

## Patent Instrument and Reading Machine

When the United States Patent Office received Edison's application for a patent on the first phonograph, on Christmas Eve, 1877, official examiners confronted a device Edison and his attorney called an "Improvement in Phonograph or Speaking Machine." "Improvement in" may seem to represent an uncharacteristic modesty on Edison's part, but the phrase is actually a reminder that all granted patents are as much about old news as they are about new. Patents arise and exist within a highly regularized textual system of official filings, government notifications, and legal process.<sup>1</sup> Their knowledge sources are doubly the inventor's creativity and the examination of what is called *prior art*, an historical inquiry made by inventors, lawyers, patent office employees, more lawyers, and possibly the courts. Knowledge about both what is claimed to be new and what is discovered to be old is processed together, and if everything works out, new technology is authored and authorized: the inventor receives the right to a piece of intellectual property with possible, negotiable worth. In the case of Edison's "Improvement in Phonograph," Edison got his patent in mid-February without much trouble.

Preconceptions about technology, so evident between the lines of idea letters, science fiction, or commercial promotion, form the explicit method of the patent office. Edison's application, in order to

be examined, had to be assigned to a division and class within the government's system of technological knowledge. At the same time, it had to do what every successful application for a letters patent necessarily (i.e., by law) must demonstrate: novelty. Indeed, the inventor may be naming something that does not yet exist for the examiners, who will always need to consider it within a taxonomy of their preexistent and therefore essentially faulty divisions and classes. For want of a better spot, the patent office put Edison's phonograph into Division XVI, Class 73, Measuring Instruments. Undoubtedly, this designation was made in order to avail the government examiners of Sub-Class 34, Recorders, where the phonograph ended up. Though not always to such an obvious degree, every patent application tests the system of knowledge previously bureaucratically schematized. And every patent grant incrementally alters the hierarchical structure of knowledge by changing its contents. The phonograph shifted both the substance and the relative boundaries of Sub-Class 34. Eventually the patent office has to bend under the weight of accumulated minute adjustments, revising its divisions and classes and thereby renewing the grounds of their contrived obsolescence. Only in 1886 would the patent office create a new class called "Acoustics," intended to include separate subclasses for the likes of phonographs and ear-trumpets. In 1890 the subclass for phonographs was changed to Graphophones after agitation from Edison's competitors. This change reveals how the classification of new inventions is muddled by commercial politics while it negotiates new technological knowledge.

The government's designation of the phonograph as a scientific instrument for "recording" measurements possesses many interesting implications, some of which I will defer until my next chapter, which is more explicitly about names and labels. In the present chapter I continue to address issues of text and evidence, interrogating these alongside matters of amusement and commerce. By now it will be obvious that I see the period around the turn of the twentieth century as one of particular upheaval and importance in the relations between words and things. Books and other printed text-objects be-

came differently produced and accommodated within the nascent mass culture. Their becoming had much to do with the economics of the publishing trades, shifting grounds of authorship, new technologies, and new marketing means. It also had much to do with a welter of new inscriptions that had to be *contextualized*: to be defined against, and mutually to define the printed word as well as its established oral, aural, and readerly relations. These new inscriptive forms were cultural productions, like musical phonograph records and silent films, but they also included nonaesthetic products such as X rays and mimeographs. Between the Patent Act of 1870 and the Copyright Act of 1909 new relations between text and technology were clumsily negotiated, in particular, in the exercise and defense of intellectual property rights. The American patent process was one groundwork from which the new understandings arose; it provided a baseline, a relatively stable set of assumptions about words and things that, though they remained unquestioned within the confines of the U.S. Patent Office, were increasingly taken to task by the culture at large. Copyright legislation proved a much less stable ground. Congressional hearings and court decisions questioned the nature of "reading" in an effort to rearticulate the definition of constitutionally protected "writings." Generating particular controversy was the issue of musical copyright. Debate centered around the issue of whether phonograph records and perforated piano rolls could be "read." The same question was raised at the Berne Convention meetings in Berlin and was litigated in Mexico and across Europe. Legal case history in America focused on the copyright for a "coon" song entitled "Little Cotton Dolly"; the phenomenon of the recorded coon song itself implies some of the complex features of ownership and authorial identity that emerged as pressing questions of cultural production during the period. American lobbyists and legislators addressed the changing requirements of intellectual property statute within the context of changing technology and tastes, but also within the politics of the newly global entertainment economy that was enabled in part by varying social practices of consuming representations of racial, ethnic, class, and national difference.

Though here addressed consecutively, one of my points is that patents and copyrights belong together. Not only did the framers of the Constitution conceive them together, "to promote the progress of science and the useful arts," but during the first two decades of the twentieth century these forms of intellectual property were metaphorically situated and judicially constructed in a manner that drew them more closely together than before. Their proximity was to a small degree accidental, due to certain judges sitting on certain courts and to broad analogies that surfaced in the legislative history of the new Copyright Act. More so, however, their proximity arose from the commercial circumstances surrounding consumer goods such as cameras, phonographs, pianolas, and projectors, all patentable products reliant upon patentable supplies (films, records, music rolls) that in turn were reliant upon cultural products, the reproduction of original creations (the photograph, the musical score). Such consumer goods coevolved with complimentary elements of corporate practice, economic organization, and other production values. These together provoked a reckoning within the public sphere, not only of the nature and extent of ownership and authorship but also of identity and perception, of readers and writers.



The word *patent* derives from the Latin, meaning disclosed or lying open. In the early English use, *letters patent* meant an open, public document granting land rights or similar privileges to an individual or corporate body for an explicit period of time. Notably, British entrepreneurs were granted royal letters patent to found colonial American settlements in the seventeenth century. Territoriality has always been an operative metaphor in the rhetoric of patents, particularly in the articulation of the *claims* of a patent. Like a miner staking a claim, a patent applicant must demarcate the boundaries of her or his invention, seizing a metaphorical topography within a field of knowledge and an area of expertise. Edison made the point emphatically, when he instructed his attorneys to file a patent application for phonograph records; he directed them to "Claim the Solar System." In another similar instance he advised haste: "Claim the Earth, &

before she makes many more revolutions." Territorial metaphors were a point of legal comparison too. As one standard treatise of the early twentieth century put it, the patent claim "may be likened to the description in a deed which marks the bounds of a parcel of land"; though because the claim "deals not with a tangible thing," it remains "merely an approximation, more or less remote, to an exact disclosure of what a certain mind has accomplished."<sup>2</sup> Though the estimable Macomber here admits that "exact disclosure" is impossible, the rhetoric of patents rests squarely on the opposite assumption. The patent process assumes a naive relation between words and things. According to law, any "useful art, manufacture, engine, machine, or device" may be protected by "describing the said invention or discovery, clearly, truly, and fully," and undergoing a successful examination by the patent office.<sup>3</sup> Any technology can be described and any invention can be neatly, if not uniquely, divided into individual claims, that is, bite-sized acts of objective signification for which language is presumed to be clear, clean, natural, and free from ambiguity. No symbolic or figurative meanings pertain; the whole is exactly equal to the sum of its parts. In an age that imagined so many machines for language, the patent process offered a language for machines.

Edison's number 200,521 is a happy example of a patent to have at hand. While the patent office at first conceived the phonograph as a scientific instrument for recording; the genre of the patent document, which the patent office maintains so assiduously in its rules of procedure, was conceived as the textual equivalent of just such an instrument. Text-as-instrument and genre-as-technology are nothing new. Legal process requires written instruments. Shorthand, subsumed within its own technocratic pretensions, tried to be as much of a technology as possible. And many literary and nonliterary genres have been profitably considered in similar terms. Steven Shapin, for instance, has characterized the early printed works of the British Royal Society as possessing a "literary technology of virtual witnessing," showing that the genre of the scientific article has its roots in the need to attest, whether directly or obliquely, to the

**T. A. EDISON.**  
**Phonograph or Speaking Machine.**  
**No. 200,521.                      Patented Feb. 19, 1878.**

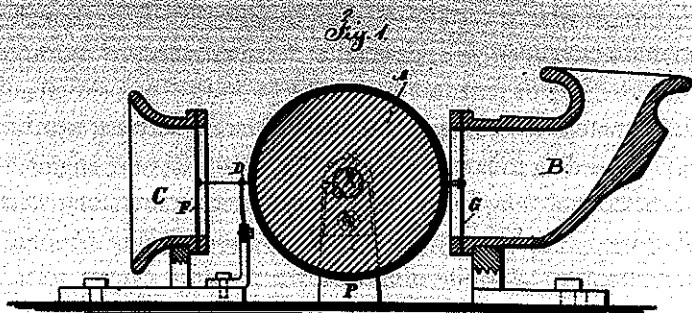


FIGURE 5. New knowledge. Edison's first phonograph patent, no. 200,521 (1878).

veracity of experienced events (Shapin, "Pump and Circumstance," 490). The article is technological in the sense that it is constructed, like a good scientific instrument, to lend weight to the findings it offers. Though the patent may have less to do with witnessing than the scientific article, the two share a similar intellectual history and are the authoritative discourses of a technical knowledge.<sup>4</sup> Like the authority of science, the authority of patents relies on objectively describing what really exists. But as harbingers of commercial advantages of one sort or another, patents fester with potential threats to objectivity. This is the "paradox of patenting." The patent system is supposed to stimulate inventive activity by inhibiting the diffusion of inventions.<sup>5</sup> American technologists have long recognized the paradox. A few, like Benjamin Franklin, declined to patent; instead, he published a description of his "Franklin" stove and encouraged its diffusion. However, as Thomas Fessenden explained in 1808, an inventor is usually "induced to divulge no more of the process than what might be deemed absolutely necessary to entitle himself to a

patent; and confine the principles of his invention to his own workshop" (x). What this means for the patent document is a double-edged sword of specificity and vagueness. Inventors must "open," or disclose, their ideas so that no one can steal them, and in so doing, must describe their ideas minutely. Yet, they must also withhold as much as they can get away with and leave themselves covered in case of many possible unforeseen alterations. This is a pair of contradictions that may seem more in keeping with symbolist fiction and romance than with any technical discourse. The patent means to keep secret the very thing it means to reveal.

The paradoxical nature of patent documents arises separately from two connected points, the anatomy of the documents themselves and the activity of readership they imply. Anatomically the patent is a formulaic combination of three primary parts: a specification, a drawing, and claims. These primary parts are in addition to a colophon or preamble identifying the applicant and her or his nationality, as well as the patent number, date, title, and signatures of the applicant, attorney, and witnesses—features no less important to the document, but transparent in their rhetoric of pro forma validation. (Patent models were not required after 1880.) Each of the three primary parts requires consideration independently, as each possesses a coexistent and potentially contradictory role in the rhetoric of the whole. That whole is tempered by a jumble of implied readers similarly coexistent and similarly at odds.

The term *specification* occasionally refers to the entire patent document, but usually it has the more narrow meaning of a detailed description of the invention that accompanies a patent drawing and precedes its claims. Statute requires that the specification be prepared "in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound and use" the invention. Macomber instructs his readers that an ideal specification should not waver from this purpose and "should avoid all laudation and all attempts to declare the basic character of the invention" (68). This ideal, Macomber admits, is freely avoided in

practice. Edison's first phonograph is specified in his patent by three distinct gestures—an introduction citing the purpose and general nature of the invention; an explanation of its operation, with reference to the accompanying Figures 1 and 2; and an amplification of further means to the same end, with passing reference to Figures 3 and 4. Within his introduction, Edison even makes himself the subject of one paragraph, narrating that “after a long series of experiments” he has discovered that the human voice produces “separate and distinct” vibrations in a diaphragm “or other body,” and “therefore it becomes possible to record and reproduce the sounds of the human voice.” Such an explicit narrative, an almost autobiographical digression, is unusual and unnecessary in patent documents; most patents do not look like the stories of inventions or inventors. It is this supposed lack of narrative logic that likely accounts for their reputed dullness. Patents are pretty dry reading. In fact patents *do* demonstrate an aggressively narrative logic; they all imply Whiggish accounts of technology, the gaps and misperceptions of the past cleverly remedied by the invention at hand, which will be of certain use in the future.<sup>6</sup> This underlying narrative is a rhetorical prerequisite for any patent, a carefully couched assumption that emerges in the patent specification and claims and to which, in granting any patent, the United States government accedes.

