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NOTES

THE PIRATES ARE ALWAYS WITH US: WHAT CAN AND CANNOT BE DONE ABOUT UNAUTHORIZED USE OF MP3 FILES ON THE INTERNET

DAVID R. JOHNSTONE†

INTRODUCTION

As a potential medium for unauthorized recordings, MP3 is not an empty threat to music copyright interests. This “open source”¹ compression standard² (or “codec”)³ of choice for music files on the Internet, on the eve of the millennium, has rung disc(h)ord across the international recording industry, and its implications have confused copyright lawyers and scholars. MP3 is a controversial format because it contains no built-in copyright-protection scheme of its own, and it allows effortless duplication and sharing. It is thus a pirate’s dream and a copyright holder’s nightmare.⁴ Although the widespread e-mail transfer of musical tracks may indicate, or even foster, a musical act’s popularity, MP3 can be a thankless medium of disrespect if consumers use it to dodge—or to help others dodge—the established commercial channels by which royalties are paid, and livings earned.

Due to MP3’s digital nature, successive copying does not compromise fidelity. In this respect, it is superior to conventional magnetic tape, which has a propensity for “generation loss” with each successive copy of a copy. This means that an *n*th-generation edition of an MP3 file could sound just as clear and desirable as the initial source copy. Accordingly, the widespread use of MP3 poses a threat to the

† David R. Johnstone is a University at Buffalo graduating senior. This paper was awarded Second Prize in the New York State Bar Association Intellectual Property Section’s 2000 Law Student Writing Contest. It was published in 9 *Bright Ideas* (2000).

¹ An “open source” technology is one that proprietors intentionally make freely available to the public for use, without charging licensing fees.

² A compression standard is a software technology that shrinks files for expedient storage and transmission.

³ “Codec,” like “modem,” is a portmanteau word. It implies “compression” and “decompression.”

⁴ In an intellectual property context, a “pirate” is one who illicitly reproduces proprietary material to which he or she does not lay any legal claim. A pirate may or may not wish pecuniary harm to the rightful owner.

copyright holder's right of distribution because unauthorized, home-made copies could significantly replace the public appeal of sonically indistinguishable copyrighted merchandise.⁵ In an age when proprietary material can be beamed all over creation with a mouse click, the number of copies in circulation can become frightfully disproportionate to collectible royalties.

MP3 allows a musician to spread his or her music like pollen, but at the same time it allows countless others to replicate it like bacteria. (The metaphor depends on the motives of the party sending the electronic cargo.) As MP3 files are, to date, easily exchangeable, innumerable copyright holders will go unpaid for an incalculable number of consumers' copies. All too often, the copyright holder is not a part of the transaction or equation in online music distribution—yet another example of a rising tide that *does not* lift all boats. The grand challenge at hand is to sink the ones that sail under pirate flags.

Normally, a music copyright holder enjoys the right of control over distribution of copies only at the time of "first sale,"⁶ and thus can neither stop nor claim payment from the subsequent trade of used copies. With the MP3 format, however, the first sale of a single copy, whether as a CD or an official downloaded version, might be the only commercial dealing to precede an unlimited number of consumers' acquisitions of copies of that work. In this respect, MP3 duplication and distribution can support and promote a free-for-all—a boon to anyone except the rightful collector of royalties (or, for that matter, retailers and other interests associated with the recording industry). To make another party's copyrighted recording openly available to the masses is, effectively, to hijack the master copy and to establish one's own fly-by-night CD-pressing plant. There is a far cry between rightfully turning over one's own used copy of a CD upon exchange for something else, on the one hand (thus terminating ownership in that individual copy), and using the binary stream on that very CD to blaze an unlimited distribution channel online, on the other, whether or not for material gain. The former is called trading; the latter is called piracy.

⁵ A copyright holder of a "nondramatic musical work" enjoys the exclusive right to control distribution, subject to "compulsory licensing" provisions. 17 U.S.C. § 106(3); 17 U.S.C. § 115. Any act that compromises the exclusive rights of copyright holders to undertake and manage these initiatives constitutes an infringement. 17 U.S.C. § 501 et seq.

⁶ 17 U.S.C. § 109(a). The language of this provision refers to "sell[ing] or otherwise dispos[ing] of the possession of [a] copy or phonorecord," which implies a total transfer from single party to single party, not from single party to a multitude, like the lighting of so many candles from the same fire. The latter is the nature of uploading material for unlimited download.

The first-sale implications of MP3 would have the same complexion as any other recording format if a consumer were simply to sell (or even give away) his or her very copy of a music file, which happens in the not uncommon trade of used CDs. However, with the meteoric rise of online swap meets like Napster,⁷ the tendency today is to give or trade imprints of MP3s on and on, around and around. MP3 exchange perverts the traditional concept of alienation because possession does not shift at acquisition—only a cloned file, not the original, passes.⁸ The transmission process is analogous to the spread of news, or of communicable diseases, as distinguished from the quid pro quo model of trading tangible items, such as baseball cards. MP3 files, therefore, are potentially gifts that keep on giving, but from a copyright owner's perspective they can serve as instruments of deprivation when would-have-been consumers acquire them by dodging the marketplace.

The scourge of MP3 piracy in particular is already entrenched throughout the United States and much of the developed world—particularly among computer-equipped youth. It has soared in the past year, particularly with the massive popularity of Napster. Although criminal sanctions and civil causes of action are provided for in the United States and elsewhere (in addition to recent and anticipated technical safeguards by various industries),⁹ MP3-based music piracy will remain a fact of life for music copyright holders for the foreseeable future. Most countries do not currently have antipiracy laws drafted expressly for the cyberspace context.

Much of the pirate traffic in MP3 is done non-commercially, in a Robin Hood-like spirit. To an unprecedented degree, private individuals—often with little or no understanding or appreciation of copyright law—are making professional musicians' intellectual property music available to anyone with access to an Internet terminal, like so many localized looters in a global riot. Due to the clandestine nature of piracy in general, and to the private and unmonitored nature of e-mail

⁷ The company that runs this "peer-to-peer" exchange site (<http://www.napster.com>) is currently the defendant in one of the most hotly contested, and closely watched, copyright suits in recent memory, *A&M Records v. Napster, Inc.*, No. C99-5183 MHP, N.D. Cal. The suit alleged that Napster promoted massive copyright infringement among its members. Judge Marilyn Hall Patel ordered the service shut down in July of 2000, and the order was upheld on appeal, 234 F.3d 1004 (9th Cir. 2001).

⁸ At one point, SwapStation, <http://www.swapstation.com>, an interactive MP3 exchange site, implored its users to "do it legal" [sic] and actually trade their master copies rather than amass accruing, free versions. It is an unrealistic expectation, but probably a prophylactic gesture. See *MP3 Swapping Simple as 123* (Dec. 20, 1999), at <http://www.mp3.com/news>. See also David Ignatius, . . . *And a Pirate in a Pear Tree*, WASHINGTON POST, Dec. 15, 1999, at A47.

⁹ See discussion of the Secure Digital Music Initiative (SDMI), *infra*.

traffic,¹⁰ the true extent of illicit MP3 activity is simply inestimable. What began as a closely practiced hobby eventually graduated to the status of a trend, and it is now a ubiquitous craze.¹¹

Illegal recordings, in one format or another, have been a thorn in the side of the international recording industry for over thirty years,¹² but widespread, cutting-edge technology now vastly increases the danger to the proper collection of payments (be they royalties or licensing fees) that are legitimately owed for the distribution and use of recordings.¹³ The most formidable foes of online intellectual property today are not legislators, litigants, lobbyists, or Luddites, but loyal-opposition pirates and their twin brothers, hackers,¹⁴ on the supply side, and the freeloading consumer,¹⁵ who wants something for nothing, on the demand side. Copyright holders everywhere are now more vulnerable than ever to misappropriation by non-paying users everywhere, to the extent that pirates give freebie seekers such an opportunity. Aggregated lost revenues can be very difficult to assess.

