What Made Pistachio Nuts?
Henry Jenkins

Showstoppers: Busby Berkeley and the Tradition of Spectacle
Martin Rubin

Projections of War: Hollywood, American Culture, and World War II
Thomas Doherty

Laughing Screaming: Modern Hollywood Horror and Comedy
William Paul

Laughing Hysterically: American Screen Comedy of the 1930s
Ed Sikov

Primitive Passions: Visuality, Sexuality, Ethnography, and Contemporary Chinese Cinema
Rey Chow

The Cinema of Max Ophuls: Magisterial Vision and the Figure of Woman
Susan M. White

Black Women as Cultural Readers
Jacqueline Bobo

Picturing Japaneseess: Monumental Style, National Identity, Japanese Film
Darrell William Davis

Attack of the Leading Ladies: Gender, Sexuality, and Spectatorship in Classic Horror Cinema
Rhona J. Berenstein

This Mad Masquerade: Stardom and Masculinity in the Jazz Age
Gaylyn Studlar

Sexual Politics and Narrative Film: Hollywood and Beyond
Robin Wood

The Sounds of Commerce: Marketing Popular Film Music
Jeff Smith

Orson Welles, Shakespeare, and Popular Culture
Michael Anderegg

Pre-Code Hollywood: Sex, Immorality, and Insurrection in American Cinema, 1930–1934
Thomas Doherty
One of the most important characteristics of the classical cinema is surely its stability over time. As I argued in chapter 3, scholars such as David Bordwell, Janet Staiger, and Kristin Thompson have shown how a paradigm of bounded and hierarchically ordered formal options structured filmmaking during the classical period, and how the dominance of a particular form of efficiently conveyed—and profitable—narrative ensured the paradigm’s hegemony. They further show how the structure of industrial production ensured the interchangeability of personnel and therefore a kind of stability regarding the practical aspects of filmmaking. While this may be an adequate account of the resulting formal and industrial paradigm, it does not explain how that paradigm came to be internalized by those workers whose everyday task it was to produce the representations on which Hollywood thrived. Although in the abstract it is easy to understand why the economic success of clearly told stories of goal-oriented, heterosexual, middle-class protagonists mandated the paradigm’s primacy in a profit-seeking capitalist corporation, and that the formal conventions of what came to be known as classical continuity cinema were especially (if not uniquely) suited to this form, it is more difficult to explain how the representational assumptions and norms necessary to this style of filmmaking came to form the instinctive or obvious solutions to the various representational problems raised by any particular script.

Previous attempts to describe these formal conventions as, for example, a collection of arbitrary “codes” have more often than not led us away from the kinds of analyses that would explain how the classical paradigm actually came to regulate aesthetic practice on the set. Teach a group of students the rules or codes of continuity cinema, and they will be able to dissect any number of scenes from any number of Hollywood films. Chances are, however, they will not be able to make a film whose spatial constructions and match-on-action cuts have the fluidity and clarity of a Hollywood film. For technicians, it is not a question of understanding these films and their norms per se, but of internalizing them as a material form of practice—a job, if you will. This complex and flexible form of knowledge is crucial to workers whose livelihood requires them to make the “right” decisions about lighting, framing, and editing from nine to five, six days a week, yet it is nearly impossible to formalize.

Nevertheless, the norms of classical continuity construction were internalized by workers in the studio system as what Pierre Bourdieu calls a “durably installed generative principle of regulated improvisations,” or, more simply, as a consistent and coherent set of predispositions toward a particular kind of practice. Workers do not consciously devise these norms, these “ways of doing,” nor do they exhibit a conscious mastery over them—they arise out of preexisting, objective, material conditions of the social world. As a result, such practices have an objective significance that outstrips the conscious intentions of the practitioners, yet the practices themselves cannot simply be reduced to those objective conditions. Instead, they exhibit a regularity and consistency, perhaps even a structure, that is compatible with the conditions that produced them. The dispositions toward practice characteristic of Hollywood technicians are, in Bourdieu’s words, the universalizing mediation which causes an individual agent’s practices, without explicit reason or signifying intent, to be nonetheless “sensible” and “reasonable.” That part of practices which remains obscure in the eyes of their own producers is the aspect by which they are objectively adjusted to other practices and to the structures of which the principle of their production is itself a product.

By citing Bourdieu’s perspective on this issue, I do not mean to suggest that technicians do not consciously try to conform to the conventions of continuity or to standards of beauty, or that they do not work with an eye toward the significance of their decisions. On the contrary, I believe this consciousness, indeed self-consciousness, is an integral part of the modus operandi of the Hollywood professional. Further, much of the character of classical films
can be explained as deriving from conscious attempts to adhere to these widely recognized norms. What I do mean to suggest, however, is that even these intentional choices are structured in advance by conditions of which the worker is necessarily unaware. The shooting angles selected by a cinematographer may be explained by an adherence to, for example, the 180-degree rule. However, the implicit values shaping the decision to shoot the faces under particular lighting conditions, the sense of the proper way to shoot a shot-reverse shot sequence, or most simply, the very bounds of the obvious, the reasonable, the possible—the taken-for-granted—are not consciously or intentionally decided. To be sure, they are all compatible with the articulated principles of filmic construction, but not fully explainable by them.

The analysis to follow will concentrate on a very concrete and particular moment within the history of the American cinema: Hollywood’s transition to sound film production. The period from 1926 to 1934 saw the film industry undergo the most extensive transformations in technology, personnel, formal conventions, and mode of production in its history. As several scholars have pointed out, however, the classical continuity system emerged at the far end of this transformation relatively unscathed. Nevertheless, I will argue that this apparent lack of change does not permit us to ignore the processes by which a new technology and a new set of representational standards were integrated into an existing industrial mode of production. The transition period is especially enlightening because the intersection of two major representational industries—Hollywood and the phonography/telephony businesses—allows us to highlight the otherwise occulted norms guiding representational practice in both fields. The clash between competing norms of representation as embodied in technicians’ differing standards of correct practice forced each industry to examine the logic underlying the apparent obviousness of its own aesthetic ideals. The self-evidence of these norms comes under serious scrutiny as the two groups struggle to articulate their own rationale for conventions of practice and their justification for maintaining these conventions in the face of overwhelming pressures to change.

