Introduction

OPENING THE BLACK BOXES

From spontaneous generation to global warming, from cold fusion to the memory of water or the age of the Earth, numerous controversies have punctuated the history of modern science. Similarly, major debates have regularly swept through the humanities, sometimes spilling over to the public sphere, such as those recently focused on migration history and the integrity of elective democracy. In musicology, experts have argued over the provenance of the Codex Medici (Staehelin 1980), the practice of vibrato (Neumann 1991), and the authorship of Giacinto Scelsi's oeuvre (Drott 2006). They have debated the place that one composer or another should be given in the history of music (recall the opposition between the defenders of John Cage and those of Karlheinz Stockhausen in the 1970s; see Nyman 2013), one music or another (as in the fight for academic recognition of "popular music studies"), and even one genre or another—if indeed they could agree on what differentiated those genres (Moore 2001).

How are such controversies settled? The standard response is to recognize the most objective and rigorous works, peer-reviewed and endorsed by prestigious editorial boards. But if we look behind the controversies to reconstruct the lineage of those theses and theories that established the present facts, we uncover an array of truths that, however solid they may

seem, fail to converge in a single direction. During the second half of the twentieth century, relativist and postmodern thinkers in the humanities and social sciences rightly rejected the positivist rationality that science attempted to don, as would the so-called New Musicologists who followed them in the 1980s and after.

Thus, in 2002 Daniel Leech-Wilkinson demonstrated, drawing on Thomas Kuhn (1962), the inherent subjectivity of the facts produced by musicologists. In *The Modern Invention of Medieval Music,* he argued that the interpretation of medieval music evolved, from the concept of polyphony with instrumental accompaniment to that of an a cappella polyphony, less in response to tangible new "proof" than to the efforts of prominent academics and performers seeking to validate modes of thought that supported their own ideologies and musical tastes. A musicological theory was thus largely determined by the predilections of the researchers who elaborated it. Promoted via networks of influence, this theory gained credibility thanks to the institutional power behind the researchers, just as it gained cogency through their rhetorical manipulations (Leech-Wilkinson 2002, 215–46). This process opened the discipline to the dangers of ideological manipulation for personal or institutional ends. Leech-Wilkinson cites the incursion of Nazi ideology into medieval music research and its academic framework during the Third Reich (246–52). He reveals, as the extreme opposite of the positivist tradition, a musicology reduced to the social forces at play, to a belief or a set of beliefs. For Leech-Wilkinson, the notion of neutral objectivity is a delusion. Research is, and indeed must claim to be, a fundamentally subjective endeavor. From this perspective, one can only conclude, sadly, that "musicology is whatever musicologists do as musicologists" (216).

Nonetheless, various propositions have been made between the extremes of an objectivist science that recognizes little human interference in its normal operations and a relativism that sees in scientific facts only their aspect of social construction. One school of thought in particular puts forth another way to consider the question of scientific truth. This school has received different labels over the years and has undergone numerous, widely varied developments. Most often it is associated with "actor-network theory" and Bruno Latour. Among Latour's many works, *Science in Action* (1987) presents the most complete and detailed program of

research in this protean field (see also Latour 2005). There Latour takes up Norbert Wiener's concept of "black boxes" to metaphorically designate scientific facts and techniques—from cosmological theory to the microprocessor or an economic model—that run "by themselves," without their users needing to question how they work. Latour tries to open these "black boxes" and describe them in action in the course of their construction.

In the world that Latour describes to his readers, new facts and theories do not appear from thin air as the result of a simple discovery, any more than they spontaneously gain recognition. Once elaborated by scholars, findings must then be backed by peers. To that end, these new facts usually need to be based on preexisting ones that have already won peer support. Recourse to theories already accepted as true and to facts already established is one of the techniques used to buttress a theory and ward off controversy. This reference to previously confirmed theories, however, provokes subtle changes in them; indeed, it is rare for a theory to be applied in exactly the same way as before. By relying on an established fact to develop a new one, the researcher steers the first fact in a slightly different direction. Latour calls these refashioned scientific arguments "modalities." He gives an example of these modalities in his book:

