make historical ways of communicating possible in the first place.

Kittler was only a young man at the time, but one of the key players in the American folk revival of the fifties and sixties found one of German media theory’s theoretical progenitors to be scandalous. Pete Seeger, who had suffered through the McCarthy era (during most of which he was blacklisted), does not seem to have had much time for Marshall McLuhan’s work, which posits that media themselves have determinate effects on consciousness and politics. Seeger witnessed first-hand that some signals are allowed through the channels of mass media, but others can be obstructed or censored; his folksy form of “culture jamming,” then, was not about media as such, but about transmitting as many “healthy” signals as possible. The mainstream media could either relay the messages or not: “If the radio, the press, and all the large channels of mass communication are closed to [folksingers’] songs of freedom, friendship, and peace, they must go from house to house” (Seeger, 1972, p. 155).

And yet, in the work and writings of one of Seeger’s friends and contemporaries, American folklorist Alan Lomax, it is possible to find a fascinating rapprochement between folk revivalism and medium theory.¹ Lomax might still be most famous for having discovered the singer and guitarist Huddie “Lead Belly” Ledbetter in a Louisiana penitentiary in 1933 with his father, John Lomax, and for promoting and recording the likes of Woody Guthrie, Jelly Roll Morton, Aunt Molly Jackson, and hundreds of other “folksingers” over his long career as a broadcaster, archivist, and social scientist (below, I will refrain from using quotation marks around terms such as “folk music,” “traditional,” and “the folk,” keeping in mind that these are problematic descriptors; see Bendix, 1997; Storey, 2003). But Lomax thought that technology constituted a key component in his quest to document and disseminate the voices of the marginalized folk he encountered on his field trips (Filene, 2000; Szwed, 2011). He figured the centralized, corporate mass-media system of his time as a monolithic and polluting force, but he tried to effect a hybrid reversal of this unidirectional flow by recording folk

music with top-of-the-line technologies (which, like Kittler, he fascinatingly fetishizes in his writings) and then relaying the documents back to both mass audiences and the folk themselves via radio, film, and even the personal computer.

Lomax's tactical attempt to use media was perhaps most completely realizable, in theory if not in practice, when he worked with IBM (in the sixties) and then Apple tools (in the nineties) on a digital machine eventually called the "Global Jukebox." At the Library of Congress—where he worked as "Assistant in Charge" at the Archive of American Folk Song in the thirties and forties—Lomax had often been frustrated, his letters suggest, by his inability to speedily copy records for interested inquirers (see Lomax, 2010). In other words, he had an adequate storage system but poor transmission capabilities. However, the Global Jukebox was a digital-folk database that would allow schoolchildren both to visually map and to aurally access the totality of the globe's folk culture, and also potentially to upload their own voices in a cybernetic loop of authentic communion (see Lomax, 2003).

Many discussions of the folk revival, and of rock culture's incorporation of the phenomenon, have noted the genre's ideology of face-to-face and live performance and its anti-modern/anti-technological tendencies (e.g., Denisoff, 1971; Frith, 1981; Keightley, 2001). But what are we to make of Lomax's take on technology?

This article will draw on Kittler's "McLuhanite" critical apparatus to read through the two epochs that can be demarcated across Lomax's career as a folklorist: Phonographic Lomax and Computational Lomax. This will give us a fresh angle on an important figure in the history of communications. Although the significance of sound recording to both John and Alan Lomax has been discussed recently—see Kay Kaufman Shelemay (1991), Erika Brady (1999), Benjamin Filene (2000), Marybeth Hamilton (2008), and John Szwed (2011)—Lomax's relation to medium theory and his complex understanding of digitality have not yet been considered. Filene's (2000) excellent book *Romancing the Folk* explores the modernist dimensions of American folklore, with a focus on the Lomaxes' field trips in the thirties. As he points out, their Dictaphone's seeming fidelity led Alan's father to think of their work as objective "sound photographs" (Filene, 2000, p. 56). Filene also discusses Alan's radio broadcasts into the forties, his work at the Archive of American Folk Song, and (albeit briefly) Cantometrics and the Global Jukebox. And Szwed's illuminating biography, *Alan Lomax: The Man Who Recorded the World*, highlights the importance of sound-recording technology as a tool for Lomax throughout his career: "Having lived through the transition from transcribing songs to recording them, he could appreciate the limitations of an audio-only medium, but also understood how these limits refocused the way music was received: the body of the singer could now be heard ..." (Szwed, 2011, p. 334). Szwed's book also includes detailed if descriptive accounts of the folklorist's computer-aided projects. Still, Lomax's cybernetic and proto-posthumanist renderings of machines have yet to be analyzed, and his digital escapades have gone unnoticed by scholars of media. Thinking of Latour (1987), and McLuhan (1964), to what degree did the technical networks Lomax worked with come to determine the very object of his quest? To what degree is he occasionally sensitive to these connections in his writings?