Ever since the Industrial Revolution,¹⁶ technological developments have consistently maintained a handy timing lead over applicable law. Such is the dual action-reaction relationship between

¹⁰ The chief exception to autonomy over one's own e-mail is employers' ability to monitor their employees' transmissions conducted on workplace equipment. Privacy issues are beyond the scope of this paper, but see the workplace-related chapters in Ellen Alderman & Caroline Kennedy, *THE RIGHT TO PRIVACY* (1995).

¹¹ Earlier in 2000, "MP3" was the most searched term on the Internet, but as of the time of writing, "travel" has stolen its crown. See generally <http://www.searchterms.com> (last visited Oct. 22, 2000).

¹² See generally Clinton Heylin, *BOOTLEG: THE SECRET HISTORY OF THE OTHER RECORDING INDUSTRY* (1996). This book is the definitive history of trade in illicit music recordings, with a primary focus on hard copies of "bootlegs," which differ from pirated copies in that they consist of unreleased material. (This paper does not focus on bootlegging as a form of copyright infringement.) Heylin disturbingly elevates to folk-hero status those who would be so disrespectful of an artist's integrity and rights as to plunder proprietary material for personal gain.

¹³ Piracy's effects ripple all throughout the recording and retailing industries as the result of decreased consumer demand. The public sustains economic injury in the form of lost employment and uncollected tax revenues and customs duties. See generally Council of European Publishing, *THE FIGHT AGAINST SOUND AND AUDIOVISUAL PIRACY HANDBOOK* (1995).

¹⁴ A "hacker" is a skilled computer user who uses his (or her, though usually *his*) knowledge and/or equipment for exploratory and/or nefarious purposes, such as to defeat technical security functions or to gain unauthorized access into remote locales.

¹⁵ I use the term "freeloader" to refer to those on the demand side who avail themselves of already-uploaded materials that a "pirate" has taken and made publicly available online. The two categories of actions should be distinguished. Infringement of distribution rights, for example, generally only implicates pirates, but see the bartering provisions in the No Electronic Theft (NET) Act, discussed *infra*.

¹⁶ Beginning around the turn of the nineteenth century in England, and continuing soon thereafter in the United States and continental Europe.

scientific progress and governmental regulation. The gap is ever-widening in the Internet Age as new applications and uses present themselves and mushroom with increasing frequency. International treaties, existing domestic statutes, new or amended legislation, criminal prosecution, and civil litigation, however, will not sufficiently contain or curtail online piracy of music or, for that matter, of other information media. These measures have been consistently reactive, not proactive. They tend to be much too little, much too late.

At present, copyright holders and public authorities have access to several juridical weapons with which to combat electronic piracy, but they will need to learn to use several of them in tandem in order to have any impact upon the extent of electronic theft of music. The entire recording industry will have to embrace the new regime of e-commerce and supplement its twentieth-century, brick-and-mortar business models if it is to beat the MP3 pirates at their own game by retaining freeloaders as retail customers. Once the necessary security measures are perfected and fully in place—including legal, cross-industrial, and international schemes—record companies should adapt by adopting MP3 and its progeny as salable formats. (To do so will require a secure micropayment system that will accurately tally and remit royalties.) Those record companies that implement a direct-delivery, e-commerce model will be far more able to capitalize on a convenient and cost-effective market—particularly for single tracks, which declined with the obsolescence of the seven-inch, 45-rpm, vinyl record.

An effective antipiracy climate in cyberspace has been, and will continue to be, slow to establish itself. In the meantime, copyright holders will remain sitting ducks. Their work and/or property will continue to be available for the taking, in the virtual public square. Their copyrights will continue to be suffocated by blasé attitudes about rich rock stars and faceless corporations that do not seem, on the surface, to be vulnerable to isolated incidents of limited copying. At the time of writing, online piracy via one channel or another is just too easy, and for many opportunists it is just too enjoyable. In the minds of many consumers with limited music budgets (particularly youth), it also beats paying \$17.00 or more for a whole CD on which there may be only a few appealing tracks.¹⁷

Eventually, MP3 piracy may well be driven somewhat underground in the wake of stepped-up enforcement—as has happened to the unauthorized trade in CDs, VHS cassettes, and computer

¹⁷ I use the recording industry's term "track" generally to refer to a recording of a single song or other individualized (usually short) work.

software, for example¹⁸—but under the current aggregate of countervailing factors, it will endure as popular sport unless or until a more copy-proof technology supplants MP3 as the favored medium of the day.¹⁹ In the meantime, record companies should hasten their efforts to seize the hungry market and make online distribution—also known as “digital phonorecord delivery”²⁰—just as appealing and available to the public as are the burgeoning non-market channels with which they are, de facto, competing.

Never before has high-quality, amateur copying of digital recordings been so easy. Freely downloadable CD “rippers”²¹ and “encoders,”²² and low-cost “burners,”²³ are now available. More and more computer users are acquiring the necessary means to distribute, receive, and preserve exact copies of near-perfect sound recordings. With the right tools in hand, anyone can traffic in copyrighted mate-

¹⁸ See, e.g., RIAA press release, RIAA Releases 1999 Midyear Anti-Piracy Statistics (Aug. 17, 1999) at <http://www.riaa.com>; William Bastone, *Pirate King: Music's No. 1 Bootlegger Gets Busted—Again*, VILLAGE VOICE, February 23, 1999, at 43; Sarah Saffian, *Yo-Ho-Ho and a Stolen Video!*, DAILY NEWS, July 5, 1995; Elizabeth Corcoran, *In Hot Pursuit of Software Pirates*, WASHINGTON POST, Aug. 23, 1995, at F1.

¹⁹ See generally Matt Richtel and Sara Robinson, *Ear Training: A Digital Music Primer*, N.Y. TIMES, Jul. 19, 1999, at C6, describing digital music as “not any one thing, but rather a continually mutating set of technologies by which sounds can be made, captured, and passed around invisibly . . . don’t presume [the principal formats will] be the same a year, a month, or even a week from now.” For a preview of AAC (“Advanced Audio Coding”), a possible successor to MP3 as a compression standard, see also <http://www.mpeg.org/MPEG/aac.html>.

²⁰ “Digital phonorecord delivery” (DPD) is the term coined in the Digital Performance Right in Sound Recordings Act of 1995 (DPRSRA) to describe “each individual delivery” of a digital file such that the recipient winds up with a reusable copy, as distinguished from an ephemeral “transmission,” such as a “streaming,” online radio broadcast. 17 U.S.C. 115(d) (1999). A download of a music file from an unauthorized web site fits this description because of the residual, reusable content thus arriving on the user’s hard drive. The definition leaves room to argue that each download-hit on an infringing site constitutes an individual count of unauthorized distribution, a key consideration in the once-interpreted No Electronic Theft (NET) Act (see *infra*), which contemplates the aggregate dollar value of infringing material. Anyone who uploads another party’s proprietary music files without a DPD license (as granted by the Harry Fox Agency, see *infra* note 38) and who does not pay the statutory rate per instance, is pirating. For an expansive discussion of rights in digital music, mostly beyond the scope of this paper, see generally Bob Kohn, *A Primer on the Law of Webcasting and Digital Music Delivery*, at <http://www.kohnmusic.com/articles/newprimer.html> (last visited Oct. 18, 2000). Cohn is the Chairman of eMusic (formerly known as GoodNoise) and the former chief counsel to Pretty Good Privacy.

²¹ “Ripping” is the process of copying the binary code from a CD and loading it into a computer, via the CD drive, for conversion to a new format.

