INTRODUCTION

Several years ago, a friend asked me to explain the subject of this book, then in its early stages of development. Opting for a dramatic approach, I pulled a CD at random from a nearby shelf and brandished it in front of me. "This," I declared, "has changed the way we listen to, perform, and compose music." My friend squinted at the CD, gave me a quizzical look, and asked, "*That* did?" "Yes!" I answered with gusto. Seeming unconvinced, he clarified his question. "*Van Halen* changed the way we listen to, perform, and compose music?"

Maybe, but that was not my point. My claim was that the technology of sound recording, writ large, has profoundly transformed modern musical life. At its broadest, that is the thesis of *Capturing Sound*.

This thesis, however, counters more than a century's worth of discourse about the nature and purpose of the technology, discourse that has reinforced the idea of recorded sound as the mirror of sonic reality. The famous Memorex advertisements in print and on television throughout the 1970s and 1980s offer a striking example. The ads demonstrate how the *recorded* voice of jazz great Ella Fitzgerald could shatter a wine glass—as recorded on

Memorex brand cassette tapes, that is. Though the purpose of the campaign was to sell tapes, it also espoused the ideal of realism. "Is it live, or is it Memorex?" consumers were asked. The implicit answer was that the two were indistinguishable. Memorex was not the first to make such a claim. Advertisements from the turn of the twentieth century touted recordings as "lifelike," "a true mirror of sound," "natural," and "the real thing."[1] In the 1910s and 1920s, the Victor Talking Machine Company ran ads that would make an ontologist's head spin: beneath illustrations of famous artists standing next to their records, captions proclaimed, "Both are Caruso," or "Heifetz is actually Heifetz."[2] Like Memorex, Victor and its competitors were in the business of selling sound, and it behooved the industry to convince consumers that tiny grooves incised in black discs could somehow capture the essence of their flesh-and-blood musical idols.

The discourse of realism has not been limited to marketing campaigns. Musicians and scholars, too, have long testified to the objectivity of recordings. "A recording is valuable chiefly as a mirror," averred the composer Igor Stravinsky, because it allowed him to "walk away from subjective experience and look at it."[3] Jaap Kunst, one of the pioneers of ethnomusicology, believed that his discipline "could never have grown into an independent science if the gramophone had not been invented. . . . Only then," he claimed, "was it possible to record the musical expressions of foreign peoples objectively."[4] Unlike in the advertising slogans, no ulterior motives seem to lurk behind these statements. Certainly, we cannot dismiss the documentary value of recordings, for they tell us a great deal about the musical practices of the past. But the discourse of realism ignores a crucial point: recorded sound is *mediated* sound. And this mediation has led users to adapt their musical practices and habits in a variety of ways.

I am hardly the first to realize that recording does more than record.[5] What I am offering here is to expand the discussion by focusing on *how* and *why* recording influences music. I do this through the concept of the phonograph effect.[6] Simply put, a phonograph effect is any change in musical behavior—whether listening, performing, or composing—that has arisen in response to sound-recording technology. A phonograph effect is, in other words, any observable manifestation of recording's influence.

Consider a straightforward example. When Igor Stravinsky composed his Serenade for Piano in 1925, he wrote the work so that each of the four

movements would fit the roughly three-minute limit of a ten-inch, 78-rpm record side. "In America I had arranged with a gramophone firm to make records of some of my music," he explained. "This suggested the idea that I should compose something whose length should be determined by the capacity of the record. And that is how my *Sérénade en LA pour Piano* came to be written."[7] Stravinsky was not alone. Many composers of classical and especially popular music followed a similar compositional approach. (Today's three-minute pop song is a remnant of this practice.) Stravinsky's decision to tailor his Serenade to the length of the record side is a clear manifestation of recording's influence. It is just one of countless phonograph effects, ranging from the obvious—a pop star harmonizing with herself on disc; a jogger listening to music on an iPod—to the more subtle changes in the way we speak and think about music in an age of recording technology.

Though I say that recording influences musical activity, I am not espousing technological determinism, particularly what some scholars refer to as hard determinism.[8] This is the idea that tools, machines, and other artifacts of human invention have unavoidable, irresistible consequences for users and for society in general. The idea pervades the way we talk about technology. In their book on the subject, Merritt Roe Smith and Leo Marx cite several common examples: " 'The automobile created suburbia.' 'The robots put the riveters out of work.' 'The Pill produced a sexual revolution.' "[9] Further examples come quickly to mind: "TV has restructured the daily life of the family," "Photography has altered the way we look at the world," or, more grandly, "The computer has changed everything."