A second goal, however, will be to reconsider Lomax as a forgotten thinker/practitioner of digitality. As Mark Hansen (2004) has argued, Kittler neglects embodiment in his writings on the digital, primarily through his total endorsement of Claude Shannon's mathematical theory of communication. A different articulation of this neglect can also be seen throughout trans-humanist and other digital-utopian rhetoric (Hayles, 1999). Although there is much in Lomax that we would do well to leave behind—most urgently, the primitivism and Orientalism that variously run through his texts (Averill, 2003; Mullen, 2008)—what are of interest here are the ways in which he anticipates some of the claims of critics of cybernetics and information theory, such as Hansen and N. Katherine Hayles (1999), who have problematized the notion that information can be abstracted away from its material carrier. As we will see, Lomax's phonographic fascination with embodied voices interestingly carries over into his encounters with computation. Lomax's "deep digitality" is not an abstract world of sovereign code rendering particular media finally obsolete (which is how Kittler figures digital convergence); Lomax simply sought to plug the folk into informational networks, a conjunction he believed would challenge the hegemony of global media conglomerates. Thus Lomax points toward a fascinating, if "dead" or "imaginary" (see Parikka, 2012; Zielinski, 2008), assemblage of always-embodied voices and digital systems.

Phonographic Lomax

In the early twentieth century, just as the phonograph was dazzling audiences across the world with the new registers of inscription it made possible (Gitelman, 1999; Lastra, 2000), many ethnographers and collectors of American folk songs were still operating within the logics of print culture (Brady, 1999; Filene, 2000). Song collectors, after all, were looking for songs—which can be written down and printed—not voices or bodies; as Regina Bendix (1997) has pointed out, the text became the locus of authentication for the Romantic folklorists of the nineteenth century, a legacy that would persist. For instance, Cecil Sharp's (1932) introduction to his influential *English Folk Songs from the Southern Appalachians* gives us a brief glimpse of the transmission model that grounds his interactions in the field: "[... I was] accompanied throughout by Miss Maud Karpeles, who took down, usually in shorthand, the words of the songs we heard, while I noted the tunes" (p. xxi). The speed of the musical event requires an efficient language, but nonetheless the data sought is *meaningful*. Elsewhere he writes: "The singers displayed much interest in watching me take down their music in my notebook, and when at the conclusion of a song I hummed over the tune to test the accuracy of my transcription they were as delighted as though I had successfully performed a conjuring trick" (p. xxvi). In Kittler's (1999) view, the phonograph made it possible for the first time to conceive of documenting "the real"—sound recording allowed for the inscription of signals that the alphabet could not encode, including the noises of bodies—but Sharp seems unwilling to explore this new media discourse/landscape. Not coincidentally, Sharp was rather contemptuous of his informants, and his disregard for the singers he relied on had much to do with his class biases and his elitist fears of massification (Filene, 2000). Yet, there is also a basic contempt here for the material channel of the voice—a desire only for the information it happens to be preserving/transmitting (cf. Brady, 1999).

John and Alan Lomax too were collectors of songs, which are indeed made up of words and tunes. And yet, unlike Sharp, who was forced to hastily scribble down notes and words with his assistant, the Lomaxes had a machine do the work (Filene, 2000). The use of the phonograph in ethnographic field research goes back to the late nineteenth century (Brady, 1999; Sterne, 2003). Alan Lomax seems to have been especially sensitive, however, to what Wolfgang Ernst (2011) describes as “the (unconscious) replacement of the vocal-alphabetic code by an electromagnetic flux of electrons” (p. 243), for his writings relate a different kind of field trip than Sharp’s.

Young Lomax figures primarily visual media, including print, as only one channel within the complex ecology of the field of folk music. Yet, it is indeed the aural channels of the voice and the singing body to which his attention seems to have been constantly drawn (Szwed, 2011). “‘Sinful’ Songs of the Southern Negro,” one of his first publications, explores the pleasure of what Roland Barthes (1977) describes as the “grain” of the voice, the fleshy ground *beneath* the articulation of linguistic meaning:

This woman’s quartet which she herself had organized and led, was by far superior to any other group we had heard. None of them, in all likelihood, could read, and certainly none of them had had the slightest training in music; but their harmonic and rhythmic scope and pattern, their improvisations, were unusual and beautiful. Their lower lips big with snuff, they swayed back and forth, eyes closed, to the beat of their own singing, a beat accentuated by the spatter of tobacco juice on the rough pine floor. (Lomax, 2003, p. 11)

Words and notes only go so far to document “the spatter of tobacco juice on the rough pine floor” or “unusual and beautiful” improvisations. Lomax seems to struggle between that which can be represented and that which exceeds mere signifiers. Elsewhere in the essay he describes a performance that we can only imagine Cecil Sharp vainly trying to document:

There was Burn-Down in the middle of the floor shouting a rhythm from which the melody had practically disappeared, beating his “box” until it seemed the thing would fly to pieces at the next stroke of his yellow hand, and literally held up by the bodies of the dancers around him, who were still shuffling with bent knees in the monotonous and heavily rhythmic one-step. Out in the moonlit yard again, away from the house, where the hound pup lay asleep in the dust, the separate sounds of feet and voice and strings disappeared, and in their place was a steady wham-wham that seemed to be the throbbing of the house itself. (Lomax, 2003, p. 14)