As each group attempts to clarify and legitimize the practical norms that define it professionally, we may examine the role that informal or vernacular theory—which we might also term aesthetics—plays in the regulation, justification, and reproduction of workplace practices. We may discover the extent to which these articulated goals and standards neither match nor fully account for the variety of practices they ostensibly authorize. In addition, we can see how ideas of professional identity are complexly imbricated with allegiance to a particular aesthetic and, I would argue further, the technician’s “misrecognition” of himself in the ideals it represents. The technicians’ misrecognition is by no means a result of their ignorance, but rather of the historical relationship established between science, engineering, corporate capitalism, industrial forms of research and production, and labor relations. Therefore, I will make larger claims about the role played by aesthetics in science, in basic research, in the structuring of representational industries, and in the development, implementation, and normalization of representational technologies. Ultimately, it is not so much the devices that define the cultural and historical impact of a technology than the practices that regulate, define, and determine it that are of utmost importance.

**Theory and Practice**

During Hollywood’s transition to sound, technicians’ duties often seem almost evenly split between working on the set and writing theoretical treatises on sound representation. Rarely have technicians been so forthcoming with their opinions on the logic and conceptual bases of filmic construction, and even more rarely has the theoretical arena seemed so central to Hollywood filmmaking. Page after page in scientific and industry journals emphatically promote competing aesthetic models based either on phonographic fidelity or telephonic intelligibility, but why? What function did the articulation of aesthetic norms and standards play? Far from being incidental or epiphenomenal, technicians of the period seem nearly obsessed with articulating their positions on questions of representational illusion, accuracy, propriety, and validity. Advocates of competing models of sound representation justify their nearly antithetical aesthetic allegiances in the name of the same putative standard—a supposedly transparent “realism”—despite the utter incompatibility of their different norms of recording and reproduction. Put more complexly, each naturalizes his own ideals of practice by demonstrating their compatibility with a particular notion of representation that is described as obvious and as scientific, and which comes to stand as the paradigm for all acts of representation, no matter how diverse. Realism of a very particular sort thus served both to structure technical and aesthetic debates and simultaneously (if circularly) to measure the validity of practices by masquerading as a universal category of evaluation.

The importance of realism as a category of analysis and evaluation was not restricted to the field of aesthetics, but infiltrated and shaped the course of industrial research and the development of techniques as well. Bordwell
and Staiger, for example, have pointed out that “realism” was explicitly adopt-
ed as an industrial goal, but they add this proviso: “As for realism . . . this too
was rationally adopted as an engineering aim—but wholly within the fram-
work of Hollywood’s conception of ‘realism.’” In fact, it is precisely because of
a conflict between Hollywood realism (which stressed formal unity and nar-
native plausibility) and the (perceptual) realism advanced by engineers com-
ing from the phonograph, radio, and telephone industries that the transition
from silent to sound cinema is so complex and interesting. Despite their com-
mon recourse to the standard of realism, we might even go so far as to say
that the dominant model of representation in each community was so at
odds with the other that effective collaboration between them seemed almost
ruled out from the start. However, the sound engineers’ professional identity
was so completely bound up with their notion of perfect representation
that the compromises between them and their Hollywood counterparts neces-
sary for an efficient system of sound film production required complex
negotiations. In other words, workplace relations were worked out, in part,
within the field of aesthetics.

The relationship established in this period between the theoretical and
practical realms, and between the sorts of statements appropriate to each, is
indicative of shifts in the technician’s social, economic, and professional
position. To demonstrate this, I will examine the category of realism so central to
both the representational practices of the period and to current ideological
critiques of Hollywood and will show it to be multiple in nature and subject
to fierce debate. Rather than a unitary and stable category of bourgeois ide-
ology that floats above all representational practice, determining it in a uni-
form and insidious way as apparatus theory suggests, the category of realism
is one of the prime sites of cultural struggle and appropriation since it serves
to legitimate representational regimes and reaffirm dominant understandings
of the world.

The two understandings of realism in sound representation basic to the
transition period embody different conceptions of the epistemological and
referential properties of sound representations felt to be constitutive of
“good” representational practice in general. Theory, which could easily be
understood as secondary to the real relations and functioning of the social
world, is precisely the terrain upon which certain terrifically important cul-
tural and political struggles are fought—battles over the nature of acoustic
and visual reality and, as I argued in chapter 2, over the proper relationship
between the senses, technology, and representation. If nothing else, historical
debates over realism set the boundaries for the manner in which a record-
ed sound could be understood to refer to the audible world, and therefore
authorized a circumscribed range of “legitimate” understandings, uses, and
practices.

The historical development of the American recording industries and the
rise of a particular sort of engineer within these industries almost required the
debate over proper representation to take center stage because the theories
implicitly held by those engineers helped to structure the entire field of aesthet-
ic goals and options. It also shaped the course of technological develop-
ment in specific ways. Thus, the connection between theory and profession
is far from arbitrary. Ultimately, the changing contour of the sound repre-
sentation debate also indicates the changing nature of the engineer’s per-
ceived role. As engineers from nonfilm corporations came to perceive their
own identity as tied to the corporate success of Hollywood studios rather
than, say, personal achievements, or the success of Bell Labs, they became
“sound men” rather than engineers. Concurrent with, required by, and to
some extent, constitutive of this shift is a shift in their standards and expecta-
tions for sound representations. By investigating the contradictions between
initial theory and resulting practice we can, perhaps, reimagine the link
between social structure, text, and subject posited by apparatus theory without
having to resort to the vague pressure of an ideological demand for real-
ism. The link between social relations and representational norms is, I
believe, far more material and demonstrable.

THE “INVISIBLE AUDITOR”

What exactly was the dominant representational model for sound? An early
and representative statement of such a theory comes from Bell researcher
Joseph P. Maxfield (soon to head Bell’s ERPI [Electronic Research Products
Incorporated] division) in a 1926 article on sound recording:

Phonographic reproduction may be termed perfect when the components
of the reproduced sound reaching the ears of the actual listener have the
same relative intensity and phase relation as the sound reaching the ears of
an imaginary listener to the original performance would have had.

