

IN MEMORIAM

The Music CD and Its Ends

Will Straw

Will Straw is Professor in the Department of Art History and Communications Studies at McGill University in Montreal. He is the author of *Cyanide and Sin: Visualizing Crime in 50s America*, and of over seventy articles on film, music, urban culture and visuality. william.straw@mcgill.ca

ABSTRACT Claims about the imminent death of the compact disc (CD) are discussed in terms of the format's slow loss of materiality over the past decade or more. Conceived as a precious form combining music, imagery and textual annotation, the CD's integrity has been pulled apart over several years which have seen it become a portable, mobile cultural form. As the limits of the album-length CD have lost their cultural resonance, the CD has become little more than an intermediate technology through which the transfer of music from older formats (like the vinyl album) to new storage devices (like the computer hard disc) has occurred.

KEYWORDS: music, technology, compact disc, archive, paratext

Between 2003 and 2005, the way music was sold on the streets of Mexico City mutated. Since the late 1990s, vendors had sold pirated copies of commercially released compact disc (CD) albums. They had duplicated the packaging and contents of official releases with as much fidelity as possible, photocopying original covers or running off scans with ink-jet printers. By 2005, however, virtually all the street stalls sold recordable CDs (or CD-Rs), each containing several dozen musical tracks, all in the MP3 format. The majority of these discs gathered up the whole careers of individual artists, or lengthy portions thereof. The complete works of artists like Radiohead, the Smiths or Juan Garcia Esquivel, the rediscovered Mexican lounge music star of the 1950s were assembled on single CDs or two-disc sets. More and more, street market pirates competed less with the legal vendors of entertainment software than with the archives of downloadable music available for free on the internet. Once a key part of the counterfeiters' practice, faithful copies of legitimate CD covers and booklets were no longer in evidence. The packaging for these new discs offered little more than quickly recognizable images of performers and cramped track listings produced with word processing programs.¹

CDs have been filled up and made weighty, on the streets of Mexico City, in an effort to prolong the format's appeal to customers. A CD filled with MP3s and offered for sale cannot help but seem pathetic, however, a mutation in the history of the CD form that betrays its imminent obsolescence. In this way, it is like the CD-ROM, which no longer seems like anything more than a wasteful and tiresome carrier of data between computers. In Mexico City and elsewhere, the commercial viability of the MP3-filled CD presumes a very specific and fleeting stage in the dissemination of technologies: one in which there is generalized access to playback machines which could process MP3s, but not yet to the high-speed internet connections that make digital discs, as carriers of music between computers, unnecessary. Only a few years ago, the street commerce in pirated music, in Mexico, China and elsewhere, was held up as convincing proof of the bleak future facing the cultural industries. Now the reliance of this commerce on digital discs, and on the quasi-artisanal labor needed to make and transport them, seems quaintly heroic, a means of resisting music's final loss of physical artifactuality. Those who buy pirated CDs are now considered deviant less for their support of piracy than for their outmoded attachment to the CD as an object.

Paradoxically, the ultimate demise of the CD will stem both from its weightiness as a carrier of musical abundance, and from the light portability that is now one of its most distinctive features (Figures 1 and 2). The former designates the CD's increased storage capacity relative to earlier sound carrier formats like the vinyl album or the commercially released audio cassette.² This increased capacity only hastened the migration of music from earlier formats, like the vinyl



Figure 1
Courtesy of [Shutterstock.com](https://www.shutterstock.com).



Figure 2
Courtesy of [Shutterstock.com](https://www.shutterstock.com).

album, onto the CD. Moreover, it encouraged music's journey to new places of storage like the computer hard disc, whose abundance is even greater.³ At the same time, the CD's physical lightness and easy portability detach music from the packaging, annotation and design intended to ensure the CD's value and integrity as a distinct cultural form. Automobile CD players, portable listening devices and laptop computers all encourage us to transport, store and play the CD apart from the texts and images intended to circumscribe and illuminate its musical content.