Lomax’s informants as well as the landscape blend into a physiological gestalt. This notion that there is something more to music than notes and words—something deeper—would continue to interest Lomax throughout his career. In “Reels and Work Songs” he writes, “These records are not to be listened to for text or tune so much as for the wildness, freedom, and rhythmic beauty of their contents” (Lomax, 2003, p. 71). In “Folk Song Style” he considers the incompleteness of Western musical notation: “The more refined the scores, the more certainly the essence of the exotic music escapes through the lines and spaces” (p. 131). And in “A New Hypothesis,” he again

wonders explicitly whether Western music notation systems are suited to the study of folk music (Szwed, 2011).

Of course, Lomax was not only interested in the non-signifying dimensions of folklore and music. His book on Jelly Roll Morton (Lomax, 1993), for instance, incorporates meaningful narrative. Lomax asks Morton about his personal history, which gets written down, which circulates as interpretable texts. And yet, there is simultaneously a world of sense beyond or beneath the level of signification: liquid and material registers that, à la Kittler, the recording apparatus itself seems to have a privileged capacity to “understand.” As Lomax (1993) writes of his session with Morton,

The amplifier was hot. The needle was tracing a quiet spiral on the spinning acetate. ... A gravel voice melting at the edges, not talking, but spinning out a life in something close to song. Each sentence almost a stanza of slow blues ... , each stanza flowing out of the last like the eddies of a big sleepy Southern river where the power hides below a quiet brown surface. (p. xiii)

The machine is figured as a central component of the “pre-phonographic” event, the gravel voice spinning, like a record, right along with the acetate. The edges melt, writes Lomax, and the rich discourse he records is *not just talking*. Indeed, as in his description of Morton’s performance, metaphors of “the water” or “the river” often stand in as descriptors of the data Lomax was trying to capture with his machines. In a letter sent from the Bahamas to Oliver Strunk at the Library of Congress, he writes, “Here, you see, there is a live, flowing, vital folk culture and the collector lives in a continual state of confusion & exhilaration. ... Songs & people pour in on us all day every day until we have to stop them in our weariness” (Lomax, 2010, pp. 10-11). With his phonographic ears, Lomax seems to have occasionally found the monstrous bandwidth of the folk to be overwhelming—in need of sorting out, somehow.

To be sure, Lomax’s notion of the field-recording interaction is saturated with a racialized primitivism. As Patrick B. Mullen (2008) claims in his discussion of American folklorist Newbell Niles Puckett, the notion in American folklore that speech and sound are more authentic than writing is attributable to racialized stereotypes of African-Americans as exotic Others: “If blacks sang from the soul in an illiterate oral tradition and whites from the song books in a literate tradition, then civilization had cut whites off from the spiritual dimension of life” (p. 49). In Lomax’s aesthetic valuation of folk music’s channels, too, we can see evolutionism and primitivism variously articulated: “Alan Lomax definitely thought that black otherness held the secret of sensual and spiritual renewal, and this was related to his own sense of whiteness as being incapable of experiencing pleasure” (Mullen, 2008, p. 111). And it was not only Black otherness that held this power for Lomax; like many of his contemporaries in the field of anthropology, he was drawn to those who appeared to be outside of modernity (see Fabian, 1983).

And yet, it is also worth pointing out that Lomax (2010) seems to have been sensitive to the fact that it was not he who was actually doing the perceiving in the field—that it was a machine inscribing the data and that this machine was not only a transparent window, but also an agent of sorts: “A sound-recording machine should visit men in the camps and record the songs they have made up” (p. 210); “The department’s recording machine has had an interesting time this summer” (p. 8); “The

machine now walks and talks properly again” (pp. 50–51); “This work is to be done by a modern field recording machine, with the idea in mind of getting down in the most accurate fashion the folk tunes and folk styles of the region” (p. 85). Lomax’s sound recorders are folkloristic automatons, workers able to infiltrate domains that had previously been unreachable to him—prosthetic extensions of the folklorist: “This machine draws its power from a set of batteries, and records electrically on aluminum or celluloid discs. Its play-back arm, which enables the singer to hear his song immediately after it has been sung, won us more songs than anything we said, more than all the cigarettes, tips, and compliments we distributed” (Lomax, 2003, p. 22). On the other hand, the human folklorist in turn occasionally comes to resemble an object in Lomax’s writings, a mere component within a larger network of mediatization: “The folklorist’s job is to link people who are voiceless” (p. 92). And elsewhere: “I propose [we folklorists] should be two-way bridges and form a two-way inter-communication system” (p. 116). When the object of inquiry is the voice, the machine becomes the collector; meanwhile, the folklorist becomes an interactive channel, an interface between the folk and the machine.

