



SILENT FILM SOUND

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I

The History of Silent Film Sound

It has never been easy to capture in words the phenomenon of sound. While philosophers and technicians have developed concrete languages for describing images, sound has often seemed to require a more abstract terminology, drawing on the language of myth and the sacred rather than that of three-dimensional reality. Though their understanding of acoustics was highly developed, the Greeks concentrated their attention on exceptional circumstances and unusual practices. While Pythagoras was charting the harmony of the spheres, others developed a myth to explain the phenomenon of echo, made ventriloquism into a sacred source of prophecy, and turned the process of speaking with multiple voices to oracular use. In the Middle Ages, sound continued to play an important religious role. In order to signify the diabolical intent of infidel knights, epic poets regularly portrayed them as producing a cacophony of unchristian sounds. Divine presence was indicated by reference to the soothing harmonies of the angelic band. Not until the nineteenth-century junction of experimental science and the industrial revolution

did sound emerge from the sacred ramifications of its apparent unknowability. With the invention of the telegraph, telephone, and phonograph, sound finally entered fully into the economic sphere of capitalism. Now sound could be measured and sold by the minute, word, or kilocycle.

Sound has never succeeded in establishing its own autonomous measure of worth, however. Just as the Greeks and medieval Christians attended to sound only because of its ability to signify the sacred, so we moderns attach importance to sounds only when they have a demonstrable physical, visible effect. Consider the familiar Memorex commercial: the best sound is glass-breaking sound; sound quality depends on the ability to affect the visible. Concrete and commodifiable, the visible alone appears fully real. Barker for the image's main event, prophet announcing the coming of a visible Messiah, dimensionless pointer to a three-dimensional product, sound has long been cast in the role of handmaiden, indentured servant of a noble and handsome lord. Sound's slavish nature has nowhere been so taken for granted as in the realm of cinema studies. Offering three decades of silent films as Exhibit A, scholars have for years pursued their arguments in favor of cinema's visual nature: historically, films existed without sound—cinema is thus essentially a visual art; ontologically, cinema requires an image but not sound—cinema is thus essentially a visual art; practically, it is the image that sells films—cinema is thus essentially a visual art. Powerful arguments these, and not easily refuted. The history of cinema has been so fully constituted as a visual affair that it is not clear how, at this late date, a different story might be defended. In the past, cinema historians have followed the Greek model, focusing on exceptional sound phenomena rather than on ordinary practice. Most writing on cinema sound is devoted to the conversion from silent to sound cinema. Other favored objects of study are the breakthroughs of sound pioneers (Clair, Mamoulian, Lubitsch), the sound style of important innovators (Renoir, Welles, Hitchcock), the experi-

ments of a few renegades (Godard, Rivette, Altman), and the multilayered textures of recent sound designers (Murch, Burt, Lynch).

Ironically, this concerted attention to unusual sound practices has served only to harden audiences and critics in their belief that sound carries little if any of the average film's meaning (and even less of that film's cinematically specific meaning). To hold up René Clair as the imagistically innovative model director of "sound" films (as opposed to the theatrical "talking" films of Marcel Pagnol) is to downgrade most other contemporary uses of sound. Lionizing Orson Welles' ability to use sound creatively implicitly acknowledges the shortcomings of previous filmmakers. Current praise for the artistic accomplishments of sound *designers* substantiates the notion that earlier sound specialists were only sound *technicians* who did little more than twirl the dials on their machines. Even the massive research devoted to the conversion from silent to sound film reinforces the sideshow nature of most work on sound: only at the odd moments when sound appears as a novelty or a freak is it fully worthy of our attention.

The current project derives from a different insight. Just as French "new" historians of the Annales school found the texture of history in the daily fabric of common lives, rather than in the exceptional existence of the ruling class, so I find the most important lessons in the most common uses of sound, in the most banal practices. Who plays the piano? Where is it located? Is it used just for the film or for other parts of the program as well? What kind of music is selected? Can spectators play the music at home? From sheet music or records? What's the relationship between filmmakers and music publishers or record companies? Is the dialogue printed on intertitles, spoken by live actors, or recorded? Are there sound effects? Who plays them? When?

In the past, film histories regularly jumped from one artistically successful film to another. Oblivious to the contradictions involved in writing a studio history based on a corpus borrowed from the aesthetic

arena, film historians systematically attempted to answer questions that they had not themselves formulated. Today we are beginning to understand the need for nothing less than an entire redefinition of film history, based on new objects and new projects. The only way to wage such a revolution is to inspect the widest possible range of objects, with a willingness to question their very names and identities, along with the contexts within which we have learned to understand them. Ironically, our very lack of knowledge about the auditory side of cinema production and reception lends to sound an extraordinary capacity for eliciting difficult questions. To an increasingly professionalized film studies world, where most cases have long ago been tried and ruled upon, sound needs to be called as a new witness, for it offers fresh evidence, thus forcing the opening of old dossiers. With sound, cinema is granted a new hearing.

As adept as it may be at challenging received notions, however, sound can by no means answer all the questions it raises. This inability has led me to an important decision regarding the current project. My first research principle has long been to follow the trail of film sound wherever it led. I have wanted to know what sounds were made, when, how, by whom, at what cost, and to what purpose. I have asked who made what decisions, who financed what technical developments, and who controlled the relationships among the various sound-based media. At every turn, my curiosity has led to further questions of two types. Some familiar questions have been asked by many historians before me and can be answered simply by more information about sound. Where did silent film composers learn their trade? What innovations contributed to Edison's Kinetophone process? Who developed the automatic piano? How was it used? Another group of questions has proven far more elusive—and fruitful. Though conceived in the realm of sound, many questions can never be answered by information about sound alone. Why do 1908 ads for the Cameraphone talking-film process feature pictures of individual performers when it is

well known that in 1908 the film industry had not yet espoused a star system? What led the vacuum cleaner and the theater organ to be developed at the same time? Why do attitudes toward sound effects change so often? How and why was audience activity muted? Questions like these cannot possibly be answered by research limited to sound, but instead require careful correlation of sound data with other information: about the image, about production standards, about economic arrangements, about other media, about the culture at large.