This could be called the “invisible auditor” approach to realistic sound repre-
sentation. As late as 1934, and in spite of years of practical experience to the
contrary, Harry Olson and Frank Massa of RKO claimed that the ideal record-
ing/reproducing situation would involve placing dummies with microphones for ears in different places around the set and recording multiple tracks. Theatrical playback would require multiple stereo tracks, with each signal routed to the seat in the audience corresponding to the literal position of its respective dummy at the original performance on the set. Beyond its extraordinary technical complexity (and cost), this model implies several rather startling beliefs. These writers assume, first, that movies work by offering discrete individuals something like a theatrical experience of each shot or action; second, that the spectator identifies his or her “position” with that of the mike/camera; and third, that movies are a succession of discrete, autonomous, and perceptually specific “observations.” Perhaps most significant, these engineers assume that the film spectator/auditor is literally a part of the same space as the “original” performance. This model further implies that the space and acoustic quality of the set are identical with those of the represented world. In brief, the mechanical eyes and ears of film production are linked in a surrogate and wholly simulated body located in identical positions on both the set and in the represented world. While using a different vocabulary than their nineteenth-century counterparts, they clearly assume that sound recording is a simulation of real human hearing, thereby familiarizing the inherently alienating process of sound representation.

One practical result of this aesthetic of absolute perceptual fidelity is that each take is to be treated as a unique and autonomous event rather than a part of a more or less homogeneous series. Hence, the acoustic quality of every take was assumed to be a function of its unique conditions of production, and thus not necessarily related to the quality of the preceding or following take. The basic representational unit of coherence from this perspective was therefore the shot (understood as a discrete perceptual experience) rather than the scene.

To put this yet another way, the specificity of each proilmic performance—the actual space, the actual distance of the camera/mike from the actor, and so forth—provided the principle of representational unity for each take. In practical terms, the invisible auditor or embodied-audience-member approach entailed a variety of related concepts and techniques, including the often-expressed desires for “scale matching” and for sound “perspective,” which entailed “looking” and “listening” to the proilmic performance from the same position. Although the practice of systematically matching long shots with distant miking and close-ups with their acoustic counterparts was probably never practiced with any regularity, much of the technical literature continually stressed scale matching as an “obvious” goal, since it respected the bodily integrity of the supposed “observer.”

Joseph Maxfield offers a succinct statement of the principle in a 1930 essay for the Journal of the Society of Motion Picture Engineers. “The problem to be solved is that of obtaining a sound record which correlates with the picture in such a manner that a member of the audience is given the illusion of being an actual spectator in the scene.” Following Maxfield’s lead, in 1930 John L. Cass, an RCA engineer, decries the use of multiple microphones for a single shot since the resulting sound record represents the sound as “heard by a man with five or six very long ears.”

Likewise, in 1931, Carl Dreher suggests that “good reproduction requires a loudness level approximately equal to what a normal auditor would expect on the basis of his experience.” Although reasonably referring his standard to auditor expectations, Dreher neglects to point out against which experience to measure the appropriate volume of, say, romantic conversations between couples we have never met.

Of course, this particular version of the theoretically ubiquitous “invisible observer,” which assumed a literally situated relationship to both proilmic performance and finished film was terribly ill-suited to narrative feature films. Pairing the mike and camera in close-up gave great prominence to the dialogue, but a cut to a long shot would introduce an enormous amount of reverberation while simultaneously risking a loss of dialogue intelligibility. The sudden changes in sound texture created by this approach were clearly inappropriate to the more homogeneous character of classical representation and narration that assumed compromises between literal fidelity and narrative clarity such as instituting narratively determined spatial hierarchies between the sharply focused foreground and the comparatively indistinct background. Indeed, as early as 1929 mike booms had been designed to follow actors around the set, negating in practice the theoretically dominant invisible auditor principle. The use of directional mikes and soundproofing also put the lie to the model of utterly faithful sound duplication. So why did this model persist well into the 1930s? What did it offer?

Perhaps the best answer is that scale matching offered a coherent set of tools and predispositions for conceptualizing, describing, ordering, and evaluating representational practices. So, for example, when attempting to explain the concept, Wesley C. Miller of MGM tells his readers that

the amplification of the sound must be just enough to fit the picture size. Probably the best way to express this is to say that any combination of picture and sound must be so proportioned that the latter sounds natural coming from the artificial person on the screen.
By offering the description of an effect in the guise of its cause, Miller expresses a desire shared by dozens of other engineers, namely, to describe, in terms of realism or illusion, the effects of classical narration. That is, rather than recognize that the governing criterion in a given representational situation was narrational, and the goal of a particular technique rhetorical, engineers routinely appealed to the necessarily vague but presumably objective aesthetic of “realism.” Given a particular representational problem for which his aesthetic is unsuited—say, the incompatibility of the phonographic model of sound space with the demands of classical image editing—Miller reconsiders the necessary representational modifications through the intellectual, perceptual, and cognitive categories readily available to him. Although another set of categories would not have been beyond his grasp, those that were ready-to-hand, and ingrained as habits and basic dispositions, were far more comfortable and familiar because based upon standards appropriate to phonographic recording and listening. Thus, the invisible auditor model of cinematic narration offered a convenient logic of day-to-day practice that was consistent, logical, practical, and simple, and which ordered the almost infinite possibilities of sound representation into a small group of probable and “good” techniques while excluding the rest as improbable or simply bad. Its universal application allowed theoretical explanations for qualitative judgments—it gave aesthetic evaluations a quasi-scientific basis. Simply put, it offered mental equipment, mental habits, and a standard for the profession.

AESTHETICS AND “BASIC RESEARCH”

Now any number of norms or aesthetics could have performed this function. Why the perceptual fidelity model to the exclusion of others? In retrospect, this “mistake” seems tightly bound to the engineer’s status in institutions like Bell Labs and, later, in the studios. One of the standard explanations for the “delay” in integrating recorded sound with the classical cinema has been the belief that sound engineers insisted on dominating all decisions on movie sets to the detriment of, for example, familiar acting and shooting techniques. So intense was the conflict between sound engineers and cinematographers that both groups referred to it in military terms and both vociferously blamed the other for cost and schedule overruns. The legendary conflicts between sound engineers and virtually every other worker on the set bear witness to struggles over professional identity and responsibility and over the representational standards developed over time within the competing technical and industrial cultures. The very fabric of these professions is woven out of the aesthetic norms and theories held by its members and implicitly respected in their day-to-day practice, and these norms shaped not only the evaluation of devices and techniques but also helped set the agendas for corporate investment and research.