The idea that sound-recording inscriptions can constitute a *present* reproduction of a sonic event has been critiqued and historically situated by several scholars (e.g., Lastra, 2000; Sterne, 2003; Williams, 1980). Lomax does often seem (naïvely) to believe that sound recording had given him direct access to the sounds and bodies he was documenting, which Filene (2000) and Szwed (2011) point out. And yet, folk music also occasionally seems to be only a node distributed across the network of technological media which have made possible its documentation; thus, despite his Romanticism, Lomax also exhibits what Jonathan Sterne (2003, p. 226) has called a “network sensibility”—a sensitivity to the location of authenticity within media networks. The essay “Tribal Voices in Many Tongues,” for instance, begins with an anecdote about a truism Lomax would have us reconsider:

I suspect it was on a tourist’s visit to Naples in the nineteenth century that some sentimental literary gentleman opined, ‘Music is a universal language.’ This absurd notion has bedevilled collectors of folk and primitive music ever since. I only wish I could hold the author’s head firmly against the bell of my loudspeaker while I played him a series of albums. (Lomax, 2003, p. 107)

Truth, in this imagined scenario, is not to be found in the field, but rather in proximity to the bell of his loudspeaker; authentic originals are what he often seemed to think he was after, and yet he seems to have been equally drawn to machinic inscriptions—to the discs, tapes, microphones, and speakers he relied upon.²

Of course, evoking Michael Taussig’s (1992) poetic exploration of the field-recording interaction in colonial Latin America, Lomax does appear to enjoy, through his perception of the “primitive” Other’s experience with technology, his own culture’s repressed enchantment with mimetic machines: “It is always a dramatic moment for any one when his own voice comes back to him undistorted from the black mouth of a loud speaker. He seems to feel the intense and absorbing pleasure that a child experiences when he first recognizes himself in a mirror” (Lomax, 2003, pp. 64–65). But which one of the three agents in this web constitutes the folk? Lomax comes to rupture

the dichotomies we might wish to impose on his thought, because the folklorist's murky assemblage of technology and embodiment seems to have made who/what is inside modernity, and who/what outside, occasionally difficult to determine: "Although *my primitive tape recorder* disintegrated after that first trip, it sang the songs of my convict friends so faithfully that *it married me to tape recording*" (Lomax, 2003, p. 178; emphasis added). In anticipation of Donna Haraway's (1991) poetic explication of the cyborg body, such vivid renderings of Lomax's faithful coupling with technology seem to dissolve boundaries between nature and culture, machine and human, and primitive and civilized.

Computational Lomax

The "deep river of song" that Lomax sought to dam up via his role at the Library of Congress almost drowned him, and he began to experience a strain of what Jacques Derrida (1995) has called "archive fever." In the forties and fifties he recorded massive volumes of music from around the world—from Spain, Italy, Haiti, Bahamas, and elsewhere—and yet he did not have the training to understand many of the songs his machine was now capturing as he ventured further from his native United States: "When you have to sit through a half-hour song in Spanish that you can't understand ... you need something else to do" (quoted in Szwed, 2011, p. 335). His archive's will-to-accumulation seems to have been spinning out of control. As he recollected in a lecture he gave in 1979 entitled "From Lead Belly to Computerized Analysis of Folk Song": "I just recorded—I figured myself as a sort of a suction pump. ... But I didn't know what I was doing, really" (Lomax, 1979).

Yet Lomax's problem was not only one of comprehension. Although it seems to have subsided into the fifties with technological advances including tape-recording, the LP, and stereo (all which he welcomed with open arms), a technologically induced frustration had become apparent during his time in Washington: "We should be delighted to send you copies of everything you sang for us at once, but at the moment, we have no facilities for duplication of these records in the Library of Congress" (Lomax, 2010, p. 138). Lomax was seeking to record all of the world's authentic voices and to feed those voices back to themselves; in the forties and fifties he hosted various programs on CBS, Mutual, and then the BBC (see Filene, 2010; Szwed, 2011). But his own analogue storage and sorting systems at the Library of Congress were cumbersome and too delicate: "The re-shelving of original records is becoming a very serious problem and I wish that you would make some arrangements about this soon to insure the originals against injury" (Lomax, 2010, p. 208).

Thus, as early as 1941, four years before Vannevar Bush's Memex, Lomax (2010) seems to have begun to dream of a virtual realm—a stack where the corporeality of the carriers was, if not erased, at least somehow better mobilized:

I hope that every note that is played in the United States during the next two decades, in war or in peace, in whore-houses or for Henry Ford rolls across the threshold of the music division, is catalogued, filed away in special self-liquifying cans which disappear until called for and demand constant attention from a staff of three-thousand in a building that old John's Blue Ox Babe could turn around in without scratching her tender arse. (p. 221)

Do folklorists dream of electric graphical user interfaces? Jonathan Sterne (2003) has explored how ethnographic phonography in the late nineteenth century was bound up with embalming practices and the Victorian cultures of death and remembrance. Lomax, though, sought to re-animate the archive as an interactive and dynamic database—where “special self-liquidating cans” disappear until called for—one of the purposes of which would be to connect the holdings to the very folk that constitute their source. Not surprisingly, then, the utopian discourse around personal computing would later give him cause for excitement. As he would write in a grant application for his multimedia software project, “The Global Jukebox ... is not just an encyclopedia of music, dance, and culture, but a dynamic model of the cultural universe which the user may explore, manipulate, *and expand*” (Lomax, 2003, p. 325; emphasis added). Before he could drag and drop self-liquidating cans, however, he would need to devise a system of sorting the data in his unwieldy analogue archives.