I myself write of recording's *influence* on human activity and of phonograph *effects,* both of which impute causal powers to technology. Although we often respond to technology within a context of limited options not of our own making, we must remember that, in the end, recording's influence manifests itself in *human* actions. Put another way, it is not the technology but the *relationship* between the technology and its users that determines the impact of recording. It is important to add, too, that the influence I describe does not flow in one direction only, from technology to user. As we will see throughout these pages, users themselves transform recording to meet their needs, desires, and goals, and in doing so continually influence the technology that influences them.[10]

If the impact of recording manifests itself in the actions of its users, what

are they reacting to? The answer leads to a central premise of this book: all phonograph effects are ultimately responses to differences between live and recorded music. Most broadly, live and recorded music differ in the ways in which they exist in space and time. When performed live, musical sound is fleeting, evanescent. Recordings, however, capture these fugitive sounds, tangibly preserving them on physical media, whether wax cylinders or plastic CDs or silicon computer chips. Once musical sound is reified—made into a thing—it becomes transportable, salable, collectable, and manipulable in ways that had never before been possible. And like Billy Pilgrim in Kurt Vonnegut's *Slaughterhouse-Five,* recorded sound comes unstuck in time. No longer temporally rooted, recorded music can be heard after it was originally performed and repeated more or less indefinitely. The dead can speak to the living; the march of time can be halted.

To best understand these differences we must realize that any broadly used technology is intimately tied to other existing technologies, systems, or activities. The automobile, for example, serves transportation—obviously, an existing human activity—and can be understood in relation to other means of transportation, such as the bicycle or the horse. Conversely, an utterly novel technology—one that does not relate to any existing way of doing things—would be useless. A device to prevent time-travel sickness would (at least at the moment) have little impact on human life. Essentially, then, the impact of any new technology, whether the "horseless carriage" or sound recording, arises from the differences between it and what it supersedes, improves on, or extends, and—crucially—the way users respond to those differences. For example, one difference between the horse and the car is that the car (at least by a certain point in its development) could travel faster and farther than the horse. Particularly in the United States, this difference allowed car owners to work in cities while residing in the country. It would not be a stretch—however odd this may sound—to see the growth of American suburbia in the 1940s and 1950s in part as a large-scale response of the middle class to an attribute of the automobile not shared by the horse.[11]

This model of technological influence applies equally well to recording. We can see the Stravinsky example as a response to an aspect of recording technology—the strict time limitation of 78s—that distinguished it from traditional live performance. The result of Stravinsky's response to the technology, his piano piece, can thus be understood as a phonograph effect.

Things get a more complicated when users respond not simply to the differences between live and recorded music, but also to those between different technologies. But the concept of the phonograph effect is equally applicable here; we simply shift our focus to a comparison of the two technologies. In chapter 1 we will see how the influence of the cassette tape and MP3 can be traced to their respective differences from LPs and CDs. Ultimately, however, such phonograph effects are related to the distinctive tangibility of recording vis-à-vis live music.

Although I will repeatedly emphasize the differences between live and recorded music, the line between them is not always clear. Here are two cases in point. Observe a good disc jockey working a dance club. Her raw material is prerecorded music, but in mixing and blending songs on her turntables (or CD players or laptop) she may alter their tempo, texture, timbre, dynamics, and structure in such a way to create a unique sonic tapestry that exists only in that moment. To paraphrase the DJ scholar Kai Fikentscher, the mediated has been made immediate.[12] For a second example, consider a singer using the pitch correction software Auto-Tune. He sings flat, but the software processes the sound by pushing each note up to the nearest semitone, rendering his singing in tune—*as he performs*. In this case, the immediate has been mediated. (Or more so than simply singing into a microphone. We'll revisit Auto-Tune in chapter 1.) Both cases challenge our notions of the live and the recorded. And in both, it is the technology of sound reproduction that helps blur the line. No doubt, new technologies will blur it further, but we would do well to recognize the distinctive qualities of technologically mediated music.[13] This is because, as I will explain, it is exactly these qualities that have encouraged new ways of listening to music, led performers to change their practices, and allowed entirely new musical genres to come into existence.

So far, I have discussed phonograph effects as if users react solely to the possibilities or limitations of the technology. Yet aesthetic, economic, and cultural forces also shape the way users respond to recording. To return to the Stravinsky example, we should note that his actions may also have been influenced by his penchant for self-imposed limitations. In the first of his Three Pieces for String Quartet (1914), for example, the first violin plays only four different pitches, yet the result is impressively complex; his piano piece *The Five Fingers* (1921) is comparably constrained. Stravinsky imposed

a similar challenge when he decided to keep each movement of his Serenade for Piano less than three minutes long. Business considerations also helped shape the work. The even number of movements was in part dictated by the fact that record companies were loath to issue a set of 78s with a blank side, since they could not charge as much. Thus, although phonograph effects arise from the ways in which users interact with recording as a distinctive medium, this interaction is itself shaped by both broader social or cultural forces and narrower personal considerations. The story of any phonograph effect, however complicated, can therefore be understood as arising from the interaction of three equally important and mutually influencing agents of change: the technology, the users of the technology, and society.

In order to communicate the full scope of recording's influence I have conceived this book broadly, ranging across time, space, and genre. I also engage a broad spectrum of users. Although I have called on Stravinsky to introduce my thesis, I am no fan of the "great man" approach to history. For every Armstrong, Heifetz, or Hindemith in this book, there is a schoolteacher, amateur DJ, or teenaged MP3 junkie whose response to recording technology is just as interesting and just as important to our understanding of phonograph effects.