Far from ignoring such questions, I have actively sought them out. For the project at hand is not just to write the history of American film sound but, more importantly, to develop *a new history of American cinema reconfigured through sound*. To be sure, we stand very much in need of a history of Hollywood sound. No single existing source provides adequate answers to the basic questions about sound in American media: who produced what sound when and how for what purpose? Yet a book about Hollywood sound that failed to reach beyond the borders of sound would be just about as useful as an FBI agent restricted to a single county. The only way to get the big picture is to climb out of the barrel. Yet the only way to start anew, to rethink sound from the ground up, is to rummage around at the bottom of the barrel—for that is where the trade papers are, and the vaudeville managers' reports, and the music scores, and the technical journals, and all the other little-used materials on which serious study of sound depends. How to reconcile the requirements of extremely detailed research with the need to generalize broadly about the media—such is the challenge of the current project.

Past Attempts to Write the History of Silent Film Sound

The accelerating pace of interest in silent film sound is nothing less than exhilarating. Live orchestral accompaniment of silent films has become a staple

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special event at film festivals around the world. Dedicated musicians like Carmine Coppola and Gillian Anderson have enlivened what used to be called "silent" film performances with new compositions or careful reconstructions. Modern composers, including luminaries like Giorgio Moroder and Philip Glass, are increasingly captivated by the challenge of silent cinema. Small ensembles like the Alloy Orchestra, the After Quartet, and the Mont Alto Orchestra have begun to issue accompaniments on compact disks. Video publishers now regularly offer silent films with organ or orchestral accompaniment, often based on period scores. New archival material is available, including the Arthur Kleiner Collection at the University of Minnesota and the Balaban and Katz Collection at the Chicago Public Library. Public exhibitions and systematic catalogs have drawn attention to existing collections.¹ Martin Marks has published the first scholarly book-length study on silent film music.² Other scholars have begun to disseminate their research on diverse aspects of silent film sound. A special issue of the Franco-American journal *Iris* concentrates entirely on silent film lecturers.³ An article on silent film sound recently won a Society for Cinema Studies student writing prize.⁴ In 1998 the annual meeting of Domitor was devoted to silent film sound. Papers from this meeting constitute the largest single group of writings on silent film sound.⁵

Yet, for all the excitement, there remains a nagging worry, a sense that the field has not sufficiently theorized its object of attention, a fear that the energy and emotion of the current revival conceal the need for a broad-based, theoretically informed assessment of the problems associated with silent film sound. This concern is compounded by the isolation of those working on this topic. Split among a wide variety of professions, individuals involved in this enterprise include avant-garde composers, working musicians, musicologists, archivists, researchers, festival organizers, and video distribu-

tors. Scholars concentrating on silent film sound are divided by geographical barriers, with the most important work on silent film sound to date split between Québec and the United States on one side of the Atlantic, and among Scandinavia, England, France, and Italy on the other. Most researchers dwell virtually exclusively on music; some concentrate on the lecturer; several approach the question through exhibition and theater architecture; others are brought to silent film sound by a more general interest in cinema sound. Extremely diverse are the expectations and practices of this broad spectrum of practitioners.

As anyone who has ever attempted research on the subject will readily attest, silent film sound is a maddening topic. Not only are the performances themselves forever lost, but even their traces have systematically fallen prey to the low esteem accorded ephemeral and tributary phenomena like silent film sound. Many original performances were improvised and thus from the start lacked a written record. Where sheet music was used, it has by and large gone the way of other cheaply produced century-old paper documents. Even when the printed music remains, we rarely know when it was used, how it was performed, and what its relationship was to which film(s). Worse, film reviews were for many years written primarily on the basis of pre-release silent screenings. How did New York receive Saint-Saëns' score for the 1908 Film d'Art production, *L'Assassinat du Duc de Guise*? For that matter, was Saint-Saëns' score even used in New York? Don't ask the *New York Dramatic Mirror* reviewer; he makes no mention of music whatsoever. It would be nice to know just how music was integrated into films based on songs, like Edison's *A Bird in a Gilded Cage* (1909) or Vitagraph's *Battle Hymn of the Republic* (1911), but we can't find out from the *Dramatic Mirror*, for none of the reviews so much as mentions music.⁶

Even when good fortune has preserved a cue sheet or a score, we rarely know much about specific per-

performances. Was there an orchestra? If so, did it perform in vaudeville, melodrama, or Carnegie Hall style? Did it play continuously throughout the film? How did it handle repeats? Did it finish all numbers? How closely was the music synchronized with rhythmic movements in the film? Was every show accompanied? Was there music during intermissions? Faced with the impossibility of answering these questions with certainty, students of silent film sound have over the years evolved a number of shared assumptions and practices that underlie current research and performance standards alike. Four fundamental assumptions stand out.

1. *Silent film constitutes a single homogeneous period.* General histories of cinema almost always treat silent film music as a single phenomenon. Typically beginning with a reference to the presence of music at Lumière's Grand Café opening in Paris or Vitascop's New York introduction at Koster and Bial's Music Hall, these histories invariably skip lightly over the next twenty years, invoking a "natural" desire for sound and the need to drown out the noisy nickelodeon projector on their way to the real topic: sophisticated organ and orchestral film accompaniment in urban picture palaces. Summary paragraphs treat silent film music as a single "other," a coherent practice defined primarily by its difference from later, more familiar styles.

