LISTENING IN CYBERSPACE

I am exercising at the University Recreation Center and hear some unfamiliar rap coming from the weight room stereo. The attendant, a student, tells me that we're listening to a homemade compilation CD of songs he downloaded from the Internet. The music reminds me of another rapper, and I take out my portable MP3 player and bring up a song. I hand the headphones to the attendant, who listens, bobbing his head in appreciation.

I receive an e-mail from a professor of musicology in Rio De Janeiro who had recently downloaded my dissertation from the Internet. He wants to assign a chapter to his students but doesn't have access to certain recordings I cite. Could I possibly e-mail them to him as MP3s? I do, and within seconds he is able to listen to these recordings, now better able to make use of my work, whether to share, discuss, confirm, or contest it.

I am in a store and hear an unfamiliar R&B song that piques my interest, as it unexpectedly quotes a classical piano piece, Erik Satie's *Gymnopedies,* no. 1. When I get home to my computer I go to a search engine and enter a fragment of the lyrics I remember; I quickly find that the song is Janet Jackson's "Someone to Call My Lover." I then call up one of a

series of file-sharing programs I've used since the demise of Napster and search for the song. Twenty-six copies are available, one of which I start to download. As I wait, I go to the All Music Guide, a useful online reference, and find that "Someone to Call My Lover" was released on Jackson's album *All for You* in 2001. The review notes that the song also appropriates America's "Ventura Highway" (1973).[1] (Later on, I download that song and find that what Jackson sampled was its acoustic guitar introduction.) After a few minutes, the Jackson song has finished downloading. I listen to it, and yes, it's the song I remember from the store. At some later date I may copy (or "burn") the three interconnected works (by Jackson, Satie, and America) onto a CD and use them as examples of musical borrowing in the seminar I teach on popular music.

Each scene I have just described is both remarkable and mundane. Remarkable, because not long ago each might have seemed as distant a possibility as the flying cars or interplanetary tourism of midcentury predictions. Imagine carrying the equivalent of an entire record collection in a device the size of a deck of cards, sending music to unseen colleagues thousands of miles away in the blink of an eye, or conjuring any desired piece of music out of the ether. Utter science fiction! But what I have described is in fact becoming utterly mundane. Similar scenarios repeat themselves daily across the planet, and soon—at least in certain parts of the world—an entire generation of listeners will come of age not knowing of a world *without* such possibilities.

The interactions I have described (and countless others like them) could only take place because of a transformative web of technologies that, at their root, enable all information—including music—to be represented, stored, and distributed as long strings of 1s and 0s. This is digital technology, and it is bringing about what musicologist Timothy D. Taylor describes as "the most fundamental change in the history of Western music since the invention of music notation in the ninth century."[2] In the previous chapter I considered the impact of the digital revolution on musicians; my purpose here is to explore its effect on listeners. In doing so, I will also delve into the conflicts between digital musical culture, the record industry, and U.S. copyright law. While I want to avoid the overheated rhetoric often heard from opposing sides, I have no intention of navigating a middle course. Rather, I will argue that the broad exchange of dig-

ital music files over the Internet can serve the public good; and although I recognize the problems of musical piracy, I also believe that the record industry can thrive in a world of widespread file-sharing—not despite it, but because of it.

MP3 AND P2P: PARTNERS IN CRIME

At the center of the three scenes that opened this chapter is a digital technology known as MP3, for the songs that I downloaded from the Internet, stored on my computer, carried around on my portable player, and zapped across continents over e-mail were all in the form of MP3 files.[3] MP3 stands for Motion Picture Experts Group 1, Layer 3, a name that reveals little about its current use. Like the phonograph, which Edison originally saw as a dictation device for businessmen, MP3 was not conceived with music in mind. Rather, it arose out of the work of engineers and executives connected with the film industry—dubbed the Motion Picture Experts Group—who sought to establish standards for the digitization of video and audio. As Leonardo Chiariglione, the Italian engineer who convened the first meeting of the group in 1988, later said, "Nobody, I promise you, had any idea of what this would mean to music."[4] An important goal of the group was to develop a way to compress the huge amount of data constituting video and audio files into sizes manageable for sending and storing on computers. The group engaged a team from the Fraunhofer Institute for Integrated Circuits in Germany to assist in the task, and in 1992 the German researchers created an audiovisual standard they called MPEG-1.

The system used a technique known as perceptual coding to remove "irrelevant" data from the recording (typically a CD) being compressed. The technique is based on the idea that when we listen to music (or any sound, for that matter), some frequencies are "masked"—rendered more or less imperceptible—by competing sounds. For example, a loud cymbal crash in an orchestral piece will momentarily cover the sound of the other instruments playing at the same time. In perceptual coding, those masked sounds are assigned fewer bits of data than the foreground sounds. This reduction allows digital sound to be stored quite compactly—depending on certain variables, about one-twelfth the size it would occupy on a compact disc—without compromising the sonic experience.[5]

MPEG-1 consisted of three different "layers," or levels of data compression. The first two layers were for high-performance use with state-of-the-art technology, the third a lower standard suitable for more modest systems, such as personal computers. To demonstrate MPEG-1, the Fraunhofer team created a free program using this third layer to compress digital music files. The program was a typical "demo"—it was just good enough to give prospective industry users an idea of its potential. Hardly a high-security item, the program was stored unprotected on a computer at the University of Erlangen in Germany. Not long thereafter, a Dutch programmer known as SoloH discovered the demo and downloaded it, tinkered with it, and then made it available to others to further refine. The modest demo soon spawned superior MP3 encoders that offered high-quality sound from highly compressed files. SoloH opened a box—Pandora's to some, a bottomless treasure chest to others—from which millions of files representing every conceivable type of music continue to pour forth.

MP3 did not have an immediate impact on modern musical life, however. In the early 1990s, few were aware of the format and fewer still had access to MP3 files. It was the rise of what is called peer-to-peer (P2P) networking later in the decade—most notably in the form of the Napster network—that endowed MP3 with its global influence. A P2P network is radically different from the more traditional client-server model, in which information flows from a centralized source (the server, a computer or group of computers that stores and distributes data) to its users (the clients, who request data from the server). Instead, P2P describes a decentralized network in which each computer has direct access to certain designated files stored on every other computer; the circulation of data among members of a network is known as file-sharing. If a public library is analogous to a client-server model, P2P is more like the arrangement my wife, her mother, and her aunt have to circulate their collections of mystery novels among one another. But on the Internet, P2P networks can exist on a much grander scale, linking millions of users who can share data almost instantaneously.[6]

Napster is the most famous example of a P2P network. Developed by two college students in 1999, it allowed users to share the MP3 files stored on their computers. At the height of its brief life Napster is said to have had tens of millions of users downloading hundreds of millions of sound

files.[7] Its appeal was clear: it was free, easy to use, and provided access to an immense collection of music. After downloading a simple program from napster.com, one had only to connect to the Internet, open the straightforward user interface, and type in the name of the composer, performer, composition, or album being sought. If anyone linked to the network at the time had that file, it was there for the taking (or more accurately, copying, as I'll explain later). Napster, however, was not a pure P2P network. It relied on a centralized server, and while it held no actual files, it indexed them, linking those with particular songs to people searching for them. While this made searching and downloading relatively easy and efficient, it turned out to be Napster's downfall. Most of the music files circulating over the network were copyrighted and were being downloaded without the permission of the copyright holder. It was difficult for aggrieved parties to target any of the millions of individual network users, but it was possible to go after Napster itself, which was facilitating this illegal activity. In July 2001, after nearly a year of intense litigation brought by the record industry, Napster was shut down. (In late 2003 Napster reemerged as a legal file-sharing service, though Napster 2.0, as it's called, shares little more than its name with the original enterprise.)