²² “Encoding” is the term used for the process of converting binary data to the MP3 format. AudioCatalyst, for example, both rips and encodes data for Macintosh as well as Windows platforms. See <http://www.xingtech.com/mp3/audiocatalyst/>.

²³ “Burning” is the process of recording data onto a blank compact disc, analogous to making a tape recording or taking a photograph. It involves an apparatus called a “burner.”

rial, and with unprecedented expediency. Hardware that can be used for the unauthorized dissemination of copyrighted material is already amply widespread among the mainstream computing public—at home, at work, and at school—and will become only more commonplace in the future.²⁴

I. MP3 UP CLOSE

MP3²⁵ was developed in 1987—light years ago in Internet terms—at the Fraunhofer Institute Integrierte Schaltungen (IIS),²⁶ a German applied-research center, as a means to compress digital signals. Its unforeseen popularity as a music medium in the cyberspace community did not sprout until about 1997, however. The software technology itself is not illegal, although it is frequently used for nefarious purposes.

MP3 cuts the number of bits in a digital music signal to between one-tenth and one-twelfth of the original size.²⁷ It operates on a “psychoacoustic” principle to jettison encoded data for all but the very sound that the human ear can perceive.²⁸ No longer must whole tracks be prohibitively large for the average home computer system, as had been the case prior to widespread compression standards. The MP3 format can pare the average 60-megabyte (MB) track down to about 5 MB, with a single megabyte being able to hold about a minute’s worth of converted stereo music signal.²⁹ Downloading a complete MP3 track at 56.6 kilobits per second (kbps) takes only a matter of minutes.³⁰

To make an MP3 file of a track from a CD, a user first “rips” (figuratively) the binary stream of a track from its source medium.³¹ To date, commercial CDs have not been factory-encoded with security

²⁴ See generally Neil Strauss, *Free Web Music Spreads from Campus to Office*, NEW YORK TIMES, Apr. 5, 1999.

²⁵ The name is short for Motion Picture Experts Group-1 Audio Layer 3. The Motion Picture Experts Group, or “MPEG” (pronounced “EM-peg”), is a family of standards for compressing digital audio and video signals. Its joint direction comes from the International Standards Organization (ISO) and the International Electro-Technical Commission (IEC). See <http://www.mpeg.org>. See also “Frequently Asked Questions about MPEG Audio AAC,” at <http://www.iis.fhg.de/amm/techinf/aac/aacfaq/index.html>.

²⁶ See <http://www.fhg.de/english/company/index.html>.

²⁷ See Gerry Blackwell, *Squeeze Play*, TORONTO STAR, August 12, 1999, for an apt comparison of compressed digital audio signals to orange juice concentrate.

²⁸ See Larry Lange, *MP3 Compression Opens Recording Industry to Hackers—Net Pirates Plunder the High Cs*, ELECTRONIC ENGINEERING TIMES, July 21, 1997.

²⁹ *Id.*

³⁰ See Ted Greenwald, *Inside Encoding.com*, WIRED, August 1999, at 142.

³¹ See *supra* note 21.

features to prevent ripping, or uploading after ripping. The signal is then converted to MP3 format by stripping out extraneous data so that only the necessary minimum is retained. Once this encoding step is completed, a user can upload the MP3 file to the Internet by posting it on a web site or in any of the unregulated, special-interest newsgroups in the Usenet family,³² or he or she can attach it to a private e-mail message to friends, family, coworkers, classmates, or anonymous, global contacts made via a service like Napster or in a "chat room."³³ After uploading, the user is fully able to retain a copy of the file (unless, of course, he or she deletes it or it becomes corrupted). The public conduction process can occur over and over again, with unlimited freeloaders on unlimited receiving ends, which can be converted to unlimited bartering opportunities. Digital music thus becomes a renewable resource like no other.

MP3 files require special playback software, aptly called a "player," to run on the desktop. At the time of writing, the most popular MP3 player software for use with Windows is called Winamp.³⁴ The Macintosh player of choice is called Macast.³⁵ Several MP3-specific search engines³⁶ have emerged, most notably <http://mp3.lycos.com> and <http://www.audiofind.com>. They do not distinguish rogue sites from the authorized locales (such as eMusic, formerly known as GoodNoise) that pay statutory royalties³⁷ in accordance with the "Digital Phonorecords Distribution" (DPD) license granted

³² In these bulletin board-like hideouts, users can anonymously place and fulfill individual requests for specific songs, as though in a free restaurant, while their comrades seem to serve up their own potluck specials at leisure. A search of Usenet newsgroups on December 22, 1999 (relatively early in the Napster period) revealed seventeen dedicated areas with MP3 in their names. See, e.g., alt.binaries.sounds.mp3.requests; alt.binaries.sounds.mp3.nospam; or alt.binaries.sounds.mp3.1990s.

³³ A "chat room" is an online forum where many Internet users can gather at once, often anonymously, to communicate with each other in real time about a particular subject.

³⁴ Downloadable at <http://www.winamp.com>.

³⁵ Downloadable at <http://www.macamp.net>.

³⁶ A "search engine" is an interactive web site that locates requested information on the Internet, given key words.

³⁷ Lycos's disclaimer is upfront about the likelihood of tracking down unauthorized material online: "When accessing MP3 files on the Internet, you are accessing content over which Lycos and FAST have no control. The content in those files is determined entirely by other parties who make those files available on the Internet, and those other parties are solely responsible for such content. Lycos and FAST have no control over that content and have NO responsibility for such content. Rather, Lycos and FAST are merely providing access to such content as a service to you. Lycos and FAST expect all who use the Internet to abide by all laws, including all copyright and other intellectual property laws. It is the policy of Lycos and FAST to respond expeditiously to claims of intellectual property infringement." At <http://mp3.lycos.com/disclaimer.html>.

by a publishers' clearinghouse like the Harry Fox Agency (HFA).³⁸ eMusic, for example, distributes MP3 files online on behalf of independent (or "indie") label Rykodisc and "submit[s] regular reports to HFA, account[s] for each song purchased, and pay[s] the appropriate statutory payments to HFA for distribution to copyright owners."³⁹

II.

THE (CURRENT) POPULAR APPEAL OF MP3

Convenience and price account for most of MP3's mass attraction. The format allows the transmission of music files to be unusually time- and space-effective. Especially in contrast to the common, but bulkier, "wav" files,⁴⁰ the MP3 format provides an ideal, expedient way to obtain entire song files. One counterintuitive feature of the technology, however, is that its fidelity does not represent a leap forward. In fact, its sound is often described, at best, as "near-CD quality."⁴¹ Many desktop PCs' small speakers, moreover, do not do wonders for recorded music, but millions of MP3 users have willingly turned their CPUs⁴² into de facto stereos nonetheless, with the aid of headphones. A few have craftily rigged their soundcards to their component sound systems, and in late 1999 a company called X10.com rolled out a wireless gadget called "MP3 Anywhere," which sends the MP3 signal from the CPU to a plug-in unit in the headphone jack of a stereo receiver up to one hundred feet away.⁴³ Also in 1999, several

³⁸ The Harry Fox Agency (HFA) is the licensing and royalty-collecting subsidiary of the National Music Publishers' Association (NMPA), which is to the distribution of sound recordings what the American Society of Composers, Authors and Performers (ASCAP) (<http://www.ascap.com>) is to public performances of them. It is the principal trade association for music publishers and represents over twenty thousand members in the United States.

³⁹ Press release: The Harry Fox Agency, Inc. and Goodnoise Corporation Enter into MP3 Digital Phonorecord Delivery License Agreement (Feb. 3, 1999) at <http://www.nmpa.org/pr/goodnoise.html>. (This paper does not address digital phonorecord delivery's cousin forms of online audio, such as "streaming" or "webcasting," which are quasi-real-time transmissions that do not result in an enduring copy at the receiving end. Their distribution and licensing implications vary somewhat from those of DPDs and will be the subject of a future paper by the author of this paper.)