The representational norms characteristic of engineers within the sound industries were partially, but definitively, determined by the economic situation of the larger corporation. By setting the objective conditions for research, development, and implementation, these corporations determined in a practical sense the limits of the reasonable, the thinkable, and the possible for its employees. Even though the research agendas of sound researchers at other institutions might, in fact, have differed little from those at, say, Bell Labs, the latter company wielded enormous power in setting these agendas. Bell researchers did not skew their research to suit some arbitrary needs of their employers, but, to quote Bourdieu again,

because the dispositions durably inculcated by objective conditions . . . engender aspirations and practices objectively compatible with those objective requirements, the most improbable practices are excluded . . . as unthinkable, or at the cost of a double negation which inclines agents to make a virtue of a necessity, that is, to refuse what is anyway refused and to love the inevitable. 16

The bulk of research and commercial development in the sound industry was carried out in firms like Bell Labs, where economic interest in all phases of sound technology, from mikes to amplifiers, to disks, to loudspeakers, encouraged certain forms of commercial exploitation while it downplayed other options. Particularly profitable forms were the Orthophonic Victrola and the Vitaphone disk-based system for sound film production, both outgrowths of Western Electric’s long-standing interests in the music industry. Given that early research into both recording and reproducing was geared primarily toward music, the heuristic of the invisible auditor was a fairly obvious one to adopt. It made perfect sense in phonography to duplicate as closely as possible the experience of an auditor in a concert hall, sensitive to all nuances of tone, performance, reverberation, and volume. So important a criterion was the concert model of audition that advances in recording technology were often praised for allowing the recording situation to approximate more closely the concert situation in physical and acoustic terms. 17 This standard meant that the represented event, acoustic space, timbre, etc. should
duplicate the original, and that the auditor was conceptually and practically a part of the space of representation—literally a witness to the performance. Thus the demands of one social practice of sound production and reception, those typical of serious concert music, shaped the theorization of a whole range of sonic phenomena.

Adopting the concert-listener as the universal standard had a number of practical implications, ranging from microphone selection and placement to concerns about the propriety of sound editing and mixing (which were, as a rule, forbidden). Yet from the outset engineers seemed to ignore the letter of these implied laws in the face of specific practical exigencies. For example, Maxfield notes that the reverberation long considered appropriate for piano performance seemed excessive when recorded, and therefore suggests that some manipulations of the original space of performance "can simulate to a considerable degree in the reproduced music, the effective space relationships of the original." Two significant contingencies are introduced here through the back door, as it were. First, we are forced to recognize immediately that we are dealing with a highly conventionalized and highly constructed original event. We might say that this is sound produced for representation—that is, with a certain representational, rather than "pro-phonographic," effect in mind. In other words, as we saw in chapters 2 and 4, the original sound around which the theory of "correct" representation is built is itself manipulated in order to ensure a certain representational effect. It is therefore in no simple way a pure original that can be either faithfully reproduced or "distorted" by recording. Second, it is the "effective space relationships" that are now preserved rather than actual ones. The latter point implicitly acknowledges that certain representational standards of accuracy or correctness can be derived only by reference to relations established within a given representation, rather than by way of some actual original performance. It further suggests that representational effects are not necessarily a function of that original, and that they are conventional, signifying relationships—not absolute ones. Thus no absolutely transcendental categories of evaluation determine effective fidelity, even among the proponents of this model.

Of course, in spite of its profits from phonography and film, Bell's primary investment lay in telephony, which obviously had acoustic requirements different from those of music recording. There a different practice ensued. Implicitly recognizing the social use of sound embodied in telephony, engineers felt entirely comfortable sacrificing 60 percent of the voice's acoustic energy (the lower frequencies) because they lost only 2 percent intelligibility in the bargain. The functional primacy of intelligible speech enabled telephone systems to reduce drastically the amount of power required for transmission while retaining the ability to transmit voices with acceptable clarity. Nevertheless, the sort of research that allowed such telephone compromises—basic inquiries into the nature of sound and hearing in the abstract, as they had been defined by science—paradoxically encouraged engineers and technicians to conceive of all forms of sonic representation, regardless of function, as involving actual, attentive listeners, uniformly sensitive to all measurable aspects of the sound event, and situated characteristically as audience members.

In other words, sound engineers assumed that all sound representations must take into account the physical and physiological circumstances of an ideally defined listening situation—more or less that of the educated symphony listener—and attempt to replicate those conditions in all their complexity (binaurality, perception of source position through reverberation, phase and volume differences between ears positioned a fixed distance apart on an unchanging head, and so on—that is, the scientific definition of the relevant parameters) in order to achieve a satisfactory simulation of actual presence at the original production of sound. Engineers uniformly insisted on the universal applicability of this fully embodied and fully attentive model of hearing, despite the fact that millions of people every day were listening to telephones with one ear, on instruments with severely restricted frequency characteristics, with no complaints. In the face of the telephone's remarkable integration into everyday aural experience, and its ascendancy as the dominant means of electronic communication, even the modifications to frequency response that saved transmission power and gave phones their characteristic tone was constrained, in one researcher's words, by "a loss of naturalness." The lab that could measure speech intelligibility in percentages was restrained by the very unscientific concept of "naturalness," which not even they could quantify.

The use of so fuzzy a term in a highly technical engineering journal indicates not so much a philosophical or scientific failure on anyone's part, but rather the extent to which implicit and explicit standards of representational accuracy, legitimacy, or simply "goodness" guide even the most scientific of attempts at objective evaluation. Technicians' ingrained and relatively unexamined beliefs about what constitutes a good representation or the acceptable limits of deviation from that ideal profoundly shape both the character of the representations they create and the representational devices they design. As the case of the telephone makes clear (although much the same
could be said of the microphone, the amplifier, and the loudspeaker), the very design and application of devices is measured against the sort of norms deemed “obvious” by the dominant representational model, however inappropriate it might be in practical terms.