In 2007, the CD celebrated the twenty-fifth anniversary of its introduction as a consumer product. The backdrop to this milestone was a widespread belief that the CD is disappearing as a cultural artifact of any significance.⁴ In the past, 78 rpm records slowly vanished from public visibility as they were displaced by 45 rpm singles and 33 $\frac{1}{3}$ rpm albums. In contrast, the CD is not withering away or becoming increasingly scarce. On the contrary, the CD's decline is signaled in its very ubiquitousness. As they seek out those potential buyers least willing or able to download music from the internet, music companies place more and more CDs in drug stores, health food stores, supermarkets and gas station convenience stores. Compact discs were once among the most commonly stolen or easily exchanged of all household goods. Now they fill second-hand stores and charity shops whose owner-managers rarely wish to expand their stocks.⁵ The CD's pervasiveness may be read as a confession of its evaporating value.

The precipitous fall of the retail prices of CD merely fuels such perceptions. Reduced retail prices no longer seem, as they might have a decade ago, like the long-anticipated correction of an injustice. Rather, lower prices represent a desperate commercial strategy that runs just behind the collective abandonment of the CD as a meaningful cultural form. The current fate of CDs is most obvious in their status as novelty giveaways, attached with bits of glue to periodicals. When a Prince CD album was fixed to the British newspaper *The Independent* in 2007, it was difficult to tell which almost-extinct cultural form was propping up the other.

As one of its key developers admits, the CD was itself an afterthought. In the early 1970s, the Philips Company tried to produce optical discs capable of storing visual and audio information together (Immink 1998: 458–65).⁶ As they rushed to develop the videodisc, Philips' management initially dismissed the idea of audio-only optical discs as trivial. Only after their 1975 release of a Laserdisc video system failed did Philips seriously pursue the commercialization of other uses for the optical disc, including the storage and playback of audio recordings.⁷ Early cooperation between Philips and Sony, the major producers of hardware and musical recordings, meant that the commercial launch of the CD in 1982 (1983 in the United States) avoided the trap of competing standards (VHS and Betamax) that had slowed consumer acceptance of the video cassette.⁸ By 1988,

the sales of CDs in the United States were higher than those of vinyl LPs; in 1992, they exceeded those of prerecorded music cassettes (Kozinn 1988: 13; *Billboard* 1992: 1).

Echoing a pattern first established with the introduction of the long-playing vinyl album in 1948, the first years of the CD's existence were dominated by a disproportionately high number of classical music releases (Butterworth 1977: 13; Magoun 2002: 149–56).⁹ The music hardware and recording industries have long assumed that the early adapters of high-quality sound playback equipment (like stereo hi-fi, reel-to-reel tape and quadrophonic sound systems) see classical music as the genre best suited to demonstrating the superiority of new audio hardware (see, for example, Keightley 2003; Tang 2004). The first sixteen CD titles released by CBS Records, one of the first labels to issue CDs, included recordings of Holst's *The Planets*, Tchaikovsky's *1812 Overture*, Strauss' *Also Sprach Zarathustra*, Shostakovich's *Symphony No. 5* and a 60th birthday tribute to violinist Isaac Stern (Rockwell 1983: H23).

Through its reliance on classical music for much of its initial acceptance, the CD format acquired a set of specific cultural meanings. Most notably, the appeal of the format, for both industry and consumers, seemed to reside in its capacity to offer upgraded versions of older recordings originally released on LP. As Jim Collins argues, in the first decade of the CD's existence major labels required product; this need coincided with the large-scale availability of older music whose production costs had already been paid (Collins 1995: 25). Much of this material was classical music but, increasingly, the CD market was filled with reissues of older popular music repertory whose commercial potential had already been demonstrated.¹⁰

An economic logic favoring the exploitation of existing inventories spurred the migration of huge quantities of music to digital form. With time, we may remember the CD as a technology of *intermediate agglomeration*. The CD gathered up and sorted the music of vinyl records, placing it in new contexts (like boxed sets or multi-volume retrospectives), and enriching the intelligibility of any one piece of music through its proximity to large numbers of others. Weighty in a dual sense, these collections were both physically expansive and canonically substantial. For noteworthy examples, we need only look at multi-volume boxed sets like Frank Sinatra's *Concepts* (1992), whose sixteen discs gathered up all the singer's albums for Capitol Records, or *One Kiss Can Lead to Another: Girl Group Sounds Lost and Found* (2005), with its 120 tracks of early 1960s female pop. Few objects in the history of recorded music stand so firmly as monuments in both a material and cultural sense. Each act of building such monuments, however, eased the transformation of back catalogs into databases that lend themselves to relatively effortless search and retrieval operations. Unsurprisingly, these packages became easy prey for internet downloading sites, personal stockpiles contained on iPods or personal computers, and other

technologies of accumulation that followed the CD. None of these technologies presume or require the existence of the CD as a material form. Quantity and random access increased the CD's appeal. When DVD-R's, hard discs and portable MP3 players emerged in the late 1990s, they promised an even greater abundance.