The specification of Edison's first phonograph patent dilates on some possible alternatives with the phrase, “It is obvious that many forms of mechanism may be used.” Edison describes several alternatives, but indicates that much more remains undescribed. They are already manifest, self-evident. The rhetoric of self-evidence is implicit in all specifications, which frequently revolve around similar statements. This rhetoric articulates the patent's implied reader, “skilled in the art,” who fully understands the invention and its implications from the specification given. The implied reader is a qualified reader, equally expert in reading patent documents and in the “art” at hand. Even as it posits this qualified reader, the rhetoric of self-evidence excuses the limits of the text. The author and the implied reader collude in their acceptance of alternatives and specifics



that, because "obvious," remain unwritten or unexplained. Particularly after the Patent Act of 1870, when photo-lithographed drawings became a standard accouterment to patent documents, the patent specification typically functions as an elaborate caption to the drawing, indicating features of the invention by reference to letters or numerals on the drawing itself. Like the specification, the drawing is addressed to persons "skilled in the art." It need not be a working drawing but participates, like the specification, in a rhetoric of self-evidence. As a representational device, the patent drawing generally relies on mapping structural features of the represented object and is thus among the simplest of such devices.<sup>7</sup> Edison's drawing does not, for instance, seek to represent the vibrations of the human voice acting upon the phonograph diaphragm, but rather satisfies itself with an orthographic projection of the placement of the diaphragm within one version of the necessary machinery for recording and reproducing. Drawings are not always so modest—Emile Berliner's gramophone patent (no. 372,786, issued 1887) also shows no sound vibrations, but it does show an exaggerated lateral groove in the recording surface (the innovation of the gramophone), so that the features of his illustration map structural components of the invention in multiple scales. In figures of various magnifications the gramophone is disassembled, and in all cases where the lateral groove is shown, it is greatly exaggerated beyond the scale of the figure.

In selecting structural features for display and in disassembling and/or exaggerating them for the eye of the observer, patent drawings exist within a historical context of technical illustration. Sixteenth-century authors such as Agostino Ramelli and Georg Agricola explored perspective and developed "exploded" drawings as a means of communicating artisanal information. In seventeenth-century Britain, William Petty and other members of the Royal Society proposed a "history of trades," for which illustration became a necessary component, because, as Petty wrote, "bare words being not sufficient, all instruments and tools must be pictured, and colours added, when the descriptions cannot be made intelligible with-

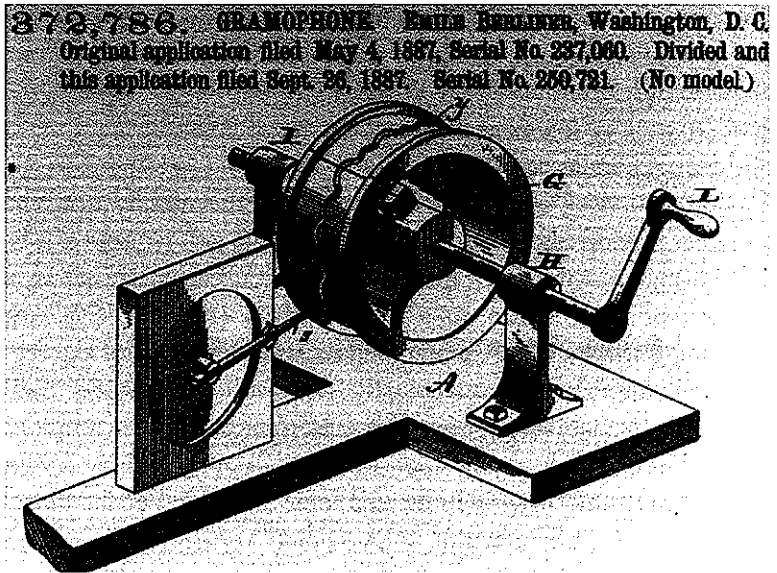


FIGURE 6. Emile Berliner's gramophone patent, no. 372,786 (1887). Gramophones differed from phonographs and graphophones in that sound waves were incised in lateral, side-to-side, grooves, rather than vertical, hill-and-dale grooves. These were two distinct operating systems with incompatible file formats.

out them" (qtd. in Ferguson, "Mind's Eye," 830).<sup>8</sup> Within this context, drawings do what language cannot. Today many engineers and historians of technology would concur that technological knowledge cannot be "reduced" to words. Technology possesses an essential component of "visual thought" and remains remote from language at critical moments of invention and design. Besides sharing the pejorative sense of shorthand authors' "common" writing, "reduction" into words joins with what the patent system calls *reduction into practice* in elevating the newly envisioned idea itself, rather than its written description or pictorial representation. Yet the American patent system contains no admission of linguistic insufficiency; drawings are complimentary to the specification's language. When the required submission of patent models was discontinued in 1880, it was as if to say that language suffices, clarified by and mu-

tually clarifying the patent illustration. Like so much else about patents, this linguistic priority was articulated in the courtroom. For one, *Edison Electric Light Co. v. Novelty Incandescent Lamp Co.* tested the relative weight of patent drawings and specifications. An Edison lamp patent (no. 444,530, granted 1891, reissued as no. 12,393 in 1905) described and claimed a lead-in wire for electric lamps that contained segments of copper and platinum, joining them within the glass at the base of the bulb. His arrangement ensured strength and conserved platinum, a major expense in lamp manufacture. But a similar joint had been shown by mistake in the patent drawing for another light bulb (no. 401,444, granted 1889). The Lemp and Wightman patent did not specify the glass-encased joint, but their draftsman had mistakenly pictured it. In 1909 the courts upheld the validity of Edison's patent, indicating that the mistake was just that, a mistake. Anyone "skilled in the art" could see from their language that Lemp and Wightman had not invented or patented the invention their draftsman had pictured. A mistaken drawing would not invalidate a patent because, given a specification and its qualified reader, language is sufficient to represent technological knowledge.<sup>9</sup> Bureaucratic procedures and further litigation continued to articulate the relative weight of patent drawings.

If the patent document was merely the description of a machine or mechanical process, then the specification and drawing would be sufficient. Patents assert property rights, however, and as such they describe an innovation, an idea embodied in the machinery detailed by the specification and drawing. The patent claims enumerate this idea, dividing it into parts, marking its bounds, and employing a territorial rhetoric alluded to earlier. In effect, the claims present the inventor's (or her or his lawyer's) pointed *reading* of her or his specification, a reading checked and acquiesced to by the patent office during the application and examination process. As readings, patent claims explicitly identify the patentable features of the specified machinery, process, or design, frequently identifying them—like Edison's phonograph patent does—as "substantially as specified" or as herein "substantially set forth" in the specification. These and sim-

ilar phrases, Albert H. Walker explains in his *Text-Book of the Patent Laws*, are "always implied in claims wherein [they are] not expressed" (171). Claims are always dependent upon specifications. Specifications offer descriptions necessarily cited by the claims, which generalize allusively from the particularity of specifications.

In keeping with their territorial rhetoric, the principal characteristic of patent claims is breadth. Claims are either "broad" or "narrow" in the parlance of patent seekers and the patent law. Because his "Improvement in phonograph or speaking machines" was the first invention of its kind, Edison was allowed four very broad claims. His first encompassed the most:

The method herein specified of reproducing the human voice or other sounds by causing the sound vibrations to be recorded, substantially as specified, and obtaining motion from that record, substantially as set forth, for the reproduction of the sound vibrations.

Most patents and patent applications hedge the inventor's bets by including multiple claims, usually giving them in order, like "a set of boxes each enclosed in the last, each getting more specific" (Myers, 75). Edison's second claim identified his invention:

The combination, with a diaphragm exposed to sound vibrations, of a moving surface of yielding material—such as metallic foil—upon which marks are made corresponding to the sound vibrations, and of a character adapted to use in the reproduction of the sound substantially as set forth.

Here Edison's invention is narrowed to protect his "moving surface of yielding material." He identifies such a material, but the example of metallic foil is not an exclusionary one. By comparison, claims can be exactly narrow. In his "Improvement in Type-Writing Machines" (no. 133,841, issued 1872), for instance, Edison had been allowed eight claims, the second of which reads:

The rack-bar *b* and spacing-pins 7, in combination with the spring-pawl 8, key *d*, and type-wheel *a*, substantially as set forth.

This claim, like the patent specification, makes reference to the patent drawing. Though less clearly a reading of the patent specification, it does interpret the described machinery, identifying a spe-

cific feature that Edison and his attorney believed possessed the three characteristics required for a patent—invention, novelty, and utility. Linguistically, the narrowness of a claim inheres in its specificity, or rather in the reciprocal specificity of the specification it interprets.

The dependence of claims upon specifications might suggest they are more important before the law, but this is not the case. If claims offer a reading of the specification, then patent law relies upon a metareading in which attorneys and judges concern themselves with analyzing the way claims interpret specifications. For instance, in his kinetographic camera patent of 1897, Edison specified a new and valuable invention, a combination of elements that constituted the first practical motion picture camera. Yet *Edison v. American Mutoscope and Biograph Co.*, known as “the First Mutoscope Case,” rendered three of Edison’s six claims void because they were too broad. The claims had been miswritten, the specification misinterpreted. Had he claimed the organization of mechanical parts represented in his specification, Edison would have been covered; instead he claimed “an apparatus” that did what his camera did, without noting the specifics. (Edison’s first phonograph patent, which made similarly broad functional claims, was read with greater largess because it constituted such a deviation from the prior art.) Fortunately for him, Edison was granted a reissue of the patent, narrowing its claims. Even these claims were contested in the courts (the “Second Mutoscope Case”) and another reissue was obtained. Ultimately, the matter remained in litigation until 1914. Throughout, Edison’s camera was not in question; he had specified a very valuable invention. That is what all the fuss was about. The litigation concerned only his claims and the reading of his specification, which he continued to revise in reissued patents.<sup>10</sup> A sustainable patent necessarily offers a good reading of itself; a valuable patent can offer an excellent reading of itself. A patent’s self-interpretive value and an inventor’s rhetorical acumen may both appear directly proportional to the value of the patent generally, though plenty of worthless inventions have been specified and claimed with exceptional linguistic dexterity.

In focusing so specifically on patent claims, the law resembles the many correspondents who sent "idea letters" to Edison, writing as if ideas were tangible objects to be bought and sold, transparent in their extent and implications, the way a coin has shape and worth, or the way a machine has design and function. It is even possible to patent a technology that has not yet been constructed. Edison described and received a fundamental patent on a coiled carbon filament for his electric lamp before he had figured out how physically to fashion the filament itself.<sup>11</sup> If the technology has not been built and the patent "creates nothing" on its own (Macomber, 1), then what exactly is the subject of Edison's patent? It is his *idea* of the coiled carbon filament mounted with lampblack putty. Edison's idea determines his invention in the sense that it is supposed to have existed prior to his possession or embodiment of it, prior to his identification of it against the backdrop of all the "prior art." Like an undiscovered mining property, the idea lay undifferentiated from its surroundings until claimed. Nothing about claiming involves constructing new knowledge: patent law avers that "the breadth or the narrowness of a claim as the case may be, does not depend upon any artificial rule of interpretation" (Walker, 102). Instead, by implication, inventions themselves have the inherent quality of breadth or narrowness. They exist within a natural landscape of ideas, some discerned, others yet to be discovered, each taking up its own essential and appropriate width along the frontier. This is an extreme of what historians of technology call *internalist* reasoning; the extent of an idea's patentable "invention, novelty, and utility" is a natural (as opposed to Walker's "artificial") quality, inhering to the invention itself in its relation to the "prior art," rather than a construct, meted out by contemporary and socially determined parameters of novelty and usefulness, or, more specifically, by any discursive activity of the patent document and its readers or by any beneficence of the government, which grants rights but does not make property.

Much exists to contradict this internalist logic. The implied acts of writing and reading upon which the genre depends do much to preclude the notion of a "natural" or essential breadth or narrow-

ness to ideas, even as they preclude the notion of a natural, straightforward, unrheterical discourse in which objects or ideas can be cleanly, clearly, and fully signified. The whole patent document takes the form of an oath, addressed "To all whom it may concern" and sworn to by the inventor, so that in a certain sense the patent does resemble a scientific article, making public new knowledge ascribed to an expert or experts. The inventor is not its sole author however. Rather the "author" figure of a patent document combines the inventor, her or his attorney, and the patent office that has examined the application and granted the patent. The "author" of the patent genre is thus a rhetorical figure quite distinct from the inventor whose idea gets patented. Authorship is scattered. Meanwhile, the implied reader of the patent genre is both "whom it may concern" and the "person skilled in the art," to whom the specification and drawing are necessarily directed. The patent's title implies its first reading by the commissioner of patents. The claims attest to the manner in which the patent document reads itself, propounding the significance of its own specification in light of the "prior art." Finally, the patent document implies an additional, authorized reader, to the extent that the federal courts are its readers of last resort, turned to for decisions in cases where qualified readers—inventors, attorneys, and their expert witnesses—disagree on matters of interpretation. Like its author figure, the implied reader of patents is polymorphic, nested within the transactional process of application and examination, publication, and what Carolyn C. Cooper calls "patent management," or the selling, licensing, litigating, and reissuing of patents, extending and manipulating property rights after the grant and publication of the original document.

