MP3: The Meaning of a Format, by Jonathan Sterne. Durham, NC: Duke University Press, 2012. xv, 335 pp.

Since his breakthrough article “Sounds Like the Mall of America: Programmed Music and the Architectonics of Commercial Space” (1997) and his monograph *The Audible Past* (2003), Jonathan Sterne has consistently presented scholars of diverse disciplines relating to music and sound with new and suggestive “sonic questions,” and, as importantly, with new ways to reformulate old questions.¹ *MP3: The Meaning of a Format* is no different: it emerges from a 2006 study entitled “The MP3 as Cultural Artifact,”² in which Sterne suggested that the MP3—a format for compressing and storing digital audio—should be considered not as something that suddenly appeared to change legal, aesthetic, and commercial environments, and, indeed, the way millions listen to music, but rather as an artifact or container that articulated legible relations between media and human bodies, relations that had to be traced back into the modes of engagement between laboratories, corporations, and users that finally gave form to the MP3 in its present version. In his view, the MP3 is not just a container for recordings—which it is—but an object containing social relations, into whose code is written more history and subjectivity than its low-quality sound suggests.

It might at first seem that *MP3: The Meaning of a Format* also continues the history of fidelity and reproduction presented in *The Audible Past*. But the book recasts the terms of the discussion. According to accepted wisdom, the defining characteristic of MP3s is their lack of fidelity, the low quality of compressed sound, and the apparent paradox of their success and proliferation despite this deficiency. Sterne rejects the very formulation of the paradox, abandoning the commonplace association between high definition, verisimilitude, and progress (p. 4). Of course, critiques of progress narratives are not new in technology studies. His approach is a reformulation of the very tenets of media theory. Siding with Friedrich A. Kittler, Sterne proposes the notion of “mediality” to replace the idea of the medium as message and the notion of remediation, insofar as both theories imply “new” and “old” media arranged in a hierarchical chain of mediation moving away from some reality.³ “Mediality” refers rather to the general conditions of sonic practices (complementing the “literariness” of written practices) and “describes a form of nonlinear, relational causality, a movement from one set of relations to another” (p. 9). From this perspective, media cease to be stable, identifiable forms that remain the same across history and hence lack any sort of

1. Jonathan Sterne, “Sounds Like the Mall of America: Programmed Music and the Architectonics of Commercial Space,” *Ethnomusicology* 41, no. 1 (1997): 22–50; Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press, 2003).

2. *New Media & Society* 8, no. 5 (2006): 825–42.

3. Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop-Young and Michael Wutz (Stanford: Stanford University Press, 1999).

recognizable “progress,” being defined rather by their contexts and the purposes of the institutions and actors involved therein. Most crucially, Sterne argues, the MP3 belongs not so much to the history of fidelity but to the general history of compression, which does not simply extend or interrupt histories of fidelity and representation but has been entwined with both and will continue to be so (p. 6).

If critiquing the ideology of fidelity involves advancing a theory of mediation as networks (i.e., mediality), understanding the history of compression requires consideration of the material means by which compression is effected and experienced, or, in Sterne’s words, of the “whole range of decisions that affect the look, feel, experience, and workings of a medium” and also of the “set of rules according to which a technology can operate” (p. 7). Sterne gathers these elements under the term “format,” maintaining that “if there is such a thing as media theory, there should also be format theory” (p. 7). Format and media theory, he argues—and this is the true point of departure from *The Auditory Past*—have been collapsed into each other, while they should properly be distinguished.

Format theory is concerned with a materiality that media theory has ignored or eliminated, since “format problems are obvious material problems” (p. 6). As theories of materiality multiply within several disciplines, including musicology and sound studies, so do the claims of each discipline, which is a symptom of the fact that there are different modes of interrogating what in the end is ultimately material. Interrogating format means engaging with materiality from a transcendental position—to pinpoint Sterne’s Kantian-Foucauldian approach—that aims not to disclose what the materiality of sound is but to determine the conditions for the possibility of our experience of it. These general conditions and experience are historically determined, as formats accumulate layers and layers of a contractual and conventional nature, organized by policies, codes, and habits, and forming a sedimented history that gets disseminated and obscured such that its products acquire “a sheen of ontology when they are more precisely the product of contingency” (p. 8).

