The Practice of Recording Music

Music: Remixing as Recoding

by Jonathan David Tankel

New technologies for manipulating sound have allowed for "the reanimation of familiar music by the creation of new sonic textures for different sonic contexts."

The practice of recording is both an act of social control (3) and an aesthetic act. A sound recordist—the person who transforms sound from performance to artifact—makes aesthetic judgments that are usually perceived to be the performer's domain. This article defines the sound recordist's practice and suggests some consequences of that practice for the construction and consumption of popular music.

In the post-industrial age, the actualization of music is no longer bound in space and time to the performance or to human memory. The mass production of musical simulacra increases the number of people who come in contact with the musical performance but transforms that musical performance in the process. Schaefer (32) coined the term "schizophrenia" to convey his anxiety about the dominance of machine-made sound (pp. 80–81). Atali (3) argues that recording has ruined the passion from performance, but his analysis fails to appreciate the aesthetic potential of the recording technology itself.

The recordist's contribution to musical performance includes "production" (sound design) and engineering (the work of sound recording). These functions, which may or may not be performed by the same person, constitute the process of audio control (2, 7). In current practice, the recordist also may compose (and/or perform) the melody, lyrics (if any), and rhythms. Sound recording technology can store and retrieve the basic elements of music (rhythm, melody, harmony, and tonal color), but the recordist also can manipulate the entire sound environment. By fixing various parameters of sound (for example, volume, pitch, timbre, juxtaposition, presence, and attack/decay), the recordist can "code" the music and the musical space. A simple example would be John Lennon's vocal on the song "Lucy in the Sky with Diamonds," from the Beatles' album *Sgt. Pepper's Lonely Hearts Club Band* (Capitol ST 2653). The extensive use of Artificial Double Tracking and varispeeding (changing the speed of the tape to alter pitch), combined with other studio techniques, makes Lennon's recorded performance unique (26). Other artists, in turn, can use this unique recording code to create "Beatles-sounding" music.

One aspect of the recording code can be described as "sonic"—the relative reproductive clarity of recording. Widespread familiarity with recorded music has altered how people listen to music (live or recorded) and what qualities of recorded sound they expect from recording artists. Just as amateur and professional visual recordists differ (compare home movies and Hollywood films), there is a qualitative difference between the "sound" of home recordings and of studio production. As the cost of the appropriate technology is reduced, the aesthetic gap between professional and amateur sound recordists narrows to the techniques of practice (see 41).

The other aspect of the recording code can best be described by what Barthes (4) called "the grain of the voice." Extending Barthes's adaptation (from Kristeva) of the concept of "dual production," we can describe recording for clarity as "pheno-recording" and recording as a creative act as "geno-recording." The former is required by technological imperatives—distorted recordings are difficult to listen to—but the latter is an intangible quality created by the circumstances of recording. Therefore, music is both recorded (preserved) and interpreted (mixed and edited). Sound recording technology and the recordist's skills together create a "grain" for a recording, a sonic context; in essence, the duality can be defined as the expression (the music) and the "grain" (the mix).

The concept of "grain" is highlighted when the recording process itself becomes the performance. When the invention of a sound recording device (by Thomas Edison in the United States and Charles Cros in France) disrupted the human auditory horizon in 1877, the circumstances of musical production and reception were altered so that musical sources became sets of earphones

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1 For discussion of what to listen for in music, see (10, 36).

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and, later, loudspeakers (28, 31). The Edison cylinder phonograph (and later technologies such as disc, wire, and tape) freed both performer and listener from the strictures of time and space, and the acoustic experience of listening was no longer tied to a simultaneous live performance (3, 8, 9, 13, 18, 19, 22, 32).

Through recording technology an acoustic, amplified, and/or electronic performance is transformed into a medium in which it can be physically stored (recordings).\(^1\)\(^2\) Storage may be accomplished by two methods: the original analog process (31) or digital recording, which was introduced in the 1970s.\(^3\) In either process, the performance stored is not a copy of the performance, live or otherwise, but rather a work based on a performance (or performances) that is actualized when played back by or for listeners.