> (1) New Soviet missiles aimed against Minutemen silos are accurate to 100 metres.
>
> (2) Since [new Soviet missiles are accurate within 100 metres] this means that Minutemen are not safe any more, and this is the main reason why the MX weapon system is necessary.
>
> (3) Advocates of the MX in the Pentagon cleverly leak information contending that [new Soviet missiles are accurate within 100 metres].
>
> In statements (2) and (3) we find the same sentence (1) but inserted. We call these sentences **modalities** because they modify (or qualify) another one. The effects of the modalities in (2) and (3) are completely different. In (2) the sentence (1) is supposed to be solid enough to make the building of the MX necessary, whereas in (3) the very same statement is weakened since its validity is in question. (22; brackets and bold type in the original)

Thus the status of a statement depends on the subsequent statements that establish, transform, or abandon it. A theory can be categorized as "fact" or "fiction" based on how it fits with another theory. A fact, if ignored,

will never become accepted as fact. For that reason a scholar needs to "recruit" other scholars to bolster it, at the risk of these latter transforming the fact in the process. This is the Latourian concept of "translation of interests": for a theory to be adopted by others and achieve posterity, it must arouse, and "translate," their interests. "We need others to help us transform a claim into a matter of fact. The first and easiest way to find people who will immediately believe the statement, invest in the project, or buy the prototype is to tailor the object in such a way that it caters to these people's explicit interests," Latour writes (108). Actor-network theory thus reveals the performative value of the arguments that constitute theories. For Latour, each scientific argument becomes a proposition whose fate depends on the authors who come later, who may adopt, transform, or reject it. Their works, in turn, are adopted, transformed, or rejected. In this perspective, scientific fact becomes a collective object that undergoes continual mutation at the hands of various authors, as well as a process of layering or stratification. Once any fact or theory is established in this way, contesting it can mean opposing such an entanglement of alliances, conciliations, and writings, each implicated in another, that the task proves almost impossible. The new theories have become things; the scholars seem to have discovered what had always been there. We witness this reification, itself based on a series of other reifications and soon, potentially, the basis for further ones. Layer upon layer, ideas have solidified into things. They have become *real*—at least as long as no one is there to contest them. Ultimately the great lesson to be learned from *Science in Action* is that if facts are made, then it is possible to escape the circular logic of "objectively demonstrated" and "socially constructed," whereby all is determined either by objects or by subjects. The facts are no less solid. Indeed, they are more solid, but it is up to us to decide their fate.

As mentioned above, the school of thought that Latour founded in the early 1980s—alongside Michel Callon, Madeleine Akrich, and John Law—underwent a number of developments, some of which addressed the question of music. Antoine Hennion—a member, like Latour, of the Centre de sociologie de l'innovation in Paris—was one of the first to confront the theory with music.

Actor-network theorists had learned an important lesson while examining science in action: the Weberian opposition between the scientific and

the political was no longer tenable. Likewise the inhumanity of science and the humanity of societies and, finally, the human and nonhuman—this "Great Divide" between nature and culture, as Latour would call it in *We Have Never Been Modern* (1993). Hennion quickly assessed the benefit of such an approach for the sociology of music:

> Researchers in the sociology of music, fearful of the accusation that their statements would amount to no more than unsubstantiated aesthetic judgements, have chosen to ignore the aesthetic arena and to concentrate their efforts on an analysis of the ways in which musical objects are produced. What has emerged is a relativist sociology, focused on the interactions between the various actors who influence the production and reception process, and examining the interwoven human complex of "art worlds." My aim has been to show that there is a whole other aspect to a constructivist sociology—namely the influences exerted by the non-human elements in the production process. (1997, 432)