⁴⁰ A "wav" (pronounced "wave") is a sound file in a common, Windows-compatible format.

⁴¹ See, e.g., Chris Stamper, *Blame It on Rio* (Oct. 16, 1998) at <http://www.abcnews.com>. Some MP3 files' sound is so crisp, however, that the difference is negligible or even unnoticeable when played through headphones.

⁴² A "CPU," short for "central processing unit," is the main brain of a desktop computer, in which the memory is stored and in which electronic operations are carried out.

⁴³ See Christopher Jones, *MP3s Anywhere You Are* (Oct. 28, 1999) at <http://www.wired.com/news>.

manufacturers introduced in-dash, car-audio MP3 players.⁴⁴ MP3 has truly arrived, to a fanatic, if delayed, welcome.

From a consumer's standpoint, track-by-track downloadability also promotes flexibility where it has not existed before. In an online marketplace, the format allows an a la carte choice of titles to buy. Now, one can decline uninteresting tracks by an artist or group, rather than having to pay bloated retail prices for a full CD that might well contain several "filler" tracks or "throw-aways."⁴⁵ In true roll-your-own style, one can also "burn" (i.e., mint) homemade CD-Rs⁴⁶ in any customized configuration one prefers, and can play them back in PCs' CD-ROM drives. College students, for example, can pursue this pastime in common computing centers or in the privacy of their own dorm rooms. Many schools now provide direct access to lightning-fast T1⁴⁷ or even T3⁴⁸ connections, which put respectable 56.6 kbps, cop-per-line modems to shame.

Many recording artists are also embracing MP3 as an alternative delivery medium.⁴⁹ Some of those to adopt the format have been disenchanted with their own business dealings with record companies, and some are fledgling bands whose only viable option is to distribute their music online directly, to a listener base, absent a recording contract. Ironically, an ensemble or artist who would circumvent the traditional label route would thus forgo valuable promotional backing, so this marketing approach may prove to be of limited impact among all but established or quickly rising acts.

What ultimately brought MP3 out of relative obscurity and into the public consciousness and controversy as much as any other forces were the advent of the "Rio," a portable, Walkman-like MP3 player,⁵⁰

⁴⁴ See, e.g., Michel Marriott, *MP3 Goes on the Road: A Digital Player for the Car*, NEW YORK TIMES, Oct. 28, 1999, at G3.

⁴⁵ Most CDs these days are not brimming with equally appealing songs. They might contain, for example, two or three hits and nine or ten non-starters, analogous to what used to be called "B sides" in the days of the 45-rpm vinyl single.

⁴⁶ "CD-Rs" are user-recordable compact discs. They are analogous to, but still far less common than, blank cassette tapes. A single CD-R, which costs less than two dollars, can store hundreds of MP3 song tracks in its 650 MB capacity. Greg Michetti, *Revolution in Portable Audio*, TORONTO SUN, May 28, 1999, at C7.

⁴⁷ A "T1 line" is a high-speed, high-bandwidth, leased line connection to the Internet. T1 connections deliver information at 1.544 megabits per second. *Netdictionary* at <http://www.netdictionary.com> (last visited Oct. 21, 2000).

⁴⁸ A "T3 line" is a high-speed, high-bandwidth, leased line connection to the Internet. T3 connections deliver information at 44.746 megabits per second. *Netdictionary* at <http://www.netdictionary.com> (last visited Oct. 21, 2000).

⁴⁹ See, e.g., Patti Hartigan, *Byrd Man Sees Promise of Digital Music*, BOSTON GLOBE, July 14, 2000, at D1.

⁵⁰ Market research firm Forrester Research projects 1999's sales of the devices to be in the neighborhood of one million, and for thirty-two million to exist by 2003. Like VCRs

and the recording industry's recent, but unsuccessful, attempt to have it banned from the market. In the recent decision in *Recording Indus. Ass'n of America v. Diamond Multimedia Sys., Inc.*,⁵¹ the Ninth Circuit frustrated record companies' antipiracy efforts and confused many who thought that they had known (intuitively, at least) what a "recording device" was. The court's decision gave the green light to the mass production and marketing of portable, MP3-playing devices, and in turn shocked and scared the recording industry into facing the Internet Age.

III.

APPLICABLE STATUTES

A. *Audio Home Recording Act (AHRA)*

The Ninth Circuit's rationale in the unanimous Rio decision was based on a curious, often counterintuitive, but unanimous, interpretation of the Audio Home Recording Act (AHRA).⁵² This 1992 statute, which added a new Chapter 10 to Title 17 of the U.S. Code, had been drafted in anticipation of the rise of digital audio tape (DAT) devices. It permits consumers to reproduce their own copy of a sound recording, for non-commercial purposes,⁵³ and requires digital audio recording devices to contain a "Serial Copying Management System" (SCMS)⁵⁴ to control the replication of digital (and thus exact) copies of a recording.⁵⁵ It also requires their manufacturers to pay minor statutory royalties to record companies in order to offset potential economic losses resulting from home taping.⁵⁶

Diamond⁵⁷ had neither implemented an SCMS scheme nor paid the AHRA's statutory royalties on units sold. The RIAA had sued the manufacturer of the Rio, which can play any MP3 file, whether legiti-

and calculators before them, their prices will probably fall (from the current \$200 and above) if and when they catch on. *See, e.g., Frances Katz, Music Industry Embraces Net, ATLANTA JOURNAL AND CONSTITUTION, June 30, 1999, at 5D. See also Gerard Grach, Support Your Local MP3, NEW MEDIA AGE, June 17, 1999, at 12.*

⁵¹ 180 F.3d 1072 (9th Cir. 1999).

⁵² 17 U.S.C. § 1001-1010 (1999).

⁵³ *Id.* § 1008 (1999). This pre-MP3-era provision could be more specific about what a consumer may do with such homemade copies. The drafters appear not to have foreseen the brisk phenomenon of unauthorized MP3 distribution in the forms of posting and trading. (The statute may mislead some to believe that they may make as many copies as possible and then distribute them to, and trade them with, others however they please.)

⁵⁴ *Id.* § 1002 (1999).

⁵⁵ The act defines "serial copying" as the duplication in a digital format of a copyrighted musical work or sound recording *from a digital reproduction* of a digital music recording" (emphasis added), 17 U.S.C. § 1001(11) (1999).

⁵⁶ 17 U.S.C. §§ 1003-1004 (1999); §§ 1005-1007 (1999).

⁵⁷ *See* <http://www.diamondmm.com>.

mately downloaded or not, or whether “space-shifted”⁵⁸ from a legitimately bought CD or not. The suit alleged that the Rio is a digital audio recording device, subject to the provisions of the AHRA.⁵⁹ Diamond countered that AHRA did not apply to computers or to peripheral devices, and that the Rio was just a playback device—not a recorder—and thus exempt. The manufacturer won, and now web-using music consumers have an approved, accessible, new hardware dimension to their hobby. The court held that the Rio is not a “digital audio recording device” within the terms of the pre-MP3-era statute. Although the product clearly records digital music (through a cable running from a port in the CPU), the court distinguished it from technology like the now-obscure DAT recorder. It noted that the Rio cannot make subsequent copies, and does not record directly, but rather takes on data from an intermediate, multi-purpose hard drive.⁶⁰

Computers and storage media like CD-Rs do not fall within the purview of the AHRA, even though they are fully capable of holding, providing, or receiving unauthorized recordings, such as infringing MP3 files. A hard drive is not exclusively an audio recording device, so computers need not comply with the AHRA’s SCMS requirement. The distinction lies not in the individual consumer’s primary, or even exclusive, use of an individual appliance, but in the primary purpose for which a product is designed and sold. Consequently, the manufacturers of multi-purpose devices that are equally capable of producing an illicit digital recording neither pay the statutory royalties nor include SCMS measures. The AHRA is limited in its ability to stop or slow MP3 piracy, as the Rio decision confirms, so copyright holders will have to look to other statutes for more effective protection from pirates.