The Cantometrics project, which officially commenced in 1961 with the help of a Rockefeller grant, seems to have functioned in part as a salve for Lomax’s earlier archive fever. In it he found “something else to do,” and he also found what would eventually become, with his Global Jukebox software in the nineties, a way of potentially plugging life back into his sickly stacks of field recordings. If on his song-collecting journeys Lomax had occasionally found himself in the dark as a researcher, Cantometrics promised to be a sonar imaging device of sorts: “Cantometrics was designed to facilitate quick ... mapping of a musical terrain” (Lomax, 1976, p. 79). Employing anthropologists, ethnographers, statisticians, and a computer programmer—not to mention Columbia University’s IBM 360 mainframe (Szwed, 2011), which was a crucial component of this interdisciplinary machine—the project attempted to systematically study the singing voice and its function within traditional societies. Lomax’s team devised a set of coding categories that would allow them to comparatively study the globe’s folk music without actually looking at music or meaning as they had traditionally been conceived in studies of musicology and folklore: “We came to focus more upon the shape than the content of the model, more upon the ‘how’ than on the ‘what’ of singing, since the ‘how’ is the more constant element and thus, by definition, closer to the cultural core” (Lomax, 1976, p. 13). Thus at approximately the same time that McLuhan (1964) was trying to draw our attention away from the *content* of television and radio broadcasts, for instance, and toward media as such, so Lomax was moving toward the materiality of folk music to consider the aesthetics and social functioning of vocal channels themselves.

The Cantometrics coding process was a complex and time-consuming procedure; thirty-seven categories were to be used, each with scales of varying ranges. A few of the qualities the team considered were the degree to which the singing group did or did not seem to have a leader; the degrees of rhythmic and tonal integration and organization in the singing group; and the degrees of “raspiness” and “nasalization” (Lomax, 1968, pp. 22-23). The first meaning of “Cantometrics” is the measurement of singing style, and so the project thus sought to rationalize and to attribute discrete (and quantitative) symbols to the language-exceeding voices of the folk. Yet the term “Cantometrics” also pointed toward the fact that singing style is a measure of social

structure and solidarity. After coding the approximately 3,500 songs that formed the basis of the Cantometrics data, and after mapping these results onto data taken from George Peter Murdock's (1967) *Ethnographic Atlas*, Lomax and his colleague Victor Grauer concluded that singing styles were related to "1) Productive range; 2) Political level; 3) Level of stratification of class; 4) Severity of sexual mores; 5) Balance of dominance between male and female; 6) Level of social cohesiveness" (Lomax, 1968, p. 6). By looking at the characteristics of a society, one can predict the kind of singing style that social structure would require. Conversely, by looking at singing style, one can also determine the kind of society a vocal style is helping to maintain.

Lomax's Cantometrics project clearly aspired to objectivity, and he often refers to the computer as a mere tool. For instance, he does not give the machine much credit when he acknowledges that "the computer became the helpful servitor of this project" (Lomax, 1976, p. 4). However, just as Lomax was reliant upon his prosthetic sound recorders on his field trips, the kind of information-processing he was interested in conducting with Cantometrics—cross-cultural factor analysis of the world's recorded voices—required the IBM 360. And Lomax again found himself married to technology. As he put it in a televised interview with Robert Gardner,

The computer is buzzing with 500 variables, cross-correlated. And out of this are emerging enormous forms, which are complex enough to satisfy almost any cultural metaphysician. I swim in them all day long, and I must say I don't feel that I understand exactly how they work. One thing I am sure of, and that is that ... man is basically a master aesthetician. (Lomax in Gardner, 2005).

Lomax is not sure how the cross-correlated variables function, and yet he *swims* in them—fully immersed, it seems, in his new network (cf. Helmreich, 2007). Forrestine Pauley collaborated with Lomax on a sister project called Choreometrics, which sought similarly to informationalize the filmed traditional dances of the world, and she recalls the affective excitement Lomax expressed about his new partner's power: "[Lomax would] call me and he'd say 'Look at this,' you know, and I'd see this stream of numbers and patterns. ... And he'd say, 'Look what's happening here, look what this is showing!'" (Pauley, 2006). Almost like Neo in *The Matrix*, Lomax could finally perceive the data that had been surrounding him all along.

