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sign, storage, transmission

a series edited by jonathan sterne and lisa gitelman

how the cassette made music shareable

rob drew

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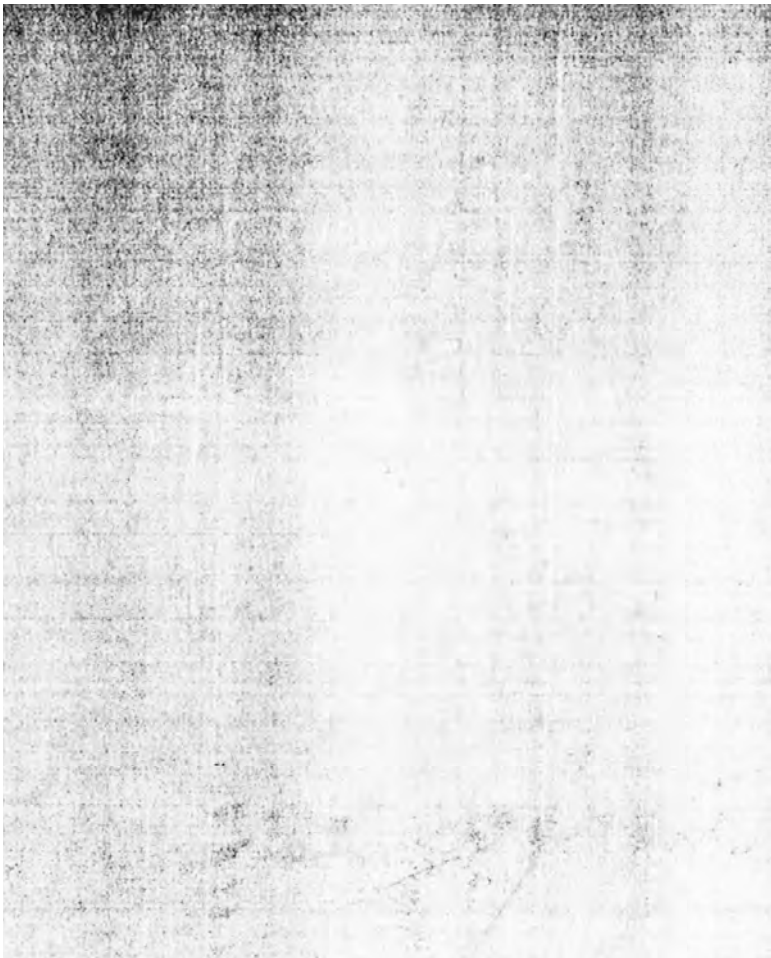
for dad



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acknowledgments

This book is rooted in two career-long passions: a scholarly fascination with the social lives of music and media technologies and a fannish love of music writing and pop music itself. Like a lot of the media histories I admire, beginning with the work of my mentor Carolyn Marvin, this book attempts to interrogate the social construction of a technology while also respecting it as an agent in human affairs and rescuing it from the status of unheralded go-between. I've come to think of this project as analogous to those Stoppardian metadramas wherein the canonical narrative shifts the audience's perspective to a minor character. The cassette has often been cast as a player on the order of Rosencrantz or Guildenstern in surveys of sound technologies; here it commands center stage.

A second driver of the study was a desire to revisit the music of my analog youth, whether it originated on cassette or made its way to me in that form. The cassette stories I've gleaned from old articles, reviews, interviews, liner notes, biographies, memoirs, and novels no doubt reflect my own musical biases. The many musicians and scenesters who cross paths with the cassette in these pages represent only a fraction of those whose creative lives were touched by the format. I hope that others will take up some of the countless musical manifestations of the cassette that I've neglected and that my accounts of those I have managed to discuss do right by them.

Among those who have nurtured this project, I must first thank my colleague Mike Mosher, who has dispatched a steady salvo of cassette-related press clippings my way via interoffice mail since it first took shape. Other colleagues at Saginaw Valley State University have seen me through the study and abided my fixation on the cassette, especially Elson Boles, Tony Crachiola, Dan Gates, Amy Hlavacek, Paul Munn, Elizabeth Rich, and Scott Youngstedt. Fellow members of the SVSU Writing Accountability Group have made my writing routine a little more disciplined and a lot less lonely: Warren Fincher, Sherrin Frances, Sara Beth Keough, Natalia Knoblock, and Sher Ratnabalasuriar. Students who have entered the orbit of this research and enhanced it over the years include Samantha Anger, Erik Breidinger, Maegan Byer, Nicole Paquette, and Kate Wilder. My dean, Marc Peretz, my department chair, Dave Schneider, and my departmental colleagues have earned my deep gratitude for affording me the time and resources I needed to complete this work.

Of the many librarians who've assisted me, a few have distinguished themselves as guardian angels. At SVSU, Cynthia Benner and Sharon Reff seemed to relish the obscurity of my interlibrary loan requests and usually managed to locate and deliver copies of even the most offbeat sources. At Bowling Green State University, Bill Schurk and Dave Lewis regularly granted me entrée to the stacks of one of the planet's premiere popular music libraries. As the project made its way from scattered thoughts to manuscripts, *Popular Communication*, *Popular Music and Society*, and *Rock Music Studies* published early versions of chapters. Editors and friends at these journals, including Patrick Burkart, Gary Burns, and Nabeel Zuberi, provided expansive feedback, as did their anonymous reviewers. Once the study began to resemble a book, Richard Cruz Davila, Dave Hesmondhalgh, and Tom McCourt gave it more careful and generous readings than I could have hoped for. Many other friends encouraged my scholarship and sustained my morale along the way: Glenn Baken, Bill Carney, Andrea Deschambeault, Dave Eason, Dan Finnigan, Dave Finzel, Lisa Henderson, Tom Isenberg, Liz Mason, Mark Neumann, Rose Nickodemus, Susan Stone . . . I'm looking at you.

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To my mom; my brothers, Larry and Ken; my wife, Amy; and my children, Charlotte and Daniel: I love you and hope I've done you proud.

introduction

love, theft, + audiotape

In 1982, the US record industry was in the throes of one of its periodic bouts of technologically induced panic. Sales of long-playing disks (LPs) were declining for a fourth consecutive year, outpaced for the first time by sales of prerecorded cassettes, a format the major labels regarded with deep ambivalence.[1] A host of factors were at play in the disk's downturn; most notably, the 1979 introduction of the Sony Walkman, which, along with the cassette's displacement of the eight-track cartridge in car stereo systems, introduced young music fans to a more mobile mode of listening. Yet the major record labels focused their blame on one bugaboo: their own listeners' private duplication of records via blank cassettes. As they lobbied for a federal law that would have saddled the fledgling format with copyright royalties on sales of all blank tapes and tape recorders, the majors set out to frame the cassette itself as a symbol of rampant piracy. The various industry trade organizations formed an ad hoc umbrella group hyperbolically dubbed the Coalition to Save America's Music, which issued a series of reports and press releases pushing for the royalty legislation. Full-page ads were taken out in newspapers and trade journals, and mass mailings of slick brochures were sent to constituents of key legislators. Yet the most indelible symbol of the era was an image slapped on record sleeves by the British Phonographic Institute that made its way into the collective consciousness of US music fans via imported LPs of Second British Invasion new wave bands: a Jolly Roger with a cassette-shaped skull,

the eyes of its inner reels staring blankly, headed by the caption "Home Taping Is Killing Music."[2]