Hennion seeks to break away from the "false dilemma" between aestheticism, which isolates works of art from their social context, and sociologism, which reveals the social construction of the aesthetic object but provides little analysis of the results of artistic production. The reintegration of "nonhuman elements"—scores and texts, sound, instruments, repertoires, staging, concert venues, and media—would thus allow music to be envisioned "not directly in terms of aesthetic content or social authenticity, but in terms of the way in which, by rejecting certain mediators and promoting others, both are collectively constructed" (1997, 432). Other texts resonate with Hennion's thinking. In *Rationalizing Culture* (1995), on the institutionalization of the Parisian musical avant-garde, Georgina Born postulates that meaning is inherent in the social, theoretical, and technological aspects of music and its visual mediations just as in its sound. In *Music in Everyday Life* (2000), Tia DeNora likewise attempts to illuminate the way in which heterogeneous unions of people and objects are formed, interact, and structure each other. In *Experimentalism Otherwise* (2011), Benjamin Piekut approaches experimental music as a "network, arranged and fabricated through the hard work of composers, critics, scholars, performers, audiences, students, and a host of other elements including texts, scores, articles, curricula, patronage systems, and discourses of race, gender, class and nation" (19). With Nick Prior (2008),

Jonathan Sterne (2012), Eric Drott (2013), and numerous other scholars over the years, the ranks of those defending actor-network theory as an approach to music have grown. Most often their works seek to take into account those unjustly neglected "mediators"—a focus that reduces Latourian thought to this single aspect, at the risk of caricaturing it. Few attempt to apply the radical study program of *Science in Action* to the facts of music history. There have also been few efforts to open the black boxes of historical events in order to produce an "empirically justified description . . . that highlights the controversies, trials, and contingencies of the truth," as Piekut urges, "instead of reporting it as coherent, self-evident, and available for discovery" (2014, 3).

Indeed, it seemed that after *Foundations of Music History* by Carl Dahlhaus (1983) and *Music and the Historical Imagination* by Leo Treitler (1989), both of which anticipated many directions of the recent major developments in historical musicology, the question of the reality, multiplicity, or nonexistence of a "profound nature of the musical work" (see Dahlhaus 1983, 150–65, in particular) remained partly unresolved. Just as epistemology was often limited to the study of the lineage or circulation of facts once they were formed (see Latour 1989, 13–17), music history was often confined to the reception, impact, or context of a work, style, or genre. Seldom were these aspects viewed as entities or shifting substances, the fruits of an eminently collective work subject to continual mutation and renegotiation, acting and being acted upon within a diverse network of actors. Rarely would one attempt to tell the story of their making or to rehabilitate the experts and their imprint on such stories.

But in fact the experts—journalists, scholars, composers, and performers, or combinations thereof—are among the main actors in a story inspired by actor-network theory. Indeed, even though facts in the humanities are conventionally considered more malleable, with a wider range of critical possibilities than those in the hard sciences, the requirement of neutrality remains a condition of their scholarly integrity, and thus of their universality (Callerdo and Girard 2011, 243–45). Therefore, the humanities too—more paradoxically than other disciplines—have been subject to what Latour called the "Great Divide" of modernity: that separating facts from values, or the individual from science. This divide is precisely what partisans of actor-network theory have criticized.

From the perspective of actor-network theory, the requirement of neutrality, much like the utopian project of separating facts from values and the individual from science, is the source of the most intense controversies, ones that would impact musicology as well, as seen above. In particular, one controversy became especially heated over the last decades of the twentieth century. It had to do with a music called *minimalist* and with the work of its four well-known representatives: La Monte Young (1935–), Terry Riley (1935–), Steve Reich (1936–), and Philip Glass (1937–).