B. *Digital Millennium Copyright Act (DMCA)*

In late 1998, President Clinton signed the Digital Millennium Copyright Act⁶¹ into law. The statute implements the terms of two as-

⁵⁸ “Space shifting” is the process of moving a recording from one medium or format to another. It is the physical counterpart to “time shifting,” a concept articulated in *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984). The Audio Home Recording Act (AHRA) permits such qualified use.

⁵⁹ During the pendency of the litigation, RIAA president Hilary Rosen said of the device, “What they call a file transfer is really a copy.” See Chris Stamper, *Blame It on Rio* (Oct. 16, 1998) at <http://www.abcnews.com>.

⁶⁰ Inevitably, however, hackers have posted code that would allow retrograde transmission of data from a Rio back to a hard drive, inconsistent with the intended use of the device. See Robert Wright, *MP3 News Moving Fast and Furious*, *TORONTO STAR*, Feb. 18, 1999.

⁶¹ Title II, Pub. L. No. 105-304, 112 Stat. 2860.

yet-unratified treaties of the World Intellectual Property Organization (WIPO), an arm of the United Nations: the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty, which were finalized in Geneva at the end of 1996. These two treaties, which require signatory nations to protect rights in each other's copyrighted works, are intended to revise the current Berne Convention for the Protection of Literary and Artistic Works.

The DMCA also outlaws the circumvention of "technological protection measures."⁶² Such actions include the defeating of user-specific lock-and-key encryption schemes. This provision is especially relevant to MP3 piracy because of recent cross-industrial initiatives to encode copyrighted recordings with "digital watermarks," which could prevent the playback of illegitimate copies.⁶³

The DMCA exempts Internet service providers (ISPs) from liability for unauthorized, copyrighted material contained in their users' transmissions or on web sites that sit on the providers' servers, as long as the providers did not know of the presence of infringing material in their midst, did not derive any financial benefit from the use of such material, and acted "expeditiously to remove" or block such material upon formal notification (as by the RIAA, for example) of its presence on their systems.⁶⁴ Receiving revenue from a web site's banner ads could constitute financial benefit associated with the activity.⁶⁵

An ISP must name an agent to receive notice of any infringing material.⁶⁶ The U.S. Copyright Office's web site⁶⁷ maintains a list of ISPs' infringement-notice agents. Providers are not naturally inclined to police perpetually every stretch of bandwidth⁶⁸ on their servers at all times, so the "notice and takedown" provisions of the DMCA depend largely on the diligence of watchdogs who may or may not happen upon the infringing material immediately.⁶⁹ Given the number of MP3 files in cyberspace today, a copyright holder could face a considerable time investment in order to seek and silence unauthorized downloadable editions.

⁶² 17 U.S.C. § 1201 (1999).

⁶³ See discussion of the Secure Digital Music Initiative (SDMI), *infra*.

⁶⁴ 17 U.S.C. § 512 et seq. (1999). This procedure is known as "notice and takedown."

⁶⁵ See Recording Industry Association of America, *Soundbyting Top 10 Myths*, at <http://www.soundbyting.com> (last visited Oct. 21, 2000).

⁶⁶ 17 U.S.C. § 512 (1999).

⁶⁷ See <http://www.loc.gov/copyright>.

⁶⁸ "Bandwidth" is "the amount of information or data that can be sent over a network connection in a given period of time. Bandwidth is usually stated in bits per second (bps), kilobits per second (kbps), or megabits per second (mps)." *Netdictionary*, at <http://www.netdictionary.com> (last visited Oct. 21, 2000).

⁶⁹ See, e.g., *infra* notes 89-90.

The DMCA will strengthen international mutual protection of copyrighted materials, but it is beyond the ability of Congress to ratify the WIPO treaties: They will not be binding until thirty nations have signed them. In the meantime, the United States remains a signatory to the Berne Convention for the Protection of Literary and Artistic Works, which copyright scholar Paul Goldstein describes as requiring “essentially an act of faith, faith that the other member countries will extend copyright protection to the works of foreigners on at least the minimum terms in the treaty.”⁷⁰ One of the other problems with the Berne Convention, as Goldstein points out, is that there are no enforcement procedures associated with it.⁷¹ Of course, the sticky and unresolved issue of jurisdiction in cyberspace makes harmonization of international laws all the more important, yet elusive.

The DMCA’s immunity provisions thus will provide an incentive for ISPs to intervene when necessary, and they will make it worth ISPs’ while to be vigilant in responding to alerts of violations in their own back yards. The security-circumvention provisions will also deter some of the less tenacious (and less brave) hackers from crashing toward protected material that they do not have permission to access, but we should be cautiously pessimistic here because hackers have always been notorious for persisting in efforts to raise the bar of computer mischief.⁷² To date, there have been no appellate decisions interpreting the DMCA. Future cases will likely include litigation against ISPs who do not remove unauthorized MP3 files “expeditiously” enough.

C. *No Electronic Theft (NET) Act*

The cause of antipiracy gained a more potent criminal statute in December of 1997 with the signing of the No Electronic Theft (NET) Act,⁷³ which had passed unanimously in each house.⁷⁴ Willful infringement for “commercial advantage” or “private financial gain” or, during any 180-day period, reproduction or distribution of one or more copies or phonorecords of one or more copyrighted works with a total retail value of over \$1,000, can now result in a six-figure fine

⁷⁰ Paul Goldstein, *COPYRIGHT’S HIGHWAY* 187 (1994).

⁷¹ *Id.*

⁷² See, e.g., Sara Robinson, *Researchers Crack Code in Cell Phones*, *NEW YORK TIMES*, Dec. 7, 1999; Yuzo Saeki, *Hacker Delays Launch of New DVD Machines in Japan*, *REUTERS*, Dec. 3, 1999. See also *infra*, note 117.

⁷³ Codified throughout 17 U.S.C. and 18 U.S.C. (1999).

⁷⁴ U.S. Department of Justice’s summary of the statute, at <http://www.usdoj.gov/criminal/cybercrime/netsum/htm> (last visited Oct. 21, 2000).

and a sentence of up to three years in prison.⁷⁵ Penalties increase for repeated offenses, and in proportion to the extent of infringement.

The NET Act finally closed the pernicious “LaMacchia loophole,” which had allowed persons to escape criminal liability for posting proprietary materials online without authorization if they did not receive or derive any commercial benefit from their actions. The statute is a legislative response to a federal case involving a former MIT student, David LaMacchia, who ran a bulletin board system⁷⁶ called Cynosure, which encouraged members to upload software programs to it. LaMacchia would then move the proprietary material to another location, from which users with a password could access it and download it at no cost.⁷⁷ LaMacchia was arrested for copyright infringement, but ultimately the district court acquitted him because he never had realized any financial or material gain, and so his actions had not been, technically, illegal under U.S. copyright law. Nevertheless, many copyright holders’ valuable material was exposed in the public forum (i.e., cyberspace) for unlimited, unauthorized, free copying. Following the disappointing outcome in court, the software industry lobbied heavily for legislation to close the loophole.