Yet translation issues abounded. How best to let the folk speak to the researcher and to the mainframe, and vice-versa? The parameters of the scales and categories, as Lomax himself acknowledges, were defined by the size of the IBM punch-card. So the bandwidth of the folk's voice was delimited by the material structure of the computer's storage and processing media. But there were (human) eyes and ears that also needed consideration. The visual presentation of the coding sheet was thus designed so that it could facilitate interaction between these intertwined agents:

The number of levels was limited to thirty-seven by the size of the coding sheet, and the number of points on any line was limited by the thirteen punches available in a column on an IBM card. No more points were included on any line than we felt could be handled by an attentive listener. These thirty-seven lines, with 219 points, are set forth in a symbolic map on the right side

of the coding sheet. The symbols, which are abbreviations for the distinctions made in each line, greatly facilitate learning and using the system. The listener records his judgments on the symbolic map and then transfers them to a number map on the left, which also serves as an IBM data sheet. (Lomax, 2003, p. 251).

How can the scholar of folk music comprehend the vocal varieties of the world, on one hand, and harness the computational power of the digital computer? The coding sheet was offered as a relay joining the mind of the listener, the aural (analogue) voices of humanity, and the digital processing power of the mainframe. (User-friendly symbols on the right, and digital translations on the left.)

Still, initiation into this network would take time and patience; *Cantometrics* (Lomax, 1976) came with six cassette tapes, the purpose of which were to make the listeners' ears compatible with the method established by the team. Lomax guides potential Cantometricians through dozens of clips on these hours-long cassettes, teaching them how to rate the coding categories for various samples of recorded folk music. The training tapes (the experience of which is not unlike slowly installing software) seem to work as a kind of protocol, ensuring compatibility between the listener and the computational method: "The Cantometrics tapes allow the listener to adjust to the world ranges of many audible features of singing, arranged in scalar form" (Lomax, 1976, p. 12).

Although human users of *Cantometrics* may have had trouble understanding the section of the coding sheet that was for the IBM 360 to "understand," however, the computer itself apparently had trouble, too, with the demands of the project; it needed to be taught a new language. As the team's programmer, Norman Berkowitz (1968), explains, "To obviate the loss of time and programming effort that would be entailed in such preparation on a problem-by-problem basis, a special language, REDODATA, was developed, during the period November, 1965, to July, 1966, to facilitate the automatic and flexible redefinition and transgeneration of data" (p. 310). Only once everyone was on the same page (or punch-card) could the coding and information-processing of the world's archives of recorded folk music begin.

Cybernetic folk

So far we have seen how the materiality of the IBM 360 registered across the project and how the boundary-blurring network that included technology, folklorist, and folk interestingly recalibrated for Lomax's digital period. But the very object of his quest interestingly morphed, too, into the *Cantometrics* research. In his early writings, phonographic Lomax seemed content to bask in the mystical richness he perceived in the voices and bodies of the folk—which, again, "[escaped] the lines and spaces" of Western musical notation. *Cantometrics* attempted to harness the voice and to make empirical sense of its variability on a social-scientific level. However, Lomax's understanding of the materiality of traditional music, as the results began to pour in, became permeated by some of the language and concepts of the field of cybernetics, of which "the digital computer was an essential condition of possibility" (Johnston, 2008, p. x). Therefore, whereas the "truth" of the sonic event had been complicatedly distributed along the sound-recording network within which he was working (from recording au-

tomata to the bell of the loudspeaker), here again the truth of the folk was to be found alongside the (now digital) machine.

The ideas of information, bandwidth, feedback, and homeostasis pervade the Cantometrics project (so the influence of Lomax's teachers Margaret Mead and Raymond Birdwhistell, both cybernetic anthropologists, is also evident).³ Singing style is a fruitful field of study because it is a relatively *redundant* mode of communication. Lomax thus saw in the voice, vis-à-vis the disorienting swirl of images and sounds he perceived to be part of globalization, an effective noise filter. And once the team began to rate and compare the voices that he and others had recorded with Murdock's ethnographic data, they came to figure singing style as a feedback mechanism between a variety of social, economic, and environmental factors: "Each song style we have studied ... portrays some level of human adaptation, some social style. Each performance is a symbolic re-enactment of crucial behavior patterns upon which the continuity of a culture hangs, and is thus endowed with the emotional authority of the necessary and the familiar" (Lomax, 1968, p. 8). The voice both expresses and reinforces particular social and environmental relationships, a component within a machinic circuit—it is the means through which a culture commands and controls *itself*. For instance, as Lomax writes of early modern Europe, "The bard was an early information specialist, storing the traditional knowledge of his group with the help of the redundant devices of poetry" (Lomax, 1968, p. 134). The particular conclusions of the Cantometrics project tended toward evolutionism—more "complex" or "information-dense" singing styles were found to belong to more highly stratified social systems. Yet Lomax also seemed to wish to approach voice and society as a strictly relational system. Andrew Pickering (2010) has explored how some British cyberneticists regarded the brain as an adaptive, performative machine, and Lomax approached the voice with a similar lens; he had finally opened up this black box, and he saw that it was after all the homeostatic regulator of each of humanity's diverse cultural systems.