The end of the original Napster was not the end of file-sharing, however. Although some similarly centralized networks that attracted large followings, like Audiogalaxy and Scour, also folded under legal pressure, other file-sharing services have been able to avoid disastrous litigation by being completely decentralized. Gnutella, for example, has no central server; in fact, it is not even a company, but a system for distributing digital files (and not only of music, but of photos, film, and software) that exists in numerous versions and is controlled by no one person or group. Perhaps the most popular network at this writing is Kazaa, which in 2002 was far more heavily used than Napster was at its peak.[8] Such decentralized networks are immune to the kind of action that brought down Napster, though the record industry has developed alternative strategies for dealing with them. While it is unclear how long these networks will survive, their current influence is undeniable.

A great deal of ink has been spilled in the debate over the impact of file-sharing on musicians and the music industry. Rather less attention, however, has been paid to its effect on listeners. Is listening to an MP3 different

from listening to other recorded media, or to live music? What distinctive possibilities does musical file-sharing offer to listeners? Do users of MP3s think about music differently because of their use of the technology? What are the legal and ethical ramifications of listening in cyberspace? To address these questions, I propose that we apply the concept of the phonograph effect. This in turn requires that we first delineate the crucial qualities that distinguish the new technologies, and then explore how users respond to those characteristics.

MP3 VS. TRADITIONAL RECORDING MEDIA

I would suggest that the most distinctive and crucial attribute of MP3 files is their status as, in the language of economics, nonrivalrous resources. A resource is *rivalrous* if its consumption or use by one party limits its consumption or use by others. Most physical objects are rivalrous. If I eat a sandwich, no one else can eat it; if I build a house on a parcel of land, or even if I am simply standing on it, I am restricting its use by others. Traditional sound recordings are also rivalrous. In owning a copy of the Shaggs record *Philosophy of the World,* I am limiting everyone else's use of it. (Fortunately, there are plenty of copies to go around.) *Nonrivalrous* resources, in contrast, cannot be depleted by using them. Ideas are nonrivalrous. When I am done with the equation *2 + 2 = 4,* it is still there, intact and undiminished, quite unlike the tuna melt I just ate. Or as Thomas Jefferson more eloquently explained in 1813, "He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light himself without darkening me."[9] Digital sound files, like ideas, are also nonrivalrous. The analogy with ideas is not capricious. As law professor Lawrence Lessig maintains, "The digital world is closer to the world of ideas than the world of things"[10]—which is why copyright and other protections of physical property map uneasily onto the world of cyberspace, a point I will return to later in the chapter. Downloading a file is not like loading a shopping cart with groceries or a car trunk with suitcases, for no object is actually being moved. To download is not to use or take someone else's song file, but to copy it. This is the same with all digital files on the Internet. When I look at an image or read a newspaper online, it is not as if I am looking at a painting in a

museum or reading the paper in the library (actions that would impinge on the access of other users). I am making and using my own copy of the images and texts. Of course, slow Internet connections, low bandwidth, and high network traffic can sometimes limit one's access to files. For the most part, however, when I use digital files, I receive light from another's taper, neither taking nor extinguishing the flame.

It is also important to realize that when I download a song (or an image or text, for that matter), I am making a *perfect* copy of that file. An MP3 is just a series of 1s and 0s that represent a given collection of sounds; when copied, the same arrangement of binary numbers is generated. It is not as if the 1s and 0s of the copy are slightly less crisp or true than the original MP3, as a second-generation cassette tape would be. In fact, copies and originals are indistinguishable. This is part of the great appeal of MP3s, for the sound does not degrade when copying.

The nonrivalrous nature of digital music files, moreover, has an important effect on the portability of recorded music. As I have pointed out, the tangibility of traditional recordings has made sound portable in unprecedented ways. But their very physicality places an upper limit on how easily and quickly music can be moved, even as recording media have become sturdier and smaller. Digital music files, however, are dramatically more portable than their more tangible kin. Depending on the speed of one's Internet connection, a three-minute pop song can be downloaded from or e-mailed to anywhere in the world in a matter of seconds. It cannot be long before even the largest music files will zip across the globe more or less instantaneously.

The nature of digital music files also affects cost. Throughout the history of recording, it has often been possible to hear certain kinds of music more cheaply on disc than live. The cost differential is even wider with MP3s and the like, with millions of tunes available for free. MP3s are not subject to the physical control exerted over traditional recorded media—they cannot be barcoded, pricetagged, shrinkwrapped, or sequestered on shelves or behind display cases—and most are downloaded on decentralized networks, subject to no one's control. Encryption, digital watermarks, self-implementing expiration dates, and the like have been sought as ways to control and affix prices to digital music files, but so far with little success.

Digital music files—nonrivalrous, endlessly reproducible, extremely portable, and frequently free—are clearly different from traditional recording media. How do these differences affect the listening habits of users? Before I venture some answers, I must pose a preliminary question: Who are the users? According to a December 2002 survey by the research firm Ipsos-Insight (formerly Ipsos-Reid), 19 percent of the American population aged twelve and over had recently downloaded one or more music files from an online file-sharing service. This translates to roughly 40 million users in the United States alone. Not surprisingly, teenagers and young adults were most likely to download music, but a sizable number of older adults did so as well; significantly more men (26 percent of the population) than women (12 percent) downloaded music.[11] Ipsos has also explored downloading habits throughout the world, and found significant activity. In Taiwan, Canada, Sweden, Hong Kong, and South Korea, eighteen- to twenty-four-year-olds were in fact more likely to have ever downloaded music from the Internet than their American counterparts.[12] In less economically developed regions, however, activity is quite low. In Africa in 2002, only 1 in 150 was even connected to the Internet, and certainly fewer still had downloaded MP3s.[13] (This figure is actually a huge increase over just a few years before.) The percentage of Internet users in Arab countries is even smaller: about 0.5 percent of the population has access.[14] Of those who do download, how representative are they of the general population? The average downloader is almost certainly wealthier than those not on the Internet, given the cost of computers and Internet service. (This disparity, again, is even more marked in poorer countries.) But the number of downloaders is growing and the cost of the technology is shrinking in every part of the world. So while we must be careful not to generalize from the experience of those who download digital music files to the rest of the population, we can speculate on downloading's impact on hundreds of millions of listeners.