The mass reproduction of musical works thus is enabled by the replicability that the technology of sound recording makes possible—the ability to reproduce with ever-increasing exactitude. Histories of the recorded popular music industry (see 16, 40) tend to concentrate on the consequences of the technology of replication—that is, on the industrialization of popular music. Sociologists, too, have viewed the organization of production through the lens of replicability (11, 12, 29, 30). But music recording as a form of culture production also resulted from plasticity, the ability to manipulate sound physically. The process of music recording—the technology of plasticity—is the site of the musician's interaction with the administrators of the mass culture industries, who desire replicability (see, e.g., 15).\(^4\)

\(^1\) The idea of creating reproducible mechanical sound (speech and music) is an ancient one. Devices to reproduce music, such as musical clocks and music boxes, were coextensive with automated musical instruments, such as automatic organs and harpsichords. Coming full circle, Yamaha, a major electronics manufacturer, has announced the availability of a computerized electronic keyboard designed as a digitized player piano. For a brief history of mechanical processes that reproduce sound, see (28).

\(^2\) In analog recording, acoustic energy (sound waves) produced by voice and non-electronic instruments (including the sound produced by speakers such as those used by electric guitarists) is transformed into an electrical signal, possibly combined with the signals created by electronic devices (guitar pickups, electric keyboards). That electrical signal, an analog of the composite sound wave, is stored on discs or tape in anticipation of playback on a device that transduces electricity to acoustic energy. Digital recording transforms the composite analog electrical signal into a string of numbers. Since the only thing "recorded" is the binary code, each digital recording is identical to the original recording, not an analog of it. This difference has aesthetic consequences for the recordist, the performer, and the audience. For detailed explanations of analog and digital recording technologies, see (2, 7); see also (23, 34).

\(^3\) Popular music creators, who must gain access to recording technology that would be otherwise unavailable to them, often must satisfy the debt created in the recording process before receiving any postproduction revenue. This gives the record company more leverage in its relationship with the artists (see, e.g., 35).

\(^4\) Hedgidge (20) concludes that many Caribbean musical styles were created in the studio or specifically for recorded playback at public functions. Wallis and Malm (38) examine the consequences of technological dependence for the popular music recording industries of smaller countries, such as Tunisia, Denmark, and Sri Lanka.

The technology of plasticity not only contributes to the functioning of the popular music recording industry but also affects the aesthetic potential of sound recording practice. The essence of audio recording is the ability to preserve sound, but the process also permits mixing (setting sound parameters and relationships during and after recording) and editing (reorganizing sounds after the performance). Booth (6) graphically illustrates how the "grain" of practice creates the opportunity for signification in his description of Rolling Stone Keith Richards mixing the sound of the song "Midnight Rambler":

A big yellow joint was in his left hand, in his right hand the red knob that boosted the intensity of his guitar track. The tracks were stacked eight deep on the wide plastic tape wheeling through the recording machine, a sound engineer watching seven of the tracks, Keith watching his own. . . .

Keith was grinning, showing bad teeth, making deep wrinkles around his eyes as his guitar lick came around and he turned the knob to make it scream, boosting the pain each time like men drunk in bars at the turn of the century twisting the knobs of an electric shock machine, five cents a shock—except that Keith was doing it to get your attention, just giving you a little big voltage to bring your mind around to what was being said: Did you hear about the Midnight Ramblers?—Jagger's harmonica and Keith's guitar whining and bending, swooping together, just about to jump the garden wall—Says everybody's got to go (pp. 75-76).

Richards's nonverbal behavior at the mixing console is patterned on his guitar playing. For him, the mixing console is a musical instrument capable of artistic expression, a signifying practice.

The advent of multitrack recording technology in the 1950s permitted the recordist to record separate tracks (a sound or groups of sound) in synchronization, making possible the total studio production in which no live performance in toto takes place. Current sound processing technologies also allow the recordist to vary the basic elements of sound: volume (potentiometer), dynamic range (compressor/limiter), pitch (harmonizer), timbre and balance (equalizer), duration (technological variation of delay, reverberation, echo, speed), and spatial imaging (including the selection of monaural, binaural, stereophonic, quadraphonic, surround-sound). Microphone selection and placement and the use of the studio's acoustic space also influence the sound as recorded. The recordist edits the performances—deleting, adding, combining, rearranging, or reversing the direction of the sound—by reordering pieces of tape with razors and splicing tape (physical editing) or by using multiple recorders (multimachine rolldown); in digital recording these functions are performed electronically.