Nor are writing and reading mutually exclusive activities when it comes to patent documents. In particular, the federal courts combine the functions of reading and authoring. As *authorized* readers, the courts can change the texts they read as they read them. This holds true for the functional parts of patent documents as well as for the meanings of individual words. The courts author patents by writing them into the discourse of case law, usually in deciding in-

fringement suits that patent holders bring to protect their rights. For example, case law stipulates the relative weight of patent drawings and specifications in *Edison Electric Light v. Novelty Incandescent Lamp*. Case law identifies when vague claims are too vague and when broad claims are too broad. Court decisions enter a fabric of citations and an ongoing negotiation of meaning. The First Mutoscope Case was cited in twenty-four additional court decisions as well as in legal treatises like Macomber's and textbooks like Walker's. Judge Wallace's decision erased three claims from Edison's patent and also indicated for all patents a breadth that was too broad; such limitation would continue to be tested and negotiated in other court rooms and in consideration of other patents. This form of authorized reading is clearest in the definition of individual words. The meaning of individual words within a patent document can be specifically identified by the author, or else devolves upon the imagined interpretive powers of a qualified reader. About these imagined powers differences frequently occur; the court then renders a decision that cements the word in question to a particular definition. The patent for Edison's first phonograph, for instance, turned out to be of surprisingly little value given the breadth of its claims, all because it repeatedly uses the word "indentation" to refer to the grooves made in the recording surface made of foil or other "yielding material." Ensuing legal process determined that later, wax-based recording surfaces were more properly "engraved" than "indented," since wax was actually removed and didn't just yield. Edison's patent lost its value as the technology and attendant discourse changed.

Reading patent documents is a time-based experience. Patent rights extend only seventeen years; after that, the meaning and significance of the patent document change. Though many genres exist in the climate of their own obsolescence (scientific articles, guide books, and so forth), few genres short of almanacs and messianic, prophetic texts have such a sharply defined metamorphosis built in. After seventeen years a patent's claims no longer mark proprietary bounds of new technological knowledge. Instead, the patent docu-



ment as a whole attests only to old technological knowledge. It loses its performative quality as law and remains only authoritative evidence of the "prior art," turned to, if at all, during the birth pangs and adolescent contests of other claims in other patent documents, or turned to retrospectively by historians of technological knowledge. The former provenance of its qualified reader becomes more that of an interested reader. While the document continues its place with other documentary evidence, it is no longer a viable legal instrument.

The patent document is a remarkably formulaic and stable genre built upon active contradictions. For two hundred years American patents have declared in their rhetoric, "I am not rhetorical," "I tell no story," and "I am an expert at representing what exists," yet they have done this within bureaucratic and litigious wrangling that attests greatly to the contrary. Their confidence in "what exists" remains troubled by unreflective definitions of expertise and representation. Despite its pretensions to render better and better measures of an inventor's idea—the way that science is supposed to offer increasingly accurate descriptions of nature—the process of patent law reveals patent documents to be rhetorical instruments within a vast system of meaning creation, a "discourse" in the active sense, operating from the first draft of a patent specification to the decision of the ultimate court of appeals.

If according to its own rhetoric, the patent document offers a clear, clean representation of a new invention embodied in the technology it clearly and cleanly represents, then it is no surprise that patent documents generally take no special account of technologies which produce representations. Nor do the patents for representational products take any special account of what representation consists of, since the whole work of representing is assumed to be transparent and objective. Three patent drawings illustrate the limitations of this assumption: Emile Berliner's gramophone patent pictures an exaggerated lateral groove, not sound waves or the human voice. Edison's patent on kinesiographic film (reissue no. 12,038, granted 1902) pictures a tiny strip of film that purports to show five "uniform sharply-defined photographs of successive positions of an ob-

ject in motion," a gymnast in this case, though the "photographs" pictured are so close that they do not convincingly represent "successive positions" of the tumbler. Finally, Frank Lambert's typewriter patent pictures his machine typing out the words "I enclose check for Fifteen Dollars," the necessary patent application fee.<sup>12</sup> All three illustrations are of inscriptive products, and in the case of phonograph records and films (not typescripts), patentable ones. Each of the three in its own way represents an act of inscription made variously mechanical and does so with the differing degrees of literalism necessitated by the experienced aesthetic distinctions between forms. The printed page cannot represent sound or motion with the same literal facility that it presents typescript through the device of quotation. Nor can the patent document. However, the genre's (and the government's) confidence in its own legibility, which is to say, in the sufficiency of language, tends to deflect attention from the varieties and complexities of representational acts and products.

Notwithstanding this generic avoidance, the character and status of representational products were legally contested in a number of ways during the early twentieth century. Two of the most hotly contested points were addressed as matters of intellectual property. *Tying* and price-fixing were both strategies used by manufacturers to control the market and could be defended as natural extensions of the patent holder's right to "make, sell, or let for hire" the patented article. Price-fixing could additionally be defended as a natural extension of copyright. *Tying* referred to the practice of requiring distributors and consumers of a patented article to use only the patent holder's subsidiary products and supplies. Razor blades were tied to razors; paper and ink to mimeographs; film to cameras; records to phonographs. In such cases the razors, mimeographs, cameras, and phonographs were distributed and retailed under explicit license agreements or bearing explicit notices that required the purchaser to operate them only with that same manufacturer's supplies. Similar license agreements stipulated the minimum prices to be charged for copyrighted books or patented mechanisms and supplies, a guarantee that was aimed at stabilizing distribution networks (and

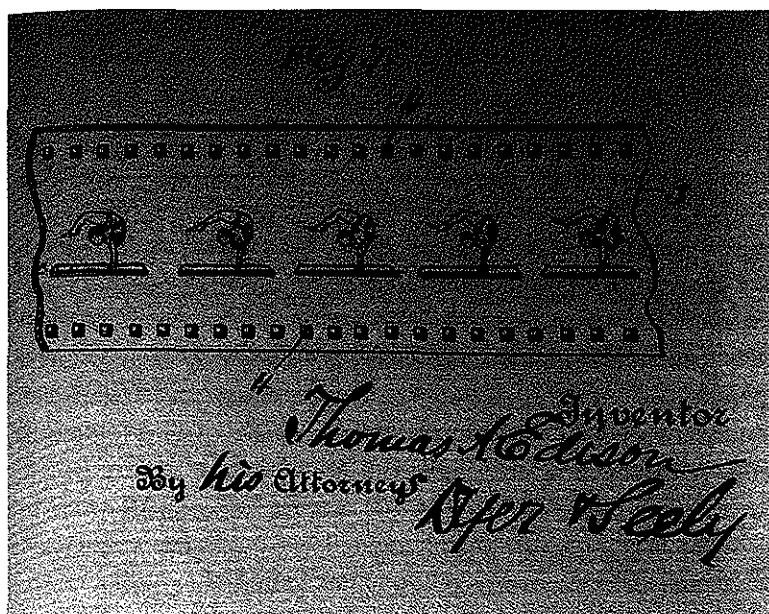


FIGURE 7. Motionless drawing of a moving picture. Edison's film patent, reissued as no. 12,038 (1902).

profits) by forbidding intrabrand price competition. Anyone violating these license agreements was held to be infringing the copyright or the patent. What this meant, in effect, was an additional topography adding more commercial dimension to intellectual property that was already, in the case of patents, spatially conceived. Not only did inventions possess breadth or narrowness but also they extended into the marketplace to greater or lesser degrees. When it came to pricing and the supply of subsidiary products, an inventor's rights might determine the actions of wholesalers, retailers, and even individual consumers.

To be sure, different kinds of products and different sorts of commercial arrangements had always possessed the same implied topography. Network technologies, for instance, offer opportunities for the inventor or the patent-holding manufacturer and capitalist to extend themselves into the market, while new forms of networks press

the same questions in different ways. Systems, whether of the telephone, telegraph, current distribution, or modem and Web browser, literally articulate the connections between producers and consumers that tying and price-fixing were aimed at affirming. Mail order and subscription sales of books and other items do the same thing, though these are notably forms of commercial organization rather than a feature of intellectual property or of network technology. In the nineteenth century, publishing houses such as Mark Twain's doomed Webster & Co. sent canvassers to different regions, where they exhibited a prospectus and tried to sell a book before its publication, as if they were selling shares in a company.<sup>13</sup> Department stores and "trade" bookstores sold the novels of W. D. Howells, Henry James, and others, but took up goods like Twain's *A Connecticut Yankee in King Arthur's Court* only piratically. Like mail order, subscription sales accommodated rural markets particularly well, but suffered a poor reputation and greatly diminished returns as the nineteenth century closed. They remained attractive as a way of controlling distribution and pricing, bettered by tying and price-fixing where intellectual property rights could be used as protection.

The legality of both tying and price-fixing was repeatedly tested. Neither issue had exclusively to do with representational products, yet many of the test cases and precedents involved copyrighted books or the patents for inscriptive devices, their subsidiary products and supplies. Quite a number of the price-fixing cases had as well to do with another new feature of the market, department stores, which aggressively used prices to attract customers and seemed to have early on realized the value of cultural forms like books and records as loss leaders, enticing customers through their doors. The department stores were perceptive; they reoriented retail with regard to price discounts and recognized the ascendancy of amusements in the emerging alignment of leisure and consumption. Mark Twain had fulminated against John Wanamaker's in Philadelphia for selling his books at a discount. Edison's National Phonograph Company sued both The Fair in Chicago and Kaufman's in Pittsburgh for cutting prices. Jobbers and dealers were made to sign elaborate price-

maintenance agreements. Columbia Phonograph took on Gimbles and the Victor Talking Machine Company took on R. H. Macy's in New York. As it turned out, Macy's became embroiled in three important price-fixing cases, two that challenged the extension of copyright to cover pricing and one that challenged the extension of patent rights for the same purpose.

In 1908 and then again in 1913, the Supreme Court held that an author's copyright did not permit her or him to specify the resale prices of a book. Using these copyright cases as authority, the Court would later hold that similar prohibitions should extend to patent holders.<sup>14</sup> The judiciary proved more mercurial on the issue of tying. In 1909 the Supreme Court affirmed the legality of tying unpatented phonograph records to patented phonographs. In *Leeds and Caitlin v. Victor Talking Machine*, the Court decided that Victor could block the sale of non-Victor records for use on its Victor machines. The decision was made on the grounds that, even though an unpatented element in the combination of phonograph and disc, the disc was an active and durable partner in the combination, each playing of a record recreating, in effect, Victor's patented invention. In deciding thus, the Court felt it had to refer to a nearly parallel case that had been decided differently. In *Morgan Envelope v. Albany Paper*, paper supplies, unlike records, had been deemed passive and perishable or transitory. Similar distinctions between wax and paper as mediums of inscription were at issue in the legislative tangles taking place over musical copyright and must be addressed in the next section of this chapter.<sup>15</sup> *Leeds and Caitlin v. Victor* is an important point of contact between patents and copyrights, and its timing coincided with the new Copyright Act in 1909.<sup>16</sup> The decision effectively allowed the Victor Company to block the duplication of its records by the Leeds and Caitlin Company, which quickly went out of business. This was a long way from granting copyrights for recorded sound, but it did draw the recording studio under the aegis of intellectual property law by implying a distinction between duplicating and recording.

Firm precedents establishing the illegality of tying and price-

fixing were not handed down until 1917, when the Supreme Court issued decisions in two important cases on the same day: *Motion Picture Patents Company v. Universal Film Manufacturing Company*, and *Straus [Macy's] v. Victor Talking Machine*.<sup>17</sup> These decisions have stood, though niceties of the same issues continue in litigation today, in suits about book distribution and new technological and corporate developments, like "bundling" computer software and operating systems with computers. For much of the period in question, however, products, including representational ones, drew a large measure of quality as commodities and a substantial measure of identity from the technological means of their production and use, from the "interdependence of use-values" escalating within the culture and economy.<sup>18</sup> Tying and price-fixing implicated cultural productions in the sale and use of their means of production. On the mechanical level this meant that films and records were defined by the conditions of their sale and operation with and by patented and explicitly licensed projectors and phonographs. On a corporate level the same interrelation of product and producer was routinely reflected in management structures and was mirrored in the complex economy of the nascent "star system," which offered the celebrated producer as a secondary product, as well as in the distribution networks established between manufacturers and consumers. Inscription, in this context, emerged as both emphatically mechanical and implicitly conflicted by the related pressures of anti-trust (procompetition) sentiment and changes to the structures of wholesale and retail.

The genre of the patent document proved able to avoid all these complexities surrounding mechanical representation in a way that the judiciary and legislators could not. Western culture assumes that the scientific article and the patent document are instrumental genres par excellence. Both are counted upon to avoid ornament, to home in objectively on what exists, either by cleanly describing a true experience of nature or by cleanly describing the exact nature and extent of an invention. The instrumental status of both as genres remains curiously unquestioned by the ongoing revisionism of

scientific practice, on the one hand, and the process of patent law, on the other, unquestioned because the rhetoric of both necessarily relies upon a simplified model of representation as clean, untroubled truth telling. But beneath an unassuming face, the rhetoric of each genre proves an intricate matter. Patents rely upon an implied, qualified reader, "skilled in the art," who unifies technological and textual expertise. Like scientific articles, patents identify new knowledge. They do so within a context that avers the knowledge itself to have been preexistent, waiting to be "embodied" in the "art," to be measured and described in a flexible, interpretive language game called *claiming*, in which the patent office plays a hand, federal judges act as umpires, and a seventeen-year clock ticks on the wall.