Hundreds of millions of listeners, then, are likely to experience music in new ways given the differences between cyberspace and real space. In responding to these differences, users may enjoy greater access to music, discover new repertoire, and exercise an increased flexibility in the way they

listen to music. Moreover, they may change their consumption of CDs, rethink their ideas about musical authenticity, and form virtual communities around shared musical interests. As will be clear, these are not theoretical possibilities, but represent the real-world experiences of a wide variety of users. In addition to Internet discussion forums and third-party surveys, I also draw on responses to a survey I conducted for this book as well as undergraduate student papers on file-sharing submitted in April 2002 in a course I taught at Johns Hopkins University.[15] I want to stress that I do not treat downloaders as if they are all of one mind. As we should expect, diverse and contradictory practices and attitudes abound. Still, the individual phonograph effects I describe represent the practices of many users and, taken collectively, help to paint a picture of musical life in cyberspace.

The clearest change that digital and networking technologies have introduced is the possibility of an unprecedented and unparalleled accessibility to music. This new accessibility may be understood in terms of speed, ease, and breadth. The first two traits can be seen in the last example from the opening of the chapter: I hear a bit of an unidentified song in a store, and a few minutes after I get home I am listening to it. The same accessibility also allows me to listen almost instantly to music I read or hear about. This is not a matter of instant versus delayed gratification, however, for before the advent of MP3s and the Internet I was simply never able to hear much of the music I heard about. Music delayed is often music denied.

File-sharing not only makes it possible to find particular pieces easily, it also allows users to explore unfamiliar territory. If one can imagine a particular type of music, it probably exists; if it exists, it can probably be found on the Internet. For example, here are two genres that may or may not exist: Swedish funk and Vietnamese hardcore rap. I will now try to find examples on MP3.

Success! After entering "Swedish Funk MP3" on a search engine, I am directed to a fan site for the group Electric Boys, a Stockholm quartet formed in 1988.[16] A number of their songs are posted on the site, and within moments I am listening to "Freaky Funksters" from their 1990 album *Funk-O-Metal Carpet Ride.* Now I am listening to "Around My Town," an as yet unreleased hardcore rap from a California-based Vietnamese group inexplicably known as Thai.[17] Thai posted the song themselves, it seems

in the hope of generating enough interest to land a record contract. The song is not actually in Vietnamese, as I had expected, but the fact that it is playing only seconds after I wondered if such music even existed proves my point. I should admit that I did fail on a third search: I did not find any MP3s of Jewish gospel.[18]

Such broadened access to music is widely noted by downloaders. A June 2002 study found 29 percent of American respondents reporting that their favorite genre of music changed since they began downloading, while 21 percent indicated that they developed new radio listening habits.[19] But even if their musical tastes do not fundamentally change, downloaders seem to feel freer to explore unfamiliar genres without the risk of wasting their money or time; if the music is not to their liking, they can simply delete it. A number of downloaders noted that they ventured or stumbled into new musical territory in their file-sharing and were gratified by the results. One female Hopkins student explained: "File sharing has made music much more accessible for me. I never really enjoyed classical music as much as I do now . . . partly because I would rather purchase a Radiohead CD than some classical music CD with more than half of the songs I wasn't sure I'd like."[20] But without the risk of failure she delved much more deeply into the classical repertoire. A forty-year-old male survey respondent from Boise, Idaho, reported discovering the band the New Pornographers by accident. (One can imagine how this might have happened.) Others looked for out-of-print recordings, concert recordings by familiar artists, and remixes or covers of their favorite songs. A fifty-one-year-old consultant from Minneapolis, for example, reported that he has used P2P networks to collect more than seventy versions of the World War II–era song "Lili Marlene."

One fascinating manifestation of this new accessibility is what I would describe as a divergent approach to discovering music. Instead of seeking out particular pieces (a convergent approach), one initiates an intentionally general search in hope of broad and unfamiliar results. A search under the term "cello" yielded not only the expected (Bach's cello suites), it introduced me to Nick Drake's haunting "Cello Song," the works of Apocalyptica, the Danish cello quartet known for its Metallica covers, as well as to the riches of Annette Funicello. What by all rights should be condemned as a poor search engine served as my trusted guide into the musical unknown.

In a similar vein, one college student wrote of her use of Napster, to search not for specific songs but for moods and emotions:

> I typed "rain" into Napster, downloaded all my finds with the word in the title, and then listened to every song capturing the experience of a rainstorm. With this entire repertoire at my fingertips, I felt mighty—for the range of emotions responding to rain was mine—and paradoxically brighter. Voltaire once said, "Anything too stupid to be spoken is sung." What felt trite to say myself somehow sounded profound and weighty when artists added a backbeat and a melody. After a bad break-up I typed "cry," "love," "hurt," "heart," etc., and found the most soppy song (in this case a Neil Sedaka) that trumped my depression and therefore somehow uplifted me. Some of the music captured my pain, and helped me as though some artists completely understood me, and then others were so hyperbolic I felt relatively fortunate and therefore calmed.[21]

This divergent approach is an unexpected and valuable feature of musical life in cyberspace, one that simply cannot be duplicated in the physical world.

Another aspect of the accessibility downloaders enjoy is the flexibility to customize their musical experience. An oft-repeated complaint from fans of popular music is that any given album rarely has more than two or three tracks they want to hear. Many feel that they are forced to buy entire albums, and resent the record companies whom they see as foisting unwanted music on them. Over and over, survey respondents and contributors to P2P bulletin boards tout downloading as a way to avoid the all-or-nothing dilemma of CD buying; they, not the artist, producer, or record company, pick out the music, and only the music they want to hear. Although dissatisfaction with the album format preceded the advent of MP3s, file-sharing reinforces what might be called "singles listening." When listeners get to know an album intimately, the end of one song on the album strongly raises the expectation of the next. Beatles fans who wore out the grooves of *Sgt. Pepper's Lonely Hearts Club Band* will always anticipate "Lucy in the Sky with Diamonds" in the silence following "With a Little Help from My Friends" (even if they hear the latter on the radio), just as "Smells Like Teen Spirit" contains the seeds of "In Bloom" for initiates of Nirvana's *Nevermind*. For better or for worse, downloaders often miss out

on the gestalt of the commercially produced album. Yet downloaders can decide how to group songs based on their own criteria. For example, I have numerous playlists on my computer's MP3 player: twelve-bar blues songs, works that I use in my classes, music my wife likes, and so on. These need not stay on the computer; I can "burn" these playlists onto CDs to create personalized compilations, which may in turn generate their own gestalt. As is clear from survey results, burning CD compilations is a common adjunct to downloading.