The competing models of representation implied by phonography and telephony could or perhaps should have suggested that representational norms were based in part on a sound’s social or cultural function, but telephony was nevertheless routinely considered a “special case” deviation from the ideal of absolute perceptual fidelity. So, rather than offering a competing paradigm assuming the primacy of communication or information, the telephone was subsumed under the fidelity aesthetic, with the result that this norm went unchallenged. This led to the imposition of a method that was not obviously a concern. Other cracks, however, began to appear in the phonographic or invisible auditor model, as when Maxfield counseled engineers to alter the characteristics of the original space in order to obtain an acceptable record. That is, Maxfield suggested they manipulate the original or pro-phonographic space in order to produce the effect of listening in the “proper” (or functionally appropriate) space. Here an adequate representational space is possible only by disguising the characteristics of the actual space, and the supposedly necessary link between actual and represented space is decisively severed. In fact, all around Hollywood carpenters were busy deadening sound stages to eliminate extraneous but altogether natural sounds that a fidelity-based model would, ideally, wish to preserve. These deviations from the ideal were not felt to be impositions on proper technique despite being acoustic manipulations as overt as multiple miking. I would suggest that by restricting their definition of representation to the act of inscription, engineers could comfortably maintain a certain adherence to the fidelity model while still allowing manipulations to the set and therefore to the final product. They were, after all, faithfully recording the resulting sonic event. Thus, Maxfield could continue his insistence on a fidelity model long into the 1950s when stereo musical recordings emerged.21

A variety of justifications of this sort helped to make the invisible auditor norm a bit more flexible in practice, though never really challenging it in theory. Since professional representational standards assumed that the engineer was an operator of equipment, or simply a recordist, the various processes of representation could easily be reduced in theory to the simple act of technological inscription. Although the auditor model assumes no prioritizing activity on the part of the recordist, the sonic hierarchy characteristic of an orchestral performance in a concert hall offered the recordist an event that was already strictly ordered so that a simple recording sufficed to achieve the desired hierarchical or rhetorical effect. A soundproofed set completely lacking in reverberation achieved a similar ordering of the sonic realm in the movies. Thus, an engineer could simply delimit his own field of responsibility to the act of recording, thereby assigning professional jurisdiction over the set to carpenters and designers (while nevertheless exerting decisive control over their work), and still adhere to his own ideal of proper practice. While this approach allowed engineers to achieve Hollywood’s characteristic sonic hierarchy without altering their presumed standards, it did not result in the most flexible or efficient system possible. That system would await a redefinition of the relation between the profilmic event and the represented event, and of the basic level of the representational unity. Crudely put, technicians needed to escape the equation of unique profilmic event and unique representation and recognize, as Edison employees had two decades earlier, that the represented world need not correspond to any actual world, nor need the individual shot remain the basic representational unit. In the classical film the diegetic unity of a multishot ensemble typically takes precedence over the literal fidelity of any single shot. In short, engineers were forced to redefine their function as representation or construction rather than duplication.

**Aesthetic Norm and Professional Identity**

When engineers arrived in Hollywood, however, a steadfast adherence to the norms they brought from phonography and radio quickly placed them in conflict with other technicians, especially cinematographers and editors. Frank Lawrence, then president of the editor’s union, described this “war” as a kind of “Armageddon” caused by engineers, or “sound experts” who were “hopelessly ignorant of the existing public demands and high artistic standards of the motion picture production world.” He amplifies his claim thus:

Every blooming sound expert in the entire world is at present convinced that the only way to make satisfying sound pictures is to sacrifice every other feature of value in Filmland to the proper recording of sound. . . . [The] more experienced divisions of motion picture production [should not] permit such rot. . . . Sound experts will have to get in step with the motion picture fraternity.22
In other words, while such practitioners might legitimately be thought of as experts in their field, they had not yet realized that their field had changed, nor that the norms appropriate to one representational culture might be inappropriate to another with its own equally coherent set of standards and assumptions. Although sound engineers considered their own standards to be objective and universal because those standards were scientific, they neglected the extent to which even their scientific categories were shaped through aesthetic assumptions and were therefore anything but transcendental and neutral. Sound engineers’ strict adherence to their self-imposed and undoubtedly high standards confirmed them as experts of a certain type, but it hobbled them when they moved to a new sonic culture, such as that defined by Hollywood’s demands.

Almost in response to Lawrence, L. E. Clark addresses the conflict over aesthetics and technique explicitly in terms of professional standing. After noting that sound recordists were typically denied screen credit and that this low esteem enforced a cycle of degenerative neglect, he locates the root of the dilemma in the differing technical “cultures” to which cinematographers and engineers belong:

Very few of us were originally from the studios; we came from the electrical laboratories, from the telephone companies, from radio broadcasting studios and chains, and from engineering colleges. We knew little or nothing of the conditions within the motion picture industry—and cared little about them. We were engineers—and proud of it. Our business was to install and operate the recording equipment, not to make pictures per se…. The sound man, [simply] places his microphone, and adjusts his circuits to get a good, commercial record—and lets it go at that.24

He argues in conclusion that such soundmen exhibit an “apathetic attitude toward the artistic phases of picture making.”24 Another possible explanation for the slowness with which sound engineers integrated themselves into the Hollywood system avoids assigning blame or labeling one group or another as less than professional, while it still accords with the evidence. Perhaps sound technicians’ stubborn maintenance of engineering standards can be better understood as a strategy for protecting the quality of their work and thus their professional standing. Such apparent intransigence might then seem instead a refusal to perform their work in a less than professional manner. Indeed, there is a wealth of evidence to suggest that they felt themselves professionally under siege.

A cartoon in the August 1929 edition of *American Cinematographer* entitled “The Age of Alibi,” humorously portrays the perception shared by all technicians that the new combination of sound and image was causing movie quality to suffer and that someone would be required to play the scapegoat.25 Professional standing and even careers were clearly felt to be at stake over the issue as was, not incidentally, the continued profitability of the industry. The cartoon’s second panel shows a sound man next to a cactus proclaiming, “AT LAST—the ideal place for my microphone,” referring to the results of a contemporary survey conducted by the American Society of Cinematographers (ASC) that asked both cinematographers and sound engineers for their opinions on the current dilemma. When asked for the ideal microphone location for recording, sound technicians replied, “the middle of the Mojave Desert, unhampered by cameras, walls or any other disturbing elements.”26 (See figure 5.1.) Beyond the obvious renunciation of any recognizable standard of realism or illusion, the wish for an utterly

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**FIGURE 5.1**
The Vitaphone camera in its soundproofed “ice box.” (© Warner Bros., a division of Time Warner Entertainment Company, L. P. All Rights Reserved)
unimpeded arena for sound recording indicates that the attempt to pair sound and image had placed the two sets of technicians in sharp and apparently irreconcilable conflict with one another.