I wish to relate an incident which occurred in our store this evening, which I considered the highest compliment that has ever been paid to a talking machine. I was exhibiting a Home [phonograph], with a 24-inch silk horn. Among other Records, I put on No. 8656, The Flogging Scene from "Uncle Tom's Cabin." When the Record was ended, a man sprang out of his chair, wiped the tears from his eyes, and said, "I'd give ten dollars for the privilege of hitting that damned slave driver just once."

—From the Buckeye Music Co., Rudolph, Ohio, in *Edison Phonograph Monthly*, February 1905

At the end of the nineteenth century the new technology of recorded sound helped to challenge the visual habits of musical practice. Audiences accustomed to watching performers, who might themselves be eyeing a printed score, could now hear music with nothing to look at but a piece of machinery. Phonographs, wax records, pianolas, and paper music rolls were all new commodities troubling the established musical trade, in part by questioning the visual norms of intellectual property. The phonograph record and the music roll had to be contextualized, to be located against the legible, copyrighted texts of lyrics and notation, which comprised the inviolable units of protected property under Article One, Section Eight of the Constitution. Legislative hearings and judicial decisions questioned the nature of reading in an effort to rearticulate the definition of pro-

tected "writings." Congressional debate centered around the issue of whether phonograph records and piano rolls could be "read," in what became an early and elaborate exploration of textuality in the new age of machine-readable text. While Congress tinkered amid the essentialism of American copyright law, honing its application to materially new cultural forms, the shifting optics of popular music brought pressure to bear on other visual habits, including associations between racial difference and skin color. By removing the performer from view, the technology of recorded sound also removed the most keenly felt representation of the performer's race. American musical culture engaged difference in new ways, provoked at once by the enormous popularity of racist coon songs during the late 1890s, by early attempts to delimit and commodify authenticity in so-called "Negro" music and by the phonograph itself, a mimetic machine that had not failed to accumulate its own parcel of racial associations in the several decades since its invention in 1877.

The above anecdote received from the Buckeye Music Company, which appeared in an Edison trade publication, provides some access to the less familiar elements of musical culture at the turn of the century. Music stores like Buckeye were distribution points for sheet music, song books, musical instruments and supplies, as well as phonographs and records. Phonographs occupied an ambiguous position as "self-playing" musical instruments. Without the benefit of radio broadcasting, potential customers had to hear phonographs and records in public in order to know and desire them, so that exhibitions and demonstrations like the one described were frequent and necessary events in showrooms everywhere. The man who jumped up and offered ten dollars to hit Simon Legree was paying the "highest compliment" to the phonograph because he offered to pay a ten dollar sum so in excess of the thirty-five cents that an Edison record of "The Flogging" really cost. Embedded in this narrative of paying compliments and paying ten dollars are a host of implications about mimesis, culture, and commercialism. The impassioned listener of "The Flogging" may or may not be mistaking fiction for reality. He does seem to know *Uncle Tom's Cabin*, whether from reading the



original or from experiencing some of the plethora of adaptations that had appeared in print and on stage in the half century since Stowe's novel was published in 1852. Either way, the Buckeye proprietor feels complimented because his recording provokes such a powerful emotional response, the way reading the novel might, while the Home phonograph and its record cylinder remain relatively unattended components of the listener's experience. The man didn't hear the phonograph or the record; he heard *through* them to Simon Legree whipping Uncle Tom. It is this selective hearing that the Buckeye proprietor recognizes as the highest compliment that can be paid to any communicative or inscriptive medium, including the talking machine.

The proprietor's anecdote plays off of an important trope resident in Anglo-American constructions of race and class, the familiar narrative of the alien naif who mistakes mimetic representation for reality. In the fictions of Dickens and Twain it is the uncultured bumpkin who takes theatrical production literally. Many "true" anecdotes of this sort circulated during the nineteenth century. There was the Baltimore man who objected "to an assault on Coriolanus because 'three against one' was not a fair fight," and the man from New Orleans who suggested "to Othello, grieving over the loss of his handkerchief, 'Why don't you blow your nose with your fingers and let the play go on.'" The full truth of these anecdotes cannot be gauged, but the blurring of reality and mimetic action that the anecdotes relate is likely of equal consequence to the circulation and persistence of the anecdotes themselves. With each telling they present and assert culture as an exclusive activity for those who have it and "get it."<sup>19</sup> New technical cultures seem to have relied upon similar anecdotes in their construction of male, technocratic expertise. Nineteenth-century telegraph and engineering publications exhibit a rhetoric of exclusion on the bases of class, race, and gender. Their pages are filled with anecdotes about bumpkins who shimmied up telegraph poles to hear messages as they went by and about women who made other errors with regard to new communications technology.<sup>20</sup>

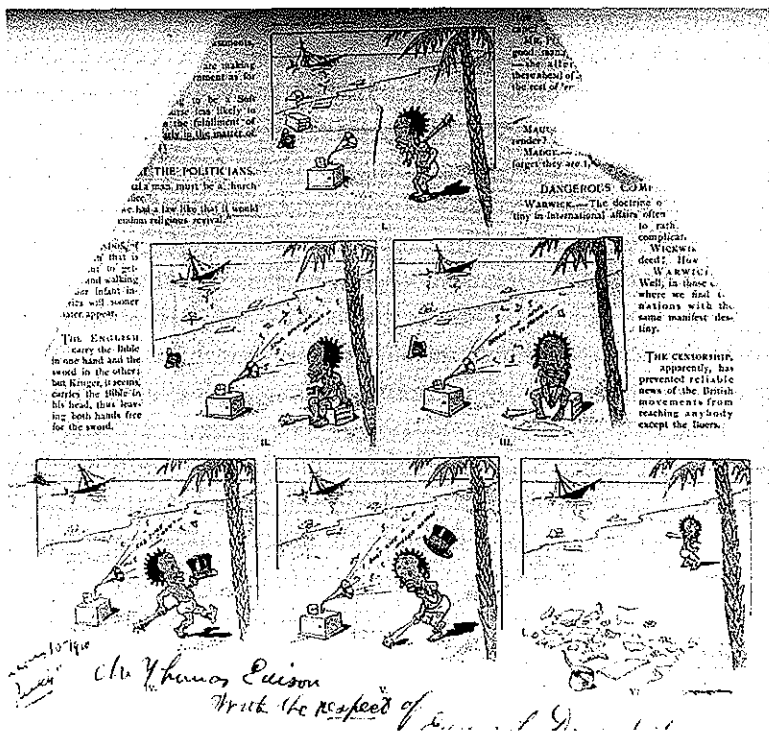


FIGURE 8. Type scene. The “Little African and the Too Versatile Phonograph.” Edison received this cartoon from an admirer, who inscribed it, “A great ‘ad’ for Phonographs—eh?” The “African” destroys the phonograph only when it plays a coon song.

The same exclusionary trope extends into constructions of racial difference in exploration literature and ethnographic accounts, where racially distanced “natives” play the bumpkin’s part, fooled by their own reflections in a mirror or—a type-scene in the same tradition—by voices emanating from a phonograph. From the 1880s through the 1920s versions of this type-scene filtered into travel narratives, trade publications, and newspapers, into cartoons, comic films, and serious documentaries. The politics of these interracial encounters was characterized by the self-congratulatory aggression of Western technological achievement and colonial dominance. They

seem geared to provide an accessible "comic relief" against which Anglo-American culture could receive the less accessible accounts of its resolute ethnographers, who bundled up phonographs and motion picture cameras for journeys to even less accessible climes, to record the curious natives (in the double, us-and-them, sense of "curious"), all in the name of science. Phonographic and cinematic inscriptions fit the logic of ethnography exactly. The recording phonograph and the camera interceded between the ethnographer and his subject, offering a rhetorically valuable sense of technological impartiality and receptivity. The resulting records and films concretized what is now called the *ethnographic present* tense of anthropological description, freezing the ethnographic subject in time, providing "live" recordings as specimens for further study at home.<sup>21</sup> If the proprietor of the Buckeye Music Company only hinted in these directions, then the Edison and Victor phonograph companies did too, making mimetic confusion a matter of kitsch in their respective promotional images of a well-dressed toddler breaking open a phonograph ("Looking for the Band") and the more famous dog listening to one ("His Master's Voice"). These trademarks tone down and make "cute" and commercial the exclusionary trope by substituting children and pets for the aliens who where elsewhere fixtures of distancing between classes and races. As Michael Taussig explains, the images succeed because they continue "to reinstall the mimetic faculty as mystery in the art of mechanical reproduction, reinvigorating the primitivism implicit in technology's wildest dreams, therewith creating a surfeit of mimetic power" (208). Edison's National Phonograph Company briefly offered its agents multiple electrotype versions of "Looking for the Band" to promulgate its mimetic surplus; one was the familiar toddler and another was a pair of bug-eyed, black-skinned caricatures.

I am suggesting that intimations of class and race politics lie embedded in the Buckeye proprietor's anecdote as published by the *Edison Phonograph Monthly*. Furthermore, similar intimations of question and conflict over matters of identity and cultural hierarchy lay buried at different depths in the emergent culture of recorded

# THE EDISON PHONOGRAPH

The Acme of Realism.



No. 402 Price 45c.



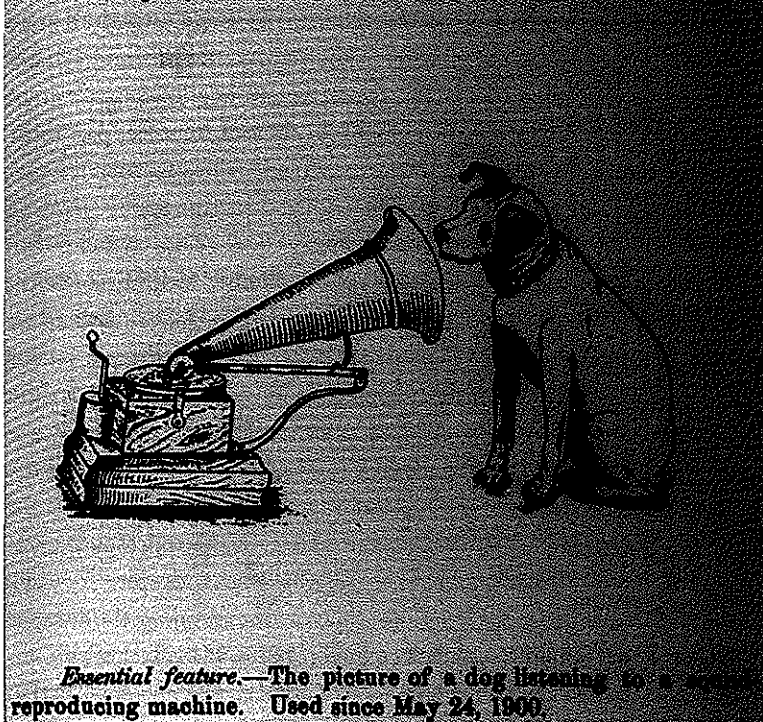
LOOKING FOR THE BAND

No. 468 Price 25c.

FIGURE 9. Promoting mechanical reproduction. Children, “natives,” and pets help define the medium. *Above*, “Looking for the Band.” Two different electrotypes offered to Edison agents for their own advertisements (1903). *Opposite*, “His Master’s Voice” trademark (1900).

sound in America. This should be an unremarkable claim by now, the requisite extension of politics differently recognized in popular music by Adorno and other theorists. At the same time that the technology of recorded sound provoked a reconsideration of statutory authors and readers in debates over copyright, recorded sound helped to modulate the already Gordian politics of popular music. Recordings further complicated the identities of musical authors and performers. The new, hungry mimesis of the recording phonograph itself came to market larded with assumptions about sameness and difference, about cultural appropriation and assimilation. Consider the impact of the phonograph, which Dave Laing calls “a voice without a face,” on the tradition of blackface minstrelsy in its twentieth-century survival, the coon song. What happens to the “love & theft” of blackface when there is no face?<sup>22</sup> Questions like this one never made it into the debates over copyright, but they

84,890. GRAMOPHONES. EMILIA BENTLEY, Washington, D. C.  
Filed May 28, 1900.



comprise the context within which music, musical authorship, and reading music had to make sense. In tracing the legislative history of musical copyright in the pages below, I assume that neither changes to law nor changes to technology can be isolated from contextual and reciprocally changeable parameters of identity and perception. The technology of recorded sound tempered what I call the *visuality of music*, the sum of visual experiences that bolster and accompany musical practice and that extend to the societal norms of visually apprehending racial and other differences. Changing visuality meant changing already complex notions of textuality and performance at a time when other features of twentieth-century music were also taking shape, among them the transnational reach of

American popular culture and the economic structures of the recording industry.