Kealy's (24) analysis of studio practice in the late 1970s focused on the collaborative aspect of the recording process and, in particular, the sound mixer (engineer), "where music and modern technology meet" (p. 5). Kealy defined three modes of collaboration with increasing responsibility for aesthetic decisions. In the "craft union" mode, the sound mixer was strictly an engineer who
operated the technology of recording within accepted parameters as determined by corporate policy. In the “entrepreneurial” and “art” modes, the distinction between recording engineer and recording artist blurred; the sound mixer was a full collaborator who received credit on the album liner. The working with the sound mixer (art mode) or in the record producer working sound mixers had achieved “artist” status. In the 1980s, sound engineers gained public recognition for their artistic input.

The central issue of recording practice is, however, more complex. How can we describe the range of possible relationships between musical performance and recording practice? In other words, how do we define a “recording”? Gumpert (19) identified three modes of recording, based on what is recorded. A “live” recording is a facsimile of a performance. As Kealy (24) had remarked, the “art of recording was not to compete for the public’s aesthetic attention with the art that was being recorded” (p. 11, emphases in original). A “studio” recording is a distinct entity not bound by the strict limitations of performance—the compilation of discrete performances or activities mixed to create a unique whole. A “live augmented” recording utilizes studio technology to create the illusion of a performance by recording and mixing performances that seem to be performed as a unit.

However, using only these modes privileges the musical performer and/or performance. A typology of current recording practice needs to account for possibilities of independent mixing of sound, the remix—when a producer takes a completed work and reworks that material. This category combines some elements of Gumpert’s three modes of recording yet is unique.

The remix recording is an original form of artistic expression that defines the recordist’s art made possible by the technologies of mass production. Modern music recording technology allows for the continual manipulation of recorded sounds, so there is no finished product. Record mixing is a two-part process. The sounds may be manipulated during the recording session (the “rough” mix) and during postproduction. If the original mix is a form of code, representing an ordering of the sonic environment, then remixing is recording. In the remix recording, mixing has become autonomous from the original context of the recording/creation of sounds/music. The rough mix provides raw material that can be reconfigured into another artifact in which the original recordings are located but are not present.

Prior to the invention of multitrack recording in the 1950s, the relationships between sounds were controlled at the time of recording. The frequency responses of the recorded sound may have been equalized in “postproduction,” and they were physically edited after World War II (see 13, 31), but the recordist’s capacity to create after the act of recording was limited. It was by developing an overarching philosophy of how to record sound that the early record producers exerted their influence. Eisenberg (13) identified such pioneers of the recording art as Fred Gaisberg, who began with Emile Berliner, the inventor of the flat disc; Walter Legge, who defined the role of the record producer in recording such concert artists as soprano Elizabeth Schwarzkopf and conductor Herbert von Karajan; and John Culshaw, who used studio technology to vitalize recorded opera. “Where Gaisberg was content to take a photograph, Legge to extract the imperfectly perfect performance, Culshaw wanted to make something entirely new: a record that was deeply and unabashedly a record” (p. 120).

The world-renowned concert pianist Glenn Gould advocated the idea that recording was itself an artistic act that would eliminate the concert hall. Gould was a recordist of his classical music and of Canadian Broadcasting Corporation documentaries and soundscapes. He articulated the possibilities created by the recording apparatus’s ability to facilitate art rather than simply duplicate a specific performance (18). He maintained that record production is a distinct craft that contributes to the musical art. For Gould, the interdependency between recordist and musician was such “that the judgment of the performer no longer solely determines the musical result” (p. 339).

Gould’s analysis of the potential for recording as art has been fulfilled in the realm of popular music. Adorno (1) described the interaction between the forces of musical production (the creative and functional aspects of production and reproduction) and the circumstances of production (the economic and ideological conditions of production and reception). But Adorno’s focus on questions of reception ignores the creative dynamic of popular music, where progressivism and conservativism work together to allow artistic innovation within an industrial process. In popular music, the audience will support innovation that resonates with familiarity. More important, innovation in popular music is often sonic rather than musical. Just as in the compact disc is one example.) Popular music recording “creatively employs the inexhaustible technical resources of the medium to generate new sounds and timbres” (8, p. 176). In so doing, popular music recording derives its aesthetic tension from the interaction between the need for sonic clarity and the potential for sonic subversion through the “grain.”