The NET Act defines “financial gain” to include “receipt, or expectation of receipt, of anything of value, including the receipt of other copyrighted works.”⁷⁸ Not a cent need change hands in order for liability to attach, and thus the criminal statute brings a substantial number of amateur MP3 users within its crosshairs, particularly those who traffic in high volumes of material. A victimized copyright holder may submit a “victim-impact statement” to describe and quantify injuries,⁷⁹ but giving meaningful information can be a tricky proposition: In any given case, there might not be any preserved record, such as a visitor counter on the infringing web site, to use as evidence of the extent of freeloading. Furthermore, the statute is not entirely clear as to whether each “hit” by a freeloader (which may or may not even result in a successful, complete download of one or more pirated files) constitutes a separate count of infringing distribution. That is a matter the courts will have to decide in the inevitable future cases.

In November of 1999, the U.S. District Court for the District of Oregon meted out the first sentence under the newly passed NET

⁷⁵ 17 U.S.C. § 506 et seq.; 18 U.S.C. § 2319 et seq. (1999).

⁷⁶ A “bulletin board system,” or “BBS,” is a specific dial-up locale whereby users can communicate with each other or post or access content. It was a popular Internet medium before the 1990s advent of the World Wide Web and thus today’s ubiquitous “web site.”

⁷⁷ *United States v. LaMacchia*, 871 F. Supp. 535 (D. Mass. 1994).

⁷⁸ 17 U.S.C. § 101 et seq. (1999).

⁷⁹ 18 U.S.C. § 2319A(d)(2)(c) (1999).

Act, in a case that partly involved MP3 piracy. Jeffrey Gerard Levy, an undergraduate at the University of Oregon, received two years of conditional probation⁸⁰ for criminal copyright infringement under 17 U.S.C. § 506(a)(2) and 18 U.S.C. § 2319(c)(1), having pled guilty three months earlier to charges that he had posted music files, computer software, entertainment software, and digital movies on his web site—all on the school's server.⁸¹ University officials alerted legal authorities after they noticed and investigated an unusually high level of bandwidth traffic in connection with Levy's web site.⁸² The FBI and Oregon State Police obtained a warrant to search the student's apartment, and then seized his computer equipment. Levy's web site was found to contain copyrighted software, music files, and clips from feature films, but due to the novelty of the case and a shortage of resources, the U.S. Attorney's office did not conduct a full forensic test on Levy's machine, so they were unable to discover the identities of any of his piracy associates or correspondents.⁸³

For the volume of piracy alleged, Levy could have received a three-year prison term and a fine of up to \$250,000, but the court was unable to determine a reliable figure for the total value of the posted material in question. (Levy agreed that it was more than \$5,000.)⁸⁴ Sentencing guidelines for criminal copyright infringement are based largely upon the total retail value of material in question.

Although the NET Act makes criminal prosecution for MP3 piracy substantially easier, it cannot act as a panacea within today's Internet climate because there are too many convictable pirates (often acting correspondingly as freeloaders as well), and only finite public resources for enforcement. The federal government has a shiny, new weapon in the NET Act, but it is massively outgunned by a nation full

⁸⁰ The court also originally barred Levy from using the Internet during the period of his probation but changed its stance when Levy asserted that he needed it in order to complete his thesis. Software and Information Industry Association of America, *First Software Pirate to Be Convicted and Sentenced Under 1997 Net Act*, at <http://www.siaa.net/piracy/news/jefflevysentence.html> (last visited Nov. 24, 1999).

⁸¹ See generally U.S. Department of Justice press release, Defendant Sentenced for First Criminal Copyright Conviction Under the "No Electronic Theft" (NET) Act for Unlawful Distribution of Software on the Internet (Nov. 23, 1999), at <http://www.usdoj.gov/criminal/cybercrime>.

⁸² In the course of just two hours, the site put out 1.7 gigabytes (GB) of data, which was typical of its volume. Andy Patrizio, *DOJ Cracks Down on MP3 Pirate* (Aug. 23, 1999), available at <http://www.wired.com/news>.

⁸³ *Id.*

⁸⁴ U.S. Department of Justice press release, Defendant Sentenced for First Criminal Copyright Conviction Under the "No Electronic Theft" (NET) Act for Unlawful Distribution of Software on the Internet (Nov. 23, 1999), at <http://www.usdoj.gov/criminal/cybercrime>.

of rebellious and/or law-ignorant or apathetic youth.⁸⁵ Some measure of justice will always be possible as a result of the NET Act, but it will represent a mere drop in the pirate-infested waters. The Levy case sends a message to MP3 users (if only they would hear it!) that the federal government is making the interdiction of Internet piracy one of its priorities. What remains to be seen, however, is whether the public cares enough to reform its proclivities, and the extent to which the federal government continues to crack down on private individuals. As with most facets of the judicially uncharted MP3-piracy controversy, only time will tell.

IV.

RECORDING INDUSTRY RESPONSES

The recording industry continues to mobilize against MP3 piracy. The RIAA has tremendous financial resources and now focuses a considerable portion of its antipiracy budget on Internet-related offenses. In addition to its legal teams, it employs a staff of full-time Internet surfers who scour cyberspace for unauthorized music content.⁸⁶ Much of its challenge lies in finding the infringing host sites, and then in figuring out who operates them. The association also runs a whistleblower hotline program called "Badbeat," which receives and responds to reports of known and suspected music piracy.⁸⁷

In 1999, the RIAA estimated that forty percent of illegal web sites are located on college servers.⁸⁸ Tracking the files that are posted on these networks is easy enough to do from a remote location (that is, with a search engine or special tracking software), but it is another proposition altogether to police individual students' own hardware, where many illicit MP3 tracks are likely lurking.⁸⁹ Some

⁸⁵ Many of today's MP3 pirates and freeloaders do not have, and will never have, any other criminal record. Many are suburban and middle-class, and many are minors.

⁸⁶ See Doug Bedell, *As Millions Download Music off the Net, Piracy Enforcement Flounders*, DALLAS MORNING NEWS, July 27, 1999, at 1F.

⁸⁷ To report unauthorized trafficking in MP3 music files, one can telephone (800) BAD-BEAT or leave an e-mail tip at Badbeat@riaa.com.

⁸⁸ See Lou Carlozo, *ABCs of MP3*, CHICAGO TRIBUNE, Apr. 11, 1999, at 1C.

⁸⁹ For example, SUNY at Buffalo "does not monitor or generally restrict material residing on [its own] computers housed within a private domain or on non-University at Buffalo computers, whether or not such computers are attached to campus networks." However, in the event that a student is found to have trafficked illegally in unauthorized material, he or she "will be subject to the existing student or employee disciplinary procedures of the University at Buffalo. Sanctions may include the loss of computing privileges. Illegal acts involving University at Buffalo computing resources may also subject users to prosecution by State and federal authorities. . . ." See http://wings.buffalo.edu/computing/policy/Com_Net_Usage.html

schools take a decidedly hands-off approach to students' use of copyrighted material on common servers.⁹⁰

The RIAA also has struck back at institution-based online music piracy with a program called Soundbyting,⁹¹ by which it educates college administrators and students about the realities of piracy, including illegality and victims' available remedies. Over three hundred universities had joined the program as of late October 2000.⁹² The RIAA reports a modest, but encouraging, ten-percent drop in piracy on member schools' servers as a result.⁹³

Many schools have taken a proactive stance on the issue. Carnegie-Mellon University, for example, undertook a random sweep of students' accounts located on the school's servers in November of 1999, in concert with RIAA's Soundbyting program.⁹⁴ The effort turned up a potato field of unauthorized MP3 files, and the school soon disciplined a staggering sum of seventy-one students at once. (One of the hazards of this kind of sweep, however, is subsequent privacy-rights litigation.)⁹⁵ Their punishment seemed little more than a slap on the wrist: loss of (authorized) university network accounts for what little remained of the semester, and mandatory seminars in copyright law. The latter is generally a meaningless exercise for users who are aware of, yet incorrigibly irreverent toward, the gravity of unauthorized use, or who find a certain romanticism in the notion of contraband. At the time of writing, no criminal charges had been filed in connection with the raid. A similar search at the University of Florida found that 1,100 students (of 43,000) were pirating music on the school's servers, but a subsequent search, after processing the disciplinary cases of all of those students, turned up only seventy-three of-

⁹⁰ For example, SUNY at Buffalo "reserves the right to remove or limit access to material posted on university-owned computers when applicable campus or university policies or codes, contractual obligations, or state or federal laws are violated, *but does not monitor the content of material posted on university-owned computers.*" (Emphasis added). However, the school's policy expressly calls for a user to obtain "written permission from the copyright holder . . . to duplicate any copyrighted material. This includes duplication of audio tapes, videotapes, photographs, illustrations, computer software, and all other information for educational use or any other purpose." *Id.*

⁹¹ See generally <http://www.soundbyting.com>.

