
Audiovisual Ecology in the Cinema

Randolph Jordan

Tom Gunning tells us that Thomas Edison's stated goal for the Kinetoscope—to "[do] for the eye what the phonograph does for the ear"—is indicative of two concerns of the late nineteenth century: the separation of the senses popular for studies of perception, and "a desire to heal the breach" resulting from anxieties surrounding this separation (16). These technologies were born in an era in which science no longer regarded the human sensorium "as a single whole in which the various senses converged to produce a 'true' representation of the outside world, but as a bundle of processes, each subject to different physical conditions and processes of stimulation" (Gunning 14). Technologies of sound and image reproduction broke the senses free of their grounding in the human body and isolated them within devices that focused on a single sense at a time; the cinema offered the potential to re-unify these senses, albeit outside the body.

Gunning ties the "desire to heal the breach" to the myth of a total cinema that emerged shortly before these technologies were invented but which has yet to be realized, a situation André Bazin understood in 1946 when he suggested that with each new technological development, the cinema returns closer to its origins (Gunning 13). In short, the cinema was born from an idea about the potential for technology to reproduce reality in all its dimensions, a goal which fell short in the silent era but gets nearer with each new addition to the medium (sound, colour, etc.). So the joining of sound and image was an important step toward the re-unification of the senses within their technological

double. Yet, as Gunning suggests, "this recaptured wholeness must also display in some way its artificial stopgap nature, its incomplete restoration of coherence" (23). As such, myths about the cinema's abilities to wholly reproduce reality acted as a "fetish-like response in the face of a new threat of a loss of reality" under the "dissolving of the human sensorium" exemplified by these technologies (28). This is a situation that Gunning suggests we have not yet firmly come to grips with, even to this day. I argue that thinking about the cinema's divided nature along ecological lines yields a model for film sound analysis that can attest to the cinema's audiovisual totality while acknowledging the fundamental separation between sound and image that is a necessary foundation of the medium.

Audiovisual Ecology

For Michel Chion, the technical reality of cinema's dual nature has provided the basis for several decades of influential film sound theory. In his early work on the voice in cinema, Chion maintains that through the convention of lip-synchronization, "cinema seeks to reunify the body and voice that have been dissociated by their inscription onto separate surfaces,"—specifically, the celluloid image and the soundtrack—and in so doing it presents the illusion of a stable body (126). For Chion, "it is an inherent consequence of the material organization of cinema that the voice and body are at odds" (127). Yet, as Chion himself argues, to think of sound and image as separate

does little good in understanding how sound and image work together in any given film. This is why, in his quintessential book *The Voice in Cinema*, Chion proclaims that in the cinema “there is no soundtrack” (3). To talk about a soundtrack is to talk about sound as it exists separately from the image track, and this negates any discussion of the reality of most sound film: the fact that we hear sound and see images at the same time.

The history of sound cinema can be read as the evolution of how filmmakers deal with the division between sound and image, and to what extent they want to keep this division apparent or try to make it disappear. The technical divide between sound and image ensures there is always mediation between the two, and filmmakers must decide what conventions of synchronization they will adhere to, and what ideologies they subscribe to, in order to arrive at a particular approach to the exposure or erasure of this mediation. As Britta Sjogren reminds us, the very idea of synchronized sound is somewhat arbitrary, “for one ‘syncs up’ ‘non-sync’ sounds with as much diligence as ‘sync’ sounds in film production practice” (6). Audiovisual synchronization, then, is as much about the separate nature of sound and image as it is about their unification.

I refer to issues of sound/image synchronization as issues in audiovisual ecology. The term *ecology* is well-suited for my description of sound cinema as a medium simultaneously divided and whole. The most basic goal of ecology as a discipline is to study “the relationship between organisms and their environment” (Allaby iv). To understand the relationship between an organism and its environment is necessarily to understand their connection by way of their separation. Ecology shows how these organisms work as a holistic entity within any given ecosystem; yet, if we think of the ecosystem as a single entity, then there would be no need for the discipline of ecology to study it. The work of ecology unfolds on precisely the point of inextricable relationships between definitively individual organisms, each of which is also separate from the environment to which it is connected.