The cybernetic notions of information, feedback, and homeostasis are also evident in the activist aspects of Lomax's work with digital computers. Lomax perceived globalization to be a culturally homogenizing force, a process figured as negentropic. As he writes in *Folk Song Style and Culture*,

The work was filled with a sense of urgency. To a folklorist the uprooting and destruction of traditional cultures and the consequent grey-out or disappearance of the human variety presents as serious a threat to the future happiness of mankind as poverty, overpopulation, and even war. Soon there will be nowhere to go and nothing worth staying at home for. ... Meantime Telstar rises balefully on the western horizon. (Lomax, 1968, p. 4)

Lomax grapples here with the contradictions of modern cultural imperialism—on one hand there is a proliferation of communications; on the other, the informational possibilities of any given message seemed to him to be rapidly decreasing (a phenomenon he terms "cultural grey-out"). His lament is not unlike Paul Virilio's (1997) in *Open Sky*, where Virilio explores the erosion of situated horizons as a consequence of instantaneous telepresence and telecommunication. The noises of transna-

tional industry and technology have increased to such a degree that it is no longer possible to recognize “[differences] which [make] a difference,” which is how Gregory Bateson (1972, p. 315) defines information. “There will be nowhere to go and nothing worth staying at home for,” Lomax puts it (1968, p. 4).

And yet, in the rich diversity of traditional singing styles, now comparable thanks to the sheer power of the IBM, Lomax saw a beautifully wide range of bandwidth and informational possibility. And the method of Cantometrics could be plugged into the voices of the world, he hoped, in an attempt to strengthen their functioning as relay:

Experience teaches that ... direct feedback of genuine, uncensored native art to its roots acts upon a culture like water, sunlight, and fertilizer on a barren garden; it begins to bloom and grow again. The direction, planning, and administration of this cultural feedback system will be facilitated by the recognition of style structures and style differences. (Lomax, 1968, p. 9)

The traditional voices of humanity were weakening, Lomax thought, in part because they often lacked access to mainstream channels of communication, and yet Cantometrics might serve as a meta-governor—a servomechanism through which we could regain control of our most essential informational circuits. Thus Cantometrics should not only be for scholars of folklore. Lomax thought that schoolchildren and even “just plain folks” can and should learn the method, and in the process better understand the singing styles that are foundational components of our cultural ecosystems (Lomax, 1976, p. 9). Cantometrics and Choreometrics findings were thus disseminated not only in academic publications and papers, but also in presentations and a film series entitled *Rhythms of Earth* (Lomax & Paulay, 2008). “People are very stubborn about keeping these bodily matters going. I think the human race is going to resist this homogenization and build up new kinds of civilizations on these structures. That’s what this film is for,” as Lomax explained to Robert Gardner (in Gardner, 2005).

The realization of Lomax’s living database, however, seemed to become most possible with the Global Jukebox, designed to run on an Apple Macintosh IIcx (Szwed, 2011). Lomax’s writing career had (slightly) slowed down by the late eighties and nineties, and so there is less material here to explicate. But the grant application Ronald D. Cohen included in *Alan Lomax: Selected Writings* (Lomax, 2003) and a video demonstration of the prototype (Naimark, 1993) promise an interactive and dynamic archive. The multimedia interface would make it possible to place beside each other, in both visual and aural forms, all the findings of Cantometrics, and one could manipulate the data to explore new patterns. But one would also, it seems, be able to plug one’s own singing style into the database, making it not only a window into a static set of traditions, but a collaborative, hybrid pump/regulator: “The Global Jukebox ... is not just an encyclopedia of music, dance, and culture, but a dynamic model of the cultural universe which the user may explore, manipulate, and expand” (Lomax, 2003, p. 325). The same networks that were eroding traditional cultures, then, might be put to good use in the global regeneration of the diversity of singing styles. Unfortunately for Lomax, however, the Global Jukebox technology never made it past the prototype stages in his lifetime.

Deep digitality

Many have criticized the thread across the history of digital culture that posits digitization as a disembodied or abstracting process (e.g. Hansen, 2006; Hayles, 1999; Munster, 2006). N. Katherine Hayles (1999) traces the notion that information can be divorced from its material carrier from cybernetics and information theory through to nineties cyberculture and transhumanist rhetoric. Contemporary images of humans uploading themselves to computers carry forward the humanist dream of disembodied consciousness, which Hayles finds influentially articulated in the work of Norbert Wiener (Hayles, 1999). But not only utopian humanists understand digitality as a condition in which the medium of the body is left behind. Mark B. Hansen (2004) critiques the anti-humanist (and decidedly dystopian) Friedrich Kittler on similar grounds. According to Kittler (1999), the modern differentiation of technological media (into gramophone, film, and typewriter—a.k.a. the real, imaginary, and symbolic) is eventually subsumed by the monolithic phenomenon of digitization:

Before the end, something is coming to an end. The general digitization of channels and information erases the differences among individual media. Sound and image, voice and text are reduced to surface effects, known to consumers as interface. ... Inside the computers themselves everything becomes a number: quantity without image, sound, or voice. (pp. 1-2)

Focusing on the materiality of computational technology, Kittler emphasizes the removal of the writer/user from the process of digital inscription; yet, according to Hansen, it is Kittler's reliance on Claude Shannon's notion of information that leads him to an abstracted and disembodied understanding of the digital (Hansen, 2004).