In response to the discord, each group struggled to maintain its self-defined standards of quality by taking every opportunity to shape the conditions of the workplace and the techniques practiced there, and thereby ensure a high-quality (visual or sonic) record. In order to avoid further conflict and loss of profits, both the ASC and the Academy of Motion Picture Arts and Sciences (AMPAS) created forums for debate and reconciliation. AMPAS went so far as to set up a special Producers-Technicians Committee headed by producer Irving Thalberg and engineer Nugent H. Slaughter. In order to ensure that everyone on the set worked from roughly the same set of assumptions about sound recording, AMPAS also established a series of courses on principles of sound recording and reproduction that were open to personnel from all parts of the industry, from writers to cinematographers. Working through the Continuing Education Program at the University of Southern California, at least nine hundred employees completed the program in approximately two years. One of the chief merits of the program as far as academy executive Lester Cowan (and, the evidence suggests, Thalberg) was concerned was the opportunity to train current studio employees to become soundmen instead of importing them from other industries.27

Such classes and forums for discussion did much to alleviate tensions and delays on the set, but given the entrenched norms and practices of the studios, it was ultimately the engineers rather than actors, directors, and cinematographers who would have to compromise the most. While the engineer's supposed “intransigence” can be understood sympathetically as a resistance to Hollywood's particular form of mass production that maintained "craft" standards of work in a factory environment, in the end the engineer had to capitulate and, as it were, make a virtue of necessity. The phonographic assumptions shared by so many engineers were based on an inappropriately literal notion of realistic duplication, and thus could not serve as a model for sound representation in general or for film sound specifically. The processes by which engineers negotiated the adjustment of their own standards to the reigning model is thus important for understanding the power of the classical paradigm. Among other things, it indicates how the paradigm functions not only in a positive fashion by encouraging certain norms, but also how it necessarily effects and maintains a certain exclusion and thus ensures its own regularity.

NEGOTIATION, RECONCILIATION, REDEFINITION

In a 1929 article, Carl Dreher, one of the sound field's elder statesmen, points out that unlike actors and directors in the field of broadcasting, their motion picture counterparts had not yet adopted the “broadcast viewpoint.” Radio personnel, he recounts, after similarly taking the demands of the sound engineer as a kind of professional affront (they, too, had professional performance standards to protect) gradually learned to “modify their execution for the sake of the microphone.”28 Taking a page from Edison's book, performers adjusted their techniques to the standards of the sound engineer, thereby ensuring that the representation, if not the (unheard) "original," was up to snuff.

In Hollywood, however, the situation was apparently quite different. Unlike radio, motion pictures do not rely solely on sound technologies for their existence, and therefore the engineer could not automatically assume the most powerful and authoritative role on the set. Rather than suggest that the various professionals on the set each adapt to each other's needs, Dreher argues that sound engineers capitulated early and too willingly allowed themselves to be forced again and again into impossible microphone placements in deference to camera technique. The resulting sound quality was poor and became a source of criticism directed at the particular sound engineer involved and, by extension, at sound engineers in general. As a result, the status of soundmen in Hollywood was much lower than it should have been, which hampered their ability to negotiate with directors and cinematographers.

Bolstering his arguments, Dreher points to the widespread tendency to blame sound technicians for all delays and inefficiencies on the set, regardless of whether they had actually caused them. To avoid such unwarranted criticism, he suggests careful note-keeping in order later to defend oneself and one's professional standing.29 In other words, conflicting professional and representational standards were perceived as causing such extensive disruptions that the groups of workers with less institutional power were required to expend a great deal of energy simply avoiding a loss of prestige and workplace autonomy.

The various contemporary technical journals consistently point to the connection between these struggles over professional identity and responsibility and the respective representational standards developed over time within the competing technical cultures. To suggest that "theory" is in part constitutive of the technician's identity is not, however, to suggest that tech-
nicians necessarily engaged in explicitly theoretical debate over the nature of representation in general. It does suggest that something recognizable as theory shaped the standards and practices by which groups and individuals evaluated the worth of devices, techniques, research programs, and individual representations. From this perspective, it becomes clear that Hollywood conflicts between art and science or between cinematographers or “motion picture men” and sound “experts” or “mere technicians” were in fact complex processes of give-and-take and jurisdictional renegotiation between professional groups and individuals. Each was unwilling to compromise his own standards unless convinced by a compelling argument or result—and then only if this new standard could be justified as a “practical” or “artistic” deviation. If Dreher’s conflict were to be resolved, opposing groups would need jointly to retheorize their basic representational goals of the Hollywood film.

The belief that a single ideal might serve as a universal standard for all forms of representational practice is not restricted to technicians by any means. Bordwell, for example, argues that transition-era technicians in pursuit of “sound perspective” would try to match the acoustic qualities of sound to the scale of the image. “Engineers debated how to convey ‘natural’ sound while granting that strictly realistic sound recording was unsuitable.” As a result, Bordwell continues, engineers compromised by moving mikes to follow dialogue, dubbed sound after principle recording, and so on. As evidently correct as this may be, there is a rather peculiar assumption at play here. What, after all, does “strictly realistic sound recording” mean? Do “realistic” recordings require that the mike be placed close to the sound sources or at a considerable distance? Is “realistic” microphone distance determined by an absolute measurement or does one assume a real auditor whose presumed distance from the event guides microphone practice? Surely there can be no absolute standard of realism from which to measure deviations since there are an infinite number of situations under which a sound may be produced and/or received. Moreover, since there is no absolute connection between the space in which the sound is produced (i.e., the set) and the space represented on film, the type of sound “appropriate” to the latter might be wholly different from the sound appropriate to the former.

A growing number of Hollywood technicians began to acknowledge the impossibility of employing a single standard—“realism”—for all sound work, noting as early as 1929 that one should adjust his recording style to the type of performance being represented. For example, Wesley C. Miller argues that a vaudeville performer could be recorded more “intimately” and therefore louder than another style of performer “because of the nature of his act.” Eavesdropping on a quiet conversation, however, better suits the demands and expectations of the movie audience. Whether these specific examples are “correct” is less important than the implied recognition that in a practical sense no single standard should govern all recording situations. Moreover, by including audience expectations in his equation of representational correctness, Miller notes that different modes of address shape both performance style and recording procedure—that is, different sounds have different rhetorical functions.