The impassioned listener in the Buckeye Music Company's store was eager to do what many Americans had wanted to and what a few had actually done—stop the sadistic Simon Legree. Stowe's novel had endured half a century of pillaging by melodramatists, parodists, even the first film companies, when the Edison Manufacturing Company tapped it in 1903. It had also endured just as many years of piracy by unauthorized publishing houses and translators, and Stowe had been battered in the courts when she tried to stop them. More than a few versions had indeed foiled Simon Legree, offering their audiences a happily ending "Tom show." By 1905 and Edison record no. 8656, Stowe had been dead almost ten years and her copyright (as insufficient as it had proven) had expired. When Stowe's longtime neighbor from Hartford, Connecticut, Mark Twain, addressed the joint congressional committee that convened in 1906 to revise the copyright code, he had Stowe in mind. Twain came representing authors and had only unkind words for publishers, despite his own checkered career as one. He spoke in favor of extending the term of copyright to the life of the author plus fifty years. He saved his humor for the end of his statement, when he alluded to the arts included in the proposed law, which extended to cover the mechanical reproduction of sound and images. Twain confessed that he himself had nothing to do with such matters, but he was willing, he said, to support copyrights for people in those arts, because he felt for them the same benign interest as a drunkard who, arriving home after a debauch, finds "his house weaving and weaving and weaving around" before him, and when, after some struggle, he gains entrance, stumbles up, and tumbles down the stairs, he exclaims, "'God pity a poor sailor out at sea on a night like this.'" The pious Stowe might have been nonplussed by Twain's analogy, but she and her novel had tried to weather just such storms (Brylawski and Goldman, 4:120-21).<sup>23</sup>

By 1906 the tempest Twain envisioned was particularly intense for the producers of music and the means of its mechanical reproduction, since records were increasingly a musical form. The Edison

Company persisted with "The Flogging," with vaudevillian dialogues and oratory, but "the industry," as it had now become, grew more and more musically oriented through the 1890s, dominated in the new century by three patent-holding phonograph companies, American Graphophone (later consolidated as Columbia), Victor Talking Machine (later Victor/RCA), and Edison's National Phonograph.<sup>24</sup> With representatives of all three companies in attendance, most of the congressional hearings of 1906 and 1908 were spent wrangling over Clause G of the proposed copyright bill, which extended an author's intellectual property to include the rights, "To make, sell, distribute, or let for hire any device, contrivance, or appliance especially adapted in any manner whatsoever to reproduce to the ear the whole or any material part of any work published and copyrighted after this act shall have gone into effect" (5). Such a provision would require phonograph record and piano roll manufacturers to obtain licenses from (and pay royalties to) composers, or to obtain licenses from the big sheet music publishers, who very frequently obtained the composer's copyright when they published her or his music.

Copyright had been extended to new media before and both still photographs and motion pictures offer points of comparison. Photographs were first included in the Copyright Act of 1865. The courts importantly affirmed their eligibility for copyright in the so-called "Sarony case" of 1884, on the grounds that photographs "are representatives of original intellectual conceptions of the author."<sup>25</sup> The case had involved a "decorative" photograph by Napoleon Sarony of Oscar Wilde, about which—or about whom—the men at the 1906 hearings were still giggling.<sup>26</sup> As Gaines indicates, the Sarony decision was important in that it defined authorship's ground zero. The author was merely the "originator" of some work of authorship; the act of origination became an inference based on the work produced. What this meant by extension "is that Oscar Wilde's own subjecthood in the photograph secures Sarony's copyright in the photograph" (56, 68–69, 82).<sup>27</sup> The original personality that Wilde displayed in the photograph vouched for the personal originality of

Sarony as an author-photographer. The photograph made the photographer. Wilde responded to this new dynamic in his "Canterville Ghost" (1887). Published after his return to Britain from his American tour and after the Sarony decision, Wilde's comic story has the beleaguered Canterville ghost reduced to "amusing himself by making satirical remarks on the large Saroni [*sic*] photographs of the United States Minister and his wife, which had now taken the place of the Canterville family pictures" (204). Long a subject in the Canterville house, the manorial ghost finds himself as decisively displaced as the Canterville family. The doodling ghost, Sarony, and the Minister's family all vie for what Gaines calls "subjecthood."

New media did not always inspire new articulations of the author-subject. Motion picture films were deemed eligible for copyright by the courts in *Edison v. Lubin*.<sup>28</sup> The reasoning behind the Lubin decision involved something like Xeno's paradox: because individual frames on a film of Kaiser Wilhelm's yacht were increasingly similar as they were positioned on the film closer and closer together, until adjacent frames were indistinguishable from one another, the film had to be considered a single photograph, not a new entity. Hence it was eligible for protection in accordance with the Sarony precedent and the Act of 1865. Authoring a film was the same as authoring a still photograph. Less straightforward were the bureaucratic mechanics of obtaining copyrights on new representational products. Some film producers scratched out the word "author" on copyright registration forms and substituted the word "proprietor." Film companies such as the Edison Manufacturing Company puzzled over what object to deposit with the Library of Congress in order to register their rights. Literary authors simply sent copies of their printed works (200,000 of them in 1905 alone); photographers like Sarony could deposit a photographic print. Should the Edison studio send a positive print of its films, a photographic negative, a "paper" or "bromide print," or some other object?<sup>29</sup> Did each scene of a film, each new position of the camera, require its own copyright? If, like books, films had to carry a warning label indicating their protected status, how and where should such a



label be affixed? Did original film "scenarios," as screenplays were then called, require separate copyright protection? Could scenarios be adaptations of copyrighted works? These details took some time to iron out.

Questions of intellectual property rights proved particularly difficult in the case of music and its mechanical reproduction, in part because of the complexities of what Jacques Attali calls "noise," or the "political economy of music," and in part because the legal standards of intellectual property were written, published works or visually apprehended works the courts could construe as constitutionally protected "writings" in a very broad sense. The combination of pliable uses and new forms made music hard to pin down. The varied economy of American music at the end of the nineteenth century was perched on the edge of mass culture: it relied on noninstitutional as well as institutional means of creating markets for its principal commodity, printed sheet music, while it proved less able to commodify musical performances, phonograph records, and piano rolls in a rational or universal way.<sup>30</sup> It was a heterogenous and multimillion-dollar economy challenged by market shifts, by emergent patterns of consumption, new products, and a changing clientele.

The 1890s song "On the Banks of the Wabash" made its composer Paul Dresser rich when it sold more than 500,000 sheets of published and copyrighted musical notation and lyrics, for which he received a royalty. So popular music was "popular" at least in the sense that people wanted to buy, read, and sing or play it, not because they wanted to listen to it. When they did listen to it, they saw it performed in either a public or a domestic setting. Dresser's song, a ballad with improbably romantic lyrics written with his Naturalist younger brother, Theodore Dreiser, was popular in the additional sense that it partook of a musical tradition distinct from conservatory or "classical" music. Dresser was successful and prolific within the incipient musical culture of Tin Pan Alley. He was what one critic called an "all-round song writer," who wrote everything from coon songs to ballads, though Dresser was recognizably an expert at "so-called 'mother' songs," conservative and schmaltzy ballads; the

word "mother" was one he used "in about all his songs."<sup>31</sup> "On the Banks of the Wabash" achieved its popularity in a calculated, if seemingly haphazard, way. According to Theodore Dreiser, 5,000 copies were probably distributed for free in New York City, aimed at singers who might elect to perform the work in public. When performed, free handbills were distributed with the lyrics on them, so that the audience could read along and learn the song, "the sooner [to] hum and whistle it on the streets." Rowdies were hired to sing along or to applaud and cheer wildly in the music hall. Organ grinders were encouraged to play "On the Banks of the Wabash" all over the city. And the publisher manipulated a network of music stores, using discount wholesale/retail agreements and trade advertising to push sales countrywide.<sup>32</sup> A network of music teachers covered the same territories, and various commercial relationships, including "payola," kept the distribution networks in place.<sup>33</sup>

When anyone purchased a copy of the sheet music, it came with permission to perform the work before an audience, understood and every so often made explicit in the form of a notice stamped on the printed score. Phonograph and player piano companies bought one copy of the sheet music, ostensibly rendering their royalty unto Dresser, and manufactured thousands of records and music rolls. Edison's phonograph company issued two different versions of "On the Banks of the Wabash" on wax cylinders, both before the turn of the century, and rerecorded the song on its celluloid "amberol" cylinder, well after Paul Dresser's untimely death in 1906. Composers and their publishers naturally decried the situation; the congressional hearings of 1906 included statements by Victor Herbert and John Philip Sousa arguing for authors' rights. Sousa, a remarkably durable commodity in the bandstand circuit, depended for part of his income, as Dresser did, on the royalties that his compositions earned through sheet music sales. Sousa testified that in using his "copyrighted copy" to make "what they claim is a noncopyrighted copy," the record and music roll companies "take my property" (Brylawski and Goldman, 23). More prescient than most, Sousa also saw the damage phonographs and pianolas were doing to the whole

sheet music industry. "You hear these infernal machines going day and night," he said. He also joked that the human vocal chords might soon become vestigial organs and could ultimately disappear forever, casualties of disuse and natural selection. Fewer and fewer people read music; fewer and fewer homes contained musical instruments other than phonographs and "self-playing" pianos. "Popular" music was becoming something people listened to, not something they read, sang, played, or watched. Then Victor Herbert extended Sousa's corporal fancy. The phonograph and music roll companies, he accused, "are reproducing part of our brain" (Brylawski and Goldman, 26). Ironically, Thomas Edison had no quarrel with Herbert's metaphor; phonograph records did indeed "embody" the composer's conception, they bodied forth his idea. It was material embodiment, not the mere conception, that ensured both copyrights and patent rights. Musicians received copyrights when their conceptions were embodied in the printed score. Only that material expression or copytext was protected, Edison argued; as anyone familiar with patent law knew, "If the conception is carried out by a different mechanism they lose their monopoly."<sup>34</sup> But the question remained whether phonograph records and music rolls really did constitute a substantially "different mechanism" as such, or whether they represented some new sort of copy or performance, an unfair use, to be taxed by authors according to their rights.

Battle lines were drawn according to the issue of whether records and music rolls could be construed as copies of "writings" protected by Article One of the Constitution. Writings in this case meant written musical scores, copied and distributed as sheet music. Case law offered a context for the debate. The courts had decided in *White-Smith Music Publishing Co. v. Apollo Co.* that perforated music rolls of a song constituted a single performance, not copies or multiple performances according to the law, so that in buying just one piece of sheet music, the Apollo Company had paid its due. Despite their decisions, the lower courts and then the Supreme Court lamented the letter of the law. In his assenting opinion Justice Holmes chided, "On principle anything that mechanically reproduces the [original]

collocation of sounds ought to be held a copy, or if the statute is too narrow ought to be made so by a further act."<sup>35</sup> Rarely was a legislative mandate so clear. The very terms of the court decisions and the ensuing copyright debate reveal a tentative reassessment of reading and writing. Writing was an activity pursued by composers and publishers, not recording artists or record companies, who were only readers. The question at hand was whether the production of records and music rolls created any nonwritten, readable copy. The courts, Congress, composers, and publishers all wanted to sever writing from reading in a new way. By implication they allowed that machinery—phonographs and pianolas—could read.

In the course of the debate representatives of phonograph companies and music roll manufacturers assured members of Congress that their products were not copies of "writings" because they could not be "read," urging no damage to the present law. Frank L. Dyer, Edison's patent attorney, CEO, and sometime-biographer, testified to this effect in 1906 and again in 1908. According to Dyer, Edison himself had once spent many long hours in his laboratory trying to read phonograph records. After recording the letter *a*, "He examined with a microscope each particular indentation and made a drawing of it, so that at the end of two or three days he had what he thought was a picture of the letter 'a.'" But when he compared two records of the letter *a*, he found that "the two pictures were absolutely dissimilar" (Brylawski and Goldman, 286). Dyer needed to assume that reading was a human activity, not a mechanical one. If even Edison, their illustrious inventor, could not read phonograph records, then they couldn't be read. Dyer argued that what Congress proposed was to copyright sound itself, leaving behind the visual nature of all previous copyrights. By analogy, Dyer asked, why not make it possible to copyright perfumes, extending to the nose the same privilege as the ear and the eye (Brylawski and Goldman, 288)? Dyer insisted that changing the nature of reading meant changing the nature of writing.

