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To the memory of the life and research of Maria Hanáček

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Preface

Our work on this volume started in 2009. It all began with a phone conversation, in which we, Jens Gerrit Papenburg and Holger Schulze, discussed our mutual interest in working together on some form of collective research project concerning the state of contemporary research on sound in popular and media culture—a project that could be conducted at the cross section of a variety of disciplines, scholarly and professional practices, aesthetic genres, and everyday experiences. From this starting point, and in collaboration with our great and cherished colleague Maria Hanáček, we developed a project proposal to bring both young and experienced scholars working in these fields in Germany together with scholars from all over Europe, the United States, and Canada.

As soon as the national German Research Foundation (DFG) had granted us the funding for our project as a research network, we started inviting a group of twenty-two researchers to take part in a series of international workshops: at the Berlin University of the Arts and the House of World Cultures Berlin (host: Holger Schulze), at the London College of Music (host: Simon Zagorski-Thomas), at the Academy of Fine Arts Vienna (host: Diedrich Diederichsen), at the Humboldt University Berlin (host: Peter Wicke), at the Leuphana University Lüneburg (host: Rolf Großmann), and at the Istituto Europeo di Design Milano (host: Franco Fabbri). Between 2010 and 2013, we held and heard presentations, working papers, preliminary concepts, revisions, and discussions concerning the definition and the history of sound, both the everyday and the studio aspects of sound, and regarding anthropological, technological, and design approaches to sound as part of contemporary popular culture in the twentieth and early twenty-first centuries. Our thanks go to the network's members and guests: Karin Bijsterveld, Susanne Binas-Preisendörfer, Jochen Bonz, Michael Bull, Claudia Bullerjahn, Thomas Burkhalter, Mark J. Butler, Diedrich Diederichsen, Veit Erlmann, Franco Fabbri, Golo Föllmer, Marta García Quiñones, Rolf Großmann, Thomas Hecken, Anahid Kassabian, Carla J. Maier (née Müller-Schulzke), Carlo Nardi, Thomas Schopp, Jonathan Sterne, Paul Théberge, Peter Wicke, and Simon Zagorski-Thomas. Thanks also to everyone who contributed a lecture or performance, or who took part in

33 Phonographic Work: Reading and Writing Sound

Rolf Großmann

Two styluses have written history in music: the quills of Bach, Mozart, and Beethoven, and the gramophone needle (figures 33.1 and 33.2). Both of them physically document something that has to do with sound, and both serve as media for the transmission of tradition and the creation of art forms. Reading and writing are our most important cultural skills. This applies most of all to written language, but also to other notation practices. In the case of musical notation and phonography, for instance, both the methods used and the semantic label “-graph” suggest that they can be understood as systems of reading and writing. A pointed object inscribes something onto a particular material (paper, wax, tinfoil, etc.), which then exists after this process as an (in-)formed object.¹ As a medium, it represents a third aspect; it can be used, copied, and archived with regard to this new aspect. In contrast to the technical media of photography and cinematography, which took their first steps in the nineteenth century, in the case of phonography and the usage of the gramophone the analogy to writing can almost literally be grasped.² Even William Fox Talbot referred to photography as a “pencil of nature” in 1844, though in that case, a photochemical process took place that bears no resemblance to the artisanal activity of writing—which points to an important cultural aspect that lies beyond any concrete technical methods. Photography and phonography have assumed a cultural function, that of painting and musical notation, which were formerly assigned to brush and pencil. Instead of the painter, it is now the camera that is doing the “painting,” and the music is engraved onto a phonograph cylinder.

By the time of tape recording, with its “read and write heads,” the procedure had nothing to do with writing performed by humans. The process of writing and reading is invisible and cannot be carried out without being mediated by technology. In the installation *Random Access* (Nam June Paik, 1963), a sound head is guided across tape fragments that have been stuck onto a surface: this only uses the metaphor of reading, of exploring an unknown media text. At the same time, in its materiality and referentiality, it demonstrates a difference between technical and manual notation.