Downloaders can even go further and alter the very sound of their MP3s. Various software programs, many available free on the Internet, allow users to change pitch or tempo, add or subtract musical layers, reverse sounds, tweak frequencies, and much more. In other words, listeners can become amateur sound engineers, even composers. I use similar tools as a means of analysis: slowing Jascha Heifetz's performance of a Hungarian Dance allows me to hear variations in rhythm and tempo, changes in vibrato, and other performance nuances much more easily than at the normal speed; isolating certain frequencies in Public Enemy's "Fight the Power" helps me to unpack its incredibly dense web of samples. MP3s, so easily shuffled and manipulated, allow listening to be an active pursuit.

The most controversial aspect of MP3s that distinguishes them from rivalrous relatives is their affordability. Most MP3s are downloaded free over P2P networks, much to the delight of users, who can obtain CD-quality recordings without paying for CDs. The recording industry, of course, opposes such freeloading, arguing that file-sharing is responsible for the recent downturn in CD sales. One of the surprising findings of several file-sharing studies, however, is that collectively downloaders are not buying significantly fewer CDs than they would in a world without MP3s. In a February 2002 study, 57 percent of respondents reported that they bought the same number of CDs since starting to download; 24 percent said that their purchases *increased*.[22] In a separate study Jupiter Research found that 36 percent of "experienced file sharers" (those who have been active for more than six months) reported buying more CDs.[23] Of course, given that most songs are downloaded illegally, it is possible that survey respondents would misrepresent or simply lie about their buying habits. Yet by and large, downloaders see little wrong with their activities. In my survey, those who reported that they stopped buying CDs did

so loudly and proudly. As I will explain later, many downloaders see their actions as a form of protest and are not averse to revealing what they do and why they do it.

Not only are many downloaders continuing to buy CDs, many claim that file-sharing has spurred them to spend more on concert tickets and other musical merchandise. Consider the example of this female college student:

> I started listening to a punk band called Midtown. They were giving out their songs on the Internet for free, and after listening to a few songs, I went to a concert. They put on an amazing show, and I was hooked right there. I quickly bought their CD and listened to it religiously for months. It had been years since I had spent any money on any musical product, but after listening to Midtown, I was spending money left and right on concerts, t-shirts, and CDs. I never would have discovered just how amazing these guys sounded if it weren't for file swapping.[24]

A self-identified forty-two-year-old male "Assistant VP" from my survey reported a similar experience: "I first heard The Strokes through a Kazaa download and now I am going to Milwaukee with my daughter (400 miles) to see them in concert—something that would not have happened without P2P file sharing."

That file-sharing would encourage CD buying might seem astonishing until we remember that CDs and MP3s are very different things. CDs are more or less permanent; they are immune to computer viruses and lightning strikes, are usually glitch free, and come with handy (if small) liner notes, often with art and lyrics. (And unlike many of the MP3s floating in cyberspace, they correctly identify the title and performer of the music.) These qualities assure the mutual nonexclusivity of CDs and MP3s, and are frequently cited by downloaders who continue to buy CDs. Here's how a nineteen-year-old male college student explained it: "Despite the availability of free music online, I will still fork out $12–$17 from my paycheck on the latest Kylie Minogue or Madonna or Britney or Cher. If I support an artist or a film soundtrack I will want to collect the jewel case and cover art. This has to do with respect and the pursuit of authenticity and quality. I will want to hear the highest in quality, and the original,

authentic versions." Or as another student suggested, "It's nice to have the real thing."[25]

It is remarkable to hear CDs spoken of as original and authentic. Not long ago they were derided as cold, inhuman, and unattractively small—the antithesis of the LP, with its comforting tactility and oft-cited warmth of sound. Yet LPs were flimsy compared to the thicker, more substantial 78s; and to extend this further, many listeners preferred the "warm" sound of acoustic 78s to those made by the electrical process beginning in 1925. And of course, recording itself can be considered inauthentic compared to live music-making. Authenticity is clearly a moving target. Often something is authentic to the extent that it has been replaced by something newer, less familiar, and more convenient, which is why CDs can now be thought of as "the real thing."

As much as CDs are about sound, they also have visual and tactile qualities that are important to their owners. The tangibility of the CD is part of its charm. A collection is meant to be displayed, and has a visual impact that confers a degree of expertise on its owner. The tall bookcase full of CDs in my home office often impresses visitors who, correctly or not, infer from it a certain breadth and depth of knowledge about music on my part. My MP3 collection, out of sight and intangible, has no such effect. By the same token, collecting loses some of its appeal when the objects of one's search are so easily attainable. A twenty-two-year-old female college student noted that in downloading MP3s, she missed the sense of personal connection she felt with CDs:

> I believe that by utilizing this technology, I lost part of the nostalgia inherent in buying and listening to music. For example, I can listen to my Flaming Lips CD and know that I purchased it the week after my 15th birthday, during my "alternative" stage in high school, but I cannot do this with MP3s. I acquired so many songs at such a fast rate that listening to this music only reminds me of sitting in front of my computer freshman and sophomore years [at college].[26]

Many downloaders treat MP3s not as ends in themselves, but as a means to decide whether to buy a particular CD. The comments of a twenty-one-year-old male student represent the attitudes of many: "While file-

sharing may not have increased the number of CDs or LPs that I buy, it also has not decreased the number. What it has changed is how I buy— I have used it as a tool by which to judge and select what I buy."[27]

MP3 and P2P are still young technologies and, assuming they survive, may one day become naturalized to the point that the tangibility of CDs will hold little appeal. For now, however, the intangibility of MP3s means not only that they are free but that, ironically, they will not replace their rivalrous and often costly ancestors.

As I noted in chapter 1, recording made the act of solitary listening practicable and widespread, as everyone with a portable player or a home or car stereo knows firsthand. MP3 has a similar potential to isolate listeners. Yet users of the technology are in fact connecting to one another in great numbers and are forming thriving musical communities. MP3 itself does not make this happen; rather, it is the P2P networks over which digital files circulate and the communication software that these networks feature (bulletin boards, instant messaging, chat rooms, etc.) that bring listeners together. These communities are in some ways radically new, in some ways traditional. Unlike bowling leagues and book clubs, Internet listening communities do not congregate in the same physical space, and members typically never even see or meet one another. Yet members hold common interests, and often feel a close connection with one another. In fact, such communities may address needs that no off-line group could meet. Physical distance collapses, so that the geographically isolated can come together; distinctions of age, class, gender, and race may fade (though not completely), allowing a freedom of interaction unlikely in any other way.

It is worth observing that its practitioners typically call the activity of downloading file-*sharing*. The term is not (or not simply) a coy way to deflect accusations of theft; as used, the term suggests a sense of generosity, selflessness, and mutual concern among the members of a group. As a thirty-nine-year-old female survey respondent from North Carolina wrote, "File sharing is also about community. I have found file-sharers to be amongst the most sharing, friendly, compassionate and helpful, knowledgeable people on the Internet." On most P2P networks, it is possible to download from others without allowing them access to your own files. But many gladly open their computers to network users. A twenty-nine-

year-old graduate student from Toronto explained, "sharing (as opposed to merely acquiring) can also have its rewards, and often I feel very compelled to provide others with the music they want, or even the music I feel they ought to get to know."