The recording studio was essential to the development of rock ‘n’ roll and, later, rock. In the fifties, recording technology permitted the combination of Sam Phillip’s concept, Elvis Presley’s presence, and Scroty Moore’s guitar. In Presley’s 1954–1955 Sarn Sessions (RCA APM1-1675, rereleased 1976), the slap-back echo created an effect then impossible to duplicate in live performance (16, 27).

As Ihe (22) has pointed out, the development of amplified music came within a specific historical context. Other musics had an independent existence, but in rock ‘n’ roll, “amplification, electronic sound, [became] its own instrument” (p. 97):
Rock's eclecticism...has its technological aspect, for radical advances in technology have transformed the recording studio—once no more than a location for recording of performances—into what might be described as an audio workshop with sound (performed, synthesized, natural or of any other kind) being the raw material (10, pp. 197–198).

Others who view rock as a modern folk art consider the recording studio's influence debilitating. Hunter (21) concluded that "the content of rock—the songs, the sound—follows to a great extent from formulas imposed by recording techniques. And these formulas are giving us music that is murderously dull" (p. 54).

As these views suggest, the product of the relationship between recording practice and rock music creation has varied considerably in quality. The short career of Buddy Holly encompassed the early history of the relationship between rock 'n' roll and technology. Holly began in Clovis, New Mexico, making simple recordings (with guitars, bass, and drums) of songs with a driving beat (such as "Rave On"), by the time he died two years later he was recording melodic pop tunes (such as "It Doesn't Matter Anymore") in New York City studios with session string sections (The Buddy Holly Story [1959 Coral CRL 757279]. Goldrosen (17) places the New York experiments in the context of Holly's musical inventiveness: 'sonic diversity in support of a broadening musical concept. But in both cases—as the leader of a self-contained band without a producer (Norman Petty) and as a manipulator of the craft union mode of studio practice—Buddy Holly was a popular innovator who was also a recordist.'

It is important to note that studio practice is not limited to recording technology per se. Phil Spector created his famous Wall of Sound not just with the overdub and mix but also by using the studio as an acoustic space, certain microphones, and unconventional instrumentation (39). Jack Nitzsche, who worked as an arranger for Spector, recalled how the desired sound was created by the recording engineers, the studio space, and the available electronics:

"We did most of the sessions at Gold Star Studios in Hollywood. I loved the rooms, but it was always too small for all the people. Larry Levine and Stan Ross were good engineers. Larry would never question anything that Phil wanted to try to do. There were four echo chambers and I remember Stan Ross, who was also a co-owner, telling us that the echo chambers were acoustically and geometrically designed to get the right amount of balance and reverb. That added impact to Phil's recordings. I loved the echo. It's like garlic. You can't get too much." (25, p. 74).

The influence of record producers like Spector has been evident as the interaction between recording technologies and musical creation became increasingly complex. Many critics and popular music historians have noted George Martin's contribution to the Beatles' recordings. Sgt. Pepper, in particular, is considered the seminal "studio album." It was not clear that rock music need not be performed live. Indeed, recording practice became essential to the making of 'rock records.' The recording itself is the rock music, as it is in the case of the remix record.

The practice of remixing (and possibly adding to) a set of audio tracks is made possible by multitrack tape recording. Until the 1980s, remixing was a facet of postproduction, a last attempt to create a perfect recording before its release. Once a recording was made public, its sound texture was fixed forever, at least on the copies possessed by the audience. Although sometimes different mixes of the same tracks were released for radio play, more often than not the record was not remixed but simply reprocessed to compensate for the limited sound parameters of AM and, to a lesser degree, FM transmission. In either case, remixing was an industrial process designed to facilitate record play on the radio.