Figure 33.1

A classical writer—of music. Statue of Beethoven at the Münsterplatz, Bonn (Germany) (photo courtesy of Rolf Großmann).



Figure 33.2

A divine writer. The Writing Angel trademark, record label (1900–1907), the Gramophone & Typewriter Company, London.

Friedrich Kittler (1985) explored this transformation in *Aufschreibesysteme 1800/1900* (“systems of inscription”)³ as the media-technological core of cultural change and demonstrated an important point for policies on methodology, as well as a new direction for research in the humanities in particular: the cultural techniques of writing can be detected in the cultural practice of the technical media and are subject to continuous transformation. However, Kittler also speaks of the fundamental differences among the technical functions of media, which are of considerable importance regarding sound media. To him, the gramophone is the medium of “the real,”⁴ with its object being the physically formed “precultural” world of sonic waves: “Thus, the real—especially in the talking cure known as psychoanalysis—has the status of phonography” (1999, 16).

Turning Kittler’s psychologizing view into a cultural perspective, the difference between gramophone writing and musical notation becomes clear. The reference of musical notation is a cultural practice that began with Guido d’Arezzo in the eleventh century and simultaneously founded the composition techniques of European art music and proceeded to develop along with it. Here, the meaning of the notes is generated by the notion of the pitches of tones that are shaped by their respective musical practice and temporally meaningful arrangement. So this notation is related to a cultural construction, an idealized system of notes and rhythmic arrangements (the *tone universe* of Western art music). Only against the background of this construction does any handling of this writing, whether it be for the purpose of remembering, performing, or composing, make sense. It is therefore not only the ability to write it down manually but also the knowledge of its complex cultural context of meaning that is part of this particular media literacy.

In contrast, the phonograph’s technical reading and writing down of the sound initially requires nothing other than the technical apparatus itself. Its media-semiotic reference is the vibration and not a culturally shaped notion of tones based on systems of tonality and scales. Although the usage of this machine in its respective environment is just as little independent of culture as the range and the perception of the noises and sounds it engraves, as Kittler rightly points out, technological writing relates to a reality before its cultural forming (the *universe of sonic vibrations*). In addition, the apparatus itself is capable of creating sounds, an ability that was previously attributed to humans and musical instruments. Its culturalization as a system of writing—comparable to the development of musical notation from the Guidonian hand to neumes to score notation—therefore progresses on a different basis than that of the idealized and rationalized notation systems of European art music.

“Classical” Thinking—Composition

Entering into a new system of media reference has consequences. When sound notation, along with its apparatuses, became the medium of working with music in the twentieth century, what characterized this work, and can one continue to refer to it as composing? In art music, composing is a process of providing musical structure—and not any specific sound—with a form. Although it is related to performing in a complementary manner, composing is nevertheless distinct. According to the established conception of composition, it is tied to working with the musical material of notation, to concepts of melody, harmony, rhythm, and arrangement. The object of this work is a network of established concepts, methods, and rules, or, as Eduard Hanslick puts it: “*geistfähiges Material*.”⁵ His “classical” foundations are the methods and forms of handling melodies and polyphonies, described as contrapuntal work, functional harmony, or motivic-thematic work. Even where extended—for example, graphic—scores are used, the separation of structural representation and realization as sound continues to exist.⁶

In contrast, phonography, as a system of writing, has only a little to do with these traditional musical parameters. It does not notate pitches and rhythms, but instead progressions of vibrations; at the same time, its apparatuses have the character of a (musical) instrument and link the process of technical reading to a “performance” of that which has been written down. With regard to the referenced musical material—and thus from the perspective of “classical” composition work—this medium is inferior to the former system of music notation: the musical structure must first be filtered out of the background noises and the manifested sound; as an instrument, it is a second-degree generator of sound that merely reproduces the musical instruments of a preceding presentation with qualitative losses. If work is performed against this background at the level of phonographic signals, it is evident that the aim should not be that of composing but of improving quality—or of a manipulation that creates the impression of an optimally authentic reproduction. The result is “a recording aesthetic of ‘concert hall realism’ and ‘high fidelity,’” as Edward R. Kealy (1979, 9) describes the “craft-union mode” of record production. Paradoxically, even in this phase of what appears to be phonorealism, the stated goal of the production is illusion: “The listener’s illusion that he was sitting in Philharmonic Hall rather than in his living room” (ibid., 210–211).