⁹² Author's telephone inquiry to RIAA's antipiracy unit, October 25, 2000.

⁹³ *Id.*

⁹⁴ See, e.g., Doug Reece, *Co-eds Busted in MP3 Crackdown* (Nov. 8, 1999), at <http://www.mp3.com/news>.

⁹⁵ Privacy rights are beyond the scope of this paper, and no such litigation was known to be under way in connection with this raid at the time of writing, but see generally ELLEN ALDERMAN & CAROLINE KENNEDY, *THE RIGHT TO PRIVACY* (1995).

fending files.⁹⁶ Several dozen other cases at the same school have arisen from roommates blowing the whistle on each other.⁹⁷

The International Federation of the Phonographic Industry (IFPI) has been mounting various global efforts as well. In March of 1999, for example, the association pressed criminal charges against the FAST Search & Transfer ASA search engine, a Norway-based compiler of links to MP3 files on the Internet.⁹⁸ FAST had licensed its search engine and database to Lycos, another search-engine operator.⁹⁹ Most of the files to which it provided links were unauthorized.¹⁰⁰ The IFPI's French, Czech, Finnish, Swedish, Danish, and German offices have similarly pressed criminal actions and have petitioned for injunctions against various web site operators who propagated illegal MP3 materials. Since June of 1998, over eighty letters have gone to operators of pirate web sites in South Korea, with a shut-down success rate of about two-thirds, for example.¹⁰¹

In November of 1999, the IFPI announced another global anti-piracy campaign. It will pursue two principal categories of targets: parties who upload unauthorized music, and the ISPs that host sites containing any such files.¹⁰² This initiative will involve sending warnings and cease-and-desist letters, as well as civil actions filed against those who do not comply with demands to remove the unauthorized content. In the past year, the IFPI has filed civil suits against operators of web sites in China, long a Mecca of CD and software piracy.¹⁰³

One of the key, but unsettled, issues in Internet law generally is that of jurisdiction. This is one reason why international treaties are so important. Fully equipped web users can be situated just about anywhere, even in much of the developing world. At least where U.S. jurisdiction applies, the encoded music that traverses the globe in the form of MP3 files is unmistakably subject to U.S. copyright protection, although the more specific issue of venue may take some working out. The IFPI's international initiatives, of course, cannot function optimally without the continued cooperation and sympathies of police

⁹⁶ The RIAA pressed the university for the names of the students in question, but officials would not reveal their identities. See Doug Reece, *U. of Piracy* (December 7, 1999), at <http://www.mp3.com/news>.

⁹⁷ *Id.*

⁹⁸ See Alice Rawsthorn, *Music Industry Launches Legal Battle Against Internet Piracy*, FINANCIAL TIMES, Mar. 25, 1999.

⁹⁹ *Id.*

¹⁰⁰ *Id.*

¹⁰¹ See IFPI press release: *Recording Industry Aims Global Crackdown on Internet Pirates* (Oct. 28, 1999), at <http://www.ifpi.org>.

¹⁰² *Id.*

¹⁰³ See, e.g., *Record Industry Acts on China Pirate Websites*, REUTERS, Dec. 15, 1999.

forces and courts worldwide, who might or might not (yet) consider digital music piracy to be an urgent threat to domestic economic interests.

In 1999, the Japanese Society for Rights of Authors, Composers, and Publishers (JASRAC) embarked on an ambitious security plan, tentatively called "Dawn 2001," which aims to encode anti-copying, work-specific data into official, factory-made CDs.¹⁰⁴ The data in the binary signal would survive a compression process and allow the tracking of illegally distributed MP3 files made from these CDs.

Although Dawn 2001 is a clever idea, it is still far from fruition. It is the sort of effort the recording industry should have developed years ago. In the meantime, mountains of music remain unprotected. Alas, this kind of safety measure likely will not cover the full range of CDs under the group's authority because of preexisting unprotected CDs and the high volume of knockoff CD trafficking.

V.

SECURE DIGITAL MUSIC INITIATIVE (SDMI)

At the end of 1998, over 120 organizations and firms from various international electronics and music-related industries formed a consortium and embarked on an ambitious anti-piracy mission called the Secure Digital Music Initiative (SDMI).¹⁰⁵ SDMI has been mistakenly called a technology, but it is really an in-progress, cross-industrial forum for developing a "voluntary, open framework for playing, storing, and distributing digital music necessary to enable a new market to emerge."¹⁰⁶ SDMI's aim is to develop "an overall architecture for delivery of music in all forms,"¹⁰⁷ not just MP3. Most record companies have been wary of selling music via digital phonorecord delivery without an effective infrastructural antipiracy plan in place. Like any compromise that tries to be too many things to too many parties, however, SDMI alone will not be enough for copyright holders to gain a sustainable strategic advantage in the ultimately unwinnable war on MP3 piracy.¹⁰⁸ If SDMI ultimately succeeds in its efforts, it will be a key battle victory at a critical time, amidst a wild-West mentality that re-

¹⁰⁴ See *System Set to Counter Music Piracy on Net*, DAILY YOMIURI (Tokyo), June 15, 1999, at 12.

¹⁰⁵ For a complete list of member entities, see <http://www.sdmi.org>.

¹⁰⁶ *SDMI Fact Sheet*, at <http://www.riaa.com> (last visited November 15, 1999).

¹⁰⁷ *Id.*

¹⁰⁸ For a more expansive critique of SDMI, see David E. Weekly, *Why SDMI Will Fail* (May 17, 1999), at http://www.hitsquad.com/smm/news/9905_113/. As of May 1999, Weekly was a student at Stanford University. In 1997, Weekly posted his entire music collection on his web site on his school's server, which almost crashed because the traffic was so heavy. When Geffen Records contacted Stanford, Weekly removed the content, which he had not

gards online copyright protection as an oxymoron, repugnant, or just an antiquated vestige of pre-digital times.

SDMI has developed with an eye toward two principal phases of implementation: Phase I, announced in June of 1999, calls for agreement on SDMI's technical specifications and the platform in which portable MP3 players would operate.¹⁰⁹ These devices will play music files in all digital formats, whether protected by security technology or not. They are expected to be upgradeable to accommodate a still hazy Phase II security plan by some point in 2001, although device owners will not have to upgrade their units.¹¹⁰ This lack of obligation is worrisome because if the listening public should choose not to cooperate with SDMI's plans, the initiative will have little impact. (A survey of Phase I player owners, conducted just after the start of Phase II, would be an excellent way to gauge public receptivity to SDMI in general, and therefore would be a useful predictor of its success.) Neither Phase I nor Phase II will prevent users from ripping and uploading music, or from downloading any unauthorized music that will undoubtedly continue to lurk in the more shaded crevices of the Internet.¹¹¹

A special screening technology will be built into the next generation of portable players. It will scan the binary signal for a digital "watermark,"¹¹² which has been chosen but not yet implemented.¹¹³ Accordingly, Phase II-compliant devices will reject pirated copies of post-SDMI-released content only.¹¹⁴ Since the announcement of Phase I in August 1999, ARIS Technologies, Inc. has licensed its proprietary watermarking process, "ARIS-SDMI-1" (based on U.S. Patents 5,774,452; 5,828,325; and 5,940,135), to the SDMI-member manufacturers of portable devices like the Rio.¹¹⁵ Artists and record companies can choose whether or not to encode their releases with the inaudible watermarks.

been authorized to post for distribution. Patti Hartigan, *The Prophet Chuck D., on MP3*, BOSTON GLOBE, Feb. 12, 1999, at E1.