Capturing Sound is divided into eight chapters. Chapter 1 stands apart from the rest; focusing on *causes,* it explores the nature of sound recording and the distinctive qualities that make the phonographic experience unique. The remaining chapters investigate specific phonograph *effects,* comprising seven case studies that progress more or less chronologically from the early twentieth century to the early twenty-first. Chapter 2 tells of how the phonograph became a central figure in the movement to elevate American musical and cultural life in the early 1900s through the dissemination of recorded classical music. We stay in the United States for chapter 3, which explores how the possibilities and the limitations of early recording technology shaped nearly every aspect of jazz performance and composition. Jazz musicians were not the only ones who reacted to the demands of recording, however; in chapter 4 I argue that classical violinists in the early twentieth century responded to similar technological demands by intensifying and expanding their use of vibrato. Classical composers are the focus of chapter 5, which revisits the avant-garde musical scene of the 1920s and 1930s in Europe to uncover a forgotten fascination with the phonograph as a

compositional tool. The final three chapters bring us to the beginning of the twenty-first century. Chapter 6 is the result of fieldwork in the world of hip-hop DJ battles, competitions in which musicians display their virtuosity not with traditional instruments but on turntables. Chapter 7 delves into a compositional practice that simply could not have existed without sound recording—digital sampling—and addresses some of the aesthetic and ethical issues that arise from this new form of musical borrowing. Finally, chapter 8 provides a modern counterpart to chapter 2 and examines another technology freighted with utopian hopes—the Internet—and its impact on the modern musical listener.

The study of sound recording and its influence does not converge on a single work, figure, or musical activity. What do Paul Hindemith's *Grammophonmusik* and Public Enemy's "Fight the Power" have in common? Fritz Kreisler's violin playing and Bix Beiderbecke's trumpet playing? The musical memory contests of the 1920s and the mashup phenomenon of the 2000s? Their only point of intersection is recording. The broad scope of this work, then, permits the idea of the phonograph effect to be applied as widely as possible. Although *Capturing Sound* is not and cannot be exhaustive, I hope it communicates something of the vastness of the world of phonograph effect.

NOTE ON THE REVISED EDITION

The years since *Capturing Sound* was first published in 2004 have witnessed considerable change, both in the use and development of sound-recording technology and in the scholarship surrounding it—enough to warrant a fresh look at the phonograph effect. The most significant additions and revisions, as would be expected, come in the discussion of recent developments. Chapter 7, "Music in 1s and 0s: The Art and Politics of Digital Sampling," now includes a section on a phenomenon that was emerging only in the later stages of my research: the digital mashup. Chapter 8, "Listening in Cyberspace," has been updated to reflect the turbulent period in the musical life of the Internet since the first edition was published. At that time, the now hugely influential Web sites Facebook, Hype Machine, MySpace, Pandora, and YouTube did not exist; the important Supreme Court case *MGM v. Grokster,* which dealt a blow to file-sharing, had not yet been heard;

and online music services, such as Apple's iTunes store, had just gotten off the ground. The chapter now considers these and other developments and speculates on the possible future of music file-sharing. Other smaller changes to the text abound, mostly in the discussion of recent phonograph effects, such as the mania for digital pitch correction in popular music and the 2008 Olympic lip-synching scandal.

I have been pleased to see a surge in scholarship on sound recording and its influence since *Capturing Sound* first appeared, and the new edition draws on a good deal of this work; the expanded bibliography lists nearly one hundred books and articles published since 2004. Additional new sources come from interviews I conducted for this edition with, among others, hip-hop pioneer GrandWizzard Theodore; the civil rights activist Thomas N. Todd, who was digitally sampled on Public Enemy's "Fight the Power"; mashup artist Adrian Roberts; and producer 9th Wonder. I also surveyed more than four hundred fifty people on their attitudes toward file-sharing and its impact on their listening habits.

Not everything new to this edition concerns post-millennium changes. Many of the additions to the text discuss older phonograph effects and draw on sources from the more distant past. Among them are an 1877 *New York Times* article on recorded speeches; a 1907 proposal to regulate mechanical music in early twentieth-century Portland, Oregon; composer Sergei Prokofiev's testimony about his creative embrace of microphone technology in 1938; and a 1954 Elvis Presley recording featuring the slapback technique that helped make his voice so distinctive. Some of these changes were prompted by suggestions from colleagues and readers; others came to light in the course of my continued research; all, I hope, enhance this edition.

Another change is the addition of an accompanying Web site, www.ucpress.edu/go/capturingsound, replacing the CD that accompanied the first edition. The Web site not only has more audio examples than the CD did but includes images and videos as well. A further advantage of the Web site is that it is dynamic, and I will periodically add more material. Stay tuned!

Although practically no page has been left untouched, the book's thesis and goals remain the same. Those familiar with the first edition may want simply to consult chapters 1, 7, and 8, the bibliography, and the Web site for the most significant additions, although I hope the many smaller changes have made the text more engaging and informative throughout.

In the introduction to the first edition I expressed the hope that my book would encourage further exploration of recording's impact on musical life and become part of a rich and continuing discussion. I leave it to others to judge the role of my work. It is clear, however, that this discussion grows richer by the day, and it is in the spirit of rejoining it that I offer this new edition.