In fact, the concept of *composition* is actually rarely used in the context of technological media, the emphasis being more on *design*, *effect*, and *manipulation*. These are terms of accident, and they presume a primarily existing essence that is merely modified through phonographic media. The sound (the sonic materiality) of the music is its necessary precondition, although it remains subordinate to its structure as a performance variable. The term *composition* connotes a differentiated structural organization

and would thus have a claim to reflection and value, which have so far been ascribed solely to art music. Regardless of all the criticism of the dominant methods for an analysis of art music, the field of popular music studies is also associated with this manner of thought.⁷ Therefore, if there is any mention of composition in the context of phonographic work, far-reaching changes in structure and form are presupposed. This condition is first observed in the discourse on popular music studies in the context of early overdubbing and subsequently multitrack recording. “Les Paul’s approach to recording was, without doubt, a form of composition, a literal ‘putting together’ of the music” (Théberge 1989, 105). Chris Cutler, who was among the first to describe the significance of the “media of electronic transformation and recording” for musical innovations in the popular music of the twentieth century, stresses the option to turn performances in multitrack recordings into the object of collective work and composing. To him, recording is “a medium of composition for performers” and, with a view to the avant-garde of *musique concrète* and electronic music, “a medium of performance for composers” (Cutler 1984, 286–287). I would like to address this perspective in more depth in the following section and focus the discussion on the medium as a writing system.

Working with Phonographic Material

Here, the term *phonographic work* has three points of reference: as an object (work of art), as process (working), and as an abstract term for a common practice that includes a specific knowledge and methodology. I will concentrate on the third meaning, which is deduced from the “trademarks” of written composition in classical music, such as the already mentioned motivic-thematic work—and which clearly demands comparable appreciation as a compositional process.

However, in the interaction between objectification and working with the objects, this type of conceptualization always incorporates the two aforementioned aspects of meaning as well. In focusing on phonography as it is related to performing, the character of the record as an elaborated artifact itself is eclipsed. Since we “are used to treating records as musical events *in themselves*” (Frith 1988, 21; original emphasis) in this era of advanced hi-fi, records are able to become independent of their performance and construct a sound reality of their own. The medium leads us to “new forms of *creative art*—forms in which the capturing of performances ... becomes not an end in itself but a gathering of raw material which can be treated in various ways: sped up, slowed down, chopped about, mixed, distorted and so on, as part of considered composition” (Clarke 1983, 199–200). It is obvious that such methods of phonographic composition had to lead to a profound crisis in the authentic representation of performances in rock music. This contradiction is only resolved when “the art of record production” (Frith and Zagorski-Thomas 2012) is viewed from the perspective of a new reference

system of composition and performance: in forming artifacts at the level of vibrations and samples and the independent media-technical performance of these artifacts. In order to gain a better understanding of the impact of phonographic notation and the electronic and digital transformations of phonographic signals associated with it, two fundamental extensions of the perspective are necessary:

- Crossing the boundaries of the “popular” to gain access to the experiments of the avant-garde of the twentieth century, and
- Including musical cultures whose practice is not primarily shaped by the value standards of Western art music

This broadening of the perspective relates first and foremost to all forms of the development and sedimentation of the practical knowledge of creating music with this new notation of sound. It applies to performative practice, to the development of new instruments, and to working with phonographic material in the studio or with



Figure 33.3
Moholy-Nagy's dream as a visual artwork. *Komposition für Tim Wilson II*, KP Brehmer, 1986 (photo courtesy of Ursula Block). Ink, tempera paint on graph paper, 33.0 × 33.0 cm. Courtesy gelbe MUSIK/Ursula Block, © VG Bild-Kunst Bonn 2015. Tim Wilson was a familiar figure on talk shows who was able to “read” unlabeled records and assign them to the correct recording artist.