This sharing can take place with or without verbal communication. As long as you are connected to a P2P network and enable your files to be shared, anyone else on the network can download designated files from your computer without asking or notifying you. It is a strange sensation, having an unknown person silently copying MP3s from your hard drive. (File-sharing programs typically allow users to see when others are accessing their computers.) An ironically intimate—if fleeting—bond is established, for if music helps define and articulate who we are, opening one's computer to others is indeed opening oneself to others. Oftentimes, network users do communicate. Many P2P networks have chat functions, meaning that anyone can send a message and initiate a conversation with anyone else connected at the time. Group discussions can take place on bulletin boards, which provide forums dedicated to particular topics of mutual interest. Discussions might concern hardware or software problems, individual songs, whole genres, favorite groups, and so on.

It is worthwhile to mention a few examples of virtual communities that have arisen around the trading of MP3s. Although they may no longer exist by the time this book is published, they illustrate the wide possibilities available to those with common interests and network access. The Track Exchange describes itself as "an online community of recording collaborators."[28] Using recording software and a P2P network, a group of musicians living hundreds or thousands of miles apart can collectively compose in cyberspace, each member contributing parts, tinkering with the whole, and discussing the results. ZPoc is a P2P network dedicated to Christian music and its fans. As its welcome page explains, it is "a file sharing software for the 'Christian' community to share Jesus, through songs, with your friends. Friendly and helpful people, it's a great community."[29] Network members can chat with one another, read a daily scripture passage, and trade MP3s of their favorite Christian rock artists. Zero Paid and Filetopia, as their names suggest, unite people with strong and idealistic views on the benefits of file-sharing. While neither is dedicated solely to music, much of the trading and discussion center on music. Any number

of open and usually angry letters to the Recording Industry Association of America can be found on Zero Paid (the RIAA is a trade group representing the recording industry and heads the effort to stop illegal downloading). When the Audiogalaxy network shut down, Filetopia welcomed former Audiogalaxy members into their community, sponsoring "reunions" of AG "alumni" on its bulletin board. For a final example, consider the Internet opera club that came to light in my survey. Two opera fans using Napster, one in the United States and one in Israel, discovered that they had complementary MP3 collections. The two men decided to trade complete operas by downloading entire works to a separate server to which both had access. (For the most part, they could only collect them piecemeal on Napster.) A third downloader from the Netherlands soon joined in, and he subsequently brought along two Swedish women. As of mid-2002, this private club had seventeen members scattered throughout the world, and had become much more than a way to trade MP3s. Members posted opera quizzes and debated the merits of recordings, and even became friends outside of music, sharing their personal lives and occasionally visiting each other.[30] Whether convened because of a creative drive, a common religion, commitment to free file-sharing, or an interest in a genre, the members of these communities find meaning in their associations and activities far beyond an interest in free music. They are sharing files, beliefs, ideals, and lifestyles.[31]

Over and again downloaders say that their musical lives have been enriched. They are listening to more and different kinds of music and are connecting to others with similar interests. They also seem to be interested in learning *about* the music they hear. It is possible for one to download MP3s in blissful ignorance of even song titles, but that is not typical. The February 2002 Ipsos study noted that downloaders visit search engines, lyrics servers, and news and entertainment sites in search of information about the music they hear; 84 percent of downloaders reported using the Internet in this way.[32] And as I noted earlier, downloaders are often inspired to see and hear their favorite groups live, demonstrating that the MP3 experience need not replace the concert experience.

In pointing to the benefits of downloading, I may be accused of offering a utopian vision of the technology. I readily admit that I am hardly a disinterested party, for as a scholar, teacher, musician, and music lover, my

life and work have been tremendously enriched by my ability to hear and study the broadest array of music with such ease. Yet I am no technological utopian. I do not believe that file-sharing will lead to a more cultured, civilized, and peaceful society (as the early-twentieth-century activists I discussed in chapter 2 predicted of the phonograph). File-sharing cures no ills; on the contrary, it can transform the merely curious into the obsessive, the fan into the fanatic. And as every user knows, file-sharing can be an exercise in frustration—the unpleasant and ever-present realities include an often high failure rate when attempting to download, incomplete and corrupted files, incorrectly labeled songs, and those tantalizing files that come up in a search but never, ever download. Moreover, the intangibility of MP3s and the ease with which they are obtained, disseminated, and deleted may encourage the sense that music is just another disposable commodity, an attitude I personally find worrisome.

There is also, of course, the contentious matter of the legal status of file-sharing, an issue that has driven a wedge between much of the listening public and the recording industry and one that may undermine the potential benefits the technology can offer. I want to devote the remainder of the chapter to this divisive subject.

THE LEGAL DEBATE SURROUNDING MP3 AND P2P

While there is nothing illegal about MP3 and P2P technology per se, it is illegal to download or distribute digital files of copyrighted recordings without the permission of the copyright holder. As the RIAA points out, in the United States there are both civil and criminal penalties for such infringement, the latter including up to $250,000 in fines, six years' imprisonment, or both.[33] And violations are occurring around the clock, throughout the world, in the open, and by the millions.

Individual record companies and the RIAA have sought to stem the tide of illegal file-sharing in a number of ways. The most public avenue has been litigation.[34] Perhaps the best-known case has been *A&M Records et al. v. Napster,* in which nine record companies sued the file-sharing network for copyright infringement. In July 2000, a U.S. district court enjoined Napster from "engaging in, or facilitating others in copying, downloading, uploading, transmitting, or distributing plaintiffs' copyrighted

musical compositions and sound recordings."[35] Napster finally lost on appeal in February 2001 and ceased its file-sharing service in July of that year.[36] In June 2002 Audiogalaxy, another centralized service, capitulated to legal pressure brought on by the RIAA and blocked users' access to copyrighted files. The industry then began to file suits against the decentralized file-sharing services, which had largely replaced those based on the Napster model. In April 2003, however, the industry lost an important case against the companies that owned the Morpheus and Grokster services. The presiding judge ruled that the defendants were not responsible for the copyright infringements of their customers because these companies did not store or index the illegal files themselves.[37]

The industry has continued to pursue litigation in other ways, notably by targeting individual users. (Although normally it would have been difficult to identify particular computer users, a U.S. District Court judge—in a decision that was later reversed, much to the industry's dismay—required the Internet service provider Verizon to provide the RIAA with names and addresses of those customers suspected of the illegal activity.) Most notorious were the lawsuits filed in September 2003 against a twelve-year-old girl and a sixty-six-year-old grandmother, a public relations disaster for the industry, which was widely depicted as bullying and vindictive. (The suit against the grandmother was dropped when it was discovered that her computer was incapable of downloading music files, illegal or otherwise.)[38] The industry is clearly—and literally—sending a message to downloaders: before the September lawsuits the RIAA sent millions of electronic missives to users of the Kazaa and Grokster services. "DON'T STEAL MUSIC," the message exhorts. "Distributing or downloading copyrighted music on the Internet without permission from the copyright owner is ILLEGAL. It hurts songwriters who create and musicians who perform the music you love, and all the other people who bring you music."[39]