By the 1980s, remixing had been transformed from a process (the remixing of audio tracks) into an artifact (the remix record). Just as reggae music developed as an outgrowth of playing records at public dances in Jamaica (20), the remix as a distinct recording form resulted from the needs of British and American clubs for dance music, music that accentuated rhythms in particular ways. The sonic texture of the music also had to be augmented in a way compatible with the bass-heavy amplification systems. Music mixed in this fashion was not totally compatible with music mixed for radio air play. Specific songs are now released and identified as different mixes (with names such as radio mix, dance mix, dub mix, or blister mix); the plasticity of recording practice is incorporated into the public presentation of popular music works.

The record companies' most compelling reason for this practice is economic: Remixing a song reactivates it in the cultural marketplace. As the trade and popular press have reported, the remix version of a song is treated as a different version, generating additional revenue without the need for a new melody or lyrics (see 57). The process of remixing also involves an aesthetic component.

4 Record companies continually release "new" music from deceased artists. Often these are "unfinished tracks," the rough drafts of composing on audio tape. Buddy Holly had recorded a number of demo tapes in his last year that were "finished" by Norman Petty, his original producer, with the New Mexico band The Fireballs (17). Whether or not Holly ever intended for these tapes to be "finished," their release is testimony to the incomplete nature of the multitrack audio recording process.


5 The record producer combines the aesthetic duties of a film director with the business responsibilities of the film producer but is not responsible for subsequent promotion and exploitation of the finished product. In some Germanic countries, the sound recording producer is called Tonmetreiter (53).

6 The concept of studio construction had been far advanced prior to the Beatles, as the work of Phil Spector demonstrated. The extensive use of overdubbing to allow an individual, or group of individuals, to create music impossible to reproduce accurately live was exemplified best by the 1966 Beach Boys album Pet Sounds (Capitol DT 2440), recorded almost single-handedly by Brian Wilson and released prior to Sgt. Pepper.

7 Some potential single releases reportedly were mixed specifically to compensate for the broadcasting parameters. For details of the Beatles' mixing practices, see 20).
The remix engineer can be viewed as an artist distinct from the original musician(s), no longer a collaborator, as Kealy suggested, but an independent creative force.

Remix producers, such as Arthur Baker and Shep Pettibone, are now allowed, even invited, to repurpose the work of previous recordings and primary aesthetic credit is given to the remix producer, although the songs are still identified as the original artist’s creation. For example, the remix of Bruce Springsteen’s *Dancing in the Dark* (Columbia 44 05028) credits Arthur Baker with “additional 12”inch production and remix,” but the record is marketed as a Bruce Springsteen song, with his picture on the cover and his name on the label. This distinction between the creator of the song and the creator of the music recognizes the recordist’s craft in modern sound recording practice.

The original version of “Dancing in the Dark,” included in 1984 on *Born in the U.S.A.* (Columbia QC 38653), is credited to Springsteen, Jon Landau, Chuck Plotkin, and Steve Van Zandt, with mixing by Bob, Clearmountain. It has a common mid-1980s texture: emphasis on the vocals (particularly pronounced in relation to the other sounds), with bass and drums set in the sonic background, and the middle ground populated with guitars, keyboards, and synthesizers. The introduction comes in at full volume with a synthesized melodic theme that is repeated throughout the song. There is no change in overall dynamics as the music comes to a bridge (transitional phrase), only a change in melody and chordal structure. The song ends with a long fade, over which a saxophone plays an improvised phrase based on the melodic theme originally carried by the synthesizer. The mix maintains a balance between the instruments as well as a consistent dynamic range throughout that keeps the listener’s attention on the melody and, ultimately, Springsteen’s singing of the lyrics.

The differences between the original mix and Arthur Baker’s various remixes (also released in 1984) illustrate the influence of music consumption on recording practice. The Baker remixes reconfigure the sounds and the music to create a different experience of the same song—the “grain” is different, although Springsteen’s voice and the original instruments remain. In the blaster mix, the difference is striking right from the start. Instead of hearing the simple synthesizer theme introduction, the listener is assaulted by the basic drum pattern at full volume, overlaid with additional electronic percussion in the form of tom-tom rolls (high to low) that emphasize the off-beats. The rhythm of the song is transformed into the elastic beat of the modern dance floor. This new aural texture is significant in two ways. First, the focus is on the rhythm. Second, the acoustic space is different: the original mix is coded for radio and home stereo, while the remixes are recoded for dance floors and the boom box.