Considered in these archaeological terms, the suggestion that there is a “subject written into the code of the MP3” (p. 17) becomes a key issue. Sterne introduces the notion of “perceptual technics”—linked to the “audile techniques” of *The Audible Past*—in order to approach his subject and to identify the moment when it is no longer possible to distinguish where, and how, in terms of agency, the distribution between subjects and objects takes place in a medial network. The object, in this account, determines its own conditions of experience through a format that has “the shadow of a listener,” a subject, imprinted in it (p. 32). Who this subject is, and how it gets to be inscribed as code in a format, is a problem that is raised explicitly in the book—and explored most deeply in Chapter 5. It is also a claim that should alert readers to the “universality” of that subject and what Sterne makes of her.

Chapter 1 traces the history of AT&T as it managed to move out of an economic stronghold by maximizing profits in a context of regulated price through investing in research, in order, finally, to capitalize on the limitations of human perception. This way of bringing life and its mechanisms into the purview of modern institutions is the type of intervention on the body that Foucault has described in his analyses of governmentality, albeit with a corporative bent (p. 41). Beginning an important analysis of the economy of sound media that continues through the book, Sterne shows how AT&T's researchers distinguished between frequencies necessary for audition and "surplus frequencies" that produced "perceptual capital," the same capital that would be exploited later on by MP3 codecs that took CDs as their model, making a profit on the impossibility of distinguishing the difference between a recording and its compressed version (p. 161).

Chapter 2 deals more closely with perceptual technics through the experiments and principles of psychoacoustics, showing the dependence of the MP3 on telephony, on the one hand, and on early twentieth-century information theory and cybernetics on the other. In an excursus that is bound to become a classic of sound studies, Sterne follows the centrality of cats as experimental subjects for research on sound and listening. His inquiry ranges from Athanasius Kircher's "cat piano" to the Napster logo, through the 1929 Princeton "cat telephone," demonstrating here the ample range and hybrid nature of the MP3 format and its ability to collapse life and machines, which he claims were then beginning to be conceived as interchangeable (p. 63).

These claims hold as Chapter 3 advances toward the 1980s, where Sterne focuses on the next stage of perceptual technics: the implementation of psychoacoustic research into digital systems in the form of "perceptual coding"—the algorithm that eliminates frequencies assumed to be inaudible according to a mathematical model of human hearing (p. 21). The chapter addresses the technologies basic to MP3 compression—the psychoacoustic phenomenon of "auditory masking" and "critical band theory." To make sense of these technologies without delving into technicalities, Sterne displaces masking to the center of a constellation involving psychoacoustics, the emergence and dissemination of computers as sound media—for which he cites Georgina Born's research on IRCAM—and the "domestication of noise," namely a general change of attitude toward noise that concluded in attempts to attenuate or hide it instead of simply eliminating it (p. 95).⁴ Sterne argues that while digital audio reduces costs and maximizes distribution, it is still rooted in the corporative ideologies and practices of traditional recording. Moreover, it participates—contrary to Jacques Attali's diagnosis of the "compositional regime" in *Noise*—in the demystification of "sound and hearing in

4. Georgina Born, *Rationalizing Culture: IRCAM, Boulez, and the Institutionalization of the Musical Avant-Garde* (Berkeley and Los Angeles: University of California Press, 1995).

the service of perceptual technics . . . [through which] sound and noise became audio, and audio could be disassembled, isolated into its components, and then administered" (p. 126).⁵

Chapters 4 and 5 address the dialectic between the singularity and the universality of the MP3 format from two complementary positions: first, from the side of governmental, corporate, and scientific players in the international standards-making processes that aimed to regulate the market of perceptual coding (Chapter 4); and second, by closely following the history, technologies, and protocols for the listening tests that defined the standards to be utilized, a sociological analysis guided by Born and Pierre Bourdieu that closely defines the types of listeners that make up the "subject" of the MP3 (Chapter 5).⁶ Focusing on perceptual technics allows the move from individual subjects to generalized listening conditions by analyzing the relation between subjects and the objects they experience, and the way these relations become standards as they are written into code. Thus, interiority and subjectivity are eliminated with an aim to neutrality and generality in what the 2006 article called a "praxeology of listening."⁷ This praxeology defines the subjects shaping the MP3 standard. Through these tests, expert listeners of a very specific class, race, and gender came to represent a future listening public through judgments that collapsed disinterested scientific coolness with aesthetic sensibility in an unprecedented twist of Kantian aesthetics (p. 152). Besides offering little-known information about the nature of these tests, Sterne demonstrates here, as elsewhere in the book, a remarkable hermeneutical capacity for extracting philosophical and historical insights from corporate documentation. He reads reports on listening tests as "epistemic stories" and "cultural documents" that give evidence of the universalization of particular subjects and their aesthetic experiences (p. 149). For Sterne, these listening tests are less valuable for what they tell us about the actual differences in quality of the MP3—or how the reader can learn to hear them—than they are for clarifying why "auditory judgment" is not relevant to understanding how the MP3 became what it is today. Rather, the importance of these documents lies in what they reveal about the contexts, discourses, and technical presuppositions by which the format was conditioned (p. 149).