On a different front, the industry has also engaged in what is collectively known as "denial of service attacks," all intended to disrupt and discourage file-sharing. "Spoofing" is the act of supplying P2Ps with corrupt or bogus MP3s, typically files consisting of silence or of continuous loops of a song's chorus. "Flooding" creates a network traffic jam with phony queries and signals. "Forcing" aims to shut down particularly active network members

by sending more queries than their computers can handle. The purpose of the industry's activities is unambiguous. As one record company executive explained, "We're doing this simply because we believe people are stealing our stuff and we want to stymie the stealing."[40] As of this writing, the legality of these attacks is unclear, but that might change. Representative Howard Berman of California has sponsored a bill that would authorize copyright holders to begin "blocking, diverting or otherwise impairing" P2P networks that trade in copyrighted material. Perhaps in protest, in late July 2002 hackers flooded the RIAA website, shutting it down for several days.[41]

The success of the industry's lawsuits and denial-of-service attacks is unclear. In fact, the aggressive tactics and uncompromising stance of the industry have given downloaders a powerful weapon: self-righteousness. File-sharing has come to be seen by many as a political act, a declaration of independence from the heavy hand of big business. The woman from North Carolina quoted earlier, a self-described "office worker/sandwich maker," included this note in her response to my survey: "I feel empowered by file sharing! I feel that we ARE The Revolution and we can change the way the recording industry treats its customers." A forty-two-year-old fellow North Carolinian expanded on this idea in his response: "I regard downloading music as a form of civil disobedience in protest of a monopolistic cartel that wants nothing less than to own and control the distribution of all music. The recording industry . . . would seek to strangle technology to remain profitable, so if P2P file sharing helps to bring about its demise, so much the better." Over and over, on bulletin boards and in survey responses, the same rhetoric recurs. There are even entire websites, such as Boycott RIAA, devoted to giving voice to anti-industry sentiment.[42] It hardly matters whether the arguments are sound or fallacious (there are a good deal of both types); what may have once been simply a way of getting free music has become for many a form of protest, largely in response to the actions of the record industry.[43]

So we find ourselves at an impasse. The industry has the law on its side and fights illegal downloading with every available means, while many of those who share files see nothing wrong with their activities. Although there is a need for understanding and compromise from both sides, I want to argue that file-sharing should actually be opened up even further, not shut down. I believe that the industry could flourish were that to happen.

Given the illegality of much file-sharing, it may seem odd to argue that the downloaders are in the right. In a seminal 1994 article, "The Economy of Ideas," John Perry Barlow, co-founder of the Electronic Frontier Foundation, offers a way to understand this contrarian assertion: "Whenever there is such profound divergence between law and social practice, it is not society that adapts. . . . To assume that systems of law based in the physical world will serve in an environment as fundamentally different as cyberspace is a folly for which everyone doing business in the future will pay."[44]

Barlow makes two important points here. The first is that human laws are typically crafted out of social practice and must be broadly accepted to have any force. Moreover, they have to be enforceable. As Barlow later wrote, "No law can be successfully imposed on a huge population that does not morally support it and possesses easy means for its invisible evasion."[45] Think of Prohibition and the national fifty-five-mile-an-hour speed limit in the United States; both failed spectacularly, despite the fact that both drinking and speeding (especially in combination) are patently unhealthy and cause innumerable deaths every year. Given that file-sharing is (as far as we know) physically harmless, and that the public will to download is strong, stopping it seems a very unlikely prospect. Barlow's second assertion is one I have already stressed, namely, that the physical world and cyberspace are fundamentally different. CDs and MP3s are not the same, and people treat them differently. Thus, Barlow's two points are connected: people feel free to flout copyright law in cyberspace because of the differences between the virtual world and the real world, and they do so whether or not they are conscious of the fact.

The record industry takes great pains to liken downloading to theft and piracy. But downloading is not theft in the traditional sense, precisely because of the fundamental differences between the virtual and the real. Theft involves physically taking property from another without right or permission. But MP3s are nonrivalrous, meaning that when I download something, I am copying, not taking. No one is being deprived of any previously held property. If, as Lawrence Lessig maintains, entities in cyberspace are more like ideas than things, then perhaps downloading is like stealing someone's ideas. But one cannot literally steal another's idea; moreover, ideas are not copyrightable. Figuratively, we say an idea is stolen if someone other than its originator takes credit for it or one profits from it

without acknowledging its source. It is highly unlikely, however, that anyone downloading the latest pop song is claiming credit for it, and there is little evidence that downloaders sell MP3s. So if the downloader is taking neither property nor credit, what is being violated?

The answer is control—which, indeed, is the essence of copyright. The copyright holder is given the control to sell a work, to reproduce and authorize others to reproduce it, to generate derivative works from it (translations, remixes, etc.), to perform the work publicly, and to seek legal remedies when these rights are violated.[46] Thus creators are supposedly given incentive to create, for they have some guarantee that they will be allowed to profit from their work and determine to a certain extent how it is used by others. So in theory, when copyright is violated, a creator is being deprived of potential revenue. Isn't this equivalent to theft?

The matter is not so simple, for several reasons. First, practically speaking, it is often *not* the composer or performer but a record or publishing company who holds the rights to a song. Typically, creators transfer copyright (or elements of that right) to a record company in exchange for manufacturing, promoting, and distributing the work. Copyright, therefore, does not necessarily protect creators. As cultural historian Siva Vaidhyanathan argues, the creator is a straw man in copyright debates: "Copyright has in the twentieth century really been about the rights of publishers first, authors second, and the public a distant third."[47]

A second point is that copyright is not simply a means of granting control to copyright holders. In the United States it was originally intended as a means of establishing a *balance* between control and access. As Article I of the U.S. Constitution states, the purpose of copyright is "to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."[48] Creators were given control of their works as incentive to create—but only for a limited time; after that, the public could have unfettered access to these creations. This was meant to perpetuate the cycle of creativity, since the conception of new works often depends on access to existing ones. But for well over a century, copyright has become increasingly unbalanced. In the early history of the United States a copyright expired after only fourteen years; but owing to numerous revisions over the past two centuries copyrights now hold for the life of the author plus

seventy years. In this case, whom exactly is copyright intended to serve? Since copyrighted material can now be protected for 150 years or more, it certainly cannot be the creators who benefit. Typically, it is the long-lived corporations who profit. Indeed, critics of the most recent extension (the 1998 Copyright Term Extension Act) point to corporate influence as the driving force behind the change. As Lawrence Lessig has noted, "Each time, it is said, with only a bit of exaggeration, that Mickey Mouse [owned by the Walt Disney corporation] is about to fall into the public domain, the term of copyright . . . is extended."[49]