a notebook. Thus one of the pioneers of phonographic thinking can be found at the intersection of visual art and synesthetic ideas in the 1920s. Bauhaus artist László Moholy-Nagy, taking the idea of writing with a phonographic needle literally in the twenties, attempted to create a universal instrument with the aid of an alphabet of etched patterns (“Ritzschrift-ABC” [“groove-script alphabet”]; Moholy-Nagy 1926, 363)—but that was based on a misconception. The direct, manual engraving of sounds in the grooves of the record proved impossible. The process of immediate reading and writing had to remain a technical one. However—and this is where his vision really was forward-looking—the mechanics and the mechanisms really can be *played*. Christian Marclay, who aptly refers to himself as a “record player,”⁸ or Kid Koala, who creates new melodies with the pitch control slider, are contemporary examples of performers playing directly with the turntable’s reading mechanisms. In fact, the performative acquisition of reading and writing processes is a long-standing tradition in the twentieth century that is based on the key functions of altering the playing speed and layering or mixing several signals. The experimental instruments of Pierre Schaeffer (built by Jacques Poullin), the *morphophone* and the *phonogène*, emerge in parallel with developments such as Harry Chamberlin’s tape-replay home organ (which became the *mellotron*) and King Tubby’s delay and filter devices in Jamaican dub, which have since found their way into the everyday culture of popular music via sampling and hip hop. Finally, playing with phonography has established itself with instruments ranging from the DJ setup, the mellotron, the sampler, with tape delays such as the Echoplex or the Watkins Copicat to live sequencers, virtual instruments, and software plugins connected to new, sensory interfaces.

In this case, working in a studio perhaps most closely resembles the traditional role of the composer, who forms musical material in the absence of instruments and performances. The cutting, mixing, and processing of recorded material presupposes not only a certain distance from the performative act and technological skills, but also the ability to work extensively with *musical material*—that is, the aesthetically significant, culturally sedimented phenomena and methods. That this composing process was not understood as such results from the classical music-based thinking explained above and the notions of authorship, originality, works, and performance that it implies. For, in addition to the self-recorded original material by, for example, Pierre Schaeffer, Jimi Hendrix, and Brian Wilson, since the 1980s the raw material of musical work has also been material shared with others (dub versions, for example) or completely external material extracted from other recordings on vinyl, tape, or as a sample (as used by Grandmaster Flash, DJ Shadow, or Public Enemy, among others). If the new material—such as Pierre Schaeffer’s *objets sonores*—and their processing provoked a dispute over the classical concept of composing, then working with archives of specific performances of already “finished” music—that is, out of the DJ’s crates, the loops, and the chopped beats—lies completely outside the concept of Western art music.

In a traditional sense, an author's composition ideas are manifested in a successful performance. The audibly perceptible result is the end of a chain of material, composition, and notation in which the musical structures are defined. Any adoption of parts of the notation or performance from another work of art or performance is regarded as plagiarism. However, in phonographic notation, the process begins with the performance. It is reperfomed in the medium as a second-degree performance or further processed as phonographic material—or both. The respective performances are now entering phonography as “secondary orality” (Ong 1982), and this orality—and along with it structures of the previous work—becomes the object of instrumental playing, composing work, and the construction of new artifacts that now emerge as phonographic work. Here, the modes of production and individual styles are combined to form hybridizations from diverse origins and selections and are represented in the charts, as is the case with Madonna's “Music,” Kanye West's *808s & Heartbreak*, or Daft Punk's “Get Lucky.” Thus, an aesthetic historiography develops on the basis of technological media storage and transformation that is often misunderstood as an aesthetics of repetition or as recycling. In fact, it is no more and no less than the results of working with phonographic media as systems of notation and cultural archives.

