what it means to study the composer. If I may be permitted a psychoanalytic analogy, ongoing arguments for Berlioz's canonicity seem to channel his own self-image as an unsatisfied artist. *Berlioz in Time* leaves open whose time is in question: Berlioz's, Bloom's, or, indeed, Barzun's.

Some of the most interesting moments of *Berlioz in Time* are its reflections on Berlioz scholarship. The influence of Barzun, Bloom's mentor, is evident. (Barzun is introduced on page 44, playfully, as "our forefather who art in heaven," and on page 279, unironically, as "a genius.") Despite his myriad intellectual and administrative endeavors, Barzun always found time to write about Berlioz, but the impression remained, to paraphrase Diana Hallman, that Barzun was defending Berlioz from a "maverick" reputation of the composer's own making.[2] Throughout *Berlioz in Time*, Bloom calls on Barzun for translation advice, for reflections on the profession, to reminisce on the friendship between the two men, and on occasion, to disagree; for example, *Berlioz in Time* takes the composer's politics more seriously than does Barzun's *Berlioz and the Romantic Century*. So outsized is Barzun's influence on the book that he receives a generous biographical sketch in the epilogue.

Stylishly written and impeccably researched, *Berlioz in Time* belongs in the library of any serious Berliozian. The question remains, however, what it means to be a "Berliozian" outside the shadow of Barzun, and whether the defense of Berlioz's place in the nineteenth-century canon can finally be laid to rest. The story of Berlioz's global "afterlife" in the twentieth and twenty-first centuries—what Bloom reluctantly dubs "Berliozism" as a nod to Alex Ross's book *Wagnerism* (p. 289)—is, I think, a story worth telling.[3] For the non-Berliozians, *Berlioz in Time* leaves plenty of paths open for new critical, interdisciplinary, and, yes, "global" approaches to the composer and his reception, both in his time and in our own.

JACEK BLASZKIEWICZ

Nothing but Noise: Timbre and Musical Meaning at the Edge, by Zachary Wallmark. New York: Oxford University Press, 2022. xiii, 215 pp.

With this book, Zachary Wallmark has made an ambitious contribution to the famously elusive study of musical timbre. Efforts to integrate the sciences and the humanities, however nobly intentioned, are understandably dogged by

2. Diana Hallman, review of *Berlioz: Past, Present, Future*, *Music and Letters* 87, no. 3 (August 2006): 441–46, here 446. See also Paul Watt, "Jacques Barzun's *Berlioz and the Romantic Century* (1950): A Musicological Brontosaurus?," *Journal of Musicological Research* 38, nos. 3–4 (2019): 298–312.

3. Alex Ross, *Wagnerism: Art and Politics in the Shadow of Music* (New York: Farrar, Straus and Giroux, 2020).

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the suspicion that one side of the equation is going to end up—to paraphrase Orwell—more equal than the other. But Wallmark succeeds admirably in avoiding the shortcomings of both the scientific desire to study sound in isolation from the messiness of human subjectivity and the humanistic reduction of musical experience to the arbitrary play of cultural difference. His book is perhaps best viewed as an attempt not so much to bridge the "two cultures" as to harmonize their best qualities.

In the first chapter, Wallmark boldly proposes a conceptual model for the full spectrum of sonic phenomena, from the generative act to the arbitrary symbolic dimension of sound in human consciousness, and everything in between. This is his "integrated interpretive framework for timbre" (p. 17), which he calls the ASPECS model, encompassing the stages of act, sound, perception, experience, concept, and sign.

Wearing his scientific hat (he is Affiliated Faculty at the Center for Translational Neuroscience at the University of Oregon), Wallmark argues throughout the first part of the book for the need to integrate empirical findings into the study of timbre. He cites, for example, a recent study that shows how timbre is processed and judged in an instant, and in a seemingly preconceptual way. Listeners are first exposed to various four-second clips of popular music, and then to very short (four-hundred-millisecond) clips of the same songs. The preferences they formed on the basis of the two lengths of clips were nearly identical. In response to such findings, Wallmark asserts that "we cannot account fully for the more complex, culturally determined meanings projected onto timbre without first making sense of its physical and biopsychological immediacies" (p. 17). If this statement makes humanists squirm, Wallmark's attitude, revealed over the course of the book, is much more balanced than this passage might suggest. He wards off both reductionism and mystification—the contentions, in short, that empirical studies can answer everything and that they can answer nothing. In some respects, his effort to synthesize scientific and humanistic perspectives on sound makes his work a sequel to Pierre Schaeffer's *Treatise on Musical Objects*, which attempted something similar, albeit on a much grander scale, over fifty years ago.[1]

Wallmark is conscious of the critiques his work might seem to invite from both sides of the methodological divide, and consistently anticipates possible objections. One of these is that timbre is notoriously impossible to isolate. How do we know what share timbre has in our reactions to a passage of music, in relation to other qualities that we would analytically parse out as melody, harmony, dynamics, or rhythm? Does it even make sense to speak of timbre as a "musical parameter," rather than as a global concept of musical sound that encompasses all the others (as in Schoenberg's enigmatic remark

1. Pierre Schaeffer, *Treatise on Musical Objects: An Essay across Disciplines*, trans. Christin North and John Dack (Berkeley: University of California Press, 2017; first published 1966).