My third point is that file-sharing does not necessarily deprive copyright holders of income. If every person who would have downloaded copyrighted music decided instead to buy the CD, copyright holders would indeed stand to make huge sums of money. But that is not the same as saying that downloading is *depriving* copyright holders of that money. It is well established that downloading does not always replace CD purchases. As we have seen, many file-sharers buy CDs of the MP3s they download. Other downloaders interested in just one or two tracks from a CD would not have bought the album in the first place. And yet another portion download MP3s of out-of-print recordings that they could not buy even if they wanted to. The reality of copyright thus blunts the moral force of the industry's argument that downloaders are only hurting their favorite artists, and in turn helps to explain why many who share files feel so strongly about the rightness of what they do.[50]

I must stress that in making these points, I am not claiming that the unauthorized copying of recordings is harmless. Certainly, the industry is losing money to file-sharing. In 2002 economics professor Stan Liebowitz conducted a study of thirty years of record sales and determined that a modest but real percentage of the current downturn in record sales can only be attributed to illegal file-sharing. Significantly, however, he refutes what he calls the "Annihilation Hypothesis"—the idea that file-sharing will destroy the record industry.[51] If the reduction in sales and revenues makes it significantly more expensive to publish recordings, some musicians will surely lose industry support. More directly, musicians, even if they hold no rights to their music or recordings, are denied royalties (however small) when their songs are downloaded instead of purchased. Nevertheless, I maintain that we must question whether copyright as now

construed truly serves the public good and, conversely, whether the circulation of copyrighted files on the Internet is quite the plague the industry claims. With this in mind, and given the differences between CDs and MP3s as well as the public will to download, I believe we must shift the focus of the debate over file-sharing. What the file-sharing situation reveals is not the rise of a new criminal class numbering in the hundreds of millions, but the corruption of a system meant to encourage the creativity of exactly those who now find themselves on the wrong side of the law. In other words, we have to figure out not how to make downloaders conform to the system, but how to change the system itself.

"Changing the system" is a quixotic notion, but there is a growing movement to do just that. *Eldred v. Ashcroft,* which challenged the constitutionality of the 1998 copyright extension, included several publishing companies among its plaintiffs; amicus briefs were filed by dozens of law and economics professors, fifteen library associations, and corporate giant Intel. (The challenge, however, failed. In January 2003 the Supreme Court upheld the constitutionality of the 1998 extension.)[52] The Electronic Frontier Foundation and similar organizations are increasingly vocal and active in their campaigns for the freedom of file-trading. Musicians such as Alanis Morissette, Chuck D., Janis Ian, Prince, and the band Negativland also promote file-sharing as good not only for their fans, but for themselves as well.[53]

A NEW FILE-SHARING REGIME

I do not want to go so far as to suggest, as some have, that copyright and even the notion of intellectual property be abolished. Rather, I believe a more attainable goal is the restoration of copyright as a balance between access and control, between public and private rights and interests. In this I am sympathetic with the main argument of Siva Vaidhyanathan's persuasive and reasonable study *Copyrights and Copywrongs,* that "American culture and politics would function better under a system that guarantees 'thin' copyright protection—just enough protection to encourage creativity, yet limited so that emerging artists, scholars, writers, and students can enjoy a rich public domain of 'fair use' of copyrighted material."[54]

How would copyright slim down to become the system Vaidhyanathan proposes? One way is to roll back the extension of copyright, as *Eldred v.*

Ashcroft sought to do. Its failure suggests that this may not be the most successful route, however. Another approach is to expand the application of the fair use doctrine or, more accurately, restore it to its original scope. Fair use places limitations on the exclusive rights of copyright holders, allowing certain uses of material that would otherwise be considered infringements.[55] This is why I can quote Vaidhyanathan's *Copyrights and Copywrongs* without permission of the copyright holder (who, in typical fashion, is not the author but his publisher). It is also why I can photocopy articles for research purposes, tape TV shows to watch at a later date, or "rip" MP3s of my CDs to listen to on my computer. All these uses are fair and do not infringe copyright, even though I have not been granted permission to perform them. I do not need permission because these are private, noncommercial uses that have no effect on the potential market of the material.[56]

How different is file-sharing from these activities? For the most part, downloaders of copyrighted MP3s are engaging in private, noncommercial uses that seem to have relatively little impact on the market of the material. Of course, the industry will dispute this last part, pointing to their success in court against Napster and others to show that there is no established fair use exception for file-sharing. I believe, however, that file-sharing *should* be protected as fair use. The law is intentionally vague, simply providing guidelines for judges (not the industry) to determine fair use on a case-by-case basis. No law needs to be changed, just attitudes. If file-sharing is seen as a public good, and if the industry decided not to litigate, file-sharing would be de facto fair.

Why should the record industry promote file-sharing? For two reasons: money and customer satisfaction, which is to say, also money. I believe that if the recording companies were to give open and easy access to their music via MP3, the public would be willing to pay for that access. This is a simple proposal, and perhaps it sounds simplistic. Why wouldn't listeners just download songs free on P2Ps, as they do now? Wouldn't giving free rein to file-sharing completely destroy the CD market? Why should record companies (practically) give away their music? To answer these questions we have to ask two more basic ones; the answers to these will then explain why this idea could work—and why, in the light of recent initiatives on the part of the industry (more on which later), it is in fact starting to work.

The first question is this: Why pay to download music? Various condi-

tions would in fact provide sound reasons to do so, many of them evident in the responses to my survey and in Internet discussions on the matter.

If it is easy. Paid downloading would be appealing if one could locate any MP3 from a single, powerful search engine and if, once directed to the file, a simple click (or equivalent operation) initiated the download.

If it is fast. Consistently fast downloads would be preferable to the inconsistent (and often slow) download rates on many P2P networks.

If it is reliable. The success of download attempts on P2Ps can be very low. Completion rates much closer to 100 percent might well draw downloaders to legal sites.

If it is legal. While many profess to revel in illegal file-sharing, some would download only if it is legal and many others would rather "do the right thing."

If quality is assured. A guarantee of glitch-free files would have significant drawing power.

If quantity is assured. A consistently wide selection of MP3s would attract many customers.

If it is permanent. Downloaders seem to be unanimous on this point. They do not want self-expiring MP3s or streaming files that are more like broadcasts than CDs (as some early pay systems offered). They want to be able to download files to their computers so that they can control their subsequent use of the music.

If additional resources or services are offered. If downloaders are given exclusive or advance access to new material they will have incentive to pay.

If musicians directly benefit. Some downloaders say they would only pay if they felt the musicians were being fairly compensated.