At the turn of the third millennium, the second edition of one of the most respected music encyclopedias, *The New Grove Dictionary of Music and Musicians,* devoted several pages to this music. According to that entry, minimalism constitutes a twentieth-century "style of composition characterized by an intentionally simplified rhythmic, melodic and harmonic vocabulary" (Potter 2001a, 716). Its accessibility, its tonal or modal nature, its rhythmic regularity and continuity, and its structural and textural simplicity define it. Minimal music, the entry further states, is characterized by two distinct but nonetheless related tendencies or approaches: the elaboration of "sustained sounds," on the one hand, and repetition, on the other. The first tendency owes mostly to Young; the second was developed by his successors Riley, Reich, and Glass. Although at its inception the movement was closely associated with minimal art (it goes back to 1958, we read), it was subsequently deemed "the major antidote to Modernism, as represented by both the total serialism of Boulez and Stockhausen and the indeterminacy of Cage" (716). Not only did it lead the way toward the destruction of cultural barriers, but it also met with great popular success, writes Potter, becoming one of the most remarkable developments in twentieth-century music. Indeed, this music had a substantial impact on a wide range of concert musics, including rock and the panoply of hybrid and postmodern forms that would become (again, according to *New Grove*) a major feature of music at the end of the century. Keith Potter's definition of minimal music leaves little doubt as to the recognition of this style: after all, his entry appeared in one of the major musicology encyclopedias of the world, sanctioned by a substantial bibliography of books issued by the most reputable publishing houses. Behind this definition, however, and behind the books on which it was based, lurk numerous polemics, debates, and all manner of contradictions.

In fact, as we study these texts more closely, the initial obviousness of "minimal music" diminishes. Having read in *New Grove* that minimalism was born in 1958, we discover elsewhere that it dates to 1953 (Sabbe 1982b). Some even trace the emergence of minimalism to Maurice Ravel's *Boléro* or Erik Satie's *Vexations* (Schaefer 1987, xii, 65). Whereas Potter considers minimal music a major antidote to the modernism of John Cage or Karlheinz Stockhausen, others see it as the future of experimental music (Nyman 1974) or the final stage of the European musical revolution launched by Arnold Schoenberg (Mertens 1983). Some authors evoke minimal music's borrowings from popular music or the impact of minimalism on the latter (Strickland 1993), while others completely ignore these connections, and still others refute them (Goodwin 1991).

Designating the main representatives of the "style" defined in *New Grove* is no less controversial. Michael Nyman first identified Henning Christiansen's music as minimal in 1968 (article reprinted in ap Siôn et al. 2013, 41–43), and a few years later that of Young, Riley, Reich, and Glass (Nyman 1974). Before classifying the work of these last four as minimal (1982), Tom Johnson saw minimal music as Californian, encompassing the aesthetic of Harold Budd or Michael Byron (1973). Over the years the foursome of Young, Riley, Reich, and Glass came to be universally recognized as minimalist, sometimes with the addition of Dick Higgins (Hitchcock 1974, 269), Morton Feldman (Salzman 1974, 187), or even Cage, acclaimed as a "minimalist enchanted with sound" in his *New York Times* obituary on August 13, 1992 (Kozinn 1992).

But even the term *minimal music* with reference to Young, Riley, Reich, and Glass was contested; hypnotic school, trance music, modular music, pulse, and space music were among the many variants associated with the music of all or some of these composers. Indeed, the four composers themselves never accepted the label being attached to their music, as Potter points out in *New Grove*. Moreover, the very terms of his definition can be questioned as well: how could the style have been *at once* modern and postmodern? How could the music have been *at once* minimal and of great richness? One might go so far as to doubt the existence of this minimal music: it is thanks to an "accident of musical history" that the term was ever used, according to John Schaefer (1987, xii).

We could, of course, attempt to follow the traditional approach of science in order to resolve the tangle of controversies that minimalism

brought with it, and thus give credence to only the most factual, objective, and methodical works. But that task is complex, to say the least, since musicologists, historians, and critics base their studies on reasoning, facts, and objects. And if the reader cannot always assess their veracity, publishers, editorial committees, and universities, along with notes and bibliographies, will vouch for it. Indeed, many works have been recognized by new generations of authors, who validate them by citing them in their own studies, which are subject to the same academic vetting.

Perhaps, then, one might put the controversies to rest by considering only the most recent works on the topic, assuming they represent a higher level of information. But to do so would be to subscribe to the idea that facts are ephemeral; all truth would thus be provisional. By definition, however, what is "certain" cannot be temporary. Would it be better, then, to assemble the range of conceptions and discourses in an attempt to synthesize them, making minimal music a genre inspired as much by Webernian serialism as by the jazz of John Coltrane or Indian raga, belonging at once to modernity and postmodernity, and in turn influencing both serious and popular composers? In many ways, that is what the definition in *New Grove* did in 2001. That approach, however, disregards the fact that the oppositions, sometimes radical, are what shaped the various stances on both sides: for some, minimal music is serious precisely because it is in no way popular; for others, it has no Western roots because it owes everything to the East; and so on.