In 2009, the total number of prerecorded cassettes sold in the United States fell to thirty-four thousand, barely registering on industry charts against the resurgent LP, let alone against the growing array of digital formats.[3] The cassette's fate appeared sealed with the rollout late that year of the 2010 Lexus SC430, the last new car model to come factory-equipped with a cassette player.[4] Yet even on the verge of obsolescence, the cassette was enjoying as busy a symbolic career as Cobain or Presley, its likeness popping up on T-shirts, coffee mugs, mouse pads, tote bags, belt buckles, business cards, and (inevitably) iPod cases—in short, everywhere but the tape deck. Among a cohort of music fans who came of age in the 1980s and 1990s, the simple image of a blank cassette rose to the status of a cultural icon, conjuring collective memories of all the music made and shared with the aid of the little plastic cartridge that was supposed to have killed music. For such fans, the cassette's legacy was defined in no small part by its killer app, the mix tape, that homegrown collection of secondhand recordings around which developed a full-blown etiquette of expression and courtship. Having been functionally superseded by mix compact discs (CDs) and iTunes playlists by the mid-2000s, the mix tape shed its mortal coil of oxide-coated plastic and entered the ether of pure discourse. It was name-checked in pop songs and art exhibits, featured in countless films and television shows, celebrated by pulp novelists and acclaimed belle-lettrists. Guggenheim fellow Lucy Sante memorialized it as "a paradigmatic form of popular expression."[5] Library of America editor Geoffrey O'Brien dubbed it "the most widely practiced American art form."[6] Yet the most indelible symbol of *that* era was the Hallmark stock image of a cassette unspooling into heart-shaped ribbons, headed by the caption "Love is a mix tape."

As it happened, reports of the cassette's death were exaggerated. Just when the ink was drying on the cassette's obituaries and it seemed safe to talk about it in the past tense, it reared its head again. New tape labels began emerging from hipster enclaves in New York and Los Angeles in the late 2000s, and before long it seemed obligatory for any indie band worth its salt to issue a limited-edition cassette. As I write, the cassette continues clawing its way back to life; one imagines it railing against its digital progeny, claiming up and down that it's still big and it's the music that got small. Its perseverance should serve as one more lesson regarding our habitual overemphasis on novelty, revolution, and disruption in histories of media technologies. The cassette had the bad luck of barely predating not only the onslaught of digital

music formats but also the ensuing scholarly interest in how formats are engineered, packaged, and regulated and how they enable and constrain musical experience.[7] Yet we would be remiss to relegate technologies like the cassette to the dustbin of media history, as their persistence—the rituals through which we revive them, the enduring stories we tell about them—serves as a source of both continuity and critique of putatively new media practices. The cassette was the first format to realize musicians' do-it-yourself fantasies of easily distributing their own recordings via mail and hand-to-hand exchange; the first format to allow hordes of fans to duplicate recordings at home and, thus, to incur the singular wrath of the mainstream music industry; and the first format to make a cherished ritual of the interpersonal gifting of recorded music. Pop scholars and critics have produced a raft of real-time analyses of the changes wrought by digital technologies to how we buy, sell, create, audit, share, and enjoy music.[8] Yet many of the blessings attributed to digitization, especially the unencumbered flow of music from artists to fans and from fans to other fans, were visited upon us once before in miniature by the modest cassette.

Based on archival research of sources ranging from obscure fanzines to major music papers, from popular novels to alt-rock memoirs and oral histories, this project traces a through line among some of the stories that converged around the cassette over the course of its life and afterlife. It extends from the cassette's beginnings to its eventual canonization, touching on some of its technological antecedents and descendants along the way, yet culminates in the 1980s and 1990s with the cassette's adoption as a format of distribution and redistribution within Anglo-American, independent rock music. This is only one of many subplots in the cassette's rich history waiting to be explored. Leaving aside its many nonmusical incarnations, the format made its mark on sites and scenes of music-making on every continent. Its adoption gave a public voice to hitherto unheard artists and genres, mediated formerly live folk and devotional musical forms, and played havoc with existing intellectual property regimes. Beyond such generalities, though, the cassette manifested itself quite distinctly within indie rock, the focus of this study, as compared to the many other subcultural and global musical milieus in which it took part. I agree with Jennifer Slack and Greg Wise that a technology is best thought of less as a discrete, isolable thing than as a constellation of objects, practices, discourses, and affects.[9] Although the tapes trafficked among indie music devotees were manufactured by the same global electronics firms as those shared among heavy metal headbangers, hip-hop b-boys, or EDM ravers, or among Javanese gamelan listeners, Indian *ghazal*

lovers, or Russian fans of underground Western rock, the meanings and feelings they took on made them altogether different instruments.

Even within the limited purview of this study, readers should expect to find the cassette shape-shifting with alacrity. To echo Slack and Wise again, the identities that technologies assume within social formations, the articulations forged between technical objects and other sorts of social elements, are neither necessary nor permanent but contingent, emerging and mutating within real cultural struggles.[10] It is not for nothing that the preeminent communication scholar James Carey called technology a "trickster." As North Americans, Carey observed, we deify and demonize technology; it is not only an actor in our social dramas but often the *central* actor. At each historical turn it appears in a different guise promising something new, yet at each turn it reveals old patterns of consequence and desire.[11] In this spirit, my study attempts to delineate a broad narrative arc among some of the competing guises and enduring desires that converged around the cassette. The cassette is the main character in this account: it touched the lives of its users through its affordances, and its users in turn shaped it through their representations and practices. The object of innumerable stories from advocates and opponents alike, the cassette opened the way not only for new music practitioners but also for new interpretive communities intent on defining and ritualizing the format itself. In its headiest days, the cassette kept company with a motley assortment of outsiders, scofflaws, scenesters, and visionaries. In various contexts it was metaphorized as a terrorist, a revolutionary, a matchmaker, and a monster. Yet its reception, I will argue, was structured by one overarching, redemptive transformation: from a thief stealing the nation's musical heritage to an intermediator bringing music makers and music lovers into harmonious alignment. This study thus explores indie culture's role in the cassette's slow transformation from a symbol of promiscuous, transgressive distribution to one of intimate connection through music; from Jolly Rogers to heart-shaped ribbons; from "Home taping is killing music" to "Love is a mix tape."

A Rewind on Method

My fixation on the cassette evolved somewhat circuitously from a small, interview-based study of college students' rituals of compiling and gifting recorded music. As a career scholar of everyday deployments of music technologies and an avid mix taper myself, I had long wanted to probe the mysteries of how mix tapes were pieced together from the public world of pop music to convey private emotions. By the time I got around to it in the mid-2000s,

old-school mix tapers were increasingly hard to come by; instead, pretty much everyone from scene kids to rock-and-roll dinosaurs was burning and trading mix CDs by the spindleful. Before iPods and smartphones reigned supreme, the popularization of CD burners spawned its own brief renaissance in mix exchange, as fans with hard drives full of tunes ripped from their collections or downloaded from the internet could suddenly substantiate their everchanging musical moods just by dragging and dropping files. No more fussing over fade-ins and fade-outs or scrambling for a brief song to fill the last two minutes of dead air at the end of a tape's side. Young music fans easily assimilated mix CDs into their growing communicative repertoire, and older fans who'd long since mothballed their tape decks and given up mixing now returned to it with vigor. On campuses and in workplaces, disc-swapping clubs emerged as a new bonding ritual on the order of Secret Santa parties and March Madness pools (I contacted many of my interviewees via a student-led club on my own campus).[12] Brides- and grooms-to-be assembled discs of their favorite love songs to press upon wedding guests willy-nilly.[13] And if you were like me, for a couple of years in the mid-2000s your mailbox was stuffed with more jiffy-packed discs from old friends than you could have audited properly in all your waking hours.

