



## **The Body of Sound**

### **Sounding out the History of Science**

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## **The body of sound**

**Sounding out the history of science**

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## Abstract

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*Sound affects and pervades our body in a physical as well as a phenomenological sense: a notion that may sound fairly trivial today. But for a long time in Western history 'sound' was no scientific entity. It was looked upon merely as the lower, material appearance of truly higher forces: of more ephemeral, angel-, spirit- or godlike structures – and later of compositional knowledge. To be interested in sound was to be defamed as being unscientific, non-compositional, unmanly.*

*Which steps were taken historically that gradually gave sound the character of a scientific entity? This article moves along recent science history: since the nineteenth century when the physicality of sound and later the corporeality of sonic experiences were first discovered and tentatively described. Exemplary studies from the science history of acoustics, musicology and anthropology of the senses are analysed and restudied – from Hermann von Helmholtz to Michel Serres.*

*Even today, we may ask ourselves: What would an auditorily-founded research be like? Could there be a field of sensory research – via sensing sound?*

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Sound is not weightless. It is not bodiless, not ethereal, it is not immaterial. The opposite is true. Sound goes through my body, through your body – right here, right now, wherever we are.

In any given moment of my or your life manifold vibrations go through our bodies: vibrations that come to us out of the environments we are situated in. Sound is thoroughly material, it is a vibration, a disturbance in a material continuum: a disturbance that moves through elastic materials. All molecules in motion are reverbed and remixed – an airquake, a stonequake: a trembling and quaking of bodies and beings.

What does it mean to understand this corporeality of sound in its full impact and effect? What strange and unforeseeable ways did research in the fields of the sciences, the humanities and the arts take in the last centuries to approach this fundamental and highly consequential insight? Obviously, these fundamental questions cannot be answered exhaustively in one brief article. But to give an insight into the basic problems of this trans-disciplinary research field, I have decided to explore these questions by referring to selected crucial theoretical and epistemological positions in order to thus discuss the developments that have taken place since the nineteenth century and the developments currently at stake in the field of sound research in the humanities, in the natural and in the social sciences.

This article, therefore, brings together exemplary and highly heterogeneous approaches by Hermann von Helmholtz, Eduard Hanslick, Jean-Luc Nancy, Michel Serres and Kodwo Eshun in one research discussion, spanning not only 150 years,

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but also a highly diverse variety of research cultures: from the nineteenth century's decidedly Eurocentric, systematic and almost imperialist approaches to the sciences and to the humanities over post-phenomenological and post-structuralist approaches as well as the culturally and historically reflected anthropologies of the late twentieth century to contemporary approaches that are, at the same time, deeply grounded in the experience of hegemonic popular culture as well as in an advanced intellectual and global discourse of critical theory.

In doing so, this article progresses in the form of a sometimes cautious, sometimes bold, now errant, then detailed reflection: a style that has been coined 'tentative' or even 'essai' since the first boldly experiential and non-scholarly texts by Michel de Montaigne in the sixteenth century (Montaigne 1595/2001). This reasonably hesitant and experiential approach can by now, in the second decade of the twenty-first century, finally be regarded as the genuine way of the humanities to undertake basic research (Stanitzek, 2011). This epistemological approach applies to an even greater extent to the field of sound and sensory studies, with its genuine focus on individual, idiosyncratic, corporeal and self-reflexive sensibility: a methodological development like Kodwo Eshun's 'sonic fiction' (Eshun, 1998; Goodman, 2010) is a highly successful and influential proof hereof. Thus, the form of this article itself, hopefully, may reflect and incorporate some of the changes in the field of research in the natural sciences and the humanities in the last 150 years.

## Anatomical opening and laboratorian closure

One way of speaking about sound took its start approximately 150 years ago. A way of speaking that seemed to acknowledge that sound is not only a melodic, godlike breathing from above; it is not found in men's song only; it is not only an idle pastime in the fairgrounds or markets; it is not only the call of church bells, the praise of higher, singular beings. Sounds are material events. Repeatable, reproducible, recognisable – in everyday life.

In the middle of the nineteenth century Hermann von Helmholtz – born in Potsdam, studied medical science, worked as a pathologist, was a former military doctor and later the founding president of the *Physikalisch-Technische Reichsanstalt* in Berlin-Charlottenburg – did publish a work which is seen today as an essential contribution to the science history of auditory research. Beginning with his work *Lehre von den Tonempfindungen als physiologische Grundlage für die Theorie der Musik* (Helmholtz, 1863) musical sound was coined 'Schall' or noise, 'bruit' – and sound was for the first time in history conceptualised, analysed and reflected upon as a positive scientific entity (Erlmann, 2010).