Less than a year later, T. E. Shea argues that “[sound] requires not only much new apparatus, but new talent and technical training, new care and habits.” Far from being a neutral site whose acoustic particularities must be respected, he adds, the “original” space should rather be understood as the first acoustic device for manipulating the recorded sound whose alteration “depends on the sound and scene to be recorded.” Another commentator writing in 1933 asserts that the importance of having the dialogue always clearly understandable goes without saying. Great care must be exercised at all times to have the sound effects recorded with the proper level to make the finished picture as realistic as possible. In an effort to create realism, we have used as many as sixteen separate sound tracks, each are carefully controlled as to level, perspective and quality, to make a pleasing composite track.

Although still measuring his success against a largely undefined concept of “realism,” Shea’s realism is created and therefore attributable to the representation and not to the performance or to the act of recording. Also significant is his belief that the primacy of dialogue intelligibility now “goes without saying.” Although from our historical vantage point this claim seems almost self-evident, the standard of realism most frequently articulated by technicians—the invisible auditor—assumed that if an actor “really” moved away from the mike and was “really” unintelligible, a realistic recording would duly record that fact. The shift in priorities evinced by Shea’s advice indicates that engineers came to recognize more fully the rhetorical and enunciative specificity of different modes of sound production and the types of realism appropriate to each. Thus, an alternative ideal—one based upon rhetorical, narrative, and diegetic functions as well as upon narrational clarity—competed with the model of the invisible auditor.
While this new tendency might indicate that the "gut reaction" of the average technician was changing, merely admitting that one might—at times—do something other than what was strictly allowed by the fidelity model did not mean that technicians had already developed a consistent logic guiding those deviations. Since soundmen did not want to believe they were applying different standards willy-nilly, they sought to validate the implied transformation of standards and practices by developing a new conceptual justification and logic of representation that agreed with both their new instincts and their new corporate responsibilities. This they found in another professional group, the cinematographers of the ASC. In a 1934 article entitled "Getting Good Sound Is an Art," Harold Lewis draws a parallel between the photographer who purposely over- or underexposes a shot, therefore departing from the "straightforward commercial ideal," and the sound recordist charged with recording film sound.

Dramatic sound-recording must in the same way often depart from the standard of the commercially ideal recording. Like the cinematographer, the Recording Engineer must vary the key of his recording to suit the dramatic needs of the story and scene.

That this needed to be stated explicitly indicates that, as late as 1934, the "commercially ideal recording" (in other words, the perceptual fidelity or invisible auditor model) still exerted its force over the mindset and professional standards of sound recordists. In contrast to the musical recordist who always seeks to record the nuances of specific spaces and performances with the greatest perceptual fidelity, the film recordist "must know how each scene fits into the pattern of the picture as a whole, what precedes it and what follows, so that he can give it the best and most dramatically expressive aural treatment possible." These particular thoughts carry an added weight because the writer was the president of the newly formed Society of Sound Engineers. The society's stated purpose was to bring the goals of sound engineers and the film industry into accord and enhance the engineers' prestige within Hollywood, much as the American Society of Cinematographers had done for its members.

The importance accorded to knowing "how each scene fits into the pattern of the picture as a whole" implies that engineers, revisiting the dilemma musicians had faced a few years earlier, had recognized that the classical film is better understood as a "pluripunctual" unity—a combination of fragments whose unity is constituted primarily at the level of their combination rather than as a collection of individual, essentially discrete, and autonomous units. An aesthetic that preaches the absolute duplication of perceptually discrete, profilmic events will place far too much emphasis on the texture and idiosyncracies of the individual shot or take by giving theoretical and practical primacy to the prerepresentational event rather than its diegetic representation.

The ideal of perceptual duplication presupposes, as I've argued, that the acoustic specificities of the original space and performance are necessarily and directly related to those of the finished representation, so that there is, conceptually at least, no distinction between the spaces of representation and reception—the ultimate movie audience is implicitly present on the set, and the finished film attempts to duplicate the experience of that observer. Yet, as we know, the classical cinema institutes a decisive break between these spaces, with the result that the represented space and time may have almost nothing in common with the actual spaces and times of production. The lack of intrinsic sonic hierarchy that the invisible auditor model implies assumes that the movie audience is, in essence, a collection of neutral observers with no preferences or expectations with regard to image and sound priority—they are simply witnesses to an untampered reality. This set of assumptions makes the connection of shots and takes into larger units extremely difficult, however, since the volume and quality of sounds may vary in any way between successive shots as a literalyzed perceiver flits about the set, following the eyes of a corporealized camera. Classical film, in contrast, thrives on the continual foregrounding of narratively important elements against a background of less important but generally "realistic" elements, and on a dissociation of camera and microphone narration from real perception.

Without the sort of sonic hierarchy implied by the demand to keep dialogue intelligible, and to minimize the perceptibility of changing relations to each shot when the pieces are edited together, it would be difficult to construct a continuous, multiunit whole. Indeed, an excessively faithful recording can render continuity nearly impossible, since any scene with a continuous background sound will appear discontinuous if cut together out of different takes. Such difficulties encouraged technicians to record only the dialogue on the set, with a mike near the actors, adding characteristic background sounds later. This allowed continuity across cuts in the overall construction of films because discontinuous lines of dialogue (or other foreground elements) would nevertheless exhibit a consistent volume and intelligibility from take to take, thereby allowing them to be placed within an artificial, dubbed, "continuous" background. This technique granted the ensemble a feeling of wholeness and uniformity despite the actual disconti-
unities of production. In other words, the integrity, and therefore the idiosyncrasies, of the “pro-phonographic” performance were usually sacrificed in the service of a higher level of rhetorical or narrative continuity.

The case of background music makes this point in an obvious way. Under the model of fidelity, which stresses above all the integrity and unity of the original performance and the individual recording of that event, multishot musical sequences would have either to be filmed with multiple cameras and a single continuous sound take (as was the case for a short time) or composed of various different performances of the same musical sequence. Since getting a single perfect performance was difficult and multiple-camera shooting expensive and inefficient, such sequences required construction. However, piecing together a composite performance out of several “real” performances (as the invisible auditor model required) meant cutting both singer and orchestra at the same time for every edit. In a 1929 discussion of volume control, Carl Drehar points out that cinema audiences have not yet become sophisticated enough to complain about “synchronized pictures in which, as the scenes [shots] change, one musical selection is abruptly broken off and another starts will [sic] full volume in the middle of a bar.” Although I have been unable to locate a scene in which such an abrupt change occurs, the example brings forward the importance of maintaining certain forms of continuity across cuts in the overall construction of films. It simultaneously sacrifices the idea that one needs to record rather than construct sonic performances. The musical performance is simply a highlighted version of a more general problem, though, since most scenes will appear discontinuous if edited together out of different takes if the narratively (and economically) mandated foreground is not accorded priority over the less important but entirely “natural” background.