I interviewed several dozen donors and receivers of mixes during those years, most of whom by then had made the move to CD-R or had never known any other format. It became clear that digitization hadn't altered the ritual's foundational protocol.[14] Donors still walked through the world compiling mixes in their heads, agonizing over transitions and flow, tweaking them to find just the right emotional key before gingerly pressing them into the hands of receivers. Receivers still studied mixes for signs of their donors' devotion, savored them in the darkness when they were lovesick, and threw them against the wall when they were on the outs. Mixes still wended their way through relationships, narrativizing them, marking their turning points, celebrating their high points, and sending them off to oblivion. Those who loved music and loved through music still found ways of doing so whatever the format.

Yet among older interviewees, and among younger ones more receptive to the charms of analog media, I encountered an acute sense of nostalgia for the mix *tape*, which commanded an authority the CD could not touch. Mixers missed the tactile mechanical routines of taping, which for many took root in childhood, tuning into top-forty radio with mono recorders at the ready to capture the latest hits. They missed the endless hours spent hunched over stereo equipment, cueing up album cuts, fiddling with sound levels, pausing

and unpausing, eventually folding the final product into a J-card (cassette tape paper insert) covered with handwritten titles and artwork like a tiny illuminated manuscript. Most of all, they missed the temporal imperatives of mix taping, which in their accounts were redefined as enabling conditions for mindful listening. The work of dubbing songs to cassette, some mixers contended, forced them to audit their selections in real time: "playing personal DJ for an audience of two—you and the intended receiver of the tape," as zinester A. J. Michel described it.[15] By shepherding songs onto tape in a spirit attentive to a particular other, mix tapers seemed to hear the songs afresh and invest them magically with their own interpersonal magnetism. And on the flip side, recording to tape was thought to guarantee a captive audience of listeners who couldn't screen, skip, or randomize tunes at the touch of a button.

Well into the 2000s, I came across a few loyalists who continued mixing to cassette, scouring dollar stores and swap meets for increasingly hard-to-find, high-bias blank tapes. One respondent admitted that she burned her iTunes playlists to disc for expediency and then dubbed them to cassette out of concern that her scene kid friends wouldn't abide CDs. Another young swain insisted on making mix tapes for his girlfriend even though he had to lend her a Walkman to listen to them. The word "cheating" came up in several mixers' reflections on the relatively perfunctory routines of CD burning, with the move from tape to disc eliciting familiar generational diagnoses of overstimulation and shortening attention spans. Indeed, during its short reign the mix CD endured a steady, public chorus of blistering comparisons with its analog predecessor, alongside which it was deemed unromantic, unsexy, and unloving: as when journalist Laura Barton called mix CDs "as romantic as microwave lasagna," or when punk polymath Henry Rollins opined that listening to a lover's mix CD was "like dry humping a Naugahyde couch," or when Fred Thomas of the great Ann Arbor band Saturday Looks Good to Me declared, "If someone makes you a mix CD with no case and no sweet cover or anything, you might as well stop talking to them."[16]

It was around the moment I wrapped up my mix tape interviews that word began spreading of a renewed interest in cassettes as a format of release. Starting in the late 2000s, cassette fever moved from the outer limits of the transatlantic noise scene, where the format never really fell out of favor, to the more capacious but still marginal precincts of indie-inspired guitar rock.[17] Cassette-only micro-labels sprouted like weeds in cool cities and college towns, many of them run by musicians themselves with the aid of dual-cassette decks hauled down from parents' attics. Tape duplication plants, barely kept alive

for years by religious ministries distributing sermons to their septuagenarian parishioners, suddenly found their services in demand among enterprising young label managers with rosters of offbeat acts. As I write, cassette mania shows no signs of subsiding; if anything, it has picked up steam and gone mainstream in terms of symbolism if not sales. Retailers from Urban Outfitters to Walmart stock retro cassette decks and personal stereos, while cassette reissues of classic albums by Prince, Björk, and the White Stripes now sell on Amazon for upward of fifteen dollars. The cassette's staying power obliges us to rewind and replay the fraught history of this undervalued format. The media archaeologist Erkki Huhtamo calls on scholars to excavate the topoi, or formulas of language and iconography that attach to media objects over time, selling and legitimizing them, accompanying them through their cultural travels, and eventually rubbing off on their technological successors. Cassettes themselves now function as "shells or vessels derived from the memory banks of tradition [to] mold the meaning(s) of cultural objects," sometimes quite literally, as when the London firm Suck UK designed a mini-USB drive capable of holding ninety minutes of music, housed within a fold-out, fake cassette. The instructions read: "(1) add your own sounds to the USB stick; (2) place the stick inside the tape style gift pack; (3) write your own message and playlist; (4) give to someone you love."[18]

Without discounting the cassette's much-vaunted resurgence, this study inquires how the cassette became the vessel of such disparate meanings and desires in the first place. How did this lowly, hissy format that began life in office dictation machines and cheap portable players come to be regarded, first as a nefarious abettor of piracy and, eventually, as an icon of the free circulation and recirculation of culture? The study hinges on a moment in the early 1980s when the cassette emerged from a record-industry-led crackdown on home taping to establish itself as the distribution format of choice among independent music cultures in the United States and around the globe. Working backward and forward from that moment, when the very shareability of recorded music seemed to hang in the balance with the cassette's legal travails, I piece together a story of the format's redemption from various contemporary sources of cassette-related discourse: articles charting the cassette's introduction and integration into home listening practices, transcripts of congressional hearings on home taping, zine columns tracing the cassette's adoption by musicians, and novels and memoirs celebrating the incipient rituals of mix taping. The result is a history of how the cassette birthed practices of independent recording, rerecording, and music sharing that we now all but take for granted.

Such cassette-based practices were developed and contested within myriad musical subcultures and scenes in the United States and all over the world, many of which are just now garnering scholarly attention; my own very partial account will concentrate on independent rock music scenes, wherein the cassette was adopted both as a format of first release and a token of interpersonal exchange. In both capacities, indie culture built everyday rituals and rich veins of symbolism around the format, which came to take on larger connotations of accessibility, fecundity, and love. The study thus explores the cassette's transformation within one subcultural context from a token of unregulated distribution to one of intimate connection through music. In this regard, the cassette was not just a precursor, but a catalyst for the postmillennial dream of an internet-based sharing economy of music. More than merely grease the wheels for the adoption of digital music formats, the cassette helped set the terms through which we understand them. By making its way from a symbol of piracy to one of open communication and loving communion, the cassette changed our thinking about the act of sharing recorded music, or any media content, from something attacked and shamed as illegal to something many of us couldn't imagine living without.