But there have been other ways of conceiving of information and digitality. Hayles' book returns to less influential cybernetic theorists such as Donald Mackay, who offered an account of information that did not neglect the situated, embodied contexts in which information is necessarily received. And, drawing on Gilles Deleuze and Henri Bergson, Hansen (2004) critiques Kittler by arguing that digital code is always already framed by the "*in-formed*" users that engage with it; Hansen explicates the necessarily affective process of digital media-making/-perceiving by closely analyzing the work of several new media artists, including Jeffrey Shaw and Tamás Waliczky.

There are dozens of ways one could critique Cantometrics as a social-scientific methodology (see Averill, 2003). Still, I submit that Alan Lomax's strange inventions and writings also constitute an attempt to grapple with an understanding of digital data that is not abstract or disembodied but is rather situated in particular, necessarily embodied horizons. Lomax was excited by the possibilities afforded by information processing; the ability of the machine to sort and map binary data was to be appreciated: "It is exciting to realize that such a coherent and complete system, capable of accounting for world musical variation, was derived by a rigorous, mathematical procedure" (Lomax, 1976, p. 21). And yet, Lomax never seemed to discard his initial fascination with performance, which for him always seemed to exceed the notes, words, and more recently the digital bits that might be used to encode it. As he offered only a few pages after the above quotation, "Music descends from the heavenly spheres of pure ideas and mathematics, where it was put by Pythagoras and Plato. Its perform-

ance framework clearly does not rest on mathematical abstractions, but is a human, a social thing” (Lomax, 1976, p. 25). Lomax was sensitive to the possibilities engendered by computers, and yet his understanding of digital culture was palimpsestic—helpful binary code and embodied human life-worlds overlapping in an integrated mixed-reality network:

You've got a theory of art ... which is far more satisfying aesthetically, emotionally, intellectually ... than any black/white thing of the sort that Levi-Strauss has foisted on us in the last twenty-five years, where everything is 'Yes or No.' ... It's an enormously complicated web; it took the biggest computer in the world to make these comparisons—the whole of the mainframe was occupied with it for two days to get this map, because here you're comparing the actual process of interaction between people. ... Man is essentially an aesthetic animal—we're not a computer that goes 'Yes/No Yes/No Yes/No,' with a tree diagram making sense out of what we do. Our brains and our nervous systems connect us with every *body* around us. We carry these very complex social and communications systems with us. ... It is an enormously complex interconnected network. (Lomax, 1979)

Lomax, the poststructuralist folklorist, finds us constrained by Claude Levi-Strauss' binary thinking. Rather, paralleling Gilles Deleuze & Felix Guattari (1987)—for whom “The life of the nomad is the intermezzo” (p. 380)—Lomax envisions an affective and distributed folk, a web that stretches across several strata, including nervous systems, “the biggest computer in the world,” and “every body around us.” Of course, by now the rhetoric of disembodied cyberspace has all but completely died out (Hansen, 2006). Still, Lomax was perhaps on the cutting edge of mixed reality, trying as he did to envision a digital convergence that did not erode previous media (including the body), but rather rejuvenated them by descending, deep, to the cultural core of our sung environments. So at around the same time that, for example, Nicholas Negroponte (1995) was touting the majesty of “weightless” bits, Lomax was listening for a utopia wherein digital networks are always already plugged into our fleshy voices—which richly and complexly embrace, but shall not be reduced to, code.

Conclusion

My aims in this article, to summarize, have been twofold. First, drawing on Kittler's approach, I tried to explore how the objects of Lomax's folkloristic desires were themselves products of the machines he employed as a field worker and as an archivist, or at least how he is often sensitive to this in his writings. This approach has allowed us to see connections between his body of work and medium theory. Second, inspired by the burgeoning field of media archeology and imaginary media research, I tried to explore how Lomax's ideas and (failed) inventions constitute a fascinating virtuality that cuts across the genealogies of cybernetics and digital culture. By excavating media—which always include diagrams and dreams—we can open ourselves to lost potentialities (Parikka, 2012; Zielinski, 2008). What would it take to trade in our narcissistic iGadgetry for the democratizing, collaborative, and embodied folk-database Lomax longed for?

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Notes

1. I acknowledge the important contributions of Ronald D. Cohen, who is editor of two of the collections of Lomax's (2003; 2010) writings that I have often relied on here.

2. Perhaps Alan Lomax inherited this fascination from his father. As Marybeth Hamilton (2007) writes of the elder song collector, "Inextricable from that sense of virile adventure was an evangelical enthusiasm for recording technology" (p. 79). And, again, Filene (2000) has also identified the Lomaxes' sense of the Dictaphone as an objective tool for documentation. But I am trying to highlight how the younger Lomax's descriptions of recording occasionally tend to blur the lines dividing subject, tool, and object, entirely.

3. On cybernetics, see Wiener (1950), Ashby (1963), Hayles (1999), and Johnston (2008).

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