General treatments of film music usually rehearse the same scenario. Obligatory chapters on silent cinema abound with generalizing terms like "silent film," "the silent period," "silent film accompaniment," and "silent film practice."⁷ Though virtually all examples derive from feature films, the conclusions drawn are systematically extrapolated back through the nickelodeon period to cinema's nineteenth-century beginnings. Because they attribute the presence of sound in silent cinema to universal human needs (to drown out unpleasant noises, to avoid the uncanny effect of moving pictures without sound, to complete the "natural" audiovisual totality), the authors of

books on film music have felt entirely justified in treating silent film sound as a single "thing." Twenty years ago, treatment of silent cinema as a coherent era seemed appropriate. Today, after a remarkable international flowering of scholarship on early cinema, insensitivity to differences separating silent film practices is difficult to justify. Silent film scholars have rightly argued that early cinema cannot be understood by simply extrapolating the results of silent feature film research. Tom Gunning's distinction between an early "cinema of attractions" and a later cinema stressing narrative integration may be the most quoted watchword of this film studies generation.⁸ Earlier, Noël Burch's positing of a "Primitive Mode of Representation," opposed to the familiar "Institutional Mode of Representation," served notice that early short films (along with their particular mode of exhibition and consumption) cannot be treated in the same manner as later feature films.⁹ At the same time, other authors were demonstrating the extent to which the final decade of silent film production has more in common with the sound cinema industry than with earlier silent film practices.¹⁰ The work of early cinema researchers like Richard Abel, Noël Burch, André Gaudreault, Tom Gunning, and Charles Musser has changed the face of cinema studies forever. Henceforth, sweeping generalizations based on the recollections of old-timers are no longer acceptable. Nothing short of painstaking historical research will do. This is why the study of silent film sound must change. Following the lead of those who have carefully researched cinema's early years, we must question whether silent film sound can reasonably be covered by a single model. It is time to include sound in silent cinema's historiographical revival.

2. *The twenties serve as privileged model of silent film sound.* Until the recent growth of interest in early cinema, it was the feature films of the 1920s that attracted the greatest attention—whether in France, Germany, Italy, or the United States. While histories of European cinema concentrated on styles that matured in the twenties (expressionism, impression-

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ism, constructivism), accounts of American cinema stressed the importance of stars (Fairbanks, Pickford, Valentino) and directors (De Mille, Griffith, von Stroheim) whose popularity peaked during the late teens or twenties.

Film society screenings and film course syllabi concentrated heavily on feature films from *The Birth of a Nation* to *Sunrise* (with a tip of the hat to Chaplin, Keaton, and other short-comedy kings). Local organizations scurried to preserve our dwindling cinema theater heritage, almost always concentrating on twenties picture palaces. Scholars evoking a single silent film accompaniment practice consistently cite the same contemporary manuals, all written and published in the twenties, after a standard style had been established.¹¹ New compositions and reconstructions have both shown a marked preference for the culturally acceptable “great” films of the twenties. All these practices overemphasize special orchestral music played in the picture palaces of large eastern cities. Even for the twenties, this approach skews our understanding of film music; entirely absent are the other parts of the program (newsreel, scenic, organ solo), the other parts of the country (where ragtime, ethnic traditions, and popular songs often endured), and the other parts of town (where an African American ensemble might be improvising).¹²

There are good reasons why picture palace music is lionized. More records remain for this period (scores, cue sheets, arrangements), providing more detailed information about practices and personnel. With few exceptions, the picture palace orchestra style was stable for a full decade, long enough to assure the star quality of key figures (composers Joseph Carl Breil and Victor Herbert, impresario Samuel L. Rothapfel, arranger-conductors Hugo Riesenfeld and Erno Rapee). Not only did the scale of picture palace music guarantee its prestige, but the consecration of late silent film accompaniment style in sound film served to inscribe that prestige permanently in our cultural memory. Should we for-

get, veteran musicians of the period were long available to remind us how it was. Their reminiscences, often claiming—and allowed—to stand for the entire silent film period, reconstructed neither an average nor a representative picture of silent film accompaniment as a whole, but a fading snapshot of silent film sound in its final state.

3. *Silent film music derives from nineteenth-century theater music.* The tendency to connect silent film accompaniment to the musical practices of the melodrama stage constitutes a fitting counterpart to the dominance of picture palace music in silent film music discourse. Critics note that many film musicians came from the stage, that some cinema sound effects techniques had stage precedents, and that important similarities connect nineteenth-century theater music to the mature version of silent film accompaniment.¹³ Typically, such comments lead to the conclusion—or at least the implication—that silent film music practice was simply directly borrowed from nineteenth-century stage music practices. The logical and historical assumptions of this approach deserve some commentary. Since there is relatively little scholarship on nineteenth-century stage music (other than opera), students of silent film sound have sometimes been forced to base their claims on rather thin knowledge of the musical practices in question, often returning to the same 1911 Norman O'Neill article for supporting testimony.¹⁴ Of doubtful wisdom is a general tendency to treat the entire nineteenth century as a single unbroken musical period. When specific examples are adduced at all, they are drawn indifferently from multiple countries and all ten decades of the century.¹⁵ From these scattershot references to prior musical tradition (usually centering on stage melodrama), critics commonly move directly to Joseph Carl Breil's 1915 score for *The Birth of a Nation*.¹⁶ The first twenty years of film history are regularly either entirely passed over or sketched in lightly as a simple and fully predictable interpolation between nineteenth-century stage music and its picture palace continu-

ation. Instead of being understood as the product of complex negotiations among a shifting cast of characters, mature silent film music is treated as a stepchild of the nineteenth-century stage. Should twentieth-century ideas, concerns, or ideologies be invested in picture palace music, we cannot possibly discover them by treating that music as the natural effect of a previous-century cause.