Magic Science

In order for such a practice to develop outside of the concept of Western art music in the first place, alongside the experiments launched by the European avant-garde and its popular culture adaptations, a new, active approach to audio-technology and recording was required as a driving force. Originally, the technology of mass media had the negative connotation of serving as an instrument of cultural industry and leading to a passive, alienated culture of music. This position can be summed up as follows: “Pop is a classic case of alienation: something human is taken from us and returned in the form of a commodity. Songs and singers are fetishized, made magical, and we can only reclaim them through possession, via a cash transaction in the market place” (Frith 1988, 12).

Simon Frith puts forward this standard argument in order to then subject it to a detailed critique. Here, it serves a similar purpose. This intentionally exaggerated critique of cultural industry contains two key aspects: *alienation* and *magic*. In order to make them productive, we will look at the active roles of two groups of actors in the pop universe for whom the acquisition of pop as a commodity is certainly not of central interest. As extreme positions, these include both the artists themselves and those excluded from the established commodity cycles for lack of purchasing power. Replacing *commodity* with (*media-*)*technology* yields new options to handle pop and pop recording: by adopting audio-technology and using it creatively. Using Jimi Hendrix's own characterization, Paul Clarke refers to a “magic science” (1983, 195–198) as a new,

positive mode of applying technology in the studio that is at the same time located outside live performance: “This is where Hendrix's term ‘magic science’ comes in useful, in that it insists we approach rock songs with an ear not only for the ‘magic’ of our experience of them, but also for the ‘science’—the technological processes—through which the music is created” (ibid., 196).

Jimi Hendrix is an early prototype of the alienated inhabitants of the “Black Atlantic,”⁹ who sought to adopt technology in ways that were beyond its inherent rationality. These include not only theatrical and experimental live feedback activities, but also, and in particular, a new way of handling studio technology. Their use of the studio bears the hybrid traits of simultaneously magical and thoughtful work with material whose emphasis on sound and whose orality and expression initially appear to reject all processing into a written medium. Here, technology does not serve the purpose of some calculated improvement of a musical product's commodity character; instead, technology is used to enhance its aesthetic intensity.

However, the crucial step in developing a literacy of recording required an even more radical breaking away from Western concepts of music and was also taken in the context of the “Black Atlantic.” The social and societal conditions in Jamaica—a country that was hardly able to participate in the circulation of cultural industry commodities and whose production facilities functioned in early capitalist conditions—provided a fitting framework for this. Here, records were produced in the early 1960s, but more to be used in sound systems than to be sold to the public (Manuel and Marshall 2006, 449). So the aim of production was to make something that would have been regarded as having little sense in the Western world: the use of phonographic media as a media-instrumental part of a widespread, established performance practice. Partly alienated from its function and partly modified, studio equipment such as filters, reverbs, delays, and mixers served as a creative set of instruments in a new type of media performance instead of being used to create the illusion of authentic reproduction.¹⁰ Thus the recording had now also overcome its role as a reproducing medium in the everyday practice of popular music that had only been assigned a meaning with reference to an original performance. The consequences of this change of roles are not only new phonographically montaged live genres such as dub, dancehall, or hip hop, but also, with “versioning” and “riddim,” new concepts of a dynamized musical identity with a shared authorship (ibid.). At the same time, attention is shifted from melodic and harmonious forms of development to the sound and rhythm of repetitive patterns—that is, to what appears to be of secondary importance in regard to the composition of Western art music. In this context, and only a little later, with “Breakbeat Science,” a central and highly differentiated field of “magic science” or, as Kodwo Eshun puts it, referring to the 1960s Sun Ra Arkestra, “Mythscience” emerges (Eshun 1998, 00[–004]): “For Flash [Grandmaster Flash, RG] in ‘81, going to the lab means approaching the studio as a research centre for the breaking down of the beat. In the lab, the

Breakbeat is isolated and replicated, to become the DNA of rhythmic psychedelia" (ibid., 02[013]). The sound laboratories and sound systems of dub are an elementary instrument-based and conceptual ecosystem for the transcultural aesthetic dissolution of boundaries in phonographic work and for its development. The scopes for action created here relate to all areas of sound and temporal structure and have an impact regarding its usage in composition, ranging from sound effects, multitrack recording, mixing and remixing to the digital world of the twenty-first century. They are characteristic and prototypical of a new link between humans and media technology that has ultimately become established in all studios performing artistic work. Against this background, the modes outlined by Kealy in 1979 on the way from "craft-union mode" to "art mode" represent the first variants of generalized media literality flowing into a broad practice of phonographic work. Only the establishment of new relations between technical notation, its reading and writing apparatuses, and cultural practice constitutes a reference of phonography differing from that of acoustic vibrations. The *Aufschreibesystem* of the acoustically real (see above) thus becomes the overarching field of activities for performing and composing music, and phonographic work transforms musical performance into a new type of musical material.