The Cassette as Format

The evolution of recorded music can be understood as a progression not just of sounds, styles, and devices, but of formats: the disks, cylinders, reels, cartridges, files, and streams that serve as containers, however large or small, for the sounds that reach us. The protocols surrounding formats encompass the technical details of how they work as well as the uses and meanings that develop around them. Although such protocols often are barely legible to the format's originators, and although sound recording history is littered with the corpses of promising formats, we tend to take established formats and their associated protocols as given; as Jonathan Sterne notes, "they often take on a sheen of ontology when they are more precisely the product of contingency."[19] Rather than as a fait accompli, the development of formats should be understood as a complex, negotiated, sometimes turbulent process pushed forward by engineering prowess, marketing, policy, and sedimented habit. Histories of formats, as of all media, Lisa Gitelman argues, "must be social and cultural, not the stories of how one technology leads to another, or of isolated geniuses working their magic on the world."[20]

The cassette's early history involved just such an interplay of technology and culture. It was an object of ongoing technical development, legal action,

and complex and often competing stories devised by marketers, lobbyists, lawmakers, and everyday users in their homes and home studios. When the Dutch electronics firm Philips introduced the cassette in the United States in November 1964, it was, sound historian David Morton writes, "a little-noticed entrant among a group of tape cartridge formats that appeared about the same time," one whose "intended market was ill defined."[21] It was advertised without a singular purpose in mind; Philips touted its first cassette player, the Carry-Corder 510 from its US Norelco division, as "the perfect tape recorder for executive, student, doctor, lawyer, or for any member of the family," one that would record and play back "all sounds, voice, music."[22] While some histories suggest that the cassette was developed for office use, the first player-recorders boasted none of the accessories (external microphones, backspace foot pedals, etc.) that came standard with leading reel-based dictating and transcribing machines.[23] Nor could the cassette satisfy demand for prerecorded music; that would be the province of the eight-track cartridge, whose promoter Bill Lear struck deals with RCA Victor to create a library of recordings, with Motorola to manufacture car stereos, and with Ford Motor Co. to offer the players as optional equipment on their 1965 models.[24] And the poor frequency response and annoying playback hiss endemic to early cassettes assured that they posed no immediate threat to the privileged place of the open-reel tape within the serious listener's home stereo system. Yet eventually the cassette would come to challenge all these incumbents, among others.

What the cassette had going for it, and what its promoters touted incessantly, was not any prescribed use, but a bundle of affordances: recordability, ease of use, and an emphasis on miniaturization and mobility already familiar from the mass-market success of the transistor radio. "Make it smaller, make it cheaper, and make it easy to handle," went the mantra of Lou Ottens, who led the product's development team.[25] Philips seemed intent on fitting ninety minutes of sound onto a one-eighth-inch wide, forty-foot-long strip of tape, housed by a cartridge smaller than a pack of cigarettes, simply because they could, leaving open the question of what it would accomplish. The format's famously diminutive design was made feasible by advances in both tape and coatings: higher-strength tape could be spooled in small reels without risk of breakage, while fine-grained oxide emulsions allowed adequate sound quality even at slow speeds. The tape rolled through its housing between hubs turned by sprockets that engaged the recorder's drive shafts, traveling between narrow-gap recording heads at a snail's pace of one and seven-eighths inches per second.[26] The cartridge easily locked into Norelco's lightweight,

battery-powered Carry-Corder with no laborious threading; as another ad proclaimed, "Flip recorder open, snap in tape cartridge & you will be listening instantly to all sounds, voices, music!"[27]

Philips' recorder premiered with a price tag of eighty dollars, yet the company's liberal licensing policies proved fortuitous. To outflank competitors in the race to establish its cartridge format as a worldwide standard, Philips threw open its cassette patents free of royalties to companies that adhered to its standards of compatibility. Soon most of the big electronics firms introduced their own models, with battery-operated portables from Panasonic and Sony leading the market. As the cassette took hold and prices dropped to as little as thirty dollars for players and seventy-five cents for blank tapes, it began to catch on among children and teenagers, who were already buying transistor radios offered by Japanese manufacturers.[28] Kids would position the recorder's microphone in front of the speaker of their radios and wait for the commercials and deejay patter to segue into their favorite hits. The tinny sound proved adequate for youngsters who were thrilled to snatch songs from the air and be freed from the rhythms of top forty radio.[29] Not until well into the 1970s did the cassette make its transition from a cheap and durable toy to a serious, high-fidelity format, with the diffusion of Dolby noise reduction, chromium dioxide tapes, and home cassette decks that could compete with reel-to-reel units in sound quality.[30]

Such technical advances helped establish and define the cassette, yet the format also took shape in a politically fraught context of interindustry conflict and legal maneuvering. The cassette's two-decade run of widespread adoption and controversy was bookended by the passage of two crucial laws regarding copyright in sound recordings. By the early 1970s, popular tape formats like the cassette and eight-track had become cheap and easy instruments of straight-out piracy as fly-by-night companies operating out of basements and garages hawked tape compilations of top-ten hits at gas stations and flea markets.[31] In response, Congress passed the Sound Recording Act of 1971, which for the first time created a copyright in recordings separate from the underlying compositions and imposed fines and jail time for violators. During hearings on the bill, record industry representatives assured lawmakers that they had no intention of using the new law against private, noncommercial taping, which was not yet seen as a threat.[32] Yet, as Alex Sayf Cummings argues, by shifting the focus of music copyright from incentivizing creativity to protecting capital investments, the Sound Recording Act emboldened the major labels to pursue more quotidian copyright violators like home tapers.[33]

By the early 1980s, stung by sharp increases in home taping, record companies were seeking legal avenues to curb the practice and, possibly, kill the cassette altogether. At the time, film industry lobbyists enmeshed in their own war on home recording were pushing Congress to take up bills that would have imposed royalties on sales of VHS tapes and recorders and distributed the proceeds to copyright holders; finding common cause, the record industry piggybacked on the legislation with its own argument for royalties on audio cassettes.[34] Even after the Supreme Court ruled against film studios in the landmark *Sony v. Universal* "Betamax" case and the studios gave up their fight against home video, record companies continued to push for royalties, arguing that home taping of music was a more prevalent and pressing threat. The issue went unresolved through several rounds of congressional hearings until passage of the Audio Home Recording Act of 1992, which finally sanctioned analog copying for private, noncommercial use while imposing royalties and serial copy management on all digital recording devices and formats.

Thereafter, no new music format would enjoy legal, commercial release without some form of copy protection. Even the MP3 format, which was originally created to store music files on computers rather than trade them over the internet, included a scheme to encode copy protection in file headers before it was defeated by hackers.[35] The cassette thus stands as the last popular format to evade technical and legal restrictions on copying from its very introduction. Up until 1992, royalties could easily have been levied on cassettes in the United States, as they were in many other countries.[36] There was even some bandying of technical schemes to discourage home taping, such as the fabled "spoiler signal" that would have marked vinyl disks in such a way that a high-pitched whistle would infect any tape recording, though these proved either unworkable or easily defeated.[37] The fact that the cassette remained an open format, and that it came to be remembered not as a symbol of piracy but of grassroots music-making and loving musical exchange, was an outcome not just of political and legal action, but of competing stories.