¹⁰⁹ Secure Digital Music Initiative, *SDMI FAQ*, at <http://www.sdmi.org> (last visited Oct. 21, 2000).

¹¹⁰ *Id.*

¹¹¹ See SDMI press release: *SDMI Announces Standard for New Portable Devices* (June 28, 1999) at <http://www.sdmi.org>.

¹¹² See generally Konrad Roeder, *How Watermarks Protect Copyrights* (Nov. 4, 1999), at <http://www.mp3.com/news>.

¹¹³ SDMI press release: *SDMI Identifies Audio Watermark Technology for Next Generation Portable Devices for Digital Music* (Aug. 9, 1999), at <http://www.sdmi.org/dscgi/ds/py/Get/File-611/sdmiAug9.htm>.

¹¹⁴ *Id.*

¹¹⁵ ARIS Technologies, Inc., *SDMI Phase I Watermark Technology License Agreement* (Aug. 20, 1999), at <http://www.mp3.com/news>.

In the near term, SDMI will be of limited effect in preventing piracy, but eventually it could become the copyright-protection standard worldwide. It will have to be much more carefully crafted. One looming hazard is that consumers who buy primarily used CDs might not even bother to upgrade their portable devices for Phase II because their collections will not contain the forthcoming digital-watermark security system. Perhaps the most major threat to SDMI, however, is a cracking of the code it will use. After the 1999 DVD code breach,¹¹⁶ defeating the SDMI security measures (a violation of the Digital Millennium Copyright Act) could be the hacker community's next Holy Grail.¹¹⁷

CONCLUSION

Members of the recording industry are starting to learn, particularly in light of the Napster phenomenon, that the consumer market likes MP3's convenience and demands digital phonorecord delivery.¹¹⁸ When a secure MP3 retailing system is in place and/or a workable successor format emerges, the Big Five record companies will be in a position to embrace and promote the downloadable-music movement. (After all, film studios were once very nervous about the potential ascendancy of the video cassette recorder in the home, but one of the results of their failure to repress that technology in court is that more than half of the film industry's revenues now derive from home video.)¹¹⁹ These firms may even find it profitable to lease advertising space on their e-commerce web sites. When they realize just how lucrative the new order is and will be, they will praise the Ninth Circuit's Rio decision for all that it is and will be worth to them in terms of consumer revenue, but only if they can provide an alternative that is no less appealing than copying copies of copies.

Estimates vary sharply as to the percentage of retailed music that will be distributed online, by which future year. Some experts forecast

¹¹⁶ See, e.g., Sara Robinson, *Researchers Crack Code in Cell Phones*, NEW YORK TIMES, Dec. 7, 1999; Yuzo Saeki, *Hacker Delays Launch of New DVD Machines in Japan*, REUTERS, Dec. 3, 1999.

¹¹⁷ At the time of writing, SDMI had just run a contest to see whether any of six security codes could stand up to hackers, and it was evaluating claims by several entrants who alleged that they had cracked these systems. Benny Evangelista, *Hacker Contest Won't End Music Debate*, SAN FRANCISCO CHRONICLE, Oct. 16, 2000 at D1.

¹¹⁸ eMusic now sells downloadable recordings for \$.99 per song track, and \$8.99 per full-length CD. These prices are embarrassingly competitive for the consumer market and reflect the absence of several levels of middlemen in the supply chain. See generally <http://www.emusic.com>.

¹¹⁹ See Steven V. Brull, *Are Music Companies Blinded by Fear?* BUSINESS WEEK, June 28, 1999, at 67; *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

the numbers as high as eighty percent of commercially sold singles, within five years.¹²⁰ Market research firm Forrester Research projects the total annual value of commercially downloaded music to top \$1 billion by 2003.¹²¹ Jupiter Communications, however, puts the figure at closer to \$150 million by the same year.¹²² Whichever figure is the more reliable one would be even higher except for the inevitable piracy of the day, which will be difficult to assess.

It will take some time to analyze the behavioral trends of a market within a whole new model and a whole new set of purchasing dynamics. Similarly, it is too early to tell whether most consumers will prefer the traditional, store-bought version of a recording or whether invisible MP3 files will suit widespread popular taste as a primary format. However, if listeners are just as pleased with an electronic version, many will still prefer to obtain it for free, as long as it is sonically indistinguishable from the "genuine" article. Underground trading will continue to occur among listeners who are not concerned about collecting and possessing official editions, especially in an era of downloadable recordings, which, by their nature, need not include accompanying artwork or other packaging. Record companies will need to find a way to persuade listeners to prefer commercial music files to infringing versions, be they downloaded from a pirate site, located through Napster or something analogous, or just a copy of a friend's original CD source. Out-of-print material will still be otherwise hard to find in an official version, however.¹²³

Copyright holders will continue to face an uphill battle in trying to sink MP3 pirates, especially when the latter are international rogues who might be anywhere and who will persist. In order to thrive in the twenty-first century, the antipiracy cause will continue to need more and higher profile criminal enforcement as a deterrent (including crackdowns on the supply side); more efficient civil causes of action for victims of infringement; more stepped-up implementation of ever-evolving technology standards for security; harmonization of international treaties and laws; clarification as to issues of jurisdiction in cyberspace; trade sanctions against nations that do not adequately respond to piracy within their borders; and far better copyright law edu-

¹²⁰ Dominic Rushe, *Music Makers Seek Harmony on the Net*, SUNDAY TIMES (London) July 11, 1999.

¹²¹ Bruce Haring, *On-line Music May Play to the Tune of \$1.1 Billion*, USA TODAY, April 12, 1999, at 1D, citing that day's report by Forrester Research.

¹²² See Chris Oakes, *Research: Sell MP3s Sell CDs* (July 19, 1999), at <http://www.wired.com/news>.

¹²³ Of course, MP3 piracy of out-of-print recordings will continue if such material remains otherwise unavailable.

cation of the Internet-using public. Ultimately, the public must be disabused of the ignorant mentality that “anything goes” on the Internet, and that “information wants to be free.”¹²⁴ Proprietary information does not want to be cost-free.

Significant antipiracy progress is in reach, but no single measure will be perfect. Without doubt, the revolution will be downloadable; history tells us that it will be pirated, but the degree remains to be seen. Eventually, far more computer users will have access to higher-speed equipment and Internet connections. Once online-available music is truly technically secure (presuming that the prospect is realistic), most honest consumers ideally would find it no less feasible to pay a reasonable amount for an expedient, quality-guaranteed, authorized download than to troll the black market of cyberspace for free files. Copyrights probably will be more technologically secure for future recordings than for works that have existed up to now. If and when MP3 becomes a more secure medium, it will flourish as the most revolutionary innovation the recording industry has seen, at least since the introduction of the CD in 1983, but only until the inevitable next better alternative renders it obsolete.

¹²⁴ This saying is attributed to *Whole Earth Catalog* founder Stewart Brand, but see where Brand crucially completes his philosophy in Joel Garreau and Linton Weeks, *AOL: Love at First Byte; Visions of a World That's Nothing But Net*, WASHINGTON POST, Jan. 11, 2000, at C01: “Yeah, I said that . . . But nobody remembers the second line, which is ‘Information also wants to be expensive.’ That’s the paradox that drives this thing.”