Thus, it is anything but easy to break free of these controversies. *New Grove* presents a calm musical landscape, where the concept of minimal music was established on the strength of the music alone. We initially imagine that we need only listen to one or another representative of the genre to confirm the validity of the concept. But once we dig a bit deeper, we find ourselves on a veritable postwar battlefield, with signs of struggle, weapons strewn on the ground, and the remnants of camps, destroyed or standing.

The present book has its precise origin in this chaos that, as a young researcher in 2012, I encountered while studying the links between minimalist music and popular music: thousands of works (articles in the press, scholarly articles, interviews, monographs, and edited volumes) intended to give an accurate and reliable description of minimalism failed to converge in a single direction. At that time the model developed by Latour for

the natural sciences enabled me to slowly find my way through this set of antagonisms. Little by little, a twofold project of understanding the controversies around minimalism and testing the Latourian model on the history of music took shape. Its aim would be to bring to light the construction of a "musicological discovery"—that of minimal music.

I thus set out to trace, in the literature on minimalism, those modalities that transform established facts into new facts and ultimately into proven facts. I examined how those writing on music history, like Latour's scholars, sought to lead their readers down a single path; how they tried to patch up holes that their opponents might exploit; how they translated the interests of others in order to reinforce their arguments; and how the musical fact could be conceived as a layering or stratification, as a collective phenomenon, and ultimately as a reified object. Finally, I asked whether the profound epistemological upheaval provoked by actor-network theory might resonate in musicology. To find the answers, I had to reach into the black box and reopen the controversies of an established musical fact: the arrival of so-called minimalist music—that of Young, Riley, Reich, and Glass—on the twentieth-century musical landscape. I followed the network of ideas that developed around this event, exploring the texts generated at each node beginning with the first ones written about the four composers' work from the late 1950s to early 1960s, when "minimal music" did not yet exist.

To capture minimal music in the making, we must set the stage and revive the moments that immediately preceded the first published mentions of the music of its originators—Young, Riley, Reich, and Glass—to return to the cultural state as attested in the literature of the early 1960s, without questioning or analyzing it. Thus, in the first chapter of this book, we do not try to find out, for example, why serialism was recognized as the main trend in twentieth-century music or how Cage was at that time becoming one of the most prominent musical figures in the United States. Instead we take these statements for what they were at the time: facts. Indeed, the construction of future facts forms the heart of this study. Consequently, this book is structured by a succession of brief surveys on the history of these concepts, with occasional interruptions to consider what musicology on American minimal music tells us about specific points. These "freeze-frames"—chapters 4, 10, 18, and 21—are intended to systematically present the state of minimal music's development in the wake of

seminal publications that recount its history or that of its main protagonists: in 1967, shortly after the publication of "One Sound: La Monte Young" by Cornelius Cardew (1966); in 1975, following *Experimental Music* by Michael Nyman (1974); in 1984, a year after the English-language translation of Wim Mertens's *American Minimal Music*; in 1994, following *Minimalism: Origins* by Edward Strickland (1993); and finally in 2001, with the definition in *New Grove* (Potter 2001a). We conclude with a wide-ranging chapter that looks at the evolution of conceptions of minimal music over the course of the twenty-first century.

As I have already indicated, this history of minimal music, from the birth of the concept to the moment when it became "music itself," draws on works in science and technology studies and in particular on actor-network theory—a theory notably elaborated over the course of the 1980s and 1990s at the École nationale supérieure des mines de Paris, an engineering school founded in 1783. In a more general way, the present work is an attempt to apply this approach to the historiography of music. The technical concepts of modalization, translation of interests, stratification, and reification, though abundantly employed in this field of research, will operate only on an indirect level, so as to preserve the fluidity of the text, letting its methodological outlines appear progressively.