If even most of these conditions were met, millions of listeners would pay to download. How would listeners pay? It could be on a per-song basis

(the most typical suggestion by survey respondents was $1 per download) or as a subscription service paid directly to the record company or the third party that provides access to the MP3s (most suggestions ranged from $5 to $25 a month). One intriguing proposal is to institute a compulsory licensing system whereby the Internet service providers (or ISPs)—the companies such as AOL, Earthlink, and Yahoo! that connect users to the Internet—would pay a flat per-download fee for the songs they make available to customers. In exchange, copyright owners would be required to make their catalogs available to the ISPs.[57] In this scenario the ISPs might or might not pass the costs along to their customers; if they did, they could simply add it onto the existing monthly subscription fee. There would be two advantages of this system over one in which each record company (or small partnerships) provided the content. First, it would provide "one-stop shopping," allowing listeners to find and download MP3s from a single site and search engine. Second, it would be more likely to attract younger customers. Many of the twelve- to seventeen-year-old downloaders (who, according to Ipsos, make up 41 percent of the American file-sharing public) have a difficult time buying goods or services on-line, as few of them have credit cards and some have no regular or independent access to money. The freedom to download without having to make individual transactions would have great appeal to the credit card–less, but would also be more convenient for everyone else. (An alternative, recently offered by some pay services, is for parents to set up prepaid monthly "allowances" that permit children to buy music without requiring access to a credit card.)

Early pay services, such as MusicNet and Pressplay, were unsuccessful for a variety of reasons, whether because they offered a limited range of titles, they used formats that could not be saved on one's computer, or they were expensive. These systems gave downloaders little incentive to forgo free file-sharing.[58] Newer ventures, however, are starting to demonstrate that the industry is discovering why, as I suggested earlier, listeners would be happy to pay to download music given the right circumstances. In April 2003 the computer company Apple—with the cooperation of several major record labels—launched its iTunes Music Store, widely hailed as the model for online music services.[59] From the beginning Music Store delivered much of what listeners could not find elsewhere: fast, reliable, permanent downloads at a reasonable price (99 cents per song, less than

$12 for most albums). While it does not offer the same vast selection of music available through the P2P networks, its popularity—which grew considerably when Apple launched a version for Windows users in late 2003—suggests the possibility of a post-Napster détente between listeners and the recording industry.

Yet even if consumers are willing to pay for online music, there is the lingering objection that making downloading legal, easy, and cheap would drastically depress CD sales. This leads to my second question: Why buy a CD when the same music can be downloaded? Again, many of the answers come from downloaders themselves.

> *Because of its physicality.* Many listeners value the ability to handle their recordings and want the "real thing" as opposed to an MP3.

> *Because of its permanence.* CDs are stable in ways that computer files are not.

> *Because of its visual aspect.* CDs, unlike MP3s, come with something to look at, and thus more to interact with—a mirrorlike disc, cover art, liner notes, and lyrics. Many CDs now come with stickers, posters, and other nondownloadable items to attract listeners of the Internet generation.

> *Because of its convenience.* For someone without access to the Internet or with a slow connection, buying a CD may actually be easier than downloading. Many of my students reported a drop in their file-sharing activities when they moved out of dorms with ultrafast connections and into off-campus housing with much slower modems.

> *Because of an enhancement.* More and more CDs come with an added video component, offering concert footage, music videos, interviews, and the like. Although some of these items may be as easily downloaded as the songs they accompany, the enhanced CD offers all of these features in one convenient package.[60]

> *Because it supports musicians.* Although it is commonly known that recording artists make relatively little on album sales (they tend to make their money on concerts and merchandise), usually at least

some portion of the CD price goes to the musicians. And with truly independent labels, buyers can be more certain that their money will find its way into the hands of the artists.

It is sometimes said that we are moving into a post-CD world—that we will be able to receive and hear digital music files anywhere and everywhere we might go, without the need for little plastic discs. I believe, however, that listeners will continue to buy CDs or whatever physical recording medium comes to replace them. To put it bluntly, people like things. And as I have suggested, people will buy recorded things because they have advantages that data files do not.[61]

Why, however, should the record industry change their business practices to serve people they see as criminals? The answer is easy: because these "criminals" are their customers, who continue to buy CDs even as they trade MP3s, and who will pay for MP3s under reasonable conditions. It is these customers from whom they stand to make huge sums of money if only they would stop alienating them. Another reason is that MP3s and their brethren are widely accepted and impossible to ignore. As one ISP executive explained, "It's hard to get the genie back in the bottle."[62] Given this reality, establishing a system of music downloading in which all parties profit is much more sensible than the current antagonistic relationship between listeners and the industry.

Would P2P networks disappear under this scenario? The answer is clear: absolutely not. As long as P2P technology is legal (and even were it outlawed), it will continue to flourish, and networks will continue to traffic in files of all kinds. But *should* they disappear? Certainly not from the listener's standpoint, for no pay service will ever match the breadth of music made accessible by the millions who use P2P networks; and not from the standpoint of many performers, whether unknown musicians in search of an audience, famous ones hoping to whet appetites, or forgotten ones whose work languishes out of print. Yet even the music industry and the various pay services could peacefully coexist with—and yes, profit from—the P2Ps. Using the file-sharing services to provide free market research, the labels can discover which new acts to nurture and which old acts to reissue. Realistically, of course, people will still download music when they could

pay for it. Clearly, however, the way to minimize this is to provide listeners with the widest variety of the highest-quality sound files at a reasonable cost. Although I may represent only myself, I found that shortly after signing up for Apple's Music Store I had curtailed my P2P file-sharing considerably. When I want music, I first go to the Music Store, exactly because it provides the quality and convenience P2Ps cannot guarantee; the more Apple offers me, the less I look elsewhere. Never has the truth of the cliché been demonstrated more plainly: if you can't beat 'em, join 'em.

○○○

File-sharing is neither plague nor panacea. MP3 and P2P are influential not because they are good or bad, but because they provide radically new ways to experience and disseminate music. I have sought here to provide a framework for understanding the distinctive traits of these technologies, and for understanding how file-sharing affects the lives of millions of listeners. From a technological standpoint, we live in very interesting times. Given the daily twists and developments in technology, law, and culture, we can expect musical life to get even more interesting. This is not a curse, as the old saying would have it, but a blessing.

CONCLUSION

This book has brought together a wide variety of musical actors, activities, and issues connected perhaps by nothing save recording. To continue this eclectic approach I have enlisted a French poet, an American record producer, and a German music historian—those who provided the epigraphs at the beginning of the book—to help articulate three final thoughts.

RECORDING DOES NOT SIMPLY RECORD

In this book I have claimed for sound recording what Paul Valéry asserted for "great innovations" in general—a role in the transformation of art.[1] Recording has been at the center of far-reaching changes in modern musical life, affecting each facet of artistic endeavor Valéry identified: technique, invention, and aesthetics. In terms of technique, consider the case of violin vibrato, the subject of chapter 4. At the turn of the century, classical violinists treated it as an occasional ornament, yet only a few decades later they had adopted a nearly continuous vibrato. As I argue, this transformation in technique was closely linked to the rise of recording activity