Cassette Stories, Cassette Cultures

"The stories we tell about formats matter," writes Jonathan Sterne.[38] Stories of formats abound from innovators who create them, observers who celebrate and condemn them, and users who find meaning and value in them. They echo through public discourse and shape the format's image and legacy. As Sterne notes, the origin story of the CD promoted at Sony (that it was designed to be long enough to accommodate Beethoven's Ninth Symphony) won out

over the more mundane reality shared by the format's codevelopers at Philips (that it was designed to approximate the physical size of the already successful cassette). Sony's tale lent the new format a high-culture cachet, framing CD listening as a more elevated and purer form of musical experience whatever the genre.[39] Similarly, as Karen Tongson argues, the story that attributes karaoke's invention to Japanese musician Daisuke Inoue, who created coin-operated machines for amateur singers with specially recorded background music, has taken precedence in karaoke histories over the story that credits its invention to Filipino businessman Roberto del Rosario, who simply took "Minus One" technology used by touring professionals and adapted it for amateur use. Although their innovations were nearly contemporaneous (and only del Rosario filed patents for his singalong system), Inoue's origin story better exemplifies the Western fantasy of karaoke as a democratizing technology of self-making.[40]

The cassette was also the subject of clashing stories from supporters and opponents who imputed very different uses and motives to the new format. When music sales began to drop off in the late 1970s after a two-decade run of record profits, many factors were at play.[41] Yet in its push to delegitimize the new format, the record industry blamed the downturn not just on home tapers (whom it could not practically identify or pursue), but on the cassette itself—claiming, in effect (as Simon Frith summarized the argument), that "every blank tape sold is a record not sold."[42] When David Horowitz of Warner Records called blank tape "a derivative medium," when Stanley Gortikov of the Recording Industry Association of America (RIAA) called the cassette business "a predatory, parasitic industry" that was "nothing in itself," when Jack Golodner of the AFL-CIO argued that cassettes "would be worthless in terms of the arts if it was not for the people I represent," their intention was not just to convince lawmakers to approve tape royalties, but to convince the public that the cassette itself was a rogue format.[43]

The cassette's advocates had their stories as well. The electronics companies that profited from the cassette assembled an advocacy group to oppose the royalty bills, which commissioned surveys of tapers and ran ads touting the public's "right to record." Whatever the electronics industry's role in tackling the immediate controversy around home taping, though, it was largely irrelevant to defining the cassette's legacy as a maverick medium. However valid the pro-cassette lobbyists' key arguments—that the most active tapers tended to be the most active purchasers of music and that home taping itself often served as a means of auditioning music for later purchase—they still assumed that the cassette's reason for being was to sell major label records. Regarding the cassette as a profitable commodity rather than an object of

grassroots music-making or interpersonal meaning-making, electronics firms and their institutional allies struggled to conjure compelling stories that countered the cassette's image as a derivative format.

For the cassette to redefine what it meant to share recorded music, it needed communities into whose stories of themselves it could play. Far more influential than its manufacturers and lobbyists in reclaiming the cassette's legacy were the many formations of artists and fans across the United States and around the globe who adopted the cassette to build new distribution channels for recorded music and claim a space within public culture. For decades, critics have limned the parameters of an underground network of cassette-based musicians that held sway in the 1980s, identifying its key clearinghouses and spokespersons, and hailing it as a model of communicative empowerment.[44] Yet an argument underlying this study is that the music circulating formally and informally on cassette during those years helped constitute not one underground, but many: each inflecting the cassette with its own meanings, each finding in the cassette its own transformative potential, and each offering its own unique rebuttal to the cassette's reputation as a fugitive format. Among heavy metal fans on the West Coast, the rapid-fire guitar licks and growling vocals of thrash metal bands like Metallica and Slayer spread via decentralized tape-trading well before the bands rose to fame on vinyl.[45] On the East Coast, the earliest documentation of New York's burgeoning hip-hop scene came via cassettes of performances by rival deejays and emcees recorded live at parties and park jams and given out to friends, club owners, cab drivers, and anyone with a boombox.[46]

On a broader global stage, we might pause to regard just a few of the dozens of stories of cassettes expanding access to recorded music wherever they landed: empowering new music movements, upending whole music industries, and playing havoc with the cultural regimes of censorious governments and legacy commercial gatekeepers alike. In a classic study of the cassette's travails in India, Peter Manuel recounts how, prior to the format's introduction, the output of that country's monopoly record label consisted almost wholly of film soundtracks provided by a handful of Bollywood producers. With the diffusion of cassettes, hundreds of competitors entered the field, first with light classical *ghazals* and devotional *bhajans* aimed at middle-class listeners and then with countless regional genres, from multitape narrative ballads to innuendo-laced *masala*, disco-inflected *bhangras*, and bawdy Punjabi truck drivers' songs. Fueled by the cassette boom, music sales increased almost twentyfold over the 1980s, as the nation's recording industry finally came to reflect the diversity and syncretism of Indian culture.[47] In Israel, the

cassette became the format of *musiqa misrahit*, a music rooted in the weddings and festivals of the Middle Eastern and North African émigrés who constituted half of the country's Jewish population. Motti Regev has explained how this genre's resemblance to Arab popular music, along with the putative otherness of its creators and listeners, consigned it for decades to the margins of an Israeli public sphere whose soundscape was dominated by Western-influenced folk and pop. In the 1980s, small entrepreneurs began recording *misrahi* singers and hawking the tapes through streets stalls and open-air markets. Critics disparaged the genre as *musiqa qasetot* ("cassette music"), analogizing its sound with its cheap format of distribution. Yet by century's end, crossover misrahi artists came to dominate the pop charts, plunging the music into debates about the very definition of Israeliness.[48]

Even as the cassette made audible a multitude of microgenres neglected by legacy record industries, its easy duplicability challenged the legal and technical regimes that allowed such industries to operate. The scattered home taping that drove industry lobbyists to distraction in the West was trifling compared to the large-scale commercial piracy that unfolded with the cassette's aid where copyright laws were outdated or nonexistent. Markets across much of Africa and Asia were flooded with pirated tapes smuggled in from abroad or dubbed in small numbers by local bootleggers. In Tunisia, Roger Wallis and Krister Malm found that 80 to 90 percent of cassettes were pirated, yet the musicians and producers they queried remained remarkably forbearing toward piracy, crediting bootleg cassettes for making their music available to poorer listeners; some even took a certain pride in their popularity with the pirates.[49] Indeed, stories of intellectual property theft via cassette failed to capture the experience of creators and listeners in non-Western countries, where both authorized and unauthorized distribution via cassette drove a huge expansion of audiences for locally produced music. In a famous example, the early homemade cassettes of Youssou N'Dour's group Super Étoile, swelled by a surge in pirate taping, shifted Senegal's popular music terrain from European- and Cuban-derived sounds to the percussively rich, indigenous style known as *mbalax*. Those endlessly copied tapes swept N'Dour's voice into the most remote West African villages as well as the boomboxes of Senegalese and Gambian students in London and Paris, gaining the attention of Western critics and launching his career as an international recording artist.[50]

The cassette was no kinder to the would-be cultural monopolies of state socialism than to the commercial oligopolies of transnational record labels. Young Russian urbanites' famously brisk traffic in cassettes of Western rock bands and their home rock counterparts in the 1980s merely intensified

earlier practices of *magnitizdat*, or unofficial recording, dating back to open-reel tapes of *bardy* song poets in the 1960s, and even to homemade recordings of pre-War jazz and pop on makeshift flexidiscs fashioned from x-ray plates in the 1950s.[51] In his ethnography of St. Petersburg's rock community, Thomas Cushman notes how many of his interviewees traced their inspiration to a few artists whose music was carried into the country by Western visitors and propagated endlessly by locals via cassette. While the state record company's phonograms of canonical symphonies and Brezhnev's speeches collected dust on store shelves, Russian rockers gained notoriety through hand-to-hand trading and black-market sales of their tapes, to the consternation of state authorities.[52] In China, too, government agencies hoping to enlist cassette technology in modernization efforts were chagrined to find many adopters using their tape recorders not to play revolutionary songs, language lessons, or birth control propaganda but the politically suspect sounds of international popular music. Authorities were especially troubled by citizens' unbridled fandom for Taiwanese singer Teresa Teng, whose tapes were smuggled in from Hong Kong or recorded from radio programs across the Taiwan Strait, only to be dubbed and redubbed across China's hinterlands. As they had for decades, Chinese party officials blamed the sensual pleasures of foreign pop for promoting deviancy and hooliganism in hard-working young people, yet efforts by local governments to eradicate Teng's music were no match for the cassette's easy reproducibility. As historian Chuan Xu argues, the playful exhortation among urbanites to "listen to Old Deng during the day" (CCP chairman Deng Xiaoping) and "listen to Little Deng at night" (Teresa Teng, who shared Chairman Deng's family name) was just one indicator of the cassette's influence in undermining the material and social infrastructure of China's Mao-era sound regime.[53]