Musical culture at large continued to wrestle with similar issues, if not exactly in these terms. The *White-Smith v. Apollo* case had

involved the sheet music for a coon song entitled "Little Cotton Dolly," and like the anecdotal account of the Buckeye Music Company, the recorded coon song offers a point of access to some of the more neglected features of the emerging industry. With its increasing diffusion, recorded sound destabilized the connections between hearing music and seeing it performed.<sup>36</sup> "Seeing music" extended to a wide range of social practices, including parlor piano playing, amateur and professional concerts, vaudeville and music hall performances, church singing, and revival meetings. The experienced terms of this destabilization must have differed according to these practices and are notoriously hard to pin down. But the most acute destabilization took place around the recorded coon song, since it was a complex, late-nineteenth-century survival of an already intricate and naggingly visual experience, the midcentury minstrel show. As if a harbinger of all copyright quarrels to come, blackface minstrelsy was rooted in a confusion of origins. Minstrelsy had real and mythic antecedents in the antebellum slave culture of the southern plantation, yet was by definition a northern, urban form. As Eric Lott explains, it functioned in part by offering audiences commodified "blackness" as a way to engage—subliminally and not—the conjunctive class and race politics of the nation.<sup>37</sup> The white construction of minstrelsy's "blackness" possessed inherent contradictions: it played off a contrived sense of authenticity while it also relied upon counterfeiting. The form reenforced racial boundaries by denigrating black Americans, yet it also defiantly transgressed those boundaries for pleasure and profit in what had become marked as a lowbrow, "popular" form of entertainment for the white working class. Minstrelsy subverted the questions of racial essentialism on which it fed, providing a raucous catharsis for matters that seemed so pressing elsewhere in the American national scene: slavery, abolition, and Dred Scott helped form the context and complexion of the minstrel shows; *Plessy v. Ferguson* (1896) would be context for the recorded coon song.<sup>38</sup>

The orientation of blackface minstrelsy was visual and performative, even if a large measure of its dubious authenticity was its sup-

posed appropriation of an oral culture it constructed as "blackness." Seeing a white man with his face smeared in burnt cork was the perceptual and visceral center of blackface for fans and critics alike, though there were black minstrel troops too. Yet just as developments within the music industry tested the persistently visual orientation of copyright law, similar developments long challenged the visual orientation of minstrelsy. One challenge came in the popular, free-standing coon song, performed outside the minstrel show, though well within the minstrel tradition. Another challenge arrived with the player piano and the phonograph. According to the publishers of sheet music, the coon song reached the height of its popularity in the late 1890s, when large numbers of songwriters such as Paul Dresser (who had once been a minstrel) churned out more than six hundred coon songs to cash in on the vogue.<sup>39</sup> By then the immense popularity of minstrelsy had passed; the minstrel show had proved to be an antebellum form that lasted only through Reconstruction and lingered into vaudeville. What this meant is that the sound of white-constructed "blackness" survived without the sight of minstrel blackface, as performers of coon songs could go without burnt cork, particularly as recognizable "coon" elements were incorporated into a variety of different songs and formats. Some unblackened white performers were seen to "sound 'black.'" Finally, when music roll and record companies set out to record coon songs, sounding "black" went colorblind. Whereas minstrelsy had been an acknowledged white, working-class form, the coon song allowed middle-class penetration of its tradition. Coon songs were played in middle-class parlors, concerts, syndicated vaudeville, and the other bourgeois venues where sheet music was increasingly consumed. Class lines were doubly enforced and transgressed in the same manner that racial boundaries were, as middle-class musical practices picked up and dusted off the threads of a working-class form. Like Frank Dyer insisting that the Committee on Patents and Copyrights was trying to protect sound itself, records and music rolls of "Little Cotton Dolly" seemed to assert that white-constructed "blackness" was a matter of sound, not skin color. On the heels of the *Plessy* decision, which had determined "blackness" to

be a matter of blood, not skin color, the meaning of music thickened. (The American judiciary deemed white-skinned Homer Plessy black by dint of his African blood.) Now popular culture interrogated music as another possible substance of intrinsic racial difference. Music rolls even seemed to make "sounding 'black'" an instrumental matter more than a vocal one, depending more upon the sound of a piano than the sound of any singer. The same aural associations were affirmed with the contemporary ascendance of syncopation as a black-identified musical feature.<sup>40</sup> Of course the sound of "blackness" was not monolithic; it was never wholly white-constructed and was complicated by other black sounds, by recorded black spirituals, the works of well-known black songwriters and performers, a long tradition of black musical theater, ragtime, the stirrings of jazz, and by the long-standing tradition of ethnic and racist dialect humor in America. In the same month that Edison's phonograph company recorded its third version of Dresser's "On the Banks of the Wabash," its other selections included a "romping coon song" and two "Negro dialect poems," one by the late Paul Lawrence Dunbar.

Earlier record catalogues had been this varied. While major record companies kept white groups on hand for minstrel-influenced burlesques and coon songs, between them Victor and Columbia recorded nearly eighty songs by the African American vocalist Bert Williams, who broke the color barrier at Ziegfeld's *Follies* during his tenure with Columbia. All of this recorded "blackness" without the sight of black, white, or blackened skins was new and uncomfortable, at least for record producers. Furthermore, it comprised an unadmitted counterpart to the legislative debate over separating visible "writings" from the sounds of reading. In both contexts the technology of recorded sound helped to displace the visibility of music. Musical composition, reading, and the creative agency of performance became complicated within new and less visually rooted features of the entertainment industry.

A few months after publishing its anecdote from the Buckeye Music Company, the *Edison Phonograph Monthly* signaled some of the trade's discomfort in another anecdotal compliment submitted

to jobbers and dealers, this item under the headline "Mr. Collins Is Not a Negro":

Possibly because of his great success in singing coon and rag-time songs for the Edison Phonograph some people seem to have gained the impression that Arthur Collins is a colored man. Such an impression is naturally amusing to Mr. Collins. It is complimentary, however, to imitate the colored race so closely as to be mistaken for the real article.<sup>41</sup>

This paragraph resuscitates a well-worn trope, one resident in anecdotes about audience members who mistook blackface for blackness. This mistake had been part fulcrum and part safety valve within minstrelsy (as well as imaginably part fact and part fiction) ridden with the racial anxieties, namely regarding supposed risks of racial contiguity, passing, and miscegenation, that it helped diffuse theatrically. Music publishers, apparently fearing the same mistake, had sometimes published minstrel songs with pictures of their blackface performers both in and out of makeup.<sup>42</sup> The *Edison Phonograph Monthly* was doing the same thing in vouching for the distinction between "close" imitation and "the real article." Yet in "Mr. Collins Is Not a Negro," the quickest safety valve proved more elusive than it had before. Unlike the Buckeye Music Company anecdote, this could not be trumpeted as a compliment to the talking machine, only as an "amusing" compliment to the performer Arthur Collins, all because the talking machine had redoubled the problem (part horror, part delight) of identifying "the real article." In this sense race, like racism, differs according to its aural and visual forms.<sup>43</sup> Like Thomas Edison intently trying to discern the letter *a* within the grooves of a record, listeners who tried to discern skin color in Arthur Collins's records were up against something new. Edison had been interrogating the essential nature of records as inscribed texts, while popular audiences were now confronting an incomplete, aural essentialism to the degree that they interrogated records as racialized performances. There was no single, uncomplicated sound for skin color.

It was an interesting historical moment for what is now debated as "black music." Clearly if the crassest technological determinism



had pertained, or ever could pertain, the phonograph and then radio would have been colorblind media. But technology does not drive history or culture that hard. The observation that the early recording industry was nondiscriminatory because trade publications seem to have paid black musicians their due<sup>44</sup> needs to include the caveat that the politics of defining and policing racial distinctions has always been a lot more involved than the related now-you-see-it/now-you-don't of discrimination. Paying black musicians their due carried the baggage of needing to tell which musicians were black, in whichever order and for whatever matrix of reasons, good and ill, paying and needing to tell became conscious desires and cultural necessities.

To emphasize the changing visuality of music, phonograph advertisements from the 1890s to the 1920s picture listeners watching the machine. Listeners stare vacantly at unseen and newly reracialized performers, as if by some collective premonition, keeping their gaze steady for radio then television. The gaze itself is oddly communal, fraught with unlikely assumptions about the democratic power of mass media even as it dampens participation. One National Phonograph Company advertisement from 1908 has a mixed-race group of servants staring appreciatively at their employers' phonograph. Below, the caption simultaneously enrolls Western music and the phonograph in the cause of democracy: "One touch of harmony makes the whole world kin." Such rhetoric coincided with Edison's personal expectations for the phonograph, an instrument of social leveling in his ken, since it would allow poor and rural audiences to hear opera. The inventor seems not to have appreciated the anarchic potential of the device as a means for class-crashing or racial ventriloquism.<sup>45</sup> But Edison and many of his contemporaries were sure that they lived in a world of visible certainties when it came to human identity: the inventor interviewed prospective employees while taking notes on the shapes of their heads. And the author Henry James remarked pointedly at Edison's "street boy" face after the two men met in 1911.<sup>46</sup>

A different sort of essentialism was at stake in legislative cham-



**T**HE Phonograph would never have become the great popular entertainer it is but for Edison. He made it desirable by making it good; he made it popular by making it inexpensive.

### *The* EDISON PHONOGRAPH

has brought within reach of all, entertainment which formerly only people of means could afford. It has even displaced more expensive amusements in homes where expense is not considered.

FIGURE 10. "One Touch of Harmony Makes the Whole World Kin." The Edison phonograph addresses class and racial difference in this advertisement (1908).

bers during 1906-1908, where congressmen and witnesses debated how to handle recorded music. Defining and policing authorship, though certainly less inflammatory, proved almost as nettlesome as defining and policing race or class, all because similarly visual habits of definition did not apply as they had before. American copyright law remained dependant upon material forms, so that new forms always caused new problems. And constitutionally protected "writ-

ings" were going to be something altogether different if they could be copied out into purely audible forms, without some sort of visible expression. To members of Congress and many other participants in the hearings, it simply seemed intuitive that phonograph records and music rolls—the latter even inscriptions of a sort on *paper*—were copied writings and could be read. As for visible expression, anyone could see the grooves on a record or the holes in a music roll, even if seeing them did not mean anything musically. Witnesses made analogy to hieroglyphics, which resisted reading for a long time, yet were certainly legible. "It is a curious fact," one witness pointed out, "that the earliest known writing, the Assyrian hieroglyphic, was made by an instrumentality very similar to the phonographic needle of to-day impressing itself upon plastic material" (Brylawski and Goldman, 78). Edison would probably have regretted this turn in the debate if he had been following it closely. The analogy to hieroglyphics was unhelpful to his cause, yet he himself had made the same comparison with great satisfaction back in 1888. In an essay entitled "The Perfected Phonograph," which appeared in the *North American Review*, he gloried in his work:

It is curious to reflect that the Assyrians and Babylonians, 2,500 years ago, chose baked clay cylinders inscribed with cuneiform characters, as their medium for perpetuating records; while this recent result of modern science, the phonograph, uses cylinders of wax for a similar purpose, but with the great and progressive difference that our wax cylinders speak for themselves, and will not have to wait dumbly for centuries to be deciphered.<sup>47</sup>

Here the inventor has at once co-opted ancient tradition and assumed the mantle of modern science. The symbolist, nineteenth-century context of his hieroglyph metaphor made using the metaphor in discussions of recorded sound both familiar and extremely powerful. Edison's essay immodestly boosted the inventor to God's place and hinted at the profound centrality of technology in American relations with nature. When the same figure surfaced in the congressional debates over copyright, its appeal was slightly different. Invoking the example of cuneiform meant acknowledging that phonograph records could be read without actually having to read

them. The complimentary acts of writing and reading could theoretically be separated by centuries. There was no need to admit so hastily that phonograph records and music rolls could not be deciphered. Meanwhile the traditional object of the hieroglyph metaphor, Nature, jibed well with contemporary appeals to music as a natural, universal language, the spiritual residuum of pre-Babel days. Laden with this metaphorical weight records could be celebrated as what Theodor Adorno would later call "delicately scribbled, utterly illegible writing." The precision and the delicacy with which they were scribbled vouched for the meaning they contained; proof positive emerged from the mouth of a phonograph horn. Members of the joint committees of Congress were only less keenly aware than Adorno would be of the cultural implications of such a mouth.<sup>48</sup> The illegibility of recorded music troubled them as little as the dual nature of patent documents did—both actively concealing the very thing they reveal.