As Robert Cantwell notes, vinyl LPs of the 1950s and 1960s had gathered up the dispersed 78 rpm recordings of folk or rural traditions, anthologizing them within albums that enhanced each piece's cultural legibility (Cantwell 1996: 36). A vinyl reissue project like *Jugs, Washboards & Kazoos* (RCA, 1967) did not merely pull together, from preserved 78 records, different examples of mid-1920s American jug band music. By mapping a range of performance styles believed to cohere under the "jug band" label, this album helped to solidify definitions of the genre, making each of the sixteen tracks meaningful in relation to the others. Later, CD boxed sets like *Memphis Shakedown: More Jug Band Classics* (Jsp, 2005) would bring together ninety-nine tracks from the same period, magnifying the migratory work begun almost three decades earlier. Barry Lee Pearson's (1992) account of what happened to recordings by blues artist Robert Johnson, from 78 rpm sides through 1960s vinyl compilations and on to the supposedly definitive CD collection *Robert Johnson: The Complete Recordings* (1990), captures the deepening of Johnson's canonical importance and widening of his audience with each stage in the migration of his music across formats.

Recording formats may be distinguished by the ease with which music may be transmitted "through" them, into successor technologies. We may contrast the busy migratory work of the CD with such dead-ends as the audio cassette. Audio cassettes now linger on the fringes of music collections, with no convenient means available for the digital retrieval of their content. Twenty years ago, the audio cassette seemed to threaten the future of the music industries, by allowing for the easy duplication of copyrighted material. Today, the audio cassette is a terminal resting place for idiosyncratic musical sideshows, like customized mix-tapes received from friends, personal live recordings, school concerts and illegal bootlegs of big-name performances.

John Corbett suggests that the CD renders the musical object invisible and untouchable. Its playback occurs inside a metallic box, which keeps the disc inaccessible while it is being played. Early promotional materials for the CD trumpeted its lack of surface noise. Corbett suggests a curious parallel in the CD's repression of the messy, social intelligibility of music:

The compact disc is the latest in a long line of audiophilic devices in the history of the attempt to eliminate the long-standing enemies of "fidelity" in playback: surface noise, scratch, hum, and hiss. To render music free of noise is to grant it its proper

musical status as sonically autonomous, whereas such noise foregrounds the music object as such. It draws attention to the record's blackness, its roundness, its materiality – in short, to its visual presence. (Corbett 1990: 89)

If Corbett is right, the CD's eventual disappearance was predestined in the noiseless invisibility held up as one of its virtues. When the materiality of music playback technology no longer shapes music's meanings in recognizable ways, that technology becomes little more than a temporary host for music. It fails to inspire loyalty or fetishistic attachment in the face of cheaper, more abundant alternatives, like the MP3-filled CD-R. The strong presence of classical music among early CD releases is, for Corbett, evidence of the CD's drive to position music as a pure, abstract form, detached from the material forms needed to store or play it, untainted by any "visual presence" whatsoever.

As a carrier of popular musical forms, however, the CD entered a cultural field saturated with the visual markers of identity and corporeality. At the time of the CD's introduction, mainstream figures such as Michael Jackson, Madonna, Prince, Culture Club and Cindy Lauper were all challenging the fixity of gender and racial identities. (All of these sat atop Anglo-American sales charts in the first year of the CD's commercial life.) Moreover, after the 1981 launch of MTV, the idea of popular music as an abstract, non-visual form was especially difficult to sustain. To resonate broadly, the CD had to register and display some of this visibility.

From the CD's commercial introduction in 1983, CD packaging has been loosely based on the hinged form developed in the 1960s for audio cassette cases.¹¹ Including paper inserts at the front and back, these small plastic boxes, known as "jewel boxes," remain the standard form of CD packaging. Within the music retail industry, however, many believed their diminutive size made CDs only barely visible and of limited commercial appeal. To enhance their visibility, retailers began displaying CD's in so-called "longbox" packages. These 12 in. × 6 in. cardboard constructions held the CD, already encased within a plastic box, at one end. The other end, whose cardboard wrap-around carried words and images, was used for display purposes. The longbox was a prosthesis of sorts, an appendage designed to make sure that CDs were more easily seen. It allowed record retailers to store CDs in the same deep bins that once housed vinyl albums. It also discouraged theft; much larger than the actual object, the longbox made CDs hard to conceal.