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that "pitch is nothing but tone color measured in one dimension")?[2] In response to this objection, Wallmark highlights recent progress in attempts to isolate timbre experimentally, while acknowledging the limits of this approach.

In his outline of "an embodied theory of musical timbre" (p. 38) in chapter 2, Wallmark argues that, in perceiving timbre, we mimetically reexperience the physical act of sound production—a phenomenon that has a linguistic parallel in "subvocalization," in which we internally rehearse the muscular movements of speech as we silently read a text. The voice is central to many of Wallmark's embodiment-based claims, simply because (disability aside) we all have one, and learning to speak is one of the formative experiences of human development. Further, listening to the voice is a foundational experience not only in language learning, but in the formation of the human sensorium as a whole. Vocal patterns of expression and correlation (for example, between greater volume and emotional agitation) that are internalized in childhood development are later extrapolated to shape our mature perception of timbre, so that (quoting the researchers Juslin and Laukka) "musical instruments are processed by brain modules as superexpressive voices" (p. 49).

A further correlate is that, as Wallmark puts it, "Sound is never simply a physical vibration but, rather, an index for a material event. All sounds are 'sounds of things'" (p. 50). Though this may seem self-evident, it is a provocative idea. As Wallmark notes, this emphasis on the materiality of sound goes against the grain of both formalist musical aesthetics (Hanslick's famous definition of music as "tonally moving forms") and tendencies within experimental music to treat sounds as pure phenomenological qualia. How can the embodiment of sound be reconciled with sound's capacity to transcend its "thingliness" and take on emotional, symbolic, and even cosmological meanings? This important question is touched on, but not answered decisively, elsewhere in the book.

Some of the best parts of the book grapple with the relationship between timbral listening and metaphor. Wallmark asserts that "metaphors for timbre are not merely fanciful linguistic designations, but indices of bodily relationships to sound that are interwoven into the multimodal fabric of our perceptual processing" (p. 73). In other words, the dismissal of timbre-talk as impressionistic nonsense is misguided because it presumes that metaphors are arbitrary, whereas Wallmark argues convincingly that they are integral expressions of our embodied cognitive and perceptual apparatus. The metaphors we use to describe timbre vary from culture to culture, but they are not entirely arbitrary, because they are mediated through the (relatively) universal schemata of the human body. One unexpected wrinkle that emerges

2. Arnold Schoenberg, *Theory of Harmony*, trans. Roy E. Carter (Berkeley: University of California Press, 1978; first published 1911), 421.

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here is the idea that timbre is *more* metaphorically constrained than other aspects of sound, such as pitch. In other words, pitch can be described as high/low, bright/dark, young/old, etc., but a given timbre is unlikely to be described in such widely varying terms.

The theoretical section of the book is followed by three case studies—on the "saxophonic scream" in free jazz, on the timbre and technique of the shakuhachi, and on "brutal" timbres in heavy metal. Here the reasons for the book's title become clear, as in each of these chapters Wallmark explores the aesthetic borderland where musical timbre becomes anti-musical noise. There is a notable feeling of code-switching as he pivots to the argot of contemporary musicological prose; this is less a critique than an observation on the chasm that still yawns between humanistic and scientific rhetoric.

The case studies explore the starkly divergent interpretations that listeners have brought to bear on these provocative sonic phenomena. If the first part of the book highlights certain empirically grounded universals in the perception of timbre, the second part emphasizes the conflicting interpretations of timbre that emerge in the hurly-burly of human culture. In general, these chapters avoid the pitfall of the case study in a work such as this: they are neither dutiful demonstrations of the foregoing theories nor disconnected studies lashed to a prefabricated theoretical framework. Wallmark's readings here are probing and thought-provoking.

In the final chapter, "The Aural Face," Wallmark makes a speculative venture into the question of timbral listening and ethics, positing timbre as the irreducible quiddity of sound that makes it the ideal site for genuine encounters with otherness—or as the author puts it, "the gatekeeper to empathy" (p. 187).

A quibble: Wallmark states several times that "timbre is a verb," but he does not use it as such, save for one or two rather timid instances. I do not see this usage catching on, but I suspect we are better off without "timbering" anyhow. A more substantive problem is posed by Wallmark's treatment of electronic sounds. Since they are not embodied in the same way as "acoustic" sounds, electronically generated sounds would seem to represent something of a limit case to his model. Wallmark acknowledges this point only to deflect it, arguing that "we often hear electronic sounds in reference to the movement and interaction of imaginary hyper-objects" (p. 21). I look forward to seeing how the embodied theory of timbre can be expanded to make sense of electronic sounds, which, after all, constitute more and more of our contemporary auditory sensorium.

All in all, this book is an original and valuable contribution to the burgeoning academic literature on timbre, and it opens up promising new avenues of research and speculation.

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