Sensing that the day was lost, opponents of Clause G marshaled every argument they could think of to show the ill-advised, even unconstitutional, nature of the musical copyright provision. Inventors argued that the wording of Clause G directly transgressed their rights "to make, sell, distribute, or let for hire" the devices and processes they had patented. Albert H. Walker, the patent expert who had appeared as an attorney in *White-Smith v. Apollo*, assured the committee that the bill was unconstitutional for a long list of reasons.<sup>49</sup> Many witnesses raised the specter of unfettered monopoly, alleging that the Aeolian Music Company, ever since its early involvement in *White-Smith v. Apollo*, had executed exclusive agreements with almost every publisher of sheet music in America, so that in the event of the copyright bill passing, Aeolian would control all new American music ("a complete monopolistic octopus," [Brylawski and Goldman, 98]). Defending against the accusation that they formed a "phonograph trust" themselves, other witnesses pointed out that composers and sheet music publishers actually benefited from current conditions. Letters were produced to show the way that phonograph companies were solicited by composers and publishers,

who sought to stimulate sheet music sales by having records made. A number of witnesses invoked international competitiveness, noting the fact that musical copyright provisions had not succeeded fully in any European country but Italy, where as of March 1908 the matter still had not reached the court of last resort.<sup>50</sup> In France musical copyright provisions had been advocated by composers, only to be overturned in the courts. In England Edison's lawyers had embarrassed one copyright holder in court by asking him under oath if he could understand or read what was on a phonograph record; "He answered, 'Of course not.'"<sup>51</sup> None of the witnesses mentioned Mexico, where all three major American phonograph companies had become embroiled in copyright suits, which had led a participating lawyer for the American Graphophone Company to complain, "It is exceedingly difficult for the American and English mind to foretell how the foreign mind (and particularly a Latin American mind) will work; and it is also difficult to forecast satisfactorily the outcome of litigation in a foreign country."<sup>52</sup> Not surprisingly American record companies were trying to forge or maintain the qualities of statutory authorship abroad with a racialist paternalism not unrelated to their domestic capitalization of coon songs. Lobbyists appealed to Western European models, while developments in Mexico vouched for the newly global and frequently colonialist entertainment economy as well as the precocity of cultural capital in breaching national boundaries.

Even in Western Europe, however, the matter of musical copyright was far from settled. Representatives of the Berne Convention countries met in Berlin during the autumn of 1908 with the mechanical reproduction of music on their agenda. In an early and important instance of such internationalism, Victor Talking Machine, Columbia, and Edison's National Phonograph Companies, all of whom variously possessed shares of European markets and relied upon European composers and performers, joined British and German record companies in trying to stymie any change in the articles of the convention. Paul H. Cromelin, a Columbia executive who had already appeared in the Washington hearings, struggled to draw

the three American competitors into cooperation with each other and then with their European rivals. The three American companies urged the secretary of state to press their case, even though America was not a member of the Berne Convention. After this victory Cromelin had limited success coordinating other efforts, and his work behind the scenes in Berlin was to no avail. On November 13, 1908, revised articles of the Berne Convention were signed in Berlin and sent back to member nations for consideration and the emendation of domestic statutes. The new Article 13 extended a composer's authorial rights to cover mechanical reproductions. Frank Dyer would testify once more, this time before the copyright committee of the British Parliament, but Britain would go along with the Berne Convention.

The U.S. Copyright Act of 1909 passed a few months after the new Berne Convention; it was signed by outgoing President Theodore Roosevelt and went into effect that July. The earlier Article G, now Article E, protected composers against unlicensed mechanical reproductions. The new law applied only to musical compositions published after the act, so that it enforced an already emerging distinction in the industry between new music (which cost money to record) and old music (which could be recorded for free), with the resulting, ironic split between "the popular domain" and "the popular." From between the two peeked the modern consumer, with changing appetites and mercurial tastes, with resident notions of race, class, gender, and nationality as (some of) the data of culture. Another provision of Article E was called the Compulsory License Clause, which ensured that once a composer licensed one mechanical reproduction, she or he was compelled to license all other proposed mechanical reproductions for a guaranteed royalty fee of two cents per copy. In the abstract, this clause was a reminder that authors' rights in the market were not a matter of natural law as Herbert and Sousa would have it; rather, they were meted out by statute to protect the public interest and, in this case, free-market competition. Practically speaking, this arrangement vitiated the exclusive contracts held by the Aeolian Music Company and added another

The music of Victor Herbert's orchestra under his personal direction will be reproduced exclusively on Edison Records



FIGURE 11. Talent as commodity: Victor Herbert on Edison Records (1909). Victor Herbert's recorded compositions were available to any record company, but Victor Herbert himself would only perform for Edison.

shade of meaning to the "mass" in "mass culture," since mechanical reproduction became in some sense self-perpetuating. When Columbia recorded a song that did well, the other record companies could cut the same record right away. One recording opened the floodgates for multiple recordings as mechanical reproduction fol-

lowed any potentially successful record or music roll. Compulsory license provided only for musical compositions, not musical performances; the result was an even more heightened sense of "the talent" as a commodity. The record companies intensified their battles for exclusive contracts with celebrated performers. Anyone could record Victor Herbert's compositions after they had been recorded once, but Victor Herbert's Orchestra performed only on Edison records after Herbert signed his exclusive contract with National Phonograph in the summer of 1909. Sousa's band signed an Edison contract one month later. Far from showing Edison's approval of musical copyright,<sup>53</sup> Herbert's contract demonstrates that National Phonograph and other record companies could not afford to be sore losers. They quietly opened composers' royalty accounts in their corporate ledgers.

Clause E had been rewritten to avoid any direct conflict with patent rights, but the two forms of intellectual property were closer in 1909 and 1910 than they had been, or likely ever would be again. The context and the content of the 1906 and 1908 hearings accounted for some of their proximity, as did current commercial practices of tying and price-fixing. The Supreme Court decision in *Leeds and Caitlin v. Victor Talking Machine* was nearly simultaneous with the new act and drew the differing logics of patents and copyrights onto the same plane for the eight years that it stood. The compulsory license provision made musical compositions available to record companies without exclusion; in its *Leeds and Caitlin* decision the Supreme Court regulated what that availability meant, deciding that Victor's patent rights extended to cover which records were played on Victor machines. Leeds and Caitlin, notorious record pirates, had been duplicating Victor records and then competing to supply Victrola owners. The Court now made duplicating illegal by allowing Victor to dictate (to "tie") which records were played on its patented phonographs. So while the compulsory license provision allowed any recording to be remade, *Leeds and Caitlin* assured that remaking would entail live performance, not just "duping" from one record to another. Copyright law made rec-



ords into special copies of protected writings; patent law briefly protected those copies against duplication. Mechanical reproduction of sound was one thing, mechanical duplication of the same sound was another. Still further contiguity between patent and copyright was established in a decision handed down by Learned Hand early in his career. In 1910 Hand found in *Hein v. Harris* that the copyright for the composition, "The Arab Love Song," had been infringed by "I Think I Hear a Woodpecker Knocking at My Family Tree." Infringement existed, according to Hand, "whether or not the defendant, as he alleges, had never heard the complainant's song, when he wrote his chorus." What this meant was that novelty, not origination or authoring, was the substantial requirement for musical copyright, just as it had always been for patent rights.<sup>24</sup> Sounding the same meant copying in music. This alliance of patents and copyrights was fleeting. In later interpretations of the law, Learned Hand reversed himself, and copyrights diverged from patents accordingly.

In 1909 and 1910 the renegotiated boundary between things and texts had stretched a little thinner. The very lateral groove on a gramophone record, or the up and down engravings of a phonograph needle, were patentable inventions that contained, in some hieroglyphic and as yet undecipherable way, performances of copyrighted sheet music. By extension phonographs and gramophones were "reading machines" more properly than they were "talking machines." For the first time reading aloud was explicitly severed from the human subject. Humans could not read wax cylinders or discs, but machinery could. The reader was less replaced than displaced, pushed aside to make room for the new apparatus that at once shared and complicated human subjectivity. While it is impossible to say for sure how much this new, mechanical kind of reading changed the American experience of reading type or music, mechanical reading did possess some broad implications, both for the emerging culture industries and America's ongoing reconnaissance of the machine in modern life. The legislative construction of reading machines acknowledged continuous reformulation of the "popular" and of popularity in music. For example, the two related skills

of reading music and playing an instrument were indeed under assault, as Sousa recognized, in part because reading and playing could now be done mechanically. Mechanical process extended to yet more human functions. In so doing, it continued the often-remarked colonization of the body by the machine. As instruments too, recording phonographs and musical roll perforators could not be authors in the sense that musical composers like Sousa and Herbert were. The machines produced aural copies of writings, performances, and did so until the copyright code was revised again in the 1970s. Then, largely under the pressure of new market conditions surrounding cassette tapes, copyright was extended to cover recordings. Readings under the 1909 Act were made into writings. If human readers seemed newly displaced in 1909, then authorship too had shifted, becoming still more bureaucratic in its relation to the marketplace. Now musical authors had their two cents (literally) riding on every recording, the oversight and collection of which would inspire ASCAP and other societies of authors, along with a torrent of paperwork. The judicial distinction between making mechanical reproductions and duplications further complicated the author's position in relation to the market, by suggesting that the sounds of a composer's work might matter less, in some circumstances, than the means of their production. The distinction between "live" reproductions and other recordings will be examined further in the next chapter.

Nineteenth-century Americans and Europeans had taken phonographs into the jungle and into the arctic. Not only did recording phonographs promise the collection of "live," "native" speech and music but also the reproducing phonograph, as Taussig explains, "proved an easy way for making an intercultural nexus," after dinner, "a new cultural zone . . . for [mutually] discovering strangeness and confirming sameness" (195), as Western travelers and indigenous people could each marvel and be amused at different aspects of their shared experience. American culture, economy, and law in the years around the turn of the century demonstrate that mechanical reproduction at home remained decisively charged with the com-

plexities of that intercultural nexus, a site for participating in experiences of self, identity, and difference. Not only could consumers purchase the recorded hits that "everybody" liked but also they could negotiate difference in the varying cultural valences of Italian opera, "classical" music, "exotic" records from around the world, ethnic records for immigrant niche markets, Simon Legree, coon songs, and burlesques. Differences of class, nation, and race were maintained: phonographs became instruments of "sacralization," helping to distinguish culture as such, and they also became instruments for the maintenance of ethnic identity in the face of assimilationist pressures.<sup>55</sup> The phonograph disrupted identity, in the ways that minstrelsy and popular music had long suggested and in new ways that questioned habits of discerning difference. The technology of recorded sound and the surrounding legal debate challenged existing visual receptor sites within culture, including elaborate practices of experiencing difference. These receptor sites survived in modified form, colored by a new inscrutability, their visual orientation challenged by the prevailing politics of racial essentialism, tested by technologically mediated performances, and, ironically, adapted within a tired nineteenth-century metaphor for nature. America's new hieroglyphics, the visible grooves on a record, were the works of Man and Machine, not God and Nature. The universality that these potent new symbolic actions supposedly possessed did not derive from any transcendental truths or divine omnipotence. Rather they emerged from the questionable universality of music, the penchant of Westerners for lugging their machinery around the globe, and the eager adaptability of cultural capital inserting itself abroad into new markets on every continent. In this spirit, the American phonograph industry established commercial outposts and sent recording engineers to Europe, Asia, and South and Central America.



# 4

## Paperwork and Performance

The U.S. Patent Office's initial designation of Edison's first phonograph as a measuring instrument is a telling point of departure for the exploration of ideas central to the narratives of Foucault, Shapin, Schaffer, and others. These authors have all variously described early-modern science as having purged itself of the human body in favor of what Schaffer calls "self-registering instruments." Experimenters stopped experimenting on themselves and their hapless servants and, instead, began to invoke the objectivity of instruments within a Cartesian polity of professionalized science. The autobiographer dropped out of the scientific article; or, more properly, he learned to cloak himself in an instrumental rhetoric, like the later rhetoric of patents, which was accepted as objective within a community of like-minded male bourgeois. When the phonograph was introduced it harkened back to this purge. At the same time, it showed that the shift in authority from body to instrument, so accomplished in the discourse of professional science, remained relevant and (happily) less determined in Western culture. Shorthand reporters still make history; live performance by musicians is still considered best. Phonograph recordings emerged from the lyceum demonstrations of nineteenth-century culture in much the same way that modern science emerged from the staged experiments of seventeenth- and eighteenth-century natural

25. See Crary; a good compliment to Crary is Brodhead's Chap. 2, entitled "Veiled Ladies: Toward a History of Antebellum Entertainment."

26. Cheape, 6-7; see also Table 4 in Bureau of the Census, *Special Reports, Street and Electric Railways, 1902* (Washington, D.C.: Government Printing Office, 1905).

27. This is from Dreiser's "From New York to Boston by Trolley," reprinted in Hakutani, 2:91-100.

28. *Fourteenth Census of the United States Taken in the Year 1920. Volume I. Population 1920* (Washington, D.C.: Government Printing Office, 1921).

29. Particularly helpful on the American culture of reading is the work of Zboray. On the effect of illumination, see Stewart, *On Longing*, 9; on the fountain pen, Strasser, 109; and on Russia, Coopersmith, 48.

30. No title, *Harper's Magazine*, Aug. 1992, 19-20. The most popular suggestion in 1996 was reportedly to tie up the boulder and drag it into to sea with ships! (Associated Press reports, Feb. 14, 1996).

### CHAPTER 3, *Patent Instrument and Reading Machine*

Portions of the chapter have appeared previously as "Reading Music, Reading Records, Reading Race: Musical Copyright and the U.S. Copyright Act of 1909," *The Musical Quarterly* 81 (1997): 265-90.

1. On "textual systems," see Bazerman, "Electrical Connections"; on patents, see Myers; and also Bowker; on wanting to look old and new at the same time, see Bowker, 62.