4. *Silent film sound practice is universal.* In any other domain, it would be taken as a non sequitur to offer an example from London to demonstrate practice in Chicago. In the realm of silent film sound, however, such logic has come to be widely accepted. In addressing silent film sound practices, even the most careful writers regularly mix references to multiple countries and multiple periods. In the opening paragraphs of his preface to *Four Bars of Agit*, Sir Peter Hall refers to the Greeks, Shakespeare, and Beethoven, plus Victorian and Edwardian melodrama, before concluding that, "When the miracle of the movie picture arrived, it was natural that the actions on the screen should have accompanying music of the right atmosphere."¹⁷ It is perhaps understandable that such a mixture should occur in a preface, a genre that calls for wide-ranging, general, and sometimes speculative commentary. The plot thickens, however, when the virtual entirety of Hall's opening paragraphs are quoted as evidence by a careful scholar like David Robinson. Indeed, Robinson goes Hall one better, adding examples of theatrical sound production from the eighteenth to the twentieth centuries and from several different countries. "When pre-cinematic entertainments, like shadow shows and the magic lantern, made their appearance on the margins of the dramatic theatre," he affirms, "they naturally attracted comparable musical entertainments." Coming to inaugural film projections, with musicians present, Robinson asserts that, "We can safely assume that these experienced theatre musicians created musical accompaniments that were wholly suited to the subjects on the screen."¹⁸

We find in these statements two characteristically intertwined strategies shared by many silent film historians. On the one hand is a tendency to adduce geographically undifferentiated examples in support of a universal claim regarding silent film sound practices in general. Using evidence gleaned from several periods, several countries, and several different exhibition situations, historians build a case for a particular type of accompaniment. This strategy is especially prevalent with regard to Great Britain and the United States, often treated as a single undifferentiated market. Now it is certainly the case that British and American approaches share practices in several domains. Indeed, a case might even be made that certain traditions are as broad as the North Atlantic community, or perhaps even broader. Yet some usages reveal clear geographical differences. How could this not be so when the new technology was understood and exploited so differently from one location to another? Shown in vaudeville theaters in the United States, early films were often projected by skating rinks in the United Kingdom, traveling carnivals in France, and music halls in Italy, with evident effects on silent film accompaniment practices.

A second implicit argument accompanies this universalist approach to silent film sound. At every turn we are encouraged to believe that musical accompaniment of silent films is the only *natural* solution to the apparent dilemma posed by soundless films. If it's natural and universal, then examples from any country will do for any other. Writing devoted to silent film sound is thus full of conjectures, extrapolations, and bold but unsupported claims. Far from being contested, such claims are regularly repeated by later historians. The treatment of silent film music in Kurt London's 1936 *Film Music*, for example, is a tissue woven of generalizations, surmises, and hypotheses. Yet a decade later these unsupported claims are repeated as proof-text in John Huntley's *British Film Music*. Repeatedly, we see the same process at work.

Assumptions and Limitations of the Current Project

When I began my work on silent film sound, I did so as an extension of previous work on sound cinema. In my general readings on the basics of silent film sound, I had found such agreement that I expected my research to be rapidly concluded.

My expectations were confounded by contemporary evidence contradicting received opinion. I thus vowed to base this study on primary materials alone, eschewing the many undocumented claims that constitute the bulk of previous writing on the subject. With few exceptions, this history of silent film sound is thus entirely based on period documents. The decision to concentrate on contemporary evidence of course creates more problems than it solves. The available record of film sound during cinema's early years is both *incomplete* and *ambiguous*. In the past, historians have dealt with the incomplete documentation in one of two antithetical manners: either they have despaired at the paucity of available material, and thus dodged the question altogether, or they have blithely filled in the blanks with their own or others' speculations. While the record regarding silent film accompaniment is to be sure incomplete, it is far more substantial than previous researchers have realized. To the great frustration of anyone who would conduct research on silent film sound, relevant information is not always to be found in the obvious locations. Often the geography of this topic seems to be made up of nothing but blind alleys. Yet eventually, often in entirely unexpected locations, primary materials have surfaced, providing answers to many questions.

To all but a handful of recent researchers, silent film sound has thus seemed quite *simple*, either entirely impenetrable or entirely obvious. This book, to the contrary, treats silent film sound as immensely *complex*. Neither natural nor universal, neither homogeneous nor borrowed lock-stock-and-barrel from some previous practice, silent film sound varies according to differences in date, location, film type,

exhibition venue, and many other variables, and thus cannot possibly be reduced to a single practice or even a single line of development. The only history that can do this topic justice is a history that treats silent film sound's variety and complexity with full seriousness. This book thus concentrates solely on American silent film sound practices, the only domain where the current state of research allows the story of silent film to be told with reasonable accuracy. At this point the materials for a broader history are simply not available, though it is only a matter of time until that situation will be changed by a growing corps of researchers on silent film sound in all its far-flung versions.

Even in cases where the available record is substantially complete, however, certain fundamental ambiguities remain, setting hidden traps for the unwary historian. Perhaps the most frustrating aspect of period materials treating silent film sound is that they are all written in a foreign language using... the very words employed in today's everyday English. It is all too easy to assume that familiar words encountered in a turn-of-the-century document mean what they do today. Understanding of century-old materials depends instead on the researcher's ability to learn a new language, to recognize that the most obvious terms meant something different many years ago. From the banal *accompaniment* to a specialized term like *cue music*, contemporary terminology often conceals the very practices that we seek to understand. To give today's meaning to these terms forecloses research, thus impeding the historian's search. At the turn of the century, "cue music" was music that corresponded to an on-screen cue for the production of music, such as a violinist or marching band. Today we would call such music "source" music or "diegetic" music. By the teens, however, the term *cue* had changed considerably. Any music designed to be played at a particular point of a film (that is, whose starting point is designated by a particular "cue" within the film) would hereafter be called "cue music." Throughout this book I will have occasion to

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point out many contemporary terms that may look familiar to present-day readers of English, yet which in fact require translation for modern audiences.¹⁹

To summarize, this book concentrates solely on U.S. practices, bases its arguments on primary materials, harbors a healthy suspicion regarding appar-

ently familiar contemporary terms, and respects the complexity and diversity of silent film sound. In order to treat that complexity with full seriousness and to make sense of that diversity, *Silent Film Sound* makes use of a new historiographical approach, described in the next chapter.

2

Crisis Historiography

Silent Film Sound offers a full-length example of a new type of history writing, which I call “crisis historiography.” This chapter presents the assumptions and commitments of this approach, explaining how they differ from the presuppositions and practices of traditional history.