With time, music stores built shelves better suited to small-sized CDs, and electronic tagging systems became the principal means of controlling theft. Nevertheless, the longbox's eventual death is usually ascribed to environmentalist pressure. The Earth Communications Office, an ecological coalition organized within the US entertainment industries, launched the "Ban the Box" movement in 1990. Seeking

the elimination of longbox packaging for CDs, the Office claimed that it unnecessarily used paper and generated enormous waste (Rosen 1993: 83; Christman 2007: 26).¹² By 1993, major record companies and retailers had responded, replacing the longbox with alternative forms of packaging.

From the longbox onward, the CD has been plagued by an unstable relationship between the disc itself and what literary theorists would call its paratexts: the annotations, bindings, images and written commentary meant to enclose and illuminate the music recording.¹³ In the postwar history of Western popular music, the richest paratexts have been LP covers; they naturalized our sense of a given album as distinct, coherent and generally inviolable (Jones and Sorger 1999: 68–102).¹⁴ Albums as distinct in their cultural impact as Miles Davis's *Kind of Blue* (Columbia, 1959), *The Sound of Music* (RCA, 1965) or The Clash's *London Calling* (CBS, 1979) came adorned with images that helped to bring unity to highly varied collections of music. At the time of its widespread adoption, in the mid 1990s, the jewel box appeared to offer a package of almost equal perfection, one in which booklet and record, music and text-image were nestled close to each other. (Well-known examples include Radiohead's 2000 album *Kid A*, or Pearl Jam's *Vitalogy*, from 1994, with their elaborate booklets.) These paratexts imply a particular form of ideal listening event, in which a listener would pore slowly through the accompanying booklet while a musical work unfolded, each illuminating the other within a necessary interconnection.

This vision of the CD experience was based on a model of music listening which first took shape around the vinyl LP. In the 1986 film *9½ Weeks*, John (Mickey Rourke) chooses a disc from a CD collection arranged like an array of precious books, playing it on the high-end audio system installed in his apartment. This image perpetuates a 1950s model of audiophilia, which imagined domestic environments designed for a perfectly controlled experience of music (see Keightley 1996). Few would have predicted, in 1986, that the life of the CD as a cultural form would come to be bound up so strongly with its capacity for mobile listening outside of the home. Unlike vinyl records, CDs could be played in cars, on portable listening devices like the Sony Discman (introduced in 1986) and, by the 1990s, in laptop computers and DVD players. This brought CDs into many more contexts of storage, use and arrangement than was ever true of the vinyl record.

With time, the cultural practices which came to define CD listening drew more closely on the audio cassette than on a vinyl-based model of home-based, contemplative listening. In the decade after the Discman was introduced, people began using the CD more and more like the cassette-based Walkman. Introduced by Sony in 1979, the Walkman has been the focus of considerable scholarly interest, which has focused on its capacity to alter music's place within personal and social environments.¹⁵ The portable CD player



Figure 3

Courtesy of Shutterstock.com.

extended these transformations. As it moved out of domestic space, however, the CD lost its integrity as an artifact. More than cassettes, CDs were easily removed from their packages, arranged in binders, stacked in carrier cases, and flipped through by automobile drivers or joggers in moments of selection (Figure 3). More and more, a CD's jewel box and booklets remained at home, like the instruction manuals for digital watches or cell phones, in neglected collections of uncertain status and weakened paratextual usefulness. In their place, a new class of ephemeral objects appeared; CD owners could pluck CDs from their packages and place them in spindles, fanny packs, car visor holders, generic paper envelopes. Any sense of the CD as a complex package, fully meaningful only through the interaction of music and its annotative accompaniments, withered. Recordable CDs, introduced in 1988 and ubiquitous by the mid 1990s, complicated this situation. CD-Rs were added to CD travel binders and quickly adopted as a means for transferring music from one collection to another. As they began using computers to burn songs onto blank discs, consumers changed their attitudes toward music packaging. No longer were all music CDs embellished with designs, or embedded within commercial packages that included annotated jewel boxes and accompanying booklets (Figure 4). Increasingly, they were little more than naked, shiny surfaces (Figure 5). If digital music was not the abstract form described by Corbett, it had become, nonetheless, migratory, detached from the surfaces and visual-textual adornments that might stabilize it in material and cultural terms.