2. See Edison drafts of Feb. 17, 1888, and Aug. 7, 1897; Edison, *Thomas A. Edison Papers: A Selective Microfilm Edition*, 114:308, 835. Macomber, 14. The legal authorities used in this chapter (therefore my present-tense readings of them) were relevant to the period in question, but they are not reliable sources for intellectual property law today.

3. Patent Act of 1790. Patent acts and statutes are quoted from Walker.

4. The relations of technical knowledge and writing are in particularly sharp focus along the science/technology divide, since scholars have long distinguished science from technology in part by identifying the differing relations each has with discursive networks (see Cutcliffe and Post). To some, science and technology are mirror-image twins (see Layton, "Mirror-Image Twins"): the scientist publishes new findings as soon as possible, making public knowledge. In contrast, the technologist hides new knowledge, protecting and keeping it private. The successful scientific article is supposed to encourage reproducibility (but see Collins, 55, 130); the successful patent document only offers reproducibility as it asserts monopoly. Further dis-

tinctions between science and technology traditionally rest on the assumption that while science is smart, technology is "only" applied science. Albert Einstein the patent clerk was the quaint impediment to Albert Einstein the physicist.

5. See MacLeod; other articles that appear in this same special "Patents" issue of *Technology and Culture* 32 (1991) with MacLeod's work are also helpful.

6. See Bowker, 53; Myers, 92.

7. See Tibbetts. Other essays in the same collection (edited by Lynch and Woolgar) are similarly helpful.

8. See also Ferguson's *Engineering and the Mind's Eye*.

9. 167 F. 977 (1909).

10. 114 F. 926 (1902). See also 214 F. 787 (1914), which gives a summary of the application and litigation history of Edison's claims. Patent no. 589,168 (1897) was reissued as no. 12,037 (1902) and then as no. 13,329 (1911).

11. See Israel and Rosenberg. An invention can be "reduced to practice," as the patent office puts it, only after it is invented. Because a true invention can always be reduced to practice, the inventor doesn't always have to reduce it, although any reduction to practice weighs in an inventor's favor as a way of proving the chronology and accomplishment of invention.

12. Patent no. 640,208, granted 1900. Allen Koenigsberg and Aaron Cramer were both generous with their knowledge of Lambert

13. *The Adventures of Huckleberry Finn* and *A Connecticut Yankee* were sold this way; *The American Claimant* was not; the Edison phonograph frequently was. Regional subscription sales were used for all manner of goods and had been used in the book trade at least since the seventeenth century. Subscription sales of books have survived in the different guise of mail order, book or product-of-the-month clubs—yet another articulation of the distance between producer and consumer. See Feather, 62–63, for a word on the different logic (and law) of price-fixing in the British book trade.

14. *Bobbs-Merrill Co. v. Straus*, 210 U.S. 339 (1908); *Straus v. American Publisher's Association*, 231 U.S. 222 (1913); and *Straus v. Victor Talking Machine Co.*, 243 U.S. 490, 494–95 (1917). *Victor* was a final affirmation of the Court's decision in "the Santogen case," *Bauer v. O'Donnell*, 229 U.S. 1, 8–9 (1913). See Vaughan, 127–33; also Hower, 352–57.

15. There is an echo here of nineteenth-century debates surrounding paper money. See O'Malley. The essentialism that he finds coincidental in economic and racial discourse of the late century is exploded in different ways by the technology of recorded sound. See below.

16. 213 U.S. 325 (1909); and 152 U.S. 425, 432-33 (1894), respectively. See Vaughan, 173-74, 178.

17. 243 U.S. 502, 510-11; and 243 U.S. 490, 494-95, respectively.

18. Vaughan, 127-33, 174-77; on use-values, Attali, 96.

19. Alexandra Mullen pointed me toward many such anecdotes; these are from Grimsted, 60. See also L. W. Levine, *Highbrow/Lowbrow*, 30. On a related blurring, see Davidson on the real grave of fictional Charlotte Temple.

20. See Carolyn Marvin on the anecdotes and constructed expertise of telegraphy and engineering publications. Of course, popular culture fed and reinforced the same exclusionary rhetoric; recall the spectacularly racist second verse to Stephen Foster's "Oh! Susanna" (1848), performed by the African American troupe, Christy's Minstrels: "I jumped aboard de telegr[a]ph / And trabbelled down de river, / De Lectric fluid magnified / And Killed five Hundred Nigger" (*Democratic Souvenirs*, 104).

21. On the ethnographic present, see Fabian, *Time and the Other*; and Clifford and Marcus. Examples of the type-scene appear in the *Music Trade Review* (Dec. 21, 1907), in Robert Flaherty's *Nanook of the North* (1922), and elsewhere. For a discussion of type-scenes as such, see Pratt. See also Peitz, for a poststructuralist meditation on the phonograph and its colonialist relations. The whole, varied history of ethnicity and the phonograph has yet to be written; I am grateful to Jerry Fabris for sharing his thoughts on the phonograph and ethnomusicology.

22. See Laing. "Love & Theft" is Eric Lott's title; my debt to Lott on minstrelsy will be clear below.

23. This cite refers to *Arguments Before the Committees on Patents . . . December 7, 8, 10 and 11; 59th Congress*. Brylawski and Goldman's work will be cited by page number in the text below; the different sets of hearings are paginated individually in Volume 4.

24. Like early motion pictures, phonograph records partook of the culture of vaudeville, thriving on the same heterogeneity of participants and a similar variety of acts, rooted in the dynamics of performance and a tumult of oral forms. Edison's National Phonograph established its New York offices on Union Square, in the heart of the vaudeville district. See Snyder, 58-59, on the class and racial heterogeneity of the vaudeville; and on variety experience, see Snyder, 106. For a corporate genealogy of Columbia, RCA, and other companies, see Read and Welch.

25. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53 (1884).

26. Hearing on June 6; see "laughter," Brylawski and Goldman, 165. Attendance was all male; Oscar Wilde was by then disgraced and dead.

27. See also Edelman, Pt. 2. The analogy between music and photo-

graphs came up at the hearings in part because the complications of locating authorship *and* subjecthood in a copyrightable form. American copyright law has returned repeatedly (and never with great satisfaction) to issues of personality.

28. 122 F. 240 (1902); Edison won on appeal in 1903, the same year another important precedent was set in one of the *Edison v. American Mutoscope and Biograph Co.* cases; see Musser, *Before the Nickelodeon*, 238.

29. See registration form for Thomas Crahan's "Artistic Glimpses of the Wonder World" (1900), Edison Document File copy, ENHS. On the matter of deposits, see "Copyright" folders, 1908-1910, Edison Document File record group, ENHS; as well as Loughney, 60 and following. The number of deposits in 1905 was given by the librarian of Congress, Herbert Putnam, during his statement in *Arguments before the Committees on Patents* (Brylawski and Goldman, 14).

30. The U.S. Census reported in 1905 that the annual value of American sheet music had risen from \$1.68 million in 1890 to \$2.27 million in 1900 and to \$4.15 million in 1905. In the same scheme, American pianos produced for 1905 were valued at \$69.6 million, while the annual value of phonographs and supplies had surged to \$10.2 million in their two decades on the market. These figures were repeated into the record of the congressional copyright hearings as evidence of the vigor that different segments of the music industry possessed.

31. This from an Edison record catalogue for blue-amberol record no. 2147, "On the Banks of the Wabash, Far Away," performed by baritone and chorus with orchestra.

32. See Dreiser's "Birth and Growth of a Popular Song," *Metropolitan* 8 (1898): 497-502, reprinted in Hakutani, 2:19-22. See also Dreiser.

33. See Sanjek, Chap. 11. Middleton's methodological reflections on popular music were helpful to these several pages, particularly regarding the varied meaning of "popular" in studies of popular music; of related interest is Lewis's article on popular music as "symbolic communication."

34. Edison undated memoranda, covered by Frank L. Dyer letter of Feb. 26, 1908; Edison Document File, ENHS. For a cultural history of Sousa as well as Sousa and "The Culture of Reassurance," see Harris.

35. 209 U.S. 1 (1908); see also 147 F. 226 (1902).

36. See Laing, 7-8.

37. See Lott. In the postminstrelsy age, popular music in general seems to fulfill this role in another way; I am thinking of Paul Gilroy's sensitive polemic, Chap. 3, entitled "Jewels Brought from Bondage: Black Music and the Politics of Authenticity."

38. On contemporary questions of essentialism, I have been particularly



influenced by Michael O'Malley and Nell Irvin Painter's succinct contributions to the *American Historical Review* Forum on race, money, and "intrinsic value" in nineteenth-century America. O'Malley wrote, "Facing the possibility that [white-skinned "black"] men such as Plessy could renegotiate racial value . . . the court responded with irrational theories of intrinsic racial difference" (395).

39. See Dorman; see also Sanjek, Chap. 9.

40. According to Riis, in the period "just before jazz," Black music "seems to have meant syncopated tunes or dialect songs on a nostalgic, Old South theme" (154).

41. *Edison Phonograph Monthly* 3, no. 5 (July 1905): 10.

42. See Lott, 20.

43. See Turner, *Ceramic Uncles & Celluloid Mammies*, 20, 22, e.g., for an observation of the differing modes of aural and visual racism in popular culture.

44. See Sanjek, 297.

45. Here I am indebted to conversations with Miranda Paton regarding her in-progress work on the iconography of the phonograph and to an e-mail exchange with David W. Stowe about what he calls "racial ventriloquism." Interestingly enough, phonographs and records remain tenaciously visual artifacts for collectors; see Schwartzman. The "Whole World Kin" advertisement appeared widely; copy in Primary Printed collection, ENHS.

46. Edison's phrenological notes are in "Employment" folders, Edison Document File, ENHS. James and Edison met on a steamer for Europe; Edel and Powers, 329.

47. "Perfected Phonograph," *North American Review* (1888): 641-50, quote on 645. Also see Irwin's extended analysis of the hieroglyph metaphor. In one technical note from November 1877, before the phonograph had been realized, Edison even dilated on its musical potential in textual terms: "Reproduce from [tin foil] sheets music both orchestral instrumental & vocal the idea being to use a plat machine with perfect registration & stamp the music out in a press from a die or punch previously prepared by cutting in steel or form an electrotype or cast from the original on tin foil" (Edison, *The Papers of Thomas Edison*, 3:629; punctuation added).

48. Levin, 56. Levin's "For the Record" includes translations of Adorno's "The Curves of the Needle," "The Form of the Phonograph Record" (quoted here), and "Opera and the Long-Playing Record." The imagined universality of (usually Western) music jibed with other attempts at universal language. Esperanto (1887) had a grand launch during the Paris exposition of 1900 (Mandell, 68), and there were other stabs at the same thing: IDO (described by L. De Beaufront); the Master Language (described

by Stephen Chase Houghton); Word-English (by Alexander Melville Bell); and Tutonish (Elias Molee). All examples come from NYPL, General Collections. See also Eco, esp. Chap. 16., on international auxiliary languages.

49. See Brylawski and Goldman, 106.

50. *Ibid.*, 157.

51. Some European developments are documented in the records of the National Phonograph Company, ENHS. The British case, *Neumark v. National Phonograph Ltd.*, is described in a letter from G. Croyden Marks to William E. Gilmore, Apr. 10, 1907, Legal Department Records, ENHS. On France, see Attali, 97-98.

52. Letter from C. A. L. Massie to H. C. Kennedy, July 19, 1907, regarding *Jose Elizondo v. Jorge Alcade*, located in Legal Department Records, ENHS. The copyright in question was a selection from a comic opera entitled "El Chin Chun Chan."

53. See Read and Welch, 393.

54. 175 F. 875 (1910). See Kaplan, 41; on Hand, see Cracas.

55. See L. Cohen, 105.

#### CHAPTER 4, *Paperwork and Performance*

1. See Garbit, 7; Edison, *The Papers of Thomas Edison*, 3:656, notebook entry by Charles Batchelor; and Atkinson's edition of Ganot's *Physics*.

2. Two qualifications: electric lighting may be a bad contrast in this illustration, since, as Carolyn Marvin argues, electricity shared some of the features of communications media. Electric light is McLuhan's medium as/without message (8). Similarly, the biological bases of language acquisition may be too aggressive a comparison: it should be clear that I am *not* proposing that media fully make our experience, that recorded sound itself constructed the ears that heard it. I'd like to thank Dave Heitz for demonstrating his replica of the tinfoil phonograph, and Jerry Fabris of the National Park Service for his demonstrations of later machines.

3. This "tailored" material culture is clearly related to Banta's "tailored" lives, though I don't want to fudge the chronology or the influence of scientific management as it was later conceived. My thinking about inscriptions in the laboratory and the marketplace has been influenced most by the work of sociologists of science; see Latour, "Drawing Things Together." See also Latour's *Science in Action*; and Latour and Woolgar's *Laboratory Life* for amplifications of this perspective.

4. Doheny-Farina (3, 30) is my source for technology transfer. *Technological imperative* is a necessary term I've adopted from Hoke, in particular.

5. See Cooper for a good example of product revision. If producer-