Chapter 6 expands on Sterne's discussion of the economic aspects and impact of the MP3. Sterne shows how tension between proprietary research and standard-making consortiums has produced the very dissemination of MP3s and the transformations in consumption and distribution that are

5. Jacques Attali, *Noise: The Political Economy of Music* (Minneapolis: University of Minnesota Press, 1986).

6. Pierre Bourdieu, *La distinction: Critique sociale du jugement (Le sens commun)* (Paris: Éditions de Minuit, 1979).

7. Sterne, "The MP3 as Cultural Artifact," 828.

usually cast as “piracy”—a term that Sterne rightly subjects to critical analysis, suggesting “unauthorized” as the key attribute of the operations that transformed the economic conditions of music (p. 208). This is the starting point for an analysis of the diverse modes of exchange that music undergoes, allowing Sterne to explore the MP3 as “technology,” “commodity,” “property,” “ideal work,” and “bundle of affordances,” which are all terms and concepts that serve as subheadings in Chapter 6. The chapter as a whole is entitled “Is Music a Thing?”—a question that will be of special interest to readers of the *Journal* concerned with the recurrence of discussions about the ontology of music and the advantages of engaging with theories of materiality and “thingness.” Through a patient analysis of the various interpretations of music’s thingness, and demonstrating the need to associate analyses of materiality with a more classical take on political economy, Sterne makes the broader point that music is all of these modes at the same time, that materiality is a constant of different modes of existence that are variously revealed as we encounter and exchange them.

Finally—and making the most of the ambiguous status of the MP3 as a commodity on the one hand and of file-exchange as a market on the other—Sterne concludes his study with an epilogue that explores the short life of the MP3 market, the means by which it was disseminated, and the ways in which it transformed the difficult problem of the ontology of music, copyright, and accumulation. Sterne argues here that neither technological transformations, nor new modes of market, nor even the apparent dematerialization implied by digital music produce an ontological transformation of music’s materiality, since music cannot be found outside of these determinations in the first place (p. 194). Rather, the different modes and situations must be analyzed by the kind of affordances they produce. In the case of the MP3, Sterne focuses on the container-aspect of the MP3 to show that the task of the encoder is to make audio, in Heideggerian parlance, “ready-to-hand” to its users while disappearing in its functionality, even as, “less like [Heidegger’s] jug, it manages the conditions under which that readiness-to-hand occurs and requires an ensemble of other technologies” (p. 195).

To locate the MP3 as part of this economy, to show this economically determined distinction between form and content and its biopolitical mode of capitalization, is one of the book’s most important contributions to both the analysis of the economy of music and the ontological questions that aim to decide what sort of thing music is in the digital age. Sterne’s concepts work in a tightly knit, fast-moving argument whose primary aim is to lay down the networks and expose the often unsuspected articulations of which they are formed. Most of these articulations surely bear more research and definitely more critical and philosophical analysis, less because they are not sufficiently addressed by Sterne than because they have changed the discussion in several ways, some of which have not been covered in this review. In this

respect the interdisciplinarity of the field of sound studies guarantees that it will remain on top of its problems, even if its conceptual apparatus undergoes the same destiny as the technologies and situations it studies.

One of the paradoxes is that Sterne's book already feels somewhat dated, as if media archaeology necessarily implied looking at its object under a layer of dust. Sterne is certainly aware of the problems entailed in studying ephemerality, appropriately closing with a meditation on the fate of the MP3 ("Conclusion: The End of the MP3"). In its present conditions the MP3 is subject to "a forgetting of forgetting" by which the means necessary to reproduce current MP3s, even if these are preserved, will most likely be unavailable in the near future (p. 228). Perhaps the same destiny is reserved for interdisciplinary fields organized around up-to-date discussions that aim to make sense of the present, while being left behind by the thrust of the very forces they aim to explain. These problems are important, however, in that they produce possibilities of reflection that go well beyond the field and object of sound studies and musicology. Sterne's intervention is certainly all the more important because of these new possibilities, rather than because of the issues that are perhaps exhausted in his analysis, demonstrating his claim that the MP3 is interesting as an object of study on account of "the big questions that live inside a diminutive format" (p. 17).

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