A New Kind of History

Object of Study. This book deals not with technologies or events as such, but with complex cultural signs. When traditional media historians choose an object of analysis, they are apparently selecting something that actually exists, such as television. In fact, however, they are concentrating on a particular historical and cultural understanding of the category labeled “television,” not on a permanent fact of life. By starting with a phenomenon as *defined today*—by hiding the fact that the terminology currently applied to the object of study was at an earlier point used quite differently—historians beg major questions about what they are actually analyzing. In

short, the assumption of a single stable object of study hides the very problem that history is designed to study and explain. However clear a phenomenon may seem to us now, we must be wary of any knowledge that seems sure. Each new representational technology traverses a period when contemporaries reveal a great deal of hesitation as to its identity. Is it just another variety of the same old thing? Or is it something new? And if it's something new, what should we call it? what legal status should it have? how should it be exhibited? how must we understand it? When viewed retrospectively, these hesitations seem silly and entirely forgettable. Our daily language makes it quite clear that a television is simply not the same thing as a radio.

Yet the apparently innocuous process of naming is actually one of culture's most powerful forms of appropriation. Once named, an object or a technology seems to be *naturally* associated with that name. Not only is it impossible today to confuse television with radio, but we assume that the distinction is based on real differences. In distinguishing between a "television" and a "radio," we voluntarily ignore the fact that every television includes a radio. In fact, a television is in one sense just a radio with images. Indeed, the object that we know as a "television" could have been called an "enhanced radio" or an "image radio" or a "screen radio" or even simply a "radio." Not only *could* television have been called these things, but it was *in fact* called all of these things during its formative period. However strong our conviction that we know what a television is and what it is not, we must recognize the historical contingency of that apparent "knowledge." The category of "television" is a cultural product, not a natural entity. As historians, we deal with complex cultural signs, not with objects as such.

Corpus. Traditional wisdom assumes that a technology defines its extent by virtue of shared characteristics and components. Cinema, for example, is usually defined very simply as the projection of moving images. But suppose the phenomenon that we recog-

nize as cinema were called something else by contemporary users? How should we take account of this apparent error? Historians might well consider it a mistake to call a television a "radio," or to label cinema as "advanced vaudeville," but I insist that earlier social constructions of technology constitute a major aspect of the phenomenon under study.¹ In the past, the history of technology has always concentrated on connecting one example of the technology to another on the basis of common factors that are considered to be *outside of history*. Crisis historiography assumes instead that the definition of a representational technology is *both historically and socially contingent*. That is, the media are not fully and self-evidently defined by their components and configurations. They also depend on the way users develop and understand them.

The ramifications of this position are wide-ranging. First, if we want to understand why an innovative representational technology develops as it does, we must begin by analyzing its reception—the way in which it is constructed by its users. Second, we must base our corpus not just on today's notion of the phenomenon under study but also on contemporary understandings. If early users of moving pictures considered them as just that—pictures that move—then in order to explain the early history of moving pictures we must know how contemporaries understood the terms *moving* and *pictures*. Because many contemporaries understood moving pictures as a form of lantern slides, notions about how lantern slides should be shot, distributed, and displayed necessarily become an integral part of the film historian's object of study. If, at a later date, the "same" technology were to be labeled "advanced vaudeville," then we would similarly have to analyze contemporary assumptions about vaudeville in order to get at the history of a medium that now seems quite distinct from vaudeville. Our corpus is thus necessarily dictated not by shared technology alone, but also by the social construction of that technology. We must thus attend to many domains that, from today's vantage point, seem to have little

to do with our object of study. We must also abandon the teleological tendencies of most technological histories. For our purposes, technological dead ends and technical failures may play just as large a part in history as experiments contributing to today's dominant technology.

Representation. Emphasizing the apparently direct iconic and indexical relationships connecting representation and reality, rather than the more complex and conventional symbolic relationships present in all signifying systems, realist film theory diverts attention from the fact that reality itself is already coded. By famously claiming that cinema's chemically based photographic system operates like a death mask, reproducing and thus faithfully representing an absent object, André Bazin dodges questions about whether the reality to be represented is constructed socially as well as physically. As automatic as Bazin's representation process seems, even it involves conventional assumptions. Why is it the face that is molded rather than, say, the ear or the thumb? And why are the masks cast in a particular precious metal? Clearly, even such a simple process as casting a death mask (or pointing a camera) depends on existing conventions. Both the reality that is represented and the process of representation itself are always coded.²

What is the source of that coding? If each medium defines a particular version of reality and codifies in a specific manner the systems required for successful representation, thereby establishing necessary and sufficient conditions for representing the real, then in order to represent properly each new technology must succeed in representing not reality itself but the version of reality established by some already existing technology. In other words, *there is no such thing as direct representation of the real; there is only representation of representation.* Anything that we would represent is already constructed as a representation by previous representations. Because reality is always already coded by previous representations, the process of representing reality must always take into account

those codes and the representations that produced them.

Most historians describe and judge new modes of representation retroactively. Either the value of a particular medium is assessed according to its contributions to subsequently developed media, or its ability to bear meaning is analyzed on the basis of present-day standards. This *ex post facto* approach to representational technologies ignores contemporary modes of evaluation. Impressed by photography's ability to reproduce familiar forms, early witnesses to the new medium nevertheless lamented its lack of color—in comparison not to reality but to painting. When television was first introduced, however, no such laments were heard, in spite of the lack of color, because postwar moving-image reality codes had been formed not by oil painting but by black-and-white cinema and photojournalism. The first TV viewers measured the new medium not against uncoded reality, but against the media responsible for the coding of their reality.

When cinema converted to synchronized sound in the late twenties, the new medium was assessed not by comparison to sound as heard in nature, but in relation to the media responsible for contemporary listeners' notions of how sound should sound. Assuming that sound cinema should provide a mechanized version of familiar silent film orchestral accompaniment, early sound engineers thus placed loudspeakers in the orchestra pit that had so recently held live musicians. Only in this way would the new technology properly represent the medium that it was in the process of supplanting. This social construction of reality is an apt partner for the social construction of technology. In every era, new representational technologies have initially been configured to conform to the codes established by already existing technologies.