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I would like to acknowledge the very useful editorial advice of Elizabeth Guffey, which helped me refine my arguments, find



Figure 4

Courtesy of Shutterstock.com.

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Notes

1. Police action against Mexico City street vendors in the first half of 2008 has eliminated much of the commerce in pirate CDs or CD-Rs.
2. While blank audio cassettes were often sold in the C-120 format, which allowed for two hours of recording, prerecorded commercial audio cassettes rarely exceeded the length of vinyl albums.
3. Audiophiles will argue that the sound files on CDs, because they are compressed, contain less musical “information” than may be found on vinyl LPs, and I am not disputing this here. What I designate as musical abundance refers to the number of songs or other musical texts contained on the typical CD, a number usually larger than is characteristic of the vinyl LP.

4. See, among many quasi-satirical obituaries for the CD, “R.I.P. the CD 1982–2007” (Riemenschneider 2008).
5. For a discussion of the commerce in second-hand CDs, see “Exhausted Commodities: The Material Culture of Music” (Straw 2000).
6. Kees A. Schouhamer Immink, an engineer at the Philips Company from 1968 to 1998, tells the story of the CD’s development in “The Compact Disc Story” (Immink 1998).
7. Arguably, this sense of a lost digital visuality has hovered over the history of the CD, which could not practically include video files until well into the 1990s, when widespread ownership of home computers and DVD players made their playback possible. The rush to include video content on CDs in recent years has run up against the widespread conversion of music files to MP3’S and the decline in CD sales. The addition to music CDs of video files now seems like a desperate attempt to made CDs attractive through extended features, rather than as a restoration of the unity of sound and image which presided over the invention of the optical disc. Music retail chains like HMV have quite openly moved to marginalize music CDs and grant prime display space to DVDs, as if the former were simply an impoverished version of the latter.
8. Once development of the CD was underway, Philips and Sony, the key hardware producing companies, agreed on shared standards. For a detailed analysis of the introduction of the CD, and the ways in which it differed from that of the videocassette, see Gandal et al. (2000).
9. As Butterworth points out, the experimentation with long-playing records goes back to the 1920s, when companies developed them to provide sound accompaniment to films or as ways of distributing long-form radio programming to broadcasters. Magoun’s brief history of the introduction of the 45 rpm single is useful for its account of Columbia’s successful and virtually simultaneous launch of the 33½ rpm long-playing record in June, 1948. The LP was designed with a playing time which might reach 30 minutes per side, supposedly to accommodate popular works of classical music (Butterworth 1977: 13; Magoun 2002: 149–56).
10. CBC’s first pop releases, in 1983, consisted mostly of albums from the previous decade, such as Weather Report’s *Night Passage* (1980), Barbra Streisand’s *Guilty* (1980), Bruce Springsteen’s *Born to Run* (1975), Michael Jackson’s *Off the Wall* (1979). Only in 1985 did non-classical titles on CD outnumber classical releases in the UK market. For an analysis of this phenomenon, and of the introduction of the CD more generally, see Klaes (1997).
11. For a technical description of the CD packages, with a useful timeline, see Helferich and Sroufe (1999).

12. See, among many music industry accounts, Christman (2007). For evidence of the political mobilization behind the “Ban the Box” campaign, see United States Congress (1991). In 1993, the Earth Communications Office launched a “Fill in the Box” campaign “to encourage environmentally friendly jewel-box packaging through the use of recycled plastics.” See also Rosen (1993: 83).
13. The classic study of paratexts is Genette (1997[1987]). See also, for an account which, while it is about literature, has proved useful in thinking about music recording formats, Shevlin (1999: 42–77).
14. For a useful overview of album cover design and purpose, see Jones and Sorger (1999: 68–102).
15. The most influential volume studying the Sony Walkman is du Gay et al. (1996).