Now, while such concerns and the adjustments of technique they would require might be acceptable to, say, a cinematographer, they flew in the face of the established norms and standards of sound engineers. Indeed, modifying theoretically prescribed microphone technique by, for example, moving it on a boom to follow an actor around the set (which soon became the norm in Hollywood) cannot readily be reconciled with either the practices of symphonic recording or with an “invisible observer” model of cinematic narration. Falsifying the acoustics of the set or creating an imaginary acoustic space does not at all accord with the principle understanding of realism which shapes the engineer’s self-designated technical brief—to record and thereby simulate as accurately and with as much nuance as possible, a sonic event from a stationary, audience-like position.

In point of fact, sound technicians did precisely falsify things again and again. As Maxfield pointed out on several occasions, it did not seem a professional imposition to alter the acoustics of the set in order to produce, through the taking of “a good commercial record,” a recording that had the characteristics (in terms of reverberation, for example) desired by filmmakers. If a space “really” had acoustics that were deleterious to speech intelligibility, it was deemed acceptable to change the acoustics so that a “normal” recording remained intelligible. Perhaps because set construction was not obviously the responsibility of the recordist, it was easier to justify what might otherwise legitimately be called a “deviation” from the ideal.

Of course, such foregrounding or prioritizing techniques were commonplace in concert hall architecture and thus already within the realm of the acceptable. That concert halls are acoustically unlike any other spaces, and are therefore reasonably considered acoustic devices, seems not to have entered the practical equation, as it did not enter the theoretical one, because such spaces are an integral aspect of music as a social and cultural practice. Had engineers made it theoretically explicit to themselves from the outset that acoustics were simply another instrument in the sound recording chain, and had not the bulk of acoustic research and practice been guided by the heuristic of the real, situated listener, perhaps it would not have seemed a deviation to shape film sound representations in other ways.

Given two recorded sounds with essentially the same acoustic characteristics, it would be impossible to determine whether an absence of background noises (behind, for example, a voice) was the result of elaborate soundproofing or of closely miking the actor with a movable boom. Thus, the finished products might be absolutely interchangeable. However, engineering standards of fidelity and representational correctness admitted one technique but not the other. Recording a sound event that was already hierarchically ordered according to a particular social function allowed the engineers to maintain a “hands-off” descriptive aesthetic which eschewed any overtly rational or rhetorical use of the sound apparatus, while nevertheless achieving rhetorical effects. The “untampered” original was itself already a rhetorical device.

The emphasis on recording or inscription didn’t completely solve the problem and was, in fact, something of a hindrance. Sound technicians repeatedly needed to reconcile themselves to a mode of production based not on the faithful collection of real events, but rather the construction of carefully hierarchized events whose realism is a function of their plausibility and their compatibility with conventions of narrative realism rather than li-
eral, perceptual duplication. Part of the difficulty technicians had in recognizing these facts was the widespread tendency to delimit arbitrarily the processes of representation to the simple act of recording. Commentators from many different perspectives shared a tendency to treat effects of filmic representations as if they were causal factors or as if they were conditions that existed independent of the processes of representation. A. Lindsley Lane describes his understanding of the ultimate goals of cinematic representation, through the notion of the camera’s “omniscience,” and suggests that motion picture technique should as much as possible efface itself, since a picture which
gives self-evidence of its making is not a good picture artistically and holds the chemistry of dissolution within its own structure, drawing the audience’s attention away from its story-experience purpose; is, in other words, destructive to intactness of the “illusion of occurrence,” which illusion is the psychological key to a successful motion picture-percipient experience. 49

Lane here recognizes that the goal of cinematic representation is to create the “illusion of occurrence,” that is, the represented effect of an event that seems to exist independent of the act of recording—an event that seems simply to “occur” and to be captured. This contradicts the writings of, say, Maxfield, who, seeking the same effects, still takes the idea of capturing (or “recording objectively”) as a necessarily actual process and therefore (like those early cinema producers who manufactured “real” occurrences) manipulates the original through staging in order that it can be simply “captured.” Lane sees the effect of the captured as precisely that—an effect. His insight seems not to have been shared by many of his contemporaries, although those who failed to share it should not be considered naive. In our day the belief that there is such an all-important, independent, prerepresentationational event manifests itself, for instance, in the privilege accorded the original sound in academic theory. Such tendencies in both informal and formal theory tend to neglect the extent to which all aspects of scenography can and should be understood as participating in narration—not just filming and editing.

The role of the cinematographer as a model for the sound engineer therefore takes on even more importance since his prestige in Hollywood was unargued and his standards and practices perfectly suited to studio needs. By reimagining their role as similar to the cinematographer’s, sound engineers ultimately jettisoned the all-defining “original sound” and the aesthetic of duplication it entailed and, for better or worse, set about the business of manufacturing sonic worlds whose parameters were judged mainly in terms of their internal coherence and representational functions.

Thus, by adopting the cinematographers’ justification for manipulating images and the prestige of his “artistic” deviations, engineers shifted their emphasis from producing series of discrete and autonomous units toward producing takes with an ear toward their place within a larger series of representations whose combined unity and continuity took precedence over that of the individual representation. The norm of the invisible auditor gave way to the ideal auditor. Along with this shift came a redefinition of the standards of accuracy held to be constitutive of “professional” technique. By redefining the requirements of professional identity, sound technicians accommodated themselves to the reigning norms of the Hollywood film industry and thus retained not only their standing as good engineers but also paved the way for their acceptance and advancement within that industry. So, what might otherwise seem a rather marginal debate over representational theory can be understood as a crucial element of the transformation of a large, capitalist industry. Only after sound technicians conformed their standards and their senses of professional identity and success to standards compatible with the success of their new corporate employers, could sound engineering become an integral part of the Hollywood system. Representational theory was the primary ground upon which this realignment, redefinition, and integration occurred.