Throughout the blaster mix, Baker constantly reconfigures the melodic and rhythmic structure of the song and creates a number of alternative choruses (repeated phrases used as resolution) and bridges. He uses bits of the original melodies, physically cut into new structures and supplemented by new sounds. He adds bells to the synthesizer part and, most dramatically, backs Springsteen’s solo vocal with a female vocal chorus. This vocal interplay echoes the call-and-response pattern of the rhythm and blues style that dominated dance floors in previous years. Baker ends his remix with a drum pattern that, on the dance floor, would provide a segue (transition) to another song on the final beat; he leaves the long fade of the original for radio play. The 1980s “adult-oriented rock” radio-style mix of the original is replaced with a different sonic experience: Drums and percussion leap out to capture the beat; silences give way to full-volume harmonic and rhythmic textures, reminiscent of Spector’s Wall of Sound and Springsteen’s own production of *Born to Run* in 1975 (Columbia HC33795). Baker’s creation reexamines, reconfigures, and recodes the original by creating a new sonic context.

The 1984 Baker remix of Cyndi Lauper’s “She Bop” (Portrait 4R 05011) demonstrates how enhancing the sonic context can invigorate the musical artist’s concept. The original mix of “She Bop” (produced by Rick Chertoff) sounds much like the original mix of *Dancing in the Dark*: pronounced vocals, full-volume introduction with a synthesizer statement of the musical theme, drums strong on the downbeat but mixed into the background. The focus is on Lauper’s vocal phrasing, as her voice rises in swoops of glee, sliding to Betty Boop stylizations along the melody. Syncope and heavy breathing in the background graces the ends of melodic lines, replaced by giggles as the percussion marks time before beginning the melody again. The overall sonic context has little dynamic range, and the instrumentation is mainly an accompaniment for Lauper’s vocals.

Baker’s 12-inch-single remix adds another layer of sexual connotation through sonic elaboration that makes Lauper’s vocals more present than in the original. Close harmonies are added to create an “edgy” feel, and the brief instances of heavy breathing in the original appear and reappear throughout the remix, as do the giggles. The pitch and tonal quality of these sounds are processed to sound even more playful than in the original. The phrase “she bop” is cut and reconfigured in multiple variations, coupled with additional electronic percussion, until the aural context explodes organically back into the original. The overall effect of the remix is to create sexuality more intensely than the original, to create an expression designed for the dance floor.

The natural extension of the process of remixing single releases is the remix album. One of the first sets of remixes to be conceived as a full-length album...
was Madonna's 1987 release You Can Dance (Sire 25535). Chin writes in the liner notes about the concept embodied in this remix album:

_Songs from every stage in Madonna's career have been taken back into the studio by the top names in the remix field—each of them a club DJ. These newly remixed versions are elaborate second looks at some amazingly durable pop songs, and they renew the dance element in both form and content. Every one was a labor of love for the DJ-remixers involved._

The liner notes describe a percussionist "really wailing" as he plays "live" to the prerecorded drum track, creating a new sense of rhythm for the song "Over and Over." From tapes seemingly finished by Madonna and her original producers, these remixes (Jellybean Benitez, Steve Thompson, Shep Pettibone, and Bruce Forst) created new sound recordings distinguished by their conceptualizations of particular sonic atmospheres.

By manipulating the "grain" as well as the traditional objects of music attention (lyrics and melody), the remix is a unique artistic act whose artistry is produced through the technology, since the craft is in manipulating both the sound and the music. The remix exemplifies the narrowing of technology and music that began when Edison recited "Mary had a little lamb" into a phonograph in 1877. Remixing is recording, the reanimation of familiar music by the creation of new sonic textures for different sonic contexts.

The plasticity of sound recording creates the possibility of a collaborative creative enterprise without end. The advent of remix recordings presents aesthetic and cultural dilemmas similar to those raised by the colorization of motion pictures, yet the transparency of recording as a medium has minimized critical opposition. The remix recording creates a new artifact from the schema of previously recorded music. It is prima facie evidence of Benjamin's contention that "an ever greater degree of the work of art reproduced becomes the work of art designed for reproducibility" (5, p. 224).

References

33. Schlenman, W. "On the Position of the 'Touneister' (Sound Recordist) in the Musical Communica-