References

- Billboard*. 1992. “CD Unit Sales Pass Cassettes, Majors Say.” *Billboard*, March 14: 1.
- Butterworth, W. E. 1977. *Hi Fi: From Edison’s Phonograph to Quadrophonic Sound*. New York: Four Winds Press.
- Cantwell, Robert. 1996. *When We Were Good: The Folk Revival*. Cambridge, MA: Harvard University Press.
- Christman, Ed. 2007. “Kill The Jewel Box: A Mistake from the Start, Landfill Forever.” *Billboard*, June 23: 26.
- Collins, Jim. 1995. *Culture Life in the Information Age*. London: Routledge.
- Corbett, John. 1990. “Free, Single, and Disengaged: Listening Pleasure and the Popular Music Object.” *October* 54: 79–101.
- du Gay, Paul, Hall, Stuart, Janes, Linda, Mackay, Hugh and Negus, Keith. 1996. *Doing Cultural Studies: The Story of the Sony Walkman*. Newberry Park, CA: Sage.
- Gandal, Neil, Kende, Michael and Rafael, Rob. 2000. “The Dynamics of Technological Adoption in Hardware/Software Systems: The Case of Compact Disc Players.” *The RAND Journal of Economics*, 31(1): 43–61.
- Genette, Gerard. 1997[1987]. *Paratexts: Thresholds of Interpretation*. Trans. Jane E. Lewin. Cambridge: Cambridge University Press.
- Helferich, Omar Keith and Sroufe, Robert. 1999. “The Jewel-Box: A Life Cycle Case Study. Lombard, Illinois: Council of Supply Chain Management Professionals.” <http://cscmp.org/downloads/public/resources/casestudy/1996TheJewelBoxCase.pdf> (accessed March 31, 2008).
- Immink, Kees. 1998. “The Compact Disc Story.” *AES Journal*, 46: 458–65.
- Jones, Steve and Sorger, Martin. 1999. “Covering Music: A Brief History and Analysis of Album Cover Design.” *Journal of Popular Music Studies*, 11–12(1): 68–102.

- Keightley, Keir. 1996. "Turn It Down! She Shrieked: Gender, Domestic Space, and High Fidelity, 1948–59." *Popular Music*, 15(2): 149–77.
- Keightley, Keir. 2003. "Low Television, High Fidelity: Taste and the Gendering of Home Entertainment Technologies." *Journal of Broadcasting & Electronic Media*, 47(2): 236–59.
- Klaes, M. 1997. "Sociotechnical Constituencies, Game Theory, and the Diffusion of Compact Discs: An Inter-Disciplinary Investigation into the Market for Recorded Music." *Research Policy*, 25(8): 1221–34.
- Kozinn, Allan. 1988. "Have Compact Disks Become Too Much of a Good Thing?" *The New York Times*, December 28: 13.
- Magoun, Alexander B. 2002. *The Origins of the 45-rpm Record at RCA Victor, 1939–1948: Music and Technology in the Twentieth Century*. Edited by Hans-Joachim Braun. Baltimore, MD and London: John Hopkins University Press.
- Pearson, Barry Lee. 1992. "Standing at the Crossroads between Vinyl and Compact Discs: Reissue Blues Recordings in the 1990s." *The Journal of American Folklore*, 105: 215–26, 416.
- Riemenschneider, Chris. 2008. "R.I.P. the CD 1982–2007." *Minneapolis–St. Paul Star Tribune*. January 25. Available online: <http://www.startribune.com/entertainment/music/14294271.html> (accessed March 31, 2008).
- Rockwell, John. 1983. "Listening at Home to the New Compact Disks." *New York Times*, April 24: H23.
- Rosen, Craig. 1993. "ECO Sets Sights on Jewel Box." *Billboard*, August 21: 83.
- Shevlin, Eleanor F. 1999. "'To Reconcile Book and Title, and Make 'em Kin to One Another:' The Evolution of the Title's Contractual Functions." *Book History*, 2(1): 42–77.
- Straw, Will. 2000. "Exhausted Commodities: The Material Culture of Music." *Canadian Journal of Communication* 25(1): 175–85. Available online: <http://www.cjc-online.ca/viewarticle.php?id=571&layout=html> (accessed March 31, 2008).
- Tang, Jeffrey. 2004. "The Endless Quest for Fidelity: A portrait of the Early Audiophile Community." Paper presented at the 4S-EASST Conference in Paris, France, August 25–28, 2004. Available online: http://www.csi.ensmp.fr/WebCSI/4S/download_paper/download_paper.php?paper=tang.pdf (accessed March 31, 2008).
- United States Congress. 1991. House Committee on Energy and Commerce. Subcommittee on Transportation and Hazardous Materials. Washington, DC: United States Congress.