What constitutes an acceptable representation? Ironically, successful representation has always depended on the ability of new media to disguise themselves as old media, to meet the requirements established by existing media. Because new repre-

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sentational modes are perceived and appraised according to in-depth training received in the school of previous modes, proper understanding of representational technologies must always start with analysis of one medium's attempt to do the job of another, and with examination of the expectations regarding proper representation that spectators carry from one medium to another. Because representation is always representation of representation, the only way to understand a new technology is to grasp the methods it employs to convince its users that it is no different from its predecessors.

Codes of Reality/Codes of Representation. New technologies may contribute something novel to the media landscape, but they always do so within a context of already existing standards. These standards may conveniently be split into two quite separate categories. On the one hand are standards relating to that which is represented. Inheriting from existing media a set of assumptions about the nature—the look and the sound—of reality, new technologies are typically judged to be failures if they prove unable to reproduce reality in the way that contemporary audiences expect. New technologies thus tend initially to be configured not according to their own inherent representational possibilities, but according to current notions, derived from other media, about how reality should be represented. On the other hand are standards relating to the process of representing. New technologies must constantly be measured against changing standards of how representation should take place. Should the new technology offer projection or only individual peep-hole access? Should the new machines be sold or rented? Should programming be continuous or by discrete show? silent or combined with music?

What we may term *codes of reality* control the definition of reality associated with any particular medium, while *codes of representation* oversee the broad spectrum of values and expectations attendant to the process of representation. A single sentence—one of the most famous in the domain of

early cinema—provides a clear example of these twin codes. The first of Thomas Edison's motion picture caveats filed with the U.S. Patent Office begins as follows:

I am experimenting upon an instrument which does for the Eye what the phonograph does for the Ear, which is the recording and reproduction of things in motion, and in such a form as to be both Cheap practical and convenient.³

The first phrase of this sentence makes it quite clear that Edison's new invention is modeled on an already existing technology. The second phrase proceeds to characterize that device in terms of its proper objects of representation, thereby defining the *codes of reality* associated with the new device. The third phrase then turns to the ways in which the new device should be exploited, thus defining the *codes of representation* to which the new device must adhere.

One of history's prime motors lies in the gap between codes of reality and codes of representation. Whereas codes of reality are usually associated with long-lasting, widespread practices (such as popular media), codes of representation constantly fall prey to the vagaries of economics, local laws, and technical progress. Codes of reality typically require a substantial period of time to develop or dissipate, but codes of representation may be rapidly affected by a powerful investor, eloquent legislator, or successful inventor. Codes of reality thus remain tied to a long tradition and a wide range of rival media, whereas codes of representation are forward-looking and ever-changing. Rarely aligned, these two sets of codes thus typically pressure new technologies in contradictory ways. Crisis historiography takes this dialectic into account.

Anatomy of an Identity Crisis

Why should a historical account written according to the precepts presented above be associated with the term *crisis*? Working retrospectively, traditional technological histories define earlier technologies in

terms of the later technologies of which they are taken to be predecessors, or to which they are thought to contribute. When Harry Geduld recounts *The Birth of the Talkies*, for example, he “reads” early phonography through the lens provided by cinema’s eventual adoption of a sound-on-disk sound system. This approach fails, however, to account for the social construction of that technology. When we eschew a nuts-and-bolts approach to technologies, recognizing instead their socially constructed nature, we discover something new. We find that the technology today confidently called cinema was for over a decade considered quite differently by its contemporaries. In their early years, projected moving images were subjected to multiple contradictory definitions and treatments. Since we know that new technologies borrow their codes of reality from existing technologies, this is hardly surprising, for at any given time multiple candidates are always available to serve as the new technology’s dominant reality code. For this reason, *new technologies are always born nameless*. Assimilated to multiple possible models, new technologies always begin life with multiple monikers rather than a single stable name. Indeed, the multiplicity of identities imposed on most technologies makes identification of a “birth date” impossible, and thus the metaphor itself inappropriate. Instead of a birth, we find a *crisis of identity*, reflected in every aspect of the new technology’s socially defined existence. That identity crisis is best understood in terms of three separate but closely connected processes: multiple identification, jurisdictional conflict, and overdetermined solutions.

Multiple Identification. During the last years of the nineteenth century and the first of the twentieth, it simply cannot be said that there was such a thing as “cinema,” clearly separate from other phenomena. On the contrary, what we now retrospectively think of as cinema was at the time recognized as several quite different phenomena, each overlapping with an already existing medium. This multiple identity is made manifest by contemporary terminology, which

applied to moving picture projection such shared terms as “views,” “pictures,” “electric theater,” “living photographs,” and “advanced pictorial vaudeville,” each self-evidently identifying the new technology with an already existing medium. State and local governments followed a similarly fragmented logic, assimilating projected moving images to common shows (up to 200 seats) or theater (over 200 seats) in New York City, to concert halls for a short time at Coney Island,⁴ to circuses in Delaware,⁵ to exhibitors in Arkansas,⁶ to lantern slide picture shows in Chicago.⁷ Compounding the confusion, motion pictures were at various points copyrighted either as a series of photographs or as a dramatic composition.⁸ Projection technology reinforced the sense that motion pictures were anything but a separate medium. For over a decade after the introduction of the “motion head” in 1897, moving pictures were projected with a separate attachment fixed in front of an existing lantern slide projector (which provided the moving picture’s light source).⁹

The identity crisis revealed by terminology, legal status, and technology was strongly reinforced by several other factors. Drawn from several domains, cinema’s labor force not only mixed individuals with radically different assumptions about what the new technology might be good for, but often put them to work in situations where several different media were produced under the same roof. The new technology’s exhibition practices for many years remained tied to the “other” media to which it was regularly assimilated. This was particularly true of film sound. Similarly, film topics were initially chosen to replicate the repertoire of several already existing media. Many simply reproduced the familiar routines of stage dancers, parade marchers, cartoon comics, vaudeville singers, Lyceum lecturers, and the like. This unceasing reiteration of the new technology’s multiple identity provided few stable cues for audience reaction, other than the familiar but contradictory expectations associated with the many media to which the new technology was assimilated, along with the amazement inspired by the new technology’s novelty.