I propose that this basic template for ecology works well as an analogy for the study of sound/image relationships in film. Think of any given sound film as an ecosystem, and the technical divide between sound and image becomes the basis for understanding their connection in the audiovisual totality of the film. This audiovisual totality is created through the process of sound/image synchronization, the audiovisual ecology of the film. Therefore, I contend that an ecological approach to the study of sound/image relationships in film is one that acknowledges the audiovisual totality as dependent upon its divided nature, contrary to the generally holistic thrust behind most uses of the term *ecology*.

There would be little sense in adopting the analogy of ecology for use in film sound theory if we weren’t interested in addressing ecological issues within the films we analyze. I suggest that by attending to a film’s formal organization with the guiding concept of audiovisual ecology in mind, we can discover narrative themes of ecology expressed by its formal approach to sound/image relationships. And what better way to expose a film’s ecological bent than by bringing film sound theory into contact with acoustic ecology?

In her assessment of how sound studies disciplines might be useful to the film scholar, Michele Hilmes recognizes the potential relevance of acoustic ecology. In her words, acoustic ecology “could bring greater depth to that relatively untouched third dimension of the classic sound taxonomy: music, voice, and sound effects” (116). She equates the term *soundscape*, coined by R. Murray Schafer as the object of the acoustic ecologist’s study, with the idea of ambient sound in film that falls under the ‘sound effects’ rubric within the industry’s traditional division of labour. While acoustic ecology’s interest in studying the soundscapes of the world would certainly provide excellent conceptual material for studying the sound environment in which the characters of a narrative film live, this approach alone fails to achieve a truly ecological study of film sound: one that addresses the interrelationships between *all* the elements of a film’s soundtrack—the entire soundscape of the film. And, as I have suggested, the entirety of a film’s soundscape cannot be considered on its own, for in the audiovisual context of the cinema we are (almost) always looking at something while we are listening. The approach I am espousing here addresses any given film text in terms of its audiovisual ecology in which various aspects of image and sound are studied in terms of their interrelationships, not broken down into the classic taxonomy as so much film music analysis and work on the voice in cinema has done in the past.

The idea of audiovisual ecology in film begins best with another of Schafer’s coined terms: *schizophonia*, defined as the separation of sound from source via electroacoustical transmission (90-91). The concept of *schizophonia* was intended to address the power of sound technologies to disrupt the perception of both space and time within a given environment. *Schizophonia* is one element that threatens what Schafer calls the “hi-fi” soundscape. In his words, “the quiet ambiance of the hi-fi soundscape allows the listener to hear farther into the distance just as the countryside exercises long-range viewing,”—the opposite of the lo-fi soundscape in which “perspective is lost” when “individual acoustic signals are obscured in an overdense population of

sounds” (43). For Schafer, the presence of electroacoustically transmitted sound creates an artificial sense of distance while in reality contributing to the density of sound that ultimately hinders long-range listening within the environment.

Schafer’s thought is premised upon his irrational fear of 20th century technologies of sound reproduction and transmission. For him, the problem of schizophrenia is most severe when a reproduced soundscape replaces the soundscape of any given place, a nearly impossible situation

best understood through an awareness of the medium’s limitations. In audiovisual ecology, these limitations are exposed along the line dividing sound from image.

What is missing in Schafer’s account of schizophrenia is that it can be a productive incitement toward developing an awareness of technological mediation. Many artists have gravitated toward exploiting schizophrenic media in search of what Andra McCartney calls an “electroacoustic ecology”: a way of engaging with our environments that acknowledges the electroacoustic portion of the modern

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I have dubbed “space replacement” (132). Schizophrenic space replacement assumes a level of perfection in sound reproduction whereby an electroacoustically transmitted sound could be mistaken for the naturally occurring soundscape of a given environment. This is essentially a fear of virtual reality—most likely to be realized in a modern film theatre—and it is premised upon the possibility of the “vanishing mediator,” described by Jonathan Sterne as a situation wherein “the medium produces a perfect symmetry between copy and original and, thereby, erases itself” (285). Within this construction, any recording/transmission technologies should vanish from perception when listening to the final product. But mediation cannot vanish, which is why James Lastra objects to the term “reproduction” when discussing technologies of recording and transmission, and moves instead to the idea of “representation” (153). Once we acknowledge that all recording and transmission is nothing more than representation, we are in a position of reception well suited to attending to how this representation is constructed.

The goal of audiovisual ecology in the cinema is to recognize the presence of mediation as a fundamental part of the cinematic experience, rather than to address film as a medium striving for virtual reality. With audiovisual ecology in mind, we can attend to the fundamentally schizophrenic separation between sound and image in film rather than buying into the illusionist premises of audiovisual synchronization that seek to erase the line of mediation between the two—the point of suture that psychoanalytic film theory identifies as the fetish point obscuring the absent site of production. The total cinema remains a myth

soundscape as just another element to be understood and engaged with (22). Such an electroacoustic ecology is a given in the environment of the sound cinema, and the premises of acoustic ecology can be well adapted for use in assessing film as a part of the environment in which we live. Acknowledging electroacoustic ecology is the first step toward engaging with the mediation between sound and image at work in the cinema. When presented with the schizophrenic reality of a film’s soundtrack, we are in a position both to understand our distance from it, and to use that position as the foundation for recognizing sound and image as being distanced from each other by way of their technological separation. Here we can recognize that the film’s audiovisual ecology is as much a product of distance between its two main channels of transmission as our own engagement with the film is dependent upon our distance from it.

Terminological Intersections

Whether or not we agree with Schafer’s ideas about how the signal-to-noise ratio of an environment affects those living within it, the hi-fi/lo-fi distinction actually provides a very useful conceptual tool for analyzing the auditory construction of space in any given film. There is a cluster of concepts in film sound theory that engage productively with the notion of hi- and lo-fidelity soundscapes that do not fall into the problematic construction of the vanishing mediator we find in fidelity discourse. For example, Michel Chion uses the term *extension* to discuss how far into the distance a film’s soundtrack allows us to hear, the auditory equivalent to depth of field

(87). Rick Altman's concept of *spatial signature* similarly addresses the distance between a sound source and point of audition by emphasizing the fact that sound will bear the markers of the space in which it is heard (24). Both simple concepts address how filmmakers can construct hi- or lo-fi soundscapes within the diegetic world by controlling our sense of space through evocations of the distance between source and listener. As such, these concepts can be read through the ideological underpinnings of Schafer's thought to reveal ecological issues at work in the audiovisual treatment of a film's narrative.

Chion's concept of *on-the-air sound* is also pertinent to Schafer's thought as it addresses sounds transmitted electroacoustically within the diegesis, such as music coming from a character's car radio or a voice from a public address system. Chion argues that such sounds "are not subject to 'natural' mechanical laws of sound propagation" and "enjoy the freedom of crossing boundaries of cinematic space" (76). On-the-air sounds can take on different levels of spatial signature depending on whether the filmmaker intends them to be grounded within the diegetic world, the realm of non-diegetic sound, or ambiguous spaces in between.

Interestingly, the use of a spatial signature attached to an on-the-air sound can work to either ground it within the space visible on screen or remove it from that space, thereby affecting our experience of auditory extension. As Chion observes, "a certain type of unrealistic reverberation, not commensurate with the place shown in the image, can also be coded as dematerializing and symbolizing" (116). As such, the on-the-air category of sound is charged with the implications of schizophonia but without necessarily buying into Schafer's bias against the technologies that make it possible. On-the-air sound can be a celebration of schizophonic potential; its use depends upon fluctuating levels of extension and qualities of spatial signature, and as such it acts as a nexus point around which the idea of schizophonia in the cinema can be tied to descriptive tools for film sound analysis.

Consider a brief example from George Lucas's 1973 film *American Graffiti*, famous in sound design discourse for Walter Murch's handling Wolfman Jack's ubiquitous radio broadcasts, while the youth of Modesto, California in the 1950s cruise the streets with their car radios tuned to his frequency. Chion uses this film as an example for his discussion of how on-the-air sound can shift in register as the camera moves from car interiors to the spaces outside, running the gamut of possibility between inside and outside the diegesis (77). Murch achieved the variable spatial signatures through his "worldizing" process in which he re-recorded the sounds of the broadcasts in various (often artificially constructed) spatial environments

between which he could then fluctuate (qtd. in Ondaatje 119). When inside the vehicles, the radio sound bears the signature of the kind of space depicted on screen. The very need for such a worldizing process is a marker of the highly contrived nature of audio post-production; even when striving for absolute realism, filmmakers use elaborate contrivances to achieve their effect. Yet, *American Graffiti* isn't afraid to expose the seam between sound and image: when the camera breaks free of the car interiors the sound of the radio takes on an enhanced signature with exaggerated reverberation. This exaggeration simultaneously suggests a multitude of radios resonating through the streets all over the town, and a kind of ethereal presence that defies the laws of sound propagation, an evocation of the supernatural powers with which the Wolfman is associated. In *American Graffiti*, then, control over auditory extension and spatial signature is used both to ground the soundscape within the diegetic world and to transcend that world to provide access to realms existing only in cinematic representation.

The unnatural propagation of electroacoustically transmitted sound throughout the space of an entire town, replacing the 'natural' soundscapes with an artificial one coming from another place, is precisely the kind of lo-fi schizophonic situation Schafer decries. And yet, the Wolfman broadcasts in this film tap into the community of youth the narrative revolves around, bringing disparate people—often at ideological odds with one another—together through common interest. These broadcasts have a positive effect on the community, something Schafer's anti-technological bent would fail to account for. Further, these broadcasts reflect the varying degrees of empathetic relationships between these characters, providing a thread between their deepest hopes and fears as the sound of Wolfman's voice and music fills the spaces in which they live. These spaces are physical, psychological, and social: Murch's auditory treatments allow the sound of the broadcasts to cross the boundaries of the physical spaces of the automobiles enclosing these characters, just as the sound threads the spaces between their internal consciousness and the external world. As such, these auditory treatments are an example of what Randy Thom calls the "acoustics of the soul," referring to what he feels is the moot distinction between diegetic and non-diegetic sound when we understand how these different registers are embedded within one another (1-2). Attending to the role of Murch's handling of auditory spatial representation through the precepts of acoustic ecology enriches our understanding of how these characters navigate the relationships between physical, psychological and social space, revealing a powerful narrative theme of ecological engagement.



While ostensibly about sound, the issues raised by Schafer's concepts of schizophonia and the hi-fi soundscape are more generally about space, as are the film sound terms I have associated with Schafer here. I propose that what acoustic ecology has most to offer film studies is not specifically an enhanced appreciation of environmental sound, or even of sound in general, but rather an attention toward the formal organization of space within any given film. The terminology discussed here is designed to address the auditory qualities of space and its relationship to those living within it. These are the fundamental goals of acoustic ecology and of ecology in general. However, it is important to recognize that while certain qualities of extension and signature can be assessed with attention to sound alone, they require attention to the image in order to make that assessment complete. How can we address the ideological implications of reverberation on the sound of a radio broadcast unless we also attend to its visual corollary? Without the image, how do we know if a particular level of extension supports the film's visual perspective, or if it is intended to take the listener outside the world in which the characters live? It is on such points of intersection with the image track that the divide between sound and image often becomes apparent. As such, these tools for auditory analysis must extend into the realm of the image if we are to understand the audiovisual ecology of a film.

When Schafer imbibes in his anti-visual bias by quipping it is "better to see with the ear" ("Have Never Seen") he is at once willfully ignorant of the role of vision in our experience of the world, and strangely progressive in his implication that these two senses might be more linked than we think. The tension in this statement is the substance of audiovisual ecology. While attention to sound alone can help redress the imbalance of many decades of sight-centered film criticism, it is only the first step on the path to a truly audiovisual approach to the study of film. By embracing the myth of the total cinema as the product of technological division, we lose the need to use the myth to cover over anxieties about this division and can expose dimensions of formal organization that go far deeper than realist conventions of suture. The benefit of applying acoustic ecology to film studies is to recognize that understanding acoustic spatial organization in the cinema is essential. Yet, this spatial organization also depends upon the image, and there is a profound division between the two that always sets them at a distance from each other. Once this recognition becomes a staple of film spectatorship, then perhaps the cinema can cease its backward movement toward the original myth of its potential totality. Instead, we can embrace it as a medium perfect in its divided nature, and accept that its gaps are what hold it together in the end.

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