The cassette's capacity to fly under the radar of censors made it a welcome tool not just for banned musicians, but dissident voices of all kinds. In Poland, the cassette was a crucial conduit for the grassroots opposition movement that gathered around the Solidarity labor union, even more so after the movement was pushed underground by martial law. Andrea Bohlman surveys the many anthems, speeches, and stories committed to tape during those years by opposition artists and journalists.[54] When the Communist Party placed an embargo on paper during its crackdown, dissident groups distributed cassettes as an audible alternative to the *drugi obieg* (or "second circulation") of the underground press. At a time when opposition members were routinely searched, detained, and arrested at will, the cassette's disembodied voices were untraceable and, if necessary, could be erased with the aid of a strong magnet

in an instant. In Haiti, cassette recordings of prayers, sermons, and private correspondence crisscrossed the sea between Port-au-Prince and Miami, allowing thousands of asylum seekers who fled the poverty and turmoil of their homeland to stay connected with its spiritual and political life. Cassettes were a key platform for the liberation theology movement that took root in Haiti in the 1980s and transformed its Catholic Church into an advocate for the poor. Sermons by popular priests like Jean-Bertrand Aristide, who would become Haiti's first democratically elected president, were brought to Miami on cassettes and played in churches and on radio stations throughout the city's Little Haiti district; as ethnographers Karen Richman and Terry Rey note, most Haitians in Miami heard Aristide preach on tape before they ever saw his face. Even after the army shut down the liberal radio station of the Haitian Catholic Church in 1985, tapes of its broadcasts continued to be "passed from hand to hand, beauty salon to beauty salon, lottery parlor to lottery parlor, and pulpit to pulpit, both in Haiti and Miami," fueling the transnational protests that brought an end to the dynastic dictatorship of the Duvaliers.[55]

Whether in communist or capitalist countries, the cassette was especially pivotal to the international diffusion of punk and its noisy offshoots. Geographer Tyler Sonnichsen credits the early-1980s cassette trade for helping to shift Paris punks' point of reference from the politically regressive British subgenre known as Oi! to the straight-edge ethics and three-chord blur of Washington DC hardcore. Since US vinyl imports were prohibitively expensive, cassettes dominated the early circulation of hardcore punk in Paris and its suburbs, so much so that Paris's first wave of hardcore had passed by the time leading DC label Dischord brokered a distribution deal in France.[56] Shane Greene's study of Peru's *subterraneo* punks finds that scene also thrived with the aid of bootleg cassettes that arrived in Lima in the suitcases of international students and made their way to the city's expansive street markets. Peruvian punk bands' own crudely produced demo tapes gestured toward a global shadow economy "where cheap cassettes constituted both cultural norm and economic necessity"; Greene singles out the iconic band Narcosis, whose fuzzed-out cover versions reflected the influence not only of US and UK punk but its Spanish, Brazilian, and Argentine variants, "sounds also made possible via transnational networks of cassette circulation."[57] In yet another, signal example of a postpunk cassette culture constituted in transit, David Novak considers how an international network of Noise musicians began bartering tapes by mail in the 1980s, aided by listings in obscure zines that offered little information beyond the artists' names and addresses. Though often imagined as a collection of cohesive and localized scenes,

Novak argues, what was called Japanoise could only have been produced through the mediated feedback loop of cassette exchange between Japan and North America (and eventually Europe, Australia, Latin America, and elsewhere). As a culture that prized ephemerality and spurned institutional footholds, Noise musicians continued to favor the barely traceable traffic in tapes over digital channels well into the new century.[58]

The Cassette as Indie Totem

What draws me to Anglophone postpunk indie rock as a focal point for this study is how the cassette became both a medium of distribution and a motif in some of that subculture's defining dramas. Without attempting to parse its various noisy, jangly, edgy, and rootsy subgenres, I understand indie as a culture that remained rooted not just in a canon of musical antecedents, but in a stable set of preoccupations and values. In particular, indie's adherents shared a fraught, contradictory relationship with a mainstream music industry to which they, as mostly white, educated, middle-class young people, always enjoyed privileged access. By staking out a position on the industry's margins, indie claimed a special status as a culture rooted in relationships of mutual affinity and trust rather than profit. Indie inherited and doubled down on a communitarian mythology long deployed by fans to distinguish rock music from routine pop, one that Simon Frith traces back to the folk revivalist movement of the 1950s and to contradictory accounts of older, working-class cultural traditions. Indie's raw aesthetics of lo-fi amateurism and three-minute pop revivalism, along with its decentralized institutions of micro-labels, college radio stations, and xeroxed zines, all served as proof that "the music reflected the experience of a community—there was no distinction of social experience between performers and audiences."[59] Holly Kruse's study of the end-of-the-century indie scene in Champaign, Illinois, affirms that indie's ethos was as much about fidelity to a community as to any combination of sounds. Musicians and fans strove to maintain face-to-face contact and hand-to-hand exchange within a cultural form mediated by records and money, hewing to a code of conduct intended to assure commitment and narrow the divide between performer and audience. Bands played small clubs, traveled in vans, slept on sofas; stage wear and street wear consisted of the same jeans, t-shirts, and sneakers. Rather than retreating backstage between sets, performers were expected to mingle with fans, many of whom were friends and fellow musicians; as an artist or any sort of operator within indie, one's friendships and business relationships were inseparable.[60] The

very coinage and adoption of the term "indie" was itself highly significant; as David Hesmondhalgh notes, "no music genre had ever before taken its name from the form of industrial organization behind it."[61]

Though credited for sustaining creative alliances among those alienated by the slick surfaces and grandiose pretensions of corporate rock, indie was roundly critiqued in some quarters for its hermeticism, obscurantism, and indifference to sounds and subjects outside its purview. This was the culture of postpunk purity and austerity that Simon Reynolds once labeled "regressive rock," an inversion of 1970s progressive rock; whereas the latter was "disseminated so broadly as to be rootless and meaningless," indie's regressive scene was "claustrophobically LOCAL, a parochial huddle—its problem is not one of dehumanized distance but of an overdose of intimacy."[62] Indie's worshipful fealty to garage rock, art rock, and power pop influences; its droning, jangly guitars and flat, indecipherable vocals; and its resistance to technological innovation and stylistic change all imposed their own orthodoxies. Musicians' aversion to sounds that were too polished or danceable, often those coded as gay, Black, or female, seemed to confirm the prejudices of a subculture whose fan base was overwhelmingly straight, white, and male.[63] Moreover, indie's carefully cultivated sense of community was constantly at risk of being undermined. No less than any rock subgenre, indie was implicated within the structures of a larger music economy, as the culture drew its share of talents whose ambitions exceeded its limits. Acclaimed bands with hopes of sustained careers were courted by major labels, just as indie labels that turned a profit themselves became acquisition targets. Major music papers spotlighted up-and-coming artists and scenes, while commercial rock radio and MTV helped many acts cross over beyond their core audiences. As a result, almost from the moment it was christened, indie was caught up in a hypervigilant narrative of decline and fall in which every move from margin to mainstream risked allegations of disloyalty. When musicians defected to major labels or merely cracked the pop charts, Holly Kruse observes, "the individuals or entities involved always lost credibility in the indie music culture with some members of their original audience(s)."[64] Or, as Michael Azerrad puts it in his essential history, "Indie bands weren't supposed to be successful, and if they were, they were surely doing something wrong."[65]