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Jurisdictional Conflict. New representational technologies are always characterized by multiple identities, generated by the multiplicity of models provided by existing media. These conflicting definitions are always associated with concerted attempts to gain control of the new technology. As soon as the new technology's possible benefits emerge, potential beneficiaries initiate competing campaigns to employ the new medium. It might seem reasonable to consider the resultant jurisdictional conflict as a second period in the overall identity crisis, but linear logic does not adequately configure the circumstances of an identity crisis. Jurisdictional conflicts are better understood as a separate process coexisting with the new technology's multiple identity. Every jurisdictional conflict involves a struggle between groups that have something to gain (or lose) from the new technology. At its most literal, the notion of jurisdictional conflict applies to trade union efforts to gain jurisdiction over jobs. Since every new technology reconfigures the nature, number, and prestige of available assignments, technological developments always produce jurisdictional skirmishes, such as the fall 1908 conflict pitting actors', stagehands', and electricians' unions against each other for jurisdiction over projectionist positions. The notion of jurisdictional conflict may also be taken quite literally in the case of open combats between producers and local administrations over regulations governing boxing films, between exhibitors and neighboring residents over noisy ballyhoo demonstrations, between exhibitors and reformers over such questions as theater lighting and Sunday shows, or between the Motion Picture Patents Corporation and independent distributors over access to film distribution circuits.

More often, however, the notion of jurisdictional conflict plays itself out metaphorically. Whereas one set of terms identifies the new technology in terms of associations with existing media (views, living photographs, electric theater), another contemporary set of terms, more nominalist in nature, unfailingly evokes a context of competition and conflict. The many pro-

prietary terms ending in *-scope* (Bio-, Cinemato-, Eidolo-, Kineto-, Muto-, Projecto-, Vita-) or *-graph* (Animato-, Bio-, Cinemato-, Cineo-, Electro-, Kineto-, Moto-, Vita-, War-) implicitly identify the new technology as an object of contention and a potential spoil of war. A similar undertone of competition and product differentiation attends every attempt to improve the new technology, whether in terms of ease of use (take-up reels, sliding mounts, electrification) or in favor of better image projection (better light sources, improved lenses, more stable intermittent systems) or more attractive sound accompaniment (narrators, live voices behind the screen, phonographic synchronized sound systems, sound effects machines, automatic pianos).

Attempts to establish jurisdiction over new technologies extend broadly. Individual films reflect the influence of multiple different media, thus replicating in miniature the overall conflict. The same film might combine deep-focus realism and a painted theatrical backdrop (the exterior scenes and granary of *A Corner in Wheat*), real objects and painted representations (the eminently breakable dishes of *The Suburbanite's* opening unloading scene, juxtaposed to a kitchen wall full of painted pots and pans), or a strong realist narrative and an illusion-breaking look directly into the camera (*The Great Train Robbery*). A single accompaniment might juxtapose or overlap music, sound effects, and voices. Full programs regularly contrasted films with vastly different connections to existing media: comic turns and news reports, panoramas and dances, chase films and documentaries, illustrated songs and adaptations from stage plays. Whether in a vaudeville theater or a nickelodeon, films alternated with lantern slide travogues, song slides, and live acts. Conversely, the same film might be shown in any number of entertainment contexts, each with its own exhibition space, representational codes, and sound traditions. At the turn of the century these included opera houses, Lyceums, dime museums, vaudeville theaters, and amusement parks; a decade later the mix of

venues was different but the principle remained the same. Is it any wonder that spectators lacked a single clear model for their activity? Audiences for new media typically internalize the very jurisdictional conflicts that bring them such composite texts, promiscuous accompaniments, and mixed programs. Given multiple cues for absorption into the events related by the new technology, spectators are simultaneously reminded of the technology itself, and thus encouraged toward continued amazement.

Overdetermined Solutions. Eventually, new technologies adopt a familiar name, identity, and features. Far from happening passively or automatically, these overdetermined solutions are an indirect result of jurisdictional conflicts waged by users. In each case, what Pinch and Bijker call “closure mechanisms”¹⁰ are negotiated by all those involved in the jurisdictional conflict process. For cinema, as for most new technologies, this began with stabilization of the very terms used to designate the technology, through events like the naming contest sponsored by the Essanay film production company, selecting “photoplay” as the appropriate term to designate what today we would call a film. Reported by the *New York Dramatic Mirror* on 12 October 1910, the winning term would be used in Essanay ads starting the very next week—and was adopted by one of the industry’s most important periodicals, *Film Index*, in its very next issue. The stabilization of nomenclature provides an important anchor for a new technology’s identity, but until consecrated by legal statutes, that identity remains provisional. Two national events played a particularly important role in determining subsequent decisions regarding cinema throughout the country. By settling the question of cinema’s legal status, the 1908–1909 *Ben-Hur* case and the 1909 U.S. Copyright Act, along with the enormous amount of publicity that they generated, produced an exceptionally strong closure mechanism.

Complementing terminology and legal status, changes in film technology also served to reinforce

cinema’s increasingly clear identity. With the rise of feature filmmaking, projection booths progressively switched from a single bivalent projector (capable of projecting both lantern slides and moving pictures) to a pair of projectors solely dedicated to the projection of moving pictures. This equipment modification matched a widespread programming shift (completed by 1914) from the storefront theater’s combined film-and-illustrated-song-slide program to the all-film program increasingly characteristic of the purpose-built movie theater. Standardized sound practices contributed mightily to cinema’s post-1912 stabilization, as did the development of the star system and strong genres, capable of guiding and homogenizing audience expectations. With the gentrification of moviegoing, the abandonment of interactive exhibition strategies, and the triumph of narrative filmmaking, audiences eventually settled into the absorbed attitudes that would become the stock-in-trade of classical Hollywood cinema.