Helmholtz' seminal achievement was to conceptualise this sensation in a way that stays as close as possible to the physiological knowledge of his time. So, he left

the philosophical writing about sound and music behind and went on to scientific and physical experimentalist methods to gain insight into sound. He left the imaginative writing of essays and moved to the quantifying writing of the famous ‘phonograph’ or the ‘oscillograph’, the writing of lines and graphs, the graphical and scriptural movements of these new machines.

When we close read Helmholtz’ writings, we are therefore witness to the construction of a scientific entity or, to put it bluntly, to a very special kind of reifying of epistemic entities – the invention of a theoretical artefact.<sup>1</sup> Helmholtz narrates, in incredible details and in a highly inspiring style, the sensorial richness of ocean waves, their overlapping, their dynamics and physical presence – the sounds and movements of the sea. The narrative richness and the sensibility of this text as well as the elaborate sense of the author transcend any conventional argument and any reliable proof in science. This can be observed in the following extract:

Nicht bloss Musik, sondern auch andere Arten der Bewegung können ähnliche Wirkungen hervorbringen. Namentlich bietet das bewegte Wasser, sei es in Wasserfällen, sei es im Wogen des Meeres, das Beispiel eines Eindrucks, der einem musikalischen einigermaßen ähnlich ist. Wie lange und wie oft kann man am Ufer sitzen und den anlaufenden Wogen zusehen! Ihre rhythmische Bewegung, welche doch im Einzelnen fortdauernden Wechsel zeigt, bringt ein eigenthümliches Gefühl von behaglicher Ruhe ohne Langeweile hervor, und den Eindruck eines mächtigen, aber geordneten und schon gegliederten Lebens. Wenn die See ruhig und glatt ist, kann man sich eine Weile an ihren Farben freuen, aber sie gewährt keine so dauernde Unterhaltung, als wenn sie wogt. Kleine Wellen dagegen auf kleineren Wasserflächen folgen sich zu hastig und beunruhigen mehr, als dass sie unterhalten. (Helmholtz, 1863, pp. 387f.)<sup>2</sup>

Alas, this great narration – a description with truly epistemological qualities – this lucid narration is not used by Helmholtz to describe the multifariousness of sounds. After narrating so impressively – and what is thoroughly in accordance with the dominant scientific paradigm of the time, as installed by Immanuel Kant – Helmholtz then *excludes* all of the richness of the phenomena from his research. He reduces it to observable data, to mathematical descriptions of those data and to visual models that can be described in mathematical formulae. A reifying with great consequences takes place, when he writes:

Die melodische Bewegung ist Veränderung der Tonhöhe in der Zeit. Um sie vollständig zu messen, muss sowohl die Länge der verlaufenden Zeit, als auch die Breite der Veränderung in der Tonhöhe messbar sein. Beides kann für die unmittelbare Beobachtung nur geschehen, wenn der Fortschritt sowohl in der Zeit, als in der Tonhöhe, in regelmässigen und fest bestimmten Stufen geschieht. (Helmholtz, 1863, p. 389)

In brief: Helmholtz' seminal achievement was to bring the research of sound an important step closer to the bodily functions of listening, especially the ear. However, this openness of his research to anatomy, this – if you will – opening of the anatomical body of human beings, is soon faced with a closing movement: the doors of the laboratory, this newly installed tool of epistemological industrialisation in the nineteenth century (Hacking 1986, 1999; Rheinberger 2010, 1994, 1992), the doors of the lab, they close tightly.

Openness to a specific corporeal perception and sensory, bodily experiences folds into a closed system of experimental research in the laboratory. Research in the new natural sciences should be based on experimental and replicable research settings – the traditional narration of the philosophy of music is replaced by the numeric and formulaic narration, the inscriptions of oscillographs and other machines for measuring and evidence: from narration to numerification. A new discourse is established, a new discourse of writing that abandons individual, empirical everyday life experiences.

Thus, on the one hand, sonic epistemology, following Helmholtz, got closer to the body and, on the other hand, it became more remote from individual experience. An abstract model of nervous signals and data processing should replace individual experience. But leaving out this individual aspect, it seems that auditory research has left out the whole of human sound experience – with great consequences for science history. The culture of alphanumeric writing prevailed; it overturned the individual, the situated and corporeal experience, once again.

## Hypercorporealism

The effort of Helmholtz to take physical parameters into account when speaking about sound remains an important task in sound research today – more than 100 years later. As sound has an almost immediately sensed impact and pervasive effect when experienced, it is necessary to modify the historically established models of sound or music as non-corporeal, ethereal, even non-physical. Today, we experience sounds through media technologies of amplification and sound projection that let us experience sounds all the time as corporeal; but in former times such experience was mostly denied any aesthetical value. So, how can we adjust the foundations for speaking about sound across research cultures, in between the natural sciences, the humanities and social sciences? Or, with reference to Helmholtz' approach to quantifying physical phenomena: How can we think our bodies differently, more adequately in their corporeally experