

Yael  
Kaduri

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## CHAPTER 19

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# AUDIOVISUAL AESTHETICS IN CONTEMPORARY EXPERIMENTAL FILM

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GABRIELE JUTZ

### I. INTRODUCTION

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DESPITE repeated pronouncements of cinema's demise, many avant-garde or experimental filmmakers,<sup>1</sup> both young and established, have continued to work with celluloid film since the 1980s. This low-tech, material medium encourages a direct, hands-on approach to filmmaking and creates opportunities for artistic intervention that have no real equivalent in digital media. Film, it is worth recalling, is a technical assemblage whose basic physical components consist of the camera, the filmstrip, the projector, and the movie theatre screen. Its exhibition mode—projection in a theatre before a live audience—distinguishes it from projected images and sounds in art galleries and museums. Focusing on the material properties of the medium itself does not mean, however, that these must be employed in medium-specific ways. On the contrary, most of the filmmakers I discuss here resist the notion of an “essential” or “pure” cinema. Though dealing with genuinely cinematic concerns, they do not accept the material limits and constraints of their medium, whether by rejecting one of its tools (camera, filmstrip, etc.), or through the intentionally “improper” use of them. Jonathan Walley refers to this “cinema beyond, even before, film” as “paracinema.” “Paracinema,” according to Walley, “identifies an array of phenomena that are considered ‘cinematic’ but that are not embodied in the materials of film as traditionally defined” (2003, 18).

With the advent of digital technologies, celluloid film seems to be consigned to obsolescence. While the term *avant-garde* encourages the idea of constant innovation and progress, the ongoing use of celluloid today evidences a synchronic overlap of the residual and the emergent and challenges such a teleological view. Analog filmmaking in the digital age can be regarded as a form of resistance to the dominant model of film culture. It is

important to state that this engagement with obsolescence is not tied to nostalgia or regression, but rather, functions as a driving force for current, cutting-edge artistic practices.

Film theorists have generally concentrated on the moving image in their attempts to scrutinize experimental cinema, which has resulted in a belated investigation of its sonic dimension.<sup>2</sup> This traditional approach belies the great amount of attention that filmmakers have paid to sound. Their innovations were not only restricted to the combinations of image and sound—or *montage*—but also involved creative approaches to *sound recording* and *sound reproduction*, *sound generation* and *the performance of audiovisual events*. In all of these cases, sounds “are not isolated sonic phenomena, but are heard within the context of films . . .” (Birtwistle 2010, 17), an issue that is aptly given expression by the neologism “cinesonic.”<sup>3</sup>

As Rick Altman critically points out, current approaches to film sound frequently borrow their terminology from the realm of music, which is to say “that all film sounds have the nature of musical notes” (1992, 15). But to confine ourselves to the musical analogy would mean that a number of significant sonic elements escape our attention, among them speech and sound effects, but also silence, noise and, not least, the sound of film technology itself. As the works I discuss are based on a broader concept of film sound, we are not only required to forsake the musical model but also to give credit to sounds that are all but ignored, “listened *through*” instead of “listened *to*,” as Birtwistle elegantly puts it (2010, 88). Hence, a precondition for their understanding is an increased sensitivity to the material conditions of their making, in particular to film sound technology, which will be of particular interest here.

Due to the large variety of experimental approaches to sound in contemporary avant-garde film, a complete investigation is beyond the scope of this chapter. Instead, four representative tendencies, which are in no way mutually exclusive, will be offered to serve as touchstones of each of the four aspects of sonic innovations mentioned above.

1. The first category is the most diverse and therefore the most wide-ranging, and includes works that exhibit an ongoing search for “Anti-Naturalistic Use of Sound.” The focus here lies on the question of how sound/image relationships are organized.
2. The second category, “The Sound of Technology,” attests to the rising interest in sounds produced by the technology of film itself, such as sound recording and sound reproduction.
3. The third, “Optical Sound Synthesis,” focuses on the mode of sound generation. The disturbing quality of these “tones from out of nowhere” (Levin 2006) derives from the fact that they do not depend on recording but emerge from the apparatus itself.
4. Finally, “Live Generated Sounds and Images” sheds light on features of contemporary projection performance.

The works discussed here have been chosen for their representative quality, and their number has been limited to facilitate a closer scrutiny of the subject matter. However,



the overall goal is to elucidate the audiovisual potential of contemporary avant-garde practices, which, as I hope to make clear, are not merely illustrations but concrete enactments of theoretical and aesthetic concepts.

## II. ANTI-NATURALISTIC USE OF SOUND

Before the 1920s, the film industry did not have a fully developed technology to record and play image and sound simultaneously, that is, in synchronization. It was Alan Crosland's *The Jazz Singer* (1927) that officially ushered in the era of sound film, operating on what was called the Vitaphone system of Warner Bros. Vitaphone recorded sound synchronously, but stored it separately on phonograph records. This *sound-on-disc system* was, however, soon abandoned in favor of the *sound-on-film system*, the invention of three German engineers (Hans Vogt, Joseph Engl, and Joseph Masolle)—hence its name “Tri-Ergon,” or “work of three.” This pioneering sound system was based on an optical process, whereby sound waves are transformed into light patterns and captured on the filmstrip itself. Although it was already technically mature by 1921, lack of interest by the German film studio UFA (Universum Film AG) prevented it from becoming established. It was only by late 1929 that the film industry adapted the sound-on-film system where only one medium was required: a film reel with sound and image track in synchronized form.

Given that the recording conditions conducive to music vary greatly from those that are appropriate for dialogue, it was immediately after the advent of sound-on-film that music was recorded separately and then played back and re-recorded together with the dialogue on the set. This so-called playback system, however, bears considerable ideological consequences, as Rick Altman indicates:

[It] had the immediate effect of separating the sound track from the image—a primary factor in the constitution of film ideology. By facilitating the matching of a performer with a sound, which he had not necessarily created, the playback permitted immediate capitalization on the sound film's fundamental lie: the implication that the sound is produced by the image when in fact it remains independent from it. (1985, 46).

In other words, what appears to be natural (synchronized sound) is in fact wholly artificial. Film sounds can come from a variety of sources, many of which were not recorded when the images were being filmed. By masking its own construction, naturalistically synchronized sound supports illusionism and thus was attacked by the avant-garde (cf. Eisenstein, Pudovkin, and Alexandrov 1978). It seemed not only problematic for ideological reasons, but also for aesthetic ones, because the combination of an object with its natural sound “simply and naïvely attempts to return the film image to the status of an object in nature,” instead of “introducing a disparity between sound and



image for expressive ends" (Camper 1985, 371). As naturalistic sound practices predominate to this day, they still pose a challenge to the audiovisual aesthetic of the cinematic avant-garde.

### A. Picture Without Sound

In every decade of the history of sound film, there were filmmakers from the ranks of the avant-garde who consciously chose silence as an anti-naturalistic device. Prominent examples include Maya Deren in the 1940s, Stan Brakhage and Kurt Kren in the 1950s, Andy Warhol in the 1960s, and countless proponents of the structural film in the 1960s and 1970s. For the contemporary avant-garde, too, silence is a genuine option, "not construed as a lack, but rather as a militant insistence on vision" (Turim 1985, 29). In contrast to the *silent-with-sound film* (the silent film of the pre-sound era, whose sound was added externally, in the form of musical accompaniment, for instance) what Fred Camper considers the "true" *silent film* owes its existence to the advent of sound: "While surely some very early films were first projected in silence . . ., it is only with the invention of sound that silence became a true choice for film" (1985, 370).

Even the screening of a "true" silent film will never be a purely visual experience, as can be seen in Su Friedrich's *Gently Down the Stream* (1981).<sup>4</sup> Friedrich's film, which reveals a conflict between her Catholic upbringing and her lesbian desires, combines placid black and white imagery with hand-scratched texts taken from a dream journal. Word by word, these have been painstakingly etched onto the emulsion of the 16-mm film with the aid of a jeweler's scribe. The rhythm with which the individual words appear on the screen attests to a remarkable diligence with regard to *timing* and *spacing*. The ground rule was that each word be readable (at an average length of 14 frames) and that there be a more or less regular interval (usually three to five frames) from one word to the next. Moreover, Friedrich wished to bring out the specific emotional quality of each individual dream by giving each one its own appearance. One way was to vary between movement and stasis. Moving scratched words were obtained by *manually* reproducing them for each consecutive frame. Due to its physical nature, this handmade procedure had the effect that the shape of each scratched frame differed slightly from the following one and hence ensured the impression of movement. Stasis, however, was achieved when the words were reproduced *mechanically*, with the aid of an optical printer, thereby eliminating all formal differences between them. Further means of variation, to name but a few, included different letter cases (upper and lower case), their background (black or clear or image), their positioning (exactly below the image or filling various positions on the screen), their grouping (one word at a time or a group of a few words), or the length of the dividing intervals. All of these visual devices not only served to vary the appearance of the scratched words but also contributed to the unique rhythmic quality of *Gently Down the Stream*.

Although an accompanying soundtrack was never an option for Friedrich, she is convinced that the mere reading of the screen texts can trigger internal aural experiences

in the spectator.<sup>5</sup> Indeed, Friedrich often entertained the notion that spectators might be inclined to provide their own musical accompaniment, "and 'perform' the film by reading it aloud as it played."<sup>6</sup> It is in another sense, too, that *Gently Down the Stream* (like every "true" silent film) is indebted to acoustic phenomena, as Friedrich herself admits: "By the end of the 20th century, when I made the film, music had been torn so wide open that sitting in near silence constituted a musical event. In that spirit I would say that this 'silent' film is musical."<sup>7</sup>

## B. Sound Without Picture

Imageless films can be regarded as the logical counterpart of soundless films, as their visual ascesis complements the aural ascesis of the latter. An early example of an audio film is Walter Ruttmann's groundbreaking *Weekend* (1930), an eleven-minute montage of sounds collected over a Berlin weekend. In spite of the fact that this work was produced for the radio and "portrays" the urban landscape in a purely sonic form, Ruttmann himself considered it as a film (though a "blind" one), because all of the material was recorded on Tri-Ergon sound film. This was done primarily for technical reasons, as the filmstrip offered the option of editing, something that sound-on-disc did not allow.

In contrast to *Weekend*, projection plays a crucial role in all subsequent films of this type, even though they lack imagery or reduce it to a minimum. Depending on their respective context, "imageless" films can represent different versions of modernism. Whereas in *Weekend*, one clearly sees the aspirations of a technical avant-garde, Guy Debord's iconoclastic *Hurlement en faveur de Sade* (1952) goes hand in hand with an ideological critique of the cinematic apparatus, and represents an early example of political modernism. By contrast, Peter Kubelka's *Arnulf Rainer* (1958–1960), consisting entirely of black and white film frames, sound and silence, focuses on the "essence" of the medium and can be grouped within the context of a formalist high modernism.

Mike Hoolboom's *White Museum* (1986) sets itself clearly apart from its predecessors. The main element of the film, whose visual track (with the exception of a brief shot) consists of over 30 minutes of white film leader, is a voice-over by the filmmaker himself, combined with an autonomous audio collage of sound effects, TV ads, and snippets of rock music. Hoolboom's entertaining and theoretically mindful first-person ruminations are a blend of the personal and anecdotal, on one hand, and thoughts on film, language, and representation, on the other. At the outset, he apologizes to the audience for presenting a mainly empty screen—the reason, he says, is purely economic: he could only afford one image. He proceeds to describe what the film would have looked like, addresses the act of film projection itself ("Maybe we could have the lights turned on for a second . . . just to see who's here"), and concludes by stating his case for film without picture, arguing that it leaves us a place for our own images.<sup>8</sup>

The voice-over—or, as Kaja Silverman puts it, the "disembodied voice"—frees the voice from its reference to the body by allowing its owner to be heard without being

seen. Moreover, in classical cinema the voice-over confers the speaking subject with control over the image by aligning it with positions of power (cf. Silverman 1984, 134). *White Museum* exploits precisely this audiovisual setting, but undermines its authority. Not only does this "disembodied voice" have to contend with a competitive soundtrack, namely the audio collage, but it also loses its privileged place through juxtaposition with an *imageless* screen, which counters its claim of control over the image. In addition, the empty screen itself, illuminated as it is by the light beam of the projector, casts this light back onto the audience, which under normal circumstances finds itself in the dark. This, in turn, becomes just as crucial an event as what is "happening" on the screen itself. *White Museum*, then, with its strategy of de-hierarchization, is the post-modern version of an imageless film, whose destabilizing potential undermines the highly conventionalized sound/image relationship of the voice-over.

### C. Audiovisual Polysemy

Central to what is at work in audiovisual polysemy is a conflict between image and sound introduced by processes of cinematic signification. Both the soundtrack and the image track remain highly representational, but the way in which they come together to create meaning is problematized. A compelling example of this audiovisual strategy is Lisl Ponger's *Passagen* (1998), a found-footage film, which combines amateur films made by tourists from the 1950s to the 1970s with a soundtrack on which ten offscreen narrators tell of their various journeys. In the first shot we see a departing passenger ship, over which a woman's voice is heard reminiscing about her cruise along the Danube. This seeming simultaneity between what is seen and what is heard gives the impression of direct speech and confirms our naïve belief that sound and image belong to the same source. However, we are soon confronted with narratives of expulsion, flight, and exile and quickly begin to realize that *Passagen* is about two diametrically opposed forms of departure—one is voluntary (holiday films), the other is coerced (verbal testimonies of migration). Avant-garde film frequently challenges sound's traditional subservience to the image by autonomizing the soundtrack. Yet, *Passagen* does not pursue this aim, for there are repeated instances where image and sound draw closer to each other, and even converge, so that the locations begotten by the touristic gaze appear to illustrate the refugees' narrations in unsettling ways. Instead of positing a simplistic opposition between tourism and migration, Ponger subtly interweaves the two narrative strands, thereby forcing us to acknowledge the plurality and polysemy of the audiovisual text.

### D. Between Synchronous and Asynchronous Sound

Strictly speaking, what we refer to as *naturalistic synchronous sound* meets two conditions: first, a temporal one—the sound occurs simultaneously with the image—and



second, a causal one—the sound is faithful to its source. Fidelity, however, is not an attribute of a source but a matter of expectation. This is to say, that the sound we hear must be plausible, regardless of its actual source in production (cf. Bordwell and Thompson 2010, 283–284).

Avant-garde film strives to demarcate itself from the dominant practice of naturalistic synchronous sound, devising various strategies for dislocating the sound from the image track, as Eve Heller's *Ruby Skin* (2005) and Henry Hills's *Kino Dal* (1980) demonstrate. However, beside this resort to the principle of non-synchronization there also exists "a marginal but powerful tradition of synchronization" (Lastra 2000, 121) within experimental film, for which Martin Arnold's *passage à l'acte* (1993) can be seen as exemplary. What all three filmmakers have in common is their concern for vocal enunciation (voice-over commentary in the case of *Ruby Skin*, the reading of a poem in *Kino Dal* and dialogue in *passage à l'acte*), as well as their interest in rearranging the sound/image relationship inherent in their original material, whether through delay (Heller), intentional destabilization (Hill), or repetition (Arnold).

*Ruby Skin* and *Kino Dal* challenge the imperative of synchronization by means of *temporal disjunction* between sound and image track. The footage for *Ruby Skin* was taken almost exclusively from a 1970s educational film (that had reddened with age) on the topic of creative writing. In the original, we see a young woman sitting at a typewriter, while a male voice-over instructs her about effective writing styles. Heller breaks up the synchronicity between image and sound using two devices: first, she exploits the displacement between sound and image inherent in the optical soundtrack system of 16-mm film. For technical reasons, the optical soundtrack "married" (to use the technical term) to a specific image is always delayed by 26 frames.<sup>9</sup> This spatial discrepancy is particularly noticeable at the filmmaker's tape-spliced edit points that are seen one second before their 'pop' is heard. This delay is the basis for Heller's second device, inspired by the cut-up technique of William Burroughs. "The film with its optical track is cut into fragments, often consisting of far less than 26 frames, so that what you see and what you hear have little to do with one another."<sup>10</sup> In this way, the sound often delivers a humorous accompaniment to the image; for example, we hear the sound of the striking of a piano chord as the woman touches her typewriter keyboard, or a young girl seems perplexed to hear the narrator speak of slick surfaces and cold metal while she chews a piece of sweet caramel (see Figure 19.1).

In longer passages, Heller varies this principle and allows image and sound to work in unison. The cut-up method functions in such a way that utterances from disparate sentences develop a continuity and create new words or word combinations, as in the following example: "Sentence/glitters/in her mind/s/eye/sh/she visualizes/the turn/of a/phr[ase]/[ef]fect/it/will/is/has/upon her . . ./Each word/heard/is a jewel/each/side/spell/setting."<sup>11</sup> Although this linguistic collage operates on a semantic level as well as on an affective one, these word combinations are often semantically designed to pit the mechanical/technical side of the creative process against its sensory side, just as the film title "Ruby Skin" evokes the physical dimension of the filmstrip. Heller calls our attention to the kinship between human skin and the red-shifted filmstrip, both



FIGURE 19.1. *Ruby Skin* (Eve Heller, 2005).

© Eve Heller.

being composed of layers as well as being related etymologically.<sup>12</sup> For Heller, it is the asynchronicity inherent in the technical apparatus, which gives her the opportunity to expose the materiality of both film and language.

Also based on a literary technique, Henry Hills's *Kino Da!* attests to an unstable relationship to synchronous sound. The film derived from a plan to record a reading by the San Francisco poet Jack Hirschman, and to assemble the material in the manner of the Russian Futurists so highly regarded by Hirschman himself. But, as there was no sound camera available, Hirschman's reading of a Russian poem, partly translated into English, was recorded separately on a tape recorder. Hills's intention was to cut the material into synchronized fragments of sub-linguistic units, or "zaums," "trans-sense" in the terminology of the Futurists. Post-synchronization also turned out to be

impossible, and Hills decided to use this limitation to the film's advantage. Unlike the optical soundtrack, in which the sound's visual trace can be recognized with a little practice, the strip on which the magnetic sound is located is opaque. Therefore Hills transcribed the sound fragments, and noted down the syllables and phonemes with a felt pen on the back of the magnetic sound strip. It is from this transcription that the montage of image and sound fragments followed. Instead of going back and cutting the negative, which, due to the small size of the fragments, would have been quite laborious, Hills decided to print from the work print—that is, the original footage—which had picked up dirt and scratches, “letting the consequent degradation of the image give it more of the look of an old Soviet film.”<sup>13</sup>

Although both the unstable sync-sound and the “retro look” were forced by means of technical constraints, Hills insists that ultimately “every aspect of the film is absolutely intentional.”<sup>14</sup> *Kino Da!* or “Film, Yes!” in Russian, is a very playful piece of neo-zaumism. Through the reconfiguration of very short linguistic units, the soundtrack gives the impression of an “international” audio text composed of different languages, which only occasionally matches with the image. The flashes of words or word fragments charged with meaning, like “experimental,” “proletarian,” or names of filmmakers (Eisenstein, Vertov) and writers (Stein, Joy[ce]) anchors Hills's film in the realm of the avant-gardes of the 1910s and 1920s. Together with the equally fragmentary footage of Hirschman, Hills's destabilized synch-sound is a powerful demonstration of the possibilities of montage.

As for his earlier *pièce touchée* (1989), for *passage à l'acte* Martin Arnold appropriates a conventional domestic scene from a classical Hollywood film. In both works his interventions are minimal, but cause major shifts in meaning. *Pièce touchée* focuses on the imagery of one single shot from a 1950s B-movie, showing a husband coming home and being greeted by his waiting wife. By manipulating the visual motion in continuously repeated forward and backward movements on a homemade optical printer, Arnold creates tic-like twitchings, that lay bare the gender/political implications of the shot. In *passage à l'acte* he applies a similar device for an entire scene, a family at the dinner table in *To Kill a Mockingbird* (1962, Robert Mulligan). This time Arnold also includes the original synch sound into his repetitive patterns, which has the effect of transforming the dialogue—the father advising his son to stay seated—into a rhythmic stutter (cf. Arnold, in MacDonald 1998, 361).

Arnold's found-footage films draw on the history of classical Hollywood cinema, which, according to the filmmaker, is synonymous with “exclusion, denial, and repression” (Arnold, in MacDonald, 362). This repressive function applies to both the formal level, that is, the ideal of an “invisible storytelling,” as well as to the content level (exclusion of explicit sex, for instance). The tic in *pièce touchée*, as well as the stuttering in *passage à l'acte*, result from Arnold's restructuring of the original material and can be interpreted as a symptom in the psychoanalytical sense, where the repressed declares itself (cf. Turim 1995).

As James Lastra rightly points out, the use of synchronous sound is by no means confined to the Hollywood narrational system. But most of the examples he enumerates



only support the first temporal condition mentioned at the beginning of this section. In Peter Kubelka's *Unsere Afrikareise* (1966), it is true that the sound occurs simultaneously with the image, but is not faithful to its source (Lastra 2000, 121). Arnold's *passage à l'acte*, however, leaves the original synchronicity of the source material intact, and brings the stuttering rhythm of sound meticulously in step with the twitching movements of the characters. In doing so, he manages to meet *both* conditions of synchronous sound (namely, simultaneity *and* fidelity), and thereby creates an entity unlike any in the natural world. *Passage à l'acte* thus succeeds in presenting a rare instance of an anti-naturalistic version of synchronous sound.

## E. Visual Music

Pip Chodorov's homage to the minimalist composer and pianist Charlemagne Palestine entitled *Charlemagne 2: Piltzer* (2002), displays a considerable degree of convergence between image and sound, as is typical for works in *visual music*. A cursory examination of the history of visual music reveals that artists, searching for a visual equivalent of sound, have taken mainly two approaches, which, according to the terminology of Charles Sanders Peirce, can be classified either as iconic or indexical. German abstract film appears to rely largely on iconicity. In Oskar Fischinger's *Motion Painting No. 1* (1947) for instance, the ever-widening circles were designed by the artist as a response to and in analogy with the ever-widening bass line of Bach's *Brandenburg Concerto*. Unlike Fischinger's film, Mary Ellen Bute's *Abstronic* (1952) and *Mood Contrasts* (1953) are no longer based on iconic likeness (a category that implies a certain distance between the represented item and its representation), but rather effect an immediate transformation of music into images. Bute filmed an oscilloscope screen, which depicts the exact impact of notes. Therefore, these films are built around indexical connections between sound waves and their representation; in other words, there is a physical tie between what we hear and what we see. Beside the rare case of films made with the aid of an oscilloscope, we would also place in the indexical category hand-drawn sound, which directly results from the artist's marks left on the edge of the filmstrip, as, for instance, Norman McLaren's *Dots and Loops* (both 1940) demonstrate.

Chodorov's cinematic visualization of music avoids both the iconic and the indexical approaches and takes a third path instead. At the origin of *Charlemagne 2: Piltzer* was a concert given by Palestine at the Parisian Pulitzer Gallery in 1998. Chodorov recorded image and sound simultaneously, but on two distinct media—Super-8 film and 16-mm magnetic tape. The visual material was transferred to 16-mm high-contrast positive and negative stock, and the soundtrack transformed into a visual score (cf. Beugnet 2007, 293); the filmmaker then proceeded with mathematical precision:

Every note was identified as X (for low notes) or O (for high notes). These marks were then grouped into frames, exposing patterns and dominants of highs and

lows, each frame of the score matching one frame from the filmstrip. (Chodorov in Beugnet 2007, 293)

The fact that an X represents low notes and an O represents high notes stems neither from likeness (as is iconicity) nor from a physical connection with the signified object (indexicality); rather, it is by virtue of a convention or a *code* created "arbitrarily" by the artist himself, and hence can be termed as "symbolic" (again in the Peircean sense). Though Chodorov's audiovisual approach, not unlike Bute's, replaces subjective empathy with an objective device, it locates itself at the opposite side of the semiotic axis. With the symbol we leave the reign of the indexical "factual" and enter the world of convention and code. In spite of its formalistic approach, *Charlemagne 2: Piltzer* possesses an extremely visceral quality. The structuring of material through a strict code is counteracted by the optical printing and manual frame-by-frame manipulation, which creates a contrasting, vibrant cinesonic composition that propels its originally documentary material to the limits of abstraction.

### III. THE SOUND OF TECHNOLOGY

People familiar with home movies or cine clubs will easily conjure up memories of the constant hum of the projector during screenings of small-gauge film formats. This sound is rapidly disappearing. Together with the sounds produced by the recording device and the filmstrip itself, the projector's noise comprises one aspect of what Andy Birtwistle calls "the sound of technology" (2010, 85-125). The very fact that every recorded sound carries, beyond meaning, the traces of the technology used to produce and to reproduce it allows a variety of artistic engagements with the material dimension of the soundtrack. The urgency to highlight these usually neglected, extra-textual sounds derives from the desire to recognize their potential to transgress the conceptualization of film as a purely signifying text by turning our attention to the temporal and affective dimensions of the cinesonic event in relation to its materiality (cf. Birtwistle 2010, 1-29).

The notion of technology is commonly linked with "progress." However, the revival of Super-8 and 16-mm film, which occurred at the very moment that digitalization entered artistic practice, prompts us not only to revise the teleological view of technology as a forward-moving succession but also to re-evaluate the role of the "obsolete" in our contemporary media constellation. As Rosalind Krauss suggests, with reference to James Coleman's works with projected slides from the early 1980s, the return to an "outdated" medium does not mean "to resuscitate a dying tradition, but, most improbably, to create a new one" and may indeed lead to its "invention" (1997, 6). This is to say that the outmoded stage of a technological support (such as celluloid in the digital age), under certain conditions, becomes a prerequisite of the new.

In an era of "lossless," high-tech digital sound systems, which make us forget the presence of the equipment necessary for sound recording and reproduction in order

to guarantee the smooth transmission of information, it is the re-adoption of so-called low-tech sound technologies (for instance, Super-8) that serves as a reminder of film's audiovisual materiality. By foregrounding the material circumstances of the cinesonic event, low-tech stands both as the signifier of an obsolete technology and the promise of a new mode of production. The sound of film's technological base counters the accepted norm of transparency and immateriality. It is this sound that pits a technological audibility against the "well-behaved, well-modulated and largely 'inaudible' soundtrack of mainstream cinema" (Birtwistle 2010, 64). Unsurprisingly, the film industry has dismissed this phenomenon as *noise* and has domesticated it with noise-reducing systems. The resulting inaudibility of the contemporary sound of technology has led to the fact that audible materiality now signals "pastness" (cf. Birtwistle 2010, 92).

The sound of technology possesses a quality similar to that which Roland Barthes labeled the "grain of the voice" (1977). The "grain" can be described as a kind of affective surplus due to an imperfect performance allowing the body—or technology—to show through. In Barthes's view, there is something irrepressible in the grain of the voice, which is far more seductive, as well as more frightening than a flawless performance could ever achieve. This ecstatic and all but indomitable materiality makes its presence felt in a variety of ways and depends on a number of factors. Aspects of production, like the type of microphone and the recording medium, are just as crucial as the quality and condition of the film material. As regards the filmstrip on which the soundtrack is printed, in the case of optical sound it is the grain structure of the emulsion that affects the sound quality: "... coarse-grain stock encodes sound information with less resolution and with less precision than fine-grain stock"; in the case of magnetic sound, which is customarily used in Super-8, it is "the hiss produced by the oxides of the recording tape" (Birtwistle 2010, 86). Apart from this *ground noise*, the technological audibility of a film is also influenced by impairments on the filmstrip, which will indicate its age. This sound, known as *optical crackle*, is caused by multitudes of tiny scratches on the surface of the print. Added to the sounds of the filmstrip itself is the so-called *system noise*, generated by the hardware of film production and reproduction, such as the camera and the projector (e.g., shutter, drive belts, motor, fan). Although the sounds of technology are constantly present on all optical soundtracks of a certain age, they are commonly ignored by film studies. Yet they can significantly contribute to a consideration of the historical, temporal, and affective dimensions of film sound (cf. Birtwistle 2010, 122).

From the standpoint of experimental filmmaking, the potential for noise inherent in analog media is far from being a disadvantage. In contrast to the film industry, the cinematic avant-garde not only recognized the sound of technology, but also proceeded to employ it in practice. For *Traité de l'ave et d'éternité* (1951), Isidore Isou recorded the soundtrack on phonograph records, before transferring it to the filmstrip. The resulting degradation in the sound quality was welcome, for as Isou pointed out, it underscored the "revolutionary" character of his film (cf. Isou 1964, 11). Ken Jacobs's silent *Tom, Tom the Piper's Son* (1969–1971), at the time of its performance, was accompanied by the operating noise of the projector (cf. Suárez 2008, 81). Ernst Schmidt, Jr., in his 18/



d *Filmkritik oder Prädikat: wertlos* (1968), ran the perforated edge of a 16-mm filmstrip over the sound head of the optical sound projector, resulting in a penetrating rattle. The sounds of technology can also act as a reminder that noise possesses a visual equivalent. Hence, the "white noise" in Peter Kubelka's *Arnulf Rainer* (1958–1960) serves as an acoustic counterpart to the white light of the image track, the former containing the entire audible sound spectrum, the latter all the wave lengths of visible light. Equally, the irregular sine tone in Michael Snow's *Wavelength* (1967), whose instability is owed to the playback device, a simple cassette player, finds its visual complement in the irregular, manually adjusted 45-minute zoom.<sup>15</sup>

The sound of technology extends beyond signification, meaning, and text and therefore transgresses the tripartite division of the soundtrack into speech, music, and effects. It draws the film spectator's attention toward the material conditions of the audiovisual event itself, in all its sensory presence. In addition, analog media's propensity to accidents, breakdowns, and failures contributes to revealing this particular materiality, within and against signification, as is seen with special clarity in Günter Zehetner's Super-8 films.

### A. The Sonic Signature of Super-8

For Günter Zehetner's *Tonfilmselbstporträts* (*Sound-Film-Self-Portraits*, 1993–1998), a series of eight films lasting a total of five hours, sound and image were made exclusively with Super-8. This narrow gauge format, introduced in 1965, was inexpensive, easy to handle, and hence the ideal format for the home moviemaker. It was appreciated by experimental filmmakers, too, not only for its affordability, but particularly for its "rough-and-readiness," which would become the trademark of low-budget independent filmmaking. It was only in 1973 that the Super-8 medium finally fulfilled its promise and made shooting sound-on-film movies available for the amateur and independent filmmaker due to Eastman Kodak's introduction of cameras that accepted a cartridge loaded with magnetic-sound striped film (cf. Lipton 1975, 112).

In its very condition as outmoded, the low-tech support of *Tonfilmselbstporträts* provokes a reconsideration of the status of celluloid-based art in the digital age. Zehetner, who studied film with Peter Kubelka at the Frankfurt Städelschule, displays, as Kubelka himself does, a keen awareness of the possibilities and constraints of Super-8. Unlike the amateur filmmaker, who often tries to outmaneuver the confinements of this gauge, Zehetner rather sees a challenge in them. Super-8's small frame, for instance, which is only half the width of the 16-mm frame, makes editing more delicate. Therefore Zehetner opted against editing, and employed instead the three-minute twenty-second industrial standard length of Super-8 reels as the structuring unit of his films (separated from each other by short, black intervals). Furthermore, he decided to shoot his *Tonfilmselbstporträts* with continuous, synchronous sound (instead of edited and post-synchronized sound). This method of direct sound recording, usually associated with documentary practices, records any and all sounds within its vicinity, and

therefore appears to be more “objective” than other modes of sound production. Like the avoidance of editing, direct sound recording indicates a lack of mediation and human agency. This noninterventionist aspect of the direct soundtrack, rarely used in studio-produced films, is emphasized both by Birtwistle and Altman. For the former, these “undoctored” sounds “stand as an unblinking witness to the profilmic event” (Birtwistle 2010, 58); the latter considers them the result of a “straightforward indexical recording” (Altman 1992, 43), not determined by convention or code. By picking up everything—background and ambient sounds as well as the sounds of the equipment itself—Zehetner’s unmodulated soundtrack foregrounds the material and technological base of Super-8 and therefore locates itself within the tradition of the independent, low-budget films of the mid-1960s onward. It is the medium’s sonic signature itself—not its content—which conveys a feeling of pastness and is able to explain the affective impact of these films.

*Tonfilmselbstporträts*, created entirely in the privacy of his home, exhibit an uncompromising degree of self-disclosure (cf. Tscherkassky 2012, 40–41). In these “auto-ethnographic mini-musicals” (Grisseemann 2010, 180), the camera is held with an outstretched arm (and occasionally placed on a piece of furniture), but almost always aimed at the artist’s face. Everything is captured, from the monotony of daily life to moments of exuberance, sentimentality, and post-drunken depression. Zehetner’s Super-8 camera is equipped with a single, unselective microphone. Because of its total receptivity, it registers indiscriminately sense and non-sense, information and noise, welcoming equally the unexpected and unintelligible. This becomes particularly noticeable when glitches, due to machine malfunctioning, occur. For instance, in *Die Zeit heilt alle Wunder* (*Time Heals All Wonders*, 1997), the microphone tunes into its own mechanical noise, rendering external sounds all but inaudible. In *Ohne Titel* (*No Title*, 1994), the damaged camera causes constant noise, which virtually drowns out the ambient sound of the room. Moreover, an irregular power supply to the battery-operated camera causes a delayed transport of the filmstrip, which occasionally turns Zehetner’s singing into a Mickey Mouse-like squeaking. Beside Zehetner’s voice, various apparatuses—record player, radio, and television set—contribute their own soundtracks. In *Liebesland* (*Loveland*, 1993), the eponymous song rumbles distortedly from the tape player, joined by Zehetner’s painfully discordant singing.

What is at stake in *Tonfilmselbstporträts* is more than a simple refusal of a “well-behaved” soundtrack. Made at a time when technologically advanced recording equipment was not only available for professionals, but for the average consumer as well, the “amateurish,” brutishly artless appearance of Zehetner’s films demarcate themselves from the true amateur film, which strives for some degree of technical perfection. Moreover, their material scratchiness operates at the level of affect, aiming to infect the listener as an emotional (or simply annoying) experience. This circumstance can be ascribed to the particular quality of direct sound recording, but also to the special features of the playback situation. It is worth recalling that Super-8 film is intended for home use. When screened in a movie theatre, the appropriate projection distance can only be ensured when the projector is placed in the middle of the auditorium. Hence,

the hardware's noise becomes clearly audible: the purring and humming of motor and power transmission, the chattering of the claw engaging the perforations or the whoosh of the blower fan. The technological audibility of Super-8, caused by both the system noise and the sound of the filmstrip, creates a powerful sound of technology. The final irony is that at about the same time when Eastman Kodak stopped manufacturing Super-8 (in 1998), contemporary digital devices made recreations of vintage effects available, suggesting the feeling of low-tech recording. In contrast to these nostalgic signifiers of the past, Zehetner's *Tonfilmselbstporträts* re-evaluate the engagement with the sound of technology as a means to underscore—beyond nostalgia—the material base of filmmaking.

#### IV. "TONES FROM OUT OF NOWHERE": OPTICAL SOUND SYNTHESIS

As shown by Mary Ellen Bute's oscilloscope-generated films, acoustic phenomena can be made visible as images. Optically synthesized sound, however, takes the opposite path: here, it is the image that generates sound. The sounds in question here shed light on another cinesonic device, which, in contrast to the "sound of technology," significantly shifts the focus from recording and reproduction to the process of production itself. What we refer to today as *synthetic sound* traces its theoretical rationale to 1922 and László Moholy-Nagy's proclamatory text "Production-Reproduction," in which the author called for a "fundamental innovation in sound production" (2007, 332; cf. Jutz 2012). Instead of reproducing already existing sounds, he encouraged a search for ways and means "to turn the apparatuses (instruments) . . . into ones that can be used for productive purposes as well" (Moholy-Nagy 2007, 331). As an example, Moholy-Nagy cites the phonograph, for which he devised a "groove-script alphabet" that was to be scratched directly onto the record's surface. It was only ten years later that Moholy-Nagy realized this call for "produktive Gestaltung" (productive creation) in the now lost short film *Tönendes ABC* (*Sounding ABC*, 1933). This time, the appropriate tool was the optical sound film, introduced just a few years before, which provided the necessary prerequisites for optical sound synthesis. Briefly, optical sound systems translated "sound waves via the microphone and a photosensitive selenium cell into patterns of light that were captured photo-chemically as tiny graphic traces on a small strip that ran parallel to the celluloid film images" (Levin 2003, 34). Since optical sound emanates from graphic patterns, it seemed a natural next step to apply these patterns directly onto the soundtrack, in this way allowing any desired shape to be made audible. For *Tönendes ABC*, Moholy-Nagy was again interested in the correspondence between graphic marks and their tonal counterparts: "I can play youç profile,' he would say to a friend, sketching the outline of the face in his notebook. 'I wonder how your nose will sound'" (Sibyl Moholy-Nagy 1950, 68).



The consequences of Moholy-Nagy's discovery should not be underestimated, since it undermined the indexical status of sound as a medium of recording and reproduction. These "tones from out of nowhere," as Thomas Y. Levin has labeled them, do not require any external source (whether vocal or instrumental), or a recording device, "but are, instead simply a set of *graphic* (i.e., non-acoustic) instructions" (Levin 2003, 61). By virtue of its "sourcelessness," this early means of synthesizing sounds anticipated what we know today as *electronica*. To use the term *electronic* generally for every kind of synthetic sound is, as Andy Birtwistle points out, problematic, for it stresses the electric/electronic origin of synthetic tones as opposed to their *syntheticness*. "I would argue," writes Birtwistle, "that one of the keys to opening up *electronica* to critical consideration is a discussion of the synthetic, of which the electrical/electronic is but one expression or manifestation" (2010, 138).

Optically synthesized sound is also described as "sound-on-film" or "animated sound," and includes, on one side, *handmade sound* and, on the other, all forms that I propose to classify under the term *autogenerative sound* (cf. Jutz 2010). While handmade sound is produced by the touch of the artist's hand (by drawing, scratching, or contact printing, for instance), autogenerative sound bears no trace of the artist as producing subject, but depends on the filmstrip's own physical reaction to chemicals, water, heat, organisms, bodily fluids, and so on. In this case, the artist's contribution is less material than it is conceptual in that it provides a framework for the creative process. These two practices establish a distinction between two opposing models of the artist as producing subject. According to Johanna Drucker, the twentieth century's art practices can crudely be reduced to two dominant strains, one *expressive*, the other *conceptual*: "... this split marks the distinction between the artist as a body, somatic, with pulsions and drives . . . , and the artist as intellect, thinking through form with the least amount of apparent individual expression, anti-subjective and antiromantic" (1994, 122). In practice, however, these two concepts of artistic authorship frequently overlap. Nevertheless, I will deal first with handmade sound, inscribed methodologically in the tradition of expressive art practices, and follow that with a review of autogenerative sound, which—at least in principle—refuses the authorial trace and is linked to the artist in conceptual terms.

## A. Handmade Sound

Experiments with handmade sound were first conducted around 1930, particularly in Russia and Western Europe (cf. McLaren 1975, 185–193). The overriding aim of these early attempts was to produce *signifying sounds*—effects, music, or even speech—and not noise, which is sound that resists apparent signification. In order to maintain control over the quality of the tone with respect to pitch, rhythm, metric spacing, and timbre, drawings of sound waves were prepared on long narrow cards, then photographed, frame by frame, with a standard animation camera and, by means of contact printing, transferred to the narrow vertical strip normally reserved for the soundtrack.

When the film was run on a sound projector, the photographed images became audible. Another method, discovered simultaneously in 1933 by the New Zealand musician Jack Ellitt in England and Arthur Hoérée in France, consisted of drawing directly on the celluloid without using a camera. Among the pioneers of hand-drawn sound is the Canadian filmmaker Norman McLaren, whose *Dots* and *Loops* (both 1940) operate with this method. As McLaren in his short film *Pen Point Percussion* (1951)<sup>16</sup> explains, he would apply serial graphic patterns on the filmstrip's soundtrack with a brush and ink. The size of the marks controlled the loudness of the sound, its shape the tone quality, and the interval between them determined their pitch. The device of hand-made sound was taken up again in the late 1950s by Kurt Kren in *1/57: Versuch mit synthetischem Ton* (*Experiment with Synthetic Sound*, 1957) and *3/60: Bäume im Herbst* (*Trees in Autumn*, 1960). Unlike his predecessors, Kren was not interested in producing meaningful sounds (such as music or effects, let alone speech), and hence opened the way for further developments in optically synthesized sound, where noise should achieve its radical potential.

In the more recent history of handmade sound, Guy Sherwin's *Optical Sound Films* (1971–2007), a rigorous body of work, in which the artist develops a profusion of innovative techniques, occupy an outstanding position. In these mostly camera-less works, sound arises from a variety of sources: optical, chemical, physical, and mechanical. The filmstrip is cut, spliced, bleached, glued, scratched, and punched; letters, numbers, and photographic images are converted into optical sounds and the fluctuating pattern of the optical soundtrack is used as visual material (cf. Sherwin 2007) (see Figure 19.2). Around the year 2000, together with his wife Lynn Loo, Sherwin began to adapt some of his optical sound films for live performances.

Peter Tscherkassky's "CinemaScope Trilogy," which draws on fragments of Hollywood films, stands out for its formal skill, combined with a renewed interest in matters of content. For *L'Arrivée* (1997/1998),<sup>17</sup> the first part of the trilogy, Tscherkassky transforms footage from the feature film *Mayerling* (Terence Young, 1968). During the manual process of contact printing material from the original, he shifts the picture track onto the space of the optical soundtrack, thereby turning image into sound. In *Outer Space* (1999),<sup>18</sup> Tscherkassky expands his repertoire of optical sound production by contact printing perforations of the original film so that they become audible, as well as manually collaging fragments of the original audio onto his optical soundtrack. *Outer Space* utilizes footage from *The Entity* (Sidney J. Furie, 1981), a psychological horror film, in which the female protagonist is pursued by an invisible ghost. While the film retains the *modus operandi* of the original film's narrative, it is no longer an unknown entity against which the woman must struggle, but that portion of the filmstrip that is normally unseen when film is projected—the "outer space" of the film's image, consisting of the optical soundtrack and its perforations. The result is a hand-collaged, aural landscape that ranges from the rumbling sound of approaching aircraft to high-pitched whirring sounds. In *Dream Work* (2001),<sup>19</sup> also derived from *The Entity*, Tscherkassky goes a step further by blending his technique of sound animation with sound montage, both of which are based on the optical sound-on-film system. For

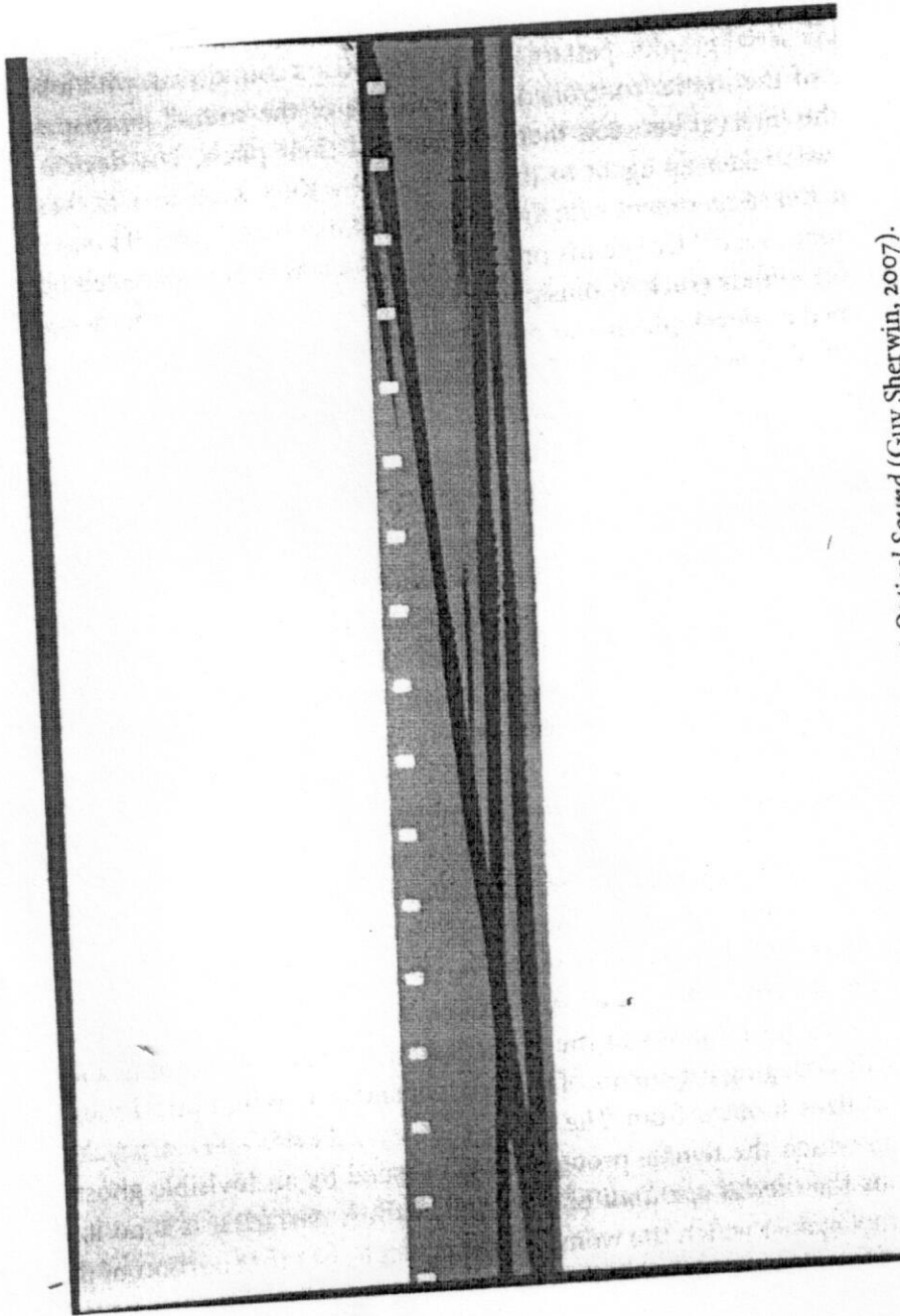


FIGURE 19.2. Frame enlargement *Optical Sound* (Guy Sherwin, 2007).  
© Guy Sherwin.



his sound montage Tscherkassky uses portions of the existing optical sound from *The Entity*, which was copied and collaged in the dark room, and ultimately transformed into the film's soundtrack by the composer Kiawasch Saheb Nassagh. As regards sound animation, Tscherkassky chose an unusual method that pays homage to Man Ray's photogram technique. In one instance prior to contact printing, he sprinkled salt in increasingly thick layers onto the last few feet of the filmstrip until the figurative image was blotted out. This method naturally also affected the optical soundtrack, so that the sound takes on a scratching and rustling quality, and finally vanishes altogether. This effacement of image and sound is, for Tscherkassky, akin to falling asleep and dreaming, where reality is slowly withdrawn and delivers the dreamer to the realms of the unconscious (cf. Jutz 2010, 254) (see Figure 19.3).

## B. Autogenerative Sound

A particularly striking example of autogenerative sound is David Gatten's *What the Water Said*, nos. 1–3 (1997/1998). As the title suggests, the main agent here is water, or more precisely, the Atlantic Ocean off the North Carolina coast, which can be said to "speak" to the audiospectator. For this work, Gatten submerged unspooled rolls of film stock inside a crab trap underwater at various times for various durations, so that image and sound are "the result of a series of camera-less collaborations between the filmmaker, the Atlantic Ocean, and a crab trap."<sup>20</sup> Depending on changing weather conditions and the film stock used, the traces left behind by sand, rocks, shells, and aquatic fauna emerge as abrasions and scratches at varying depths and densities. As the immersion not only affected the image track but the soundtrack, too, what is heard can be regarded as the direct, immediate inscription of the ocean, sounding like radio static or even ocean waves (cf. MacDonald 2001, 374). Interestingly, Gatten's non-naturalistic

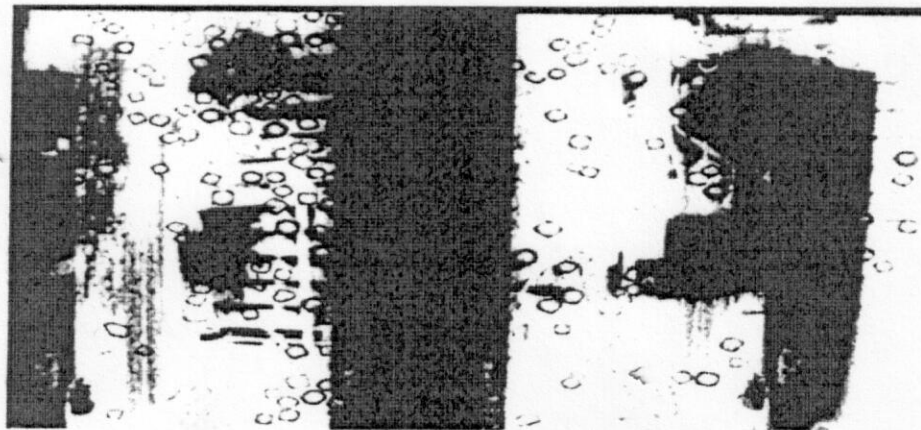


FIGURE 19.3. *Dream Work* (Peter Tscherkassky, 2001). Closing sequence during which a gradually increasing quantity of salt obscures the underlying image.

© Peter Tscherkassky.

mode of sound production, which by no means aimed at an imitation of natural sounds, ends up generating a soundscape reminiscent of the natural world.

*Blutausch* (*Bloodlust*, G 1998)<sup>21</sup> by Thorsten Fleisch is part of a series of five short films, which establish a direct link between the human body and the cinematic apparatus. For *Blutausch* Fleisch applied blood—partly from a self-inflicted wound and partly from a sample—over the entire filmstrip. At times he would spread it on with his fingers or a cotton swab, then let it trickle onto the celluloid or press a single frame against a wound, in order to leave an imprint.<sup>22</sup> The drying blood rapidly formed a series of shifting patterns in varying hues of brown, whose bursting surfaces branched out into a web of fine lines. On the optical soundtrack the traces of blood are heard as a rustle and crackle. “I liked the sound it made and the concept of having the projector interpret my blood audio-visually rather than only visually,” explains the artist.<sup>23</sup> Fleisch’s sound of blood also reminds us of another—albeit only imagined—bodily sound, which Rainer Maria Rilke speculated upon in his 1919 piece *Ur-Geräusch* (Primal Sound). For Rilke the zigzagged coronal suture of a human skull resembled phonographic grooves, and this led him to wonder if a skull might be “played”—and what sounds might be produced. As Rilke’s fantasy illustrates, the quest for a direct inscription of the body onto a technical medium is far from new. However, this utopia did not see the light of day until analog systems of recording began their decline.

## V. LIVE GENERATED SOUNDS AND IMAGES

The conventional model of cinema presupposes a finished product, which is to say that production and exhibition are temporally separated. However, the history of the cinematic avant-garde has repeatedly shown that this is not a fixed convention. The Dadaist film-performances of the 1920s, the Lettrists’ *séances de cinéma* of the 1950s, and in particular the expanded-cinema movement of the 1960s impressively demonstrated that even a medium of reproduction does not necessarily exclude *liveness*. What expanded cinema added to standard cinema was multiple projection, on-stage action, light-shows, color instruments, shadow plays, and further media or practices other than film, such as overhead and slide projections, television, video, computer graphics, and so on. In short, expanded cinema was often a multimedia experience. Its contemporary version—the live cinema performance—seems to recommit itself to the film medium giving prominence to its unique physical qualities, as Jonathan Walley explains:

The key to understanding these works is their preoccupation with the difficulties that the film medium presents: its clunky mechanical nature and resistance to ease of use. Also emphasized is the complex, component nature of film: the multiple, chemical, mechanical and optical components and operations that require mastery, as well as the possibility of glitches inherent in each one. (2011, 244)

Present-day live cinema's renewed interest in the exploration of the physical properties of film is not synonymous with a return to the model of medium-specific purity. On the contrary, many filmmakers, rather than resuscitating any idea of essentialism, create works that challenge the material limits and possibilities of their medium as traditionally defined. In their attempt to disintegrate or even eliminate the fundamentals of cinema, they employ parallel strategies (Walley's "paracinema," 2003) that seem to gain new relevance in the digital age (cf. White 2011, 229). Contemporary projection performances not only turn the moment of projection into a live event, but often also jettison the usual tools of filmmaking or perform a kind of violence against them. "Misuses" of existing technology, combined with low-tech devices, are common features of this practice. Disturbances or failures are intentionally provoked, be it through the deliberate impairment of the filmstrip and/or improper handling of the equipment; the filmstrip, for instance, is treated with chemicals or exposed to the heat of the projector lamp until it disintegrates; the projector itself is mechanically modified or its beam altered by various means, like masks, filters, or even by hand. Notable, too, are the great number of projection performances that experiment with optical sound synthesis and hence circumvent the recording process.

### A. Playing the Apparatus

A key characteristic of current live cinema performances is to bring the traditionally unseen projection event into focus as well as to "cast the filmmaker as a kind of artisan/inventor/do-it-yourself-er who has mastered all of film's mechanical, optical and chemical facets" (Walley 2011, 246). A similar kind of liveness was already evident in Ken Jacobs's stroboscopic *Nervous System* performances from the 1970s onward, where the filmmaker played the images of his projectors—not unlike a disc jockey—by rocking them back and forth (cf. Willis 2009, 12). Jacobs's projection performances include field recording, compositions by the filmmaker himself, and recorded music by composers, which distinguishes them from performances by the current younger generation, whose sound is mostly generated live.

Among the current exponents of expanded cinema emphasizing the projector's performative aspects is Bruce McClure, who cites Jacobs as an important influence (cf. Halter 2010, 185). In his camera-less performances (since 1994), McClure uses between three and six modified 16-mm projectors simultaneously. These are equipped with transformers that can vary the intensity of light from the projector lamps. Thanks to punched metal plate inserts built in by McClure, the sharpness also can be adjusted to varying levels. Depending on whether one focuses on the film frames or on the metal plates themselves, the projection will present a sharp picture with blurred edge in one case, and a sharp edge but a blurred picture in the other. The shapes cut out of the metal plates also ensure that the projection never takes the form of the traditional rectangular screen. Through each of these projectors runs a series of film loops, consisting of rhythmically arranged short pieces of black-and-white leader, which create a flicker



effect. Sometimes McClure “sneezes” India ink or colored dyes from an airbrush onto the clear leader to build up a light obstruction, or he erases parts of the black emulsion in order to create transparency where he wants it.

McClure processes his sound live by optical sound synthesis, in which the dark/light contrasts of the filmstrip, together with the countless splices and perforations, are made audible when they pass over the projector’s optical sound head. The individual loops are spliced with tape, and are then copied by print in the lab. The actual pattern of tape splices that hold the loop together, the printed tape splices and the pattern of switching from transparent to non-transparent leader, all make different sounds. These optically generated sounds are manipulated live by going through a series of distortion pedals and other basic analog sound equipment. The result is a machine-like, deafening Techno-Beat, which in combination with the optically layered filmstrips guarantees the spectator an intensely vivid sensory experience (cf. McClure in Frye, 2006).<sup>24</sup>

In the “music shows” of the British duo Emma Hart and Benedict Drew, we not only see projectors, but all kinds of audio and video equipment and even household appliances being used as live instruments. What is remarkable is the sheer range of inventiveness with which these devices are applied, bestowing upon them new and original uses, as illustrated in *Untitled Five* (UK 2008): “. . . a slide projector plays wind chimes, 16mm projectors play cymbals and a drum, opening and closing DVD player trays strike the keys of an organ, a lamp plays a guitar” (Ball 2011, 270). In the minimalist *Untitled Two* (2006),

different lengths of black-and-clear 16mm film leader are spliced together and threaded through the strings of an electric guitar. The splices in the loop “strum” the guitar strings while the alternating light and dark film is projected onto guitarist Drew and silhouettes him on the screen beyond, synchronized with the amplified sound from the guitar. (Ball 2011, 270)

This method of sound production is fundamentally distinct from that of McClure, although in both cases a projector and a tape-spliced 16-mm filmstrip consisting of black-and-white leader play a prominent role. While the sound in McClure’s performances resides in the *optical* pattern of the filmstrip,<sup>25</sup> which is picked up by the projector’s sound head, in Hart and Drew’s *Untitled Two* it is brought about *mechanically* through the frictional resistance between tape splices and guitar strings. The latter procedure, determined as it is by the model of acoustic instrumentation, in which the filmstrip is used as a plucking tool, can hardly be described as medium-specific. Its defiant anachronism once again stands as proof of cinema’s capacity for reinvention.

## B. Death by Projection

A further version of projection performances sheds light on the vulnerability and fragility of film’s base by subjecting the filmstrip to “death by projection” (Walley 2011, 241). This sacrificial, self-consuming practice, in which processes of material deterioration

and decay are deliberately initiated, conjures up associations of transience and finality. The practice of damaging or willfully impairing material is an artistic device that gained importance in avant-garde films of the 1960s. What a film like *Bardo Follies* (George Landow, 1967) merely depicts, namely the scorching of film frames, actually takes place in Bradley Eros's performance *burn (or, The 2nd Law of Thermodynamics)* (2004–present). Eros threads short sections of a Super-8 pornographic film by hand through the larger gate of a 16-mm projector. Each time the feed slows down or comes to a standstill, the frame that is exposed to the heat of the projector lamp begins to melt and finally burns up. This “forced accident”<sup>25</sup> triggers—as the title of Eros's performance suggests—an entropic process, which can be identified with what Georges Bataille describes as *informe* or “formless” (1993, 33). According to the French author, the imperative of form can only be countered by an uncompromisingly rigorous “lowering,” a destabilizing act such as that of melting or burning. The scorching plastic strips, disintegrating beyond recognition, are then suitably overlaid by Eros with a “found” soundtrack: Robert De Niro's voice-over narration from *Taxi Driver* (1976), along with Bernard Herrmann's film score. The sound material came from a radio show on Hollywood soundtracks that Eros had recorded years before onto cassette tape, which explains its low-fi quality.<sup>26</sup> De Niro's character tells of how the city must be cleansed and how he must get his body back *in form*, while the image continues its *falling-into-the informe*.

Jürgen Reble's film performance *Alchemie* (1992–present) was developed in collaboration with musician and composer Thomas Köner. Köner's work in sound art focuses on timbre, the quality of sound which—in contrast to melody and rhythm—is most intimately linked to the sound source itself (cf. Farano 2000).<sup>27</sup> Musical timbre finds its counterpart in the materiality of the filmstrip, and is reflected in Reble's attention to its physical dimension. *Alchemie* concurrently mirrors the formation and destruction of the image. Sound is generated exclusively live, and results from noises born of the physical handling of the projector and the film material (see Figure 19.4).

A 16-mm film loop, consisting of found footage (mainly extracts from documentaries and German expressionist films) is run through a series of chemical baths during the projection itself; developer, bleach, fixer, corrosive acids, and organic and chemical dyes all seep into the emulsion, attack it, and gradually dissolve it. Several microphones capture the ticking and rattling of the film's feed as well as the hiss and gurgle of the chemicals as they react with one another and eat into the “flesh” of the film. Sounds that under normal circumstances would not be audible to the naked ear are amplified by means of pickups, which might be placed in the projector's casing or underneath the porcelain bowls containing the chemicals. In this way, each microphone signal, filtered according to its timbre and mixed live, “becomes a ‘voice’ in the composition” (Köner 2012).<sup>28</sup>

### C. Light and Sound

Another form of rejection of medium-specific aspirations can be seen in those performances in which the sound is created through the direct manipulation of the projection

### ALCHEMIE, Assembly in Space

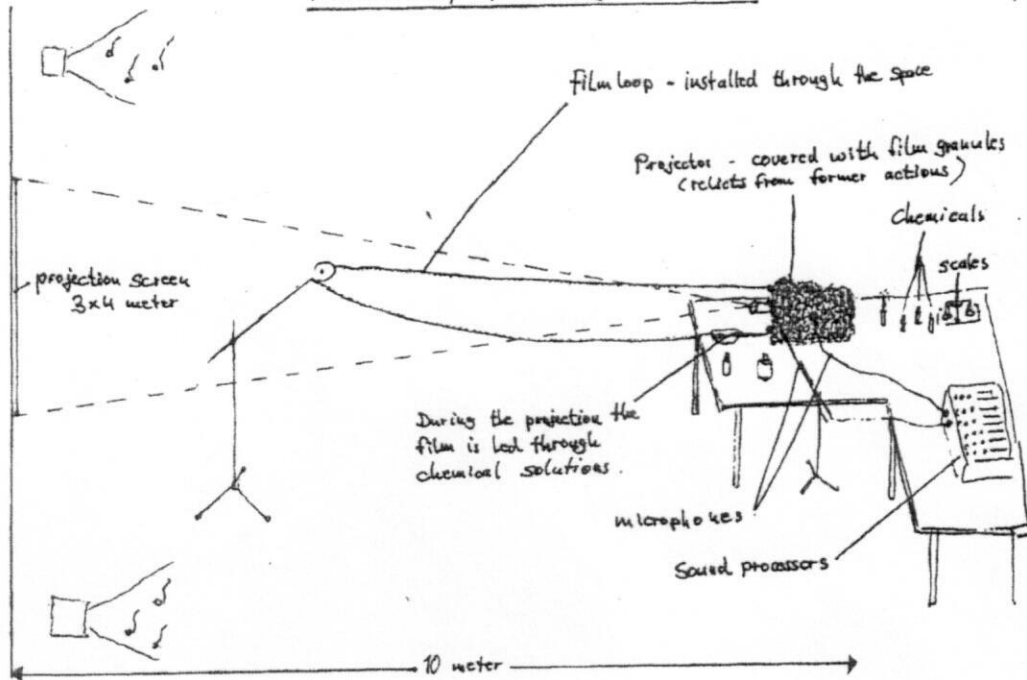


FIGURE 19.4. Film and sound performance *Alchemie* (Jürgen Reble, Thomas Köner, 1992–present).

© drawing: Jürgen Reble.

beam. In his double 16-mm projector performance *The Black and the White Gods* (2008–present),<sup>29</sup> Ben Russell uses a variety of black-and-white flicker film loops and a fragment of his earlier experimental ethnographic film *Daumë* (2000), shot while the filmmaker was a development worker in a small village in Suriname in South America. It consists of two shots, showing a young black man squatting on the ground who, as if suddenly startled by a sound, jerks his head to the right and proceeds to exit the frame in the same direction. In the next shot, we see the man in close-up; he smiles into the camera, and then proceeds to put a white mask onto his face. Russell also uses hand-built light-sensitive audio circuits placed in the eye sockets of a replica human skull mounted on a microphone stand in front of the screen. While the outputs from the circuits can be modulated for pitch and volume, it is the light from the projector's bulbs that directly produces the sounds. The projector's beam is controlled by the shutter at the projector gate, by the film running through the projector, by the focal length and the focus of the zoom lens, and—last but not least—by Russell's hands moving in front of the lens. All of these interferences directly change the soundscape and create a dynamic relationship between light and sound, the one producing the other.<sup>30</sup> What begins as a representational image dissolves in the course of the 20-minute performance into a flickering field of black and white retinal afterimages. A similar reduction to pure noise occurs in the sound, where the original jungle noises from *Daumë*



gradually phase into a manually controlled sound of technology, whose commanding, insistent rhythm creates a kind of neo-psychedelic trance sound.

In their collaborative cinema performances, Sandra Gibson and Luis Recoder focus on the physicality of light and space. By using 16-mm film projectors and simple mechanical means, they create slowly shifting abstract light sculptures. In some of their works, optically synthesized sound figures prominently; in *Override* (2004–present), it is generated by means of perforated flicker loops processed through an analog effects device; in *Exciter* (2006–present), it results from the sound of the film material itself—in this case a double-perforated black leader loop that passes through the optical heads of two projectors. For *Entanglements* (2009–present), Gibson and Recoder employ a variety of pre-scratched loops on opaque black leader, and for each performance a different sound artist is invited to “interpret” the optical tracks. Gibson and Recoder have worked with Daniel Menché, Olivia Block, Adam Sonderberg, and Ben Owen. They comment on optically synthesized sound thus:

Optical sound interests us because of the non-synchronous discrepancy between seeing and hearing that it seems to make explicit. The 26-frame distance between the gate and the optical reader is the aesthetic gap or fissure within the art of projection itself, or rather, the unsettling confrontation between a visual art and the art of noise.<sup>31</sup>

Ben Owen’s interpretation of *Entanglements* at the New York Performance Biennial *Performa 09* (2009) can serve as an example here. *Entanglements* is a piece for four 16-mm projectors, two projectionists, and one sound “engineer.” The visual effects are achieved through subtle alterations in the focusing, manual interference of the light (mostly veiling and unveiling the light with bare hands), movement of the projectors, and a very fine mist of water sprayed onto a piece of glass in front of the projector lens.<sup>32</sup> Owen, who began his sound studies with cassettes and live radio in tandem with lithography printmaking, finds inherent similarities between mark-making on stone and on film leader, both being surfaces dealt with by additive or subtractive processes. In Owen’s acoustic interpretation of Gibson’s and Recoder’s visual scratch marks, the sound is solely generated live in performance. Its only source is the scratched patterns on the film stock. Once the audio signal enters the computer, the mixing, filtering, and equalization are done by digital software and then sent to the speakers in analog form, which generates various degrees of noise. As Owen emphasizes, it is no longer the artist but the material itself that makes decisions, which are based on its own nature.<sup>33</sup>

## VI. CONCLUSION

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In contrast to earlier avant-garde movements, which conceived themselves in utopian terms and fully embraced the advent of new technologies, the contemporary

cinematic avant-garde considered here turns its back on recent technological developments. Undoubtedly, its major tool—*analog film*—is by no means less obsolete than, for instance, the phonograph or the typewriter. But, unlike in the past, today's advanced technologies are widely available to the average consumer and have largely replaced what we are inclined to call "old media." Since the generation and rendition of image and sound by digital means have become a mass social practice, the degree of technology employed no longer serves as a marker of artistic innovation. Moreover, as Rosalind Krauss (1999b) points out with reference to Walter Benjamin's theorization of the outmoded, it is precisely under the guise of their own obsolescence that outdated technologies are able to assert their redemptive possibilities by reminding us of their unfulfilled utopian dreams: "As Benjamin had predicted, nothing brings the promise encoded at the birth of a technological form to light as effectively as the fall into obsolescence of its final stages of development" (Krauss 1999a, 45).

The aim of the present chapter has been to map the territory of the contemporary cinematic avant-garde, which arose at the very moment of celluloid's passage from mass use to obsolescence. By broadening the scope beyond the formal level and lending an attentive ear to the sounding of film's material and technological bases, I trust that we can now testify to the cinematic avant-garde's inventive approaches to sound.

## NOTES

1. Though both *avant-garde film* and *experimental film* are problematic, I am using these terms because they are accepted designations and denote a particular dimension of film history.
2. Apart from the occasional contribution in anthologies and periodicals (Camper 1985; James 1986; Gawthrop 2006; Suárez 2008; Jutz 2009) and in monographs (Turim 1985; Hamlyn 2003), it is in particular Andy Birtwistle's *Cinesonica: Sounding Film and Video* (2010) that offers a notable exception, in that it sets new standards for the analysis of the audiovisual avant-garde through its critique of semiotic models.
3. The term *cinesonic* originated with Philip Brophy (1999), and was then adopted by Birtwistle (2010).
4. The film and its script can be found in the artist's website, <http://www.sufriedrich.com/> (accessed 12/31/2015).
5. Su Friedrich, email message to author (8/26/2012).
6. Su Friedrich, email message to author (8/26/2012).
7. *Ibid.*
8. Script and soundtrack can be accessed online, <http://mikehoolboom.com/?p=405> (accessed 12/31/2015).
9. "[T]he sound reproducing head in a 16mm projector is positioned separately from the picture gate, 26 frames further down the film path. This is a sufficient distance for the flywheel to smooth out the intermittent motion produced at the gate" (Sherwin 2007, 97).
10. Eve Heller, email message to author (8/28/2012).
11. The brackets indicate the whole word from which the word fragment that is heard was derived.

12. Eve Heller, email message to author (8/28/2012).
13. Henry Hills, email message to author (8/28/2012).
14. Ibid.
15. Michael Snow, talk at the Austrian Film Museum, Vienna (2/25/2012).
16. [http://www.youtube.com/watch?v=QovgZv\\_JWfM](http://www.youtube.com/watch?v=QovgZv_JWfM) (accessed 12/31/2016).
17. <https://mubi.com/films/larrivee> (available in 2016).
18. <https://mubi.com/films/outer-space> (available in 2016).
19. <https://mubi.com/films/dream-work> (available in 2016).
20. <http://canyoncinema.com/catalog/film/?i=3493> (accessed 31/12/2016).
21. <http://vimeo.com/3859031> (accessed 12/31/2015).
22. Thorsten Fleisch, email message to author (2/29/2012).
23. Thorsten Fleisch, interview by Jen Talbert, *fleischfilm.com*, [http://www.fleischfilm.com/html/interview\\_1024.htm](http://www.fleischfilm.com/html/interview_1024.htm) (accessed 12/31/2015).
24. Bruce McClure, interview by Brian Frye: <http://www.brooklynrail.org/2006/07/film/bruce-mcclure-with-brian-frye>. McClure also released a vinyl LP of "soundtracks" recorded at Walker Art Center in Minneapolis (2009).
25. Bradley Eros, email message to author (9/7/2012).
26. Bradley Eros, email message to author (9/7/2012).
27. [http://www.filmalchemist.de/publications/farano\\_de.html](http://www.filmalchemist.de/publications/farano_de.html) (accessed 12/31/2015).
28. Thomas Köner, email message to author (9/14/2012); Jürgen Reble, email message to author (9/6/2012).
29. <http://vimeo.com/8092540> (accessed 12/31/2015).
30. Ben Russell, email message to author (8/20/2012).
31. Sandra Gibson, email message to author (9/13/2012).
32. Sandra Gibson, email message to author (9/13/2012).
33. Ben Owen, email message to author (9/19/2012).

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