As indie's structural ties to the music industry became more conspicuous, its assertions of difference became more challenging and pressing. Musicians and supporters put increasing stock in rituals and symbols that served as evidence of insulation from the imperatives of mainstream success. And few symbols proved more potent than the cassette, which embodied indie's

self-definition as an outsider community while also accommodating its quiet aspirations toward wider acceptance. Root around the basement of any aging indie music fan and you'll find those motley boxes of cassettes bought at merch counters in dingy clubs, bootlegged at live events, gifted by friends in bands, ordered directly by mail . . . and maybe a few tapes bought in actual record stores. Like so many global music cultures, indie musicians initially took up the cassette for practical reasons, as a cheap and easy format that could be dubbed on home equipment or made to order in small batches. While independently released vinyl helped decentralize and democratize recording, the cassette decentralized it even further, enabling even musicians without access to pressing plants or distributors to release music. Often the same demo tapes passed around to scene-makers and gatekeepers in hopes of a recording contract were also sold at shows, by mail order, and on consignment at record shops. Yet while many subcultures found use for the cassette, what was distinctive about indie was the intensity of discourse generated and the semiotic weight invested in the format. Though it accounted for only a fraction of music sales, the self-released cassette made its way to the center of indie's ethos, establishing a kind of baseline of integrity in distribution. While the dominant culture increasingly reckoned the value of music and expression in dollars, the cassette release was one of the instruments through which indie fans sustained fantasies of a collective creative life that transcended market exchange. Indie operators like Bruce Pavitt (who founded Sub Pop as an alternating cassette zine), Calvin Johnson (who launched K Records as a cassette label), and Dennis Callaci (who founded the cassette label Shrimper) framed the cassette release as a kind of totem for cultural values of interpersonal fidelity, creative fecundity, and do-it-yourself resourcefulness. Such cassette labels offered the dream, writes Nitsuh Abebe, "of a world in which pop music felt like tapes traded from friend to friend . . . one where a primitive bedroom recording could be enjoyed not just by your friends but by a whole community."[66] Some of the central chapters of this book will thus consider how the cassette release provided indie's followers with an imaginary solution to the problem of cultivating a sense of creative integrity within a commercially driven music industry, serving as a kind of magical agent that enfolded popular music into the sacred space of communal and dyadic interaction.

Indie's love affair with the cassette, I'll argue, culminated in the mix tape. While the origins of the quotidian practice of stringing a collection of songs together on tape are hazy, it was indie culture that took ownership of that practice, ritualized it, and narrativized it. The countless articles, novels, movies, memoirs, and songs that called attention to mix taping as a dyadic ritual

beginning in the 1980s most often situated it squarely within indie's milieu. In a trenchant essay on a cassette compilation that Lou Reed made for Andy Warhol from his mid-1970s recordings, Judith A. Peraino argues that every such analog mix tape "records and enacts a closet drama [that] unfolds in the real time of planning and playing a song sequence and splicing together songs from different sources." With the embodied and durational experience of mix taping, Peraino observes, donors embed themselves within the tape and prefigure its future audience of one.[67] Within indie, the mix tape was marshalled as just such a gift that transformed commonly available music into an inalienable expression of sentiment. Indeed, I'll argue in later chapters, the mix tape magically worked backwards to reframe the commercial distribution of its source material; within the mix tape's confines, pop songs themselves were defined less as commodities than as resources to be mobilized in listeners' intimate lives. I will give as much attention to the mix tape narratives of the indie artists whose music typically populated mixes as to those of the fans who compiled them. Indie musicians were often among the most avid celebrants and practitioners of the rituals of mix taping, as many musicians thrilled at the prospect of being included on fans' mixes, less as a career boost than as proof of their presence in fans' interpersonal lives. Indie culture's romance with the mix tape thus helped advance its self-definition as a community that measured the effectivity of music by its circulation of intimate feeling. And indie's investment in the mix tape became more urgent with the music's creeping cooptation by major labels, as devotees came up against the limits of their purchase on the music. As indie went mainstream and its local scenes were absorbed into a national commercial network, the mix tape symbolically grounded indie's affective alliance in the interpersonal and the dyadic. As success called into question the commitment of indie's adherents, the mix tape became a virtual register of commitment, an instrument that obliged the hand-to-hand circulation of indie's public culture. As indie threatened to become just another variety of record industry product and its creators another cohort of industry tools, the mix tape cast the music as a gift and its creators as donors—matchmakers, Cyranos, channelers of music's erotic energy.

Fast Forward

The chapters that follow trace the cassette's evolution, pushed forward by competing narratives of supporters and opponents, from a children's plaything to a high-fidelity format, a target of legal regulation, an instrument of

grass-roots distribution, and a gift that transformed the sharing of popular music into an inalienable expression of affection. Chapter 1 begins with open-reel tape, the most popular home-recording format prior to the cassette. While cheap recorders marketed for a range of family, school, and civic uses sold poorly, high-end tape decks for home stereo systems took off among hi-fi enthusiasts. Home taping and trading of copyrighted music was conducted openly in the reel-to-reel era but was limited to wealthy consumers who shared radio broadcasts of opera and classical performances that stations couldn't be bothered to protect. All that changed with the introduction of the cheap and durable compact cassette. Though its sound quality was inferior, record companies quickly understood the cassette as a far greater threat to their interests. I argue that the record industry's subsequent push for royalties on blank cassettes and recorders was less about legally regulating the format than publicly delegitimizing it and the rituals of music sharing it enabled.

As lobbyists and politicians debated the implications of home taping for record industry profits, much of what was interesting about the cassette as a technology of music distribution was unfolding at the local level. Chapter 2 considers how the self-released cassette contributed to indie music and culture from its post-punk origins, serving as a practical means of distribution and a token of accessibility and community. The chapter illuminates indie's deep connections to cassette culture, which emerged in the early 1980s as a motley, mail-based network of musical outsiders. As different as cassette artists were, they shared a drive toward immediacy and prolificity that exceeded the limits of a vinyl-based market. I profile several cassette labels that thrived in the early 1980s, most leaving little evidence of their existence. I also chronicle some of the more prominent indie musicians and labels that took up the cassette on both sides of the Atlantic, signaling a new legitimacy for the format.

Chapter 3 deals with the clash between the cassette's radical accessibility and the popular music press's sense of critical discernment. As cassette labels sprang up across the United States and the United Kingdom, they gained the notice of many zines and indie-friendly radio stations, yet critics struggled to discern what standards the cassette release called for and what level of recognition it deserved. The cassette undermined the distinction between demo and finished product, lending a nagging sense of contingency to every release that would become all too familiar in the digital age. Small-run zines that promised to review every cassette that came their way were always on the verge of being overwhelmed, and the format's excesses were felt even

more acutely by gatekeepers situated further upstream who commanded larger audiences.

Chapter 4 considers the cassette's contribution to indie careers in relation to the industry's favored formats of vinyl and compact disc. Although cassette releases helped launch the careers of many indie artists, they most often were understood as promotional instruments. Musicians and scene-makers valued the cassette's egalitarianism and communitarian ethos, yet to get stocked in record stores and played on radio stations one had to make records. In part this had to do with the cassette's time-bound materiality, which complicated both consumption and production. Whatever its shortcomings, the cassette sold better than any other format in the late 1980s, and while independent record labels rarely prioritized cassettes in economic terms, the format retained a symbolic currency within indie. I discuss prominent indie artists whose early cassette releases took on legendary status, as well as reclusive visionaries for whom the cassette remained the format of choice through much of their careers.