Translated by Mike Gardner

Notes

1. A detailed investigation of the "Genealogics of Acoustic Inscription" can be found in Levin 2006, 49.
2. Cf. Adorno (1934) 1990, 56: "It is covered with curves, a delicately scribbled, utterly illegible writing..."
3. Regrettably, this central aspect of inscription (word for word, the title translates as: "Systems of Inscription") was not adopted in the title of the English edition: "Discourse Networks 1800/1900" (Stanford, 1990).
4. And yet this aspect of the "real" is already reflected by Kittler: "Media 'define what really is'; they are always already beyond aesthetics" (1999, 3).
5. See Großmann and Hanáček, "Sound as Musical Material," in this vol.
6. Chris Cutler gives a detailed description of these "innate qualities of notation" against the background of rationalization and industrialization (1984, 284–286).
7. Thus while Philip Tagg's advanced method of analysis provides for a consideration of "electromusical and mechanical aspects," "compositional texture and method" is assigned to the "aspects of tonality and texture" (1982, 48). Finally, in an almost traditional manner, his subsequent

model analysis of the most minute musical elements (the "musemes") refers to melodic phrases and motifs.

8. Exhibition Christian Marclay, *Record Player*, 1984, New York, Galerie Paula Cooper and Christian Marclay—*Record Player*, DVD video documentary directed by Luc Peter, Switzerland, 2000.
9. Drawing on Richard Middleton, Clarke describes aspects of a cultural hybridization that Paul Gilroy (1993) explores in detail using the term "Black Atlantic."
10. For details, see Williams 2012. The remix in 1970s New York disco represents a similar development of media performance, although it lacks the radicalness and the desire for experimentation characteristic of dub.

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34 Listener Orientation

Mark J. Butler

I think the main difference is, in electronic music, there's a lot of ways to create something that runs—that is static, but nevertheless, it's creating something. Take a drum computer: you turn it on and it plays a pattern. And you cannot turn on a drummer. A drummer always has to do something in order to work. And the drum computer, you turn it on and the pattern is there, but the action of the person who is playing the drum computer is *changing* the pattern.

—Robert Henke (Monolake), interview with the author, Berlin, Germany, July 22, 2005

In the above statement, Robert Henke contrasts electronic music with styles played on traditional instruments. He makes a distinction between continuously "doing something" in order to produce a sound, as an acoustic drummer would, and initiating a process that runs on its own once set in motion. He also articulates a tension between a process moving inexorably forward through time and the "static," almost physical sense of presence that a pattern evokes when it is just "there." In speaking about his musical creations, he describes independently functioning sounds from an external perspective—almost as if he were listening to someone else's music—rather than as finished compositional products to which authorship might be ascribed.

The sites of contrast in Henke's remarks consistently express a divided perspective: on the one hand, he speaks as an agent of sonic genesis; on the other, as someone who stands outside the event he has initiated, hears it, and evaluates it. In the latter role, he acts particularly as a *listener*. I describe this kind of perspective on sound as *listener orientation*. This term captures a set of attitudes that is widespread within electronic dance music. A DJ or laptop set characterized by listener orientation is simultaneously performance-based and interpretive; it encompasses both the production and consumption of sound. The musician's attitude is reflective and characterized by a dual consciousness. I elaborate these qualities in the following article. Although I will be speaking primarily of performance, listener orientation is equally characteristic of electronic dance music's compositional processes; it can best be understood as a way of perceiving an unfolding sonic event.