The notion that these solutions are *overdetermined* derives from an important assumption about the way in which new technologies achieve individuation, a stable identity, and commercial success. Instead of considering a new technology as a configuration of nuts and bolts, which can be physically modified and reconfigured until satisfaction is finally achieved, crisis historiography considers the new technology as it is socially constructed. This construction is both *ongoing* and *multiple*. That is, the technology is never socially constructed once and for all. During a crisis, a technology is understood in varying ways, resulting in modifications not only of the technology itself but also of terminology, exhibition practices, and audience attitudes. These changes resist linear presentation precisely because they are generated not by a single social construction but by multiple competing approaches to the new technology.

Indeed, the notion of jurisdictional conflict—along with the very idea of an identity crisis—depends on several user groups enjoying simultaneous access to the new technology and playing a shared

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role in defining that technology. The user groups involved are not just the obvious players in the cinema consumption cycle—producers, exhibitors, and spectators—but all those whose lives are affected by the new technology: designers and manufacturers of film equipment, actors, production personnel, projectionists, technicians of all sorts, musicians, music publishers, song slide makers, musical instrument manufacturers and distributors, politicians, reformers, landowners, movie theater neighbors, audiences of all sorts, and many others. The range of affected groups includes those with a stake in any rival medium, from legitimate theater and vaudeville to publishers and marching-band leaders. While no analysis can possibly take full account of every user category, it is essential to recognize that social construction of a technology involves a large number of user groups, no two of which share the exact same interests.

Concerted attention to the concerns of distinct user groups constitutes a hallmark of crisis historiography. Traditional technological history employs what might be called a “single-ledger” approach to specific events: each event (invention, patent, law, experiment, commercialization, contract, etc.) is measured from a single standpoint: its contribution to the eventual development of the technology under study. Crisis historiography utilizes instead a “multiple-ledger” approach. Individual developments are evaluated according to the contribution that they make to *each* user’s ledger, with the attendant possibility—indeed probability—that a gain for one user group will represent a loss for another. This multiple nature of social construction guarantees the dynamism of every crisis. Jurisdictional conflict always involves a series of attempts on the part of major users to define the new medium in a way beneficial to them. Rarely is the outcome of this process a winner-take-all affair. Because the negotiation is complex and multisided, rather than an epic one-on-one clash, establishment of an acceptable, durable solution usually depends on discovering an arrangement that simultaneously satisfies a maximum number of users (though crisis resolution

sometimes involves the literal annihilation of weak user groups, like mid-teens song slide manufacturers or late twenties theater orchestra musicians). It is impossible to understand the terms and reasons for crisis settlement without multiple-ledger analysis.

A few general comments about crisis historiography are in order at this point. In one sense, the crisis pattern outlined above is simply a hypothesis about the processes whereby new and virtually unknown technologies give rise to now familiar commodities, and in particular whereby new representational technologies (sometimes) become established media. Though the crisis historiography model was derived from analysis of film sound, it may usefully be applied to a wide range of cultural phenomena, thereby revealing hitherto unrecognized relationships, thus helping not only to explain the history of the object or medium under analysis but also to organize the vast quantities of information required by that analysis. Crisis historiography is thus more than just a hypothesis about how the world works; it also provides a methodology appropriate to in-depth study of those workings. Within this book, crisis historiography provides a framework for understanding not only cinema as a visual medium but also the more specific developments of film sound. Recognizing the role played by social construction in the development of any new technology, I have paid particular attention to the existing structures and habits against which the new technology was measured. I have thus devoted two full chapters to the extremely diverse pre-cinema sound practices that served as early models for film sound. Instead of searching at every point for average or standard practices, I have insisted on attending to the extraordinary variety of sounds associated with early cinema exhibition, thereby facilitating recognition and analysis of the mechanisms and motivations underlying cinema sound’s eventual standardization. Rather than stress the royal road of successful innovations contributing to the relatively stable sound style of silent cinema’s final decade, I have followed crisis historiography’s mandate to consider unsuccessful experiments and

short-lived practices, in order to reveal the identity and investments of all those seeking jurisdiction over the cinema soundscape, along with the nature and magnitude of the benefits accruing to the participants. In a very real sense, then, *Silent Film Sound* is two books in one, a full-length demonstration of crisis historiography overlaying the first attempt to write the full history of silent film sound.

Briefly, the hypothesis that I investigate in the following chapters may be summarized as follows. When cinema first entered onto the scene, there already existed many different and potentially contradictory models for the way in which the new technology should use sound. Instead of adhering to a single prototype, cinema borrowed from many existing systems, according to the identities with which the new medium was associated. For a protracted period, lasting almost two full decades, film sound retained the somewhat chaotic diversity that its multiplicity of models dictated. Not until the late aughts was cinema sound subjected to active jurisdictional conflict, through repeated innovations and standardization attempts. After the turn of the decade, industry efforts to limit the range of sound practices eventually resulted in a new accompaniment mode. Whereas each aspect of this standard approach may be trace-

able to some prior practice, its particular combination of approaches never previously existed. In other words, we are not dealing here with influences in the traditional sense, where a practice is understood as “borrowed” by one medium from another, but with a far more complex situation involving the triumph of one potential borrowing over—or compromise with—others. A close look at the media that preceded cinema not only helps explain how individual cinema sound practices arose, it also confirms that teens film accompaniment standards in no way replicated any of the systems that preceded cinema. Ironically, once cinema had developed a standard approach to accompaniment, forcing the abandonment of several previously popular practices, exhibitors created a series of backdoors, offering new life to formerly favored approaches. To the classicism of mid-teens approaches, the full film program of the twenties responded with a new level of variety. Yet even this overdetermined solution was unable to satisfy all interested parties. Just as the silent film program and practices appeared to be stabilized, the emergence of new sound technologies plunged cinema into a renewed crisis, which would be solved only by the industry’s eventual conversion to synchronized sound.