Chapter 5 shifts perspective from the cassette as a format of first release to one of unauthorized, secondhand distribution. Far from killing music, the ubiquitous exchange of what David Morton terms "re-recordings" contributed to cycles of discovery and creative ferment among indie musicians and fans alike. Subcultural sounds neglected by mainstream radio and retail outlets flourished among tape traders, underpinning informal networks of distribution within and between scenes. The traffic in secondhand tapes both influenced new bands and sustained the legacies of older ones, aiding crucially in processes of everyday canon-making at a time when many seminal records remained out of print or hard to find. Grrrl fans marginalized within male-dominated critical forums turned to tape trading to help sustain a counter-history of punk and indie in which women's contributions were prioritized.

Chapter 6 argues that indie culture's ritualization of mix taping tapped into an emerging understanding of popular music as a communicative resource whose creators made their feelings available to be deployed on listeners' behalf. I first contextualize indie's take on the mix tape by tracing the term's equally venerable use within hip-hop (more often rendered as "mixtape"); in the 1990s and 2000s, the gray-market traffic in mixtapes became integral to the business of hip-hop, as their deejay creators carved out a niche as gatekeepers for above-board music labels. In contrast, writers and musicians who positioned the mix tape within indie culture constructed it as a gift that symbolically rescued music from the profane world of commodities. Musicians framed

fans' sharing of their songs via mix tapes as a tribute that recast their own labor in producing the songs as an act of sacrifice. Advocates thus located in the mix tape an ideal of hand-to-hand circulation at a time when indie music was fast becoming a generic mainstay of big-box stores and corporate playlists. The mix tape's celebrated routines of announcing one's music tastes as a bid for connection long outlived its heyday, as online and offline vendors continued to deploy it as a metaphor to ground the characterless flow of digital music and endow any collection of songs with a readymade social context.

In conclusion, I return to the cassette's much-touted revival. Although annual cassette sales still amount to only a few hundred thousand units, such figures say nothing of the feelings newly invested in the format. Cassettes have become a refuge from the daunting plenitude of online music, with devotees dwelling on their craftlike production and surrendering themselves to their analog temporality. Even the audible distortion that accrues from the cassette's notorious fragility has become a source of aesthetic value among fans. The cassette's material and acoustic distinctiveness combined with its limited-edition exclusivity have fueled a collector's market to rival that of vinyl, even as doubters question whether the format has any practical place in a mediascape of readily accessible digital music.

While emphasizing the cassette's formative role in making music shareable, I will try to resist the utopianism and determinism that so often drive studies of media technologies. Recall James Carey's observation that technology "occupies a peculiar place in the life of North Americans" as "the central character and actor in our social drama, an end as well as a means."[68] Admittedly, I've come to understand the cassette as both character and actor, both subject and object of the rapid transformations in the commercial and noncommercial exchange of recorded music at the end of the twentieth century. Having spent enough time with the cassette, one is apt to view all of recording history through the cog-lined spectacles of its two inner reels. Some may find that I make too much of a format that eventually served as just another way of storing and selling sounds. After all, though it was maligned by some as an enabler of piracy and idealized by others as a harbinger of a musical gift economy, the cassette was ultimately no less instrumental to the music industry's machinery of star-making and profit-making than any other popular format. The great majority of music sold on cassette was major label music, and the format made millions for manufacturers of blank tapes and playback devices, just as digital formats would reap billions for electronics firms, broadband internet providers, and their own patent holders.[69] Yet

what endures about the cassette, and what drives young music fans to pay dearly for tapes that are as prone as ever to jamming or breakage if they ever pass between the heads of a recorder, are not these realities. What endures are the aspirations invested in the cassette, the stories told about it, the ideals of participation and connection in and through recorded music that it spawned.

notes

introduction. love, theft, and audiotape

Some material in this introduction appeared in Rob Drew, "The Space Between: Mix Taping as a Ritual of Distance," *Popular Communication* 14, no. 3 (2016): 146–55.

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2 Schrage, "War against Home Taping"; Bottomley, "'Home Taping Is Killing Music.'"
3 Hogan, "This Is Not a Mixtape"; RIAA, "U.S. Sales Database."
4 Williams, "For Car Cassette Decks."
5 Sante, "Disco Dreams," 22.
6 O'Brien, *Sonata for Jukebox*, 108.
7 Sterne, *MP3*, 1–31.
8 Burkart and McCourt, *Digital Music Wars*; Knopper, *Appetite for Self-Destruction*; Kot, *Ripped*; Wikstrom, *Music Industry*; Anderson, *Popular Music*; Morris, *Selling Digital Music*; Witt, *How Music Got Free*.
9 Slack and Wise, *Culture and Technology*, 128.
10 Slack and Wise, *Culture and Technology*, 128.
11 Carey, "Afterword," 316–17.
12 Gallagher, "For the Mix Tape."
13 Yabroff, "With This CD."
14 Drew, "Space Between."

15 Michel, "Tape Heads," 26–29.
16 Barton, "Can I Get a Rewind?"; Taylor, *Cassette*; Gibner, "What Fred Said."
17 Hogan, "This Is Not a Mixtape"; Brown, "Sonic Rewind"; Reynolds, *Retromania*, 348–51; Eley, "Technostalgia"; Novak, *Japanoise*, 198–226.
18 Huhtamo, "Dismantling the Fairy Engine," 28.
19 Sterne, *MP3*, 8.
20 Gitelman, *Always Already New*, 7.
21 Morton, *Sound Recording*, 161–62.
22 Liberty Music Shops, "Carry-Corder 510."
23 Rumsey and McCormick, *Sound and Recording*; Cummings, *Democracy of Sound*, 84; Morton, *Off the Record*, 100–101.
24 Morton, *Sound Recording*, 160; Cummings, *Democracy of Sound*, 84.
25 Rothman, "Rewound."
26 Fantel, "Cassettes"; Clark, "Product Diversification," 102.
27 Continental Telephone Supply Company, "Carry-Corder."
28 Morton, *Sound Recording*, 162.
29 "Music Maker for the Masses," 108.
30 Morton, *Sound Recording*, 162–63; Millard, *America on Record*, 318.
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32 US Congress, House, *Prohibiting Piracy*, 40; Schrage, "War against Home Taping," 61.
33 Cummings, *Democracy of Sound*, 135–38.
34 Drew, "New Technologies," 263–66.
35 Sterne, *MP3*, 196.
36 Pareles, "Issue and Debate"; US Congress, Senate, Home Audio Recording Act, 48–54.
37 Fox, "Can Record Firms Stop," 593–95.
38 Sterne, *MP3*, 12.
39 Sterne, *MP3*, 12–14.
40 Tongson, "Empty Orchestra," 88–94.
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42 Frith, "Industrialization of Music," 73.
43 Schrage, "War against Home Taping," 64; US Congress, Senate, Home Audio Recording Act, 593.
44 Pareles, "Record It Yourself"; Jones, "Cassette Underground"; Strauss, "Putting the Net"; Marshall, "Long Live"; Szava-Kovats, *Grindstone Redux*; Hix, "Cassette Revolution."
45 Harris, "'Roots'?"; Kot, *Ripped*, 30.
46 Rose, *Black Noise*, 53; Toop, *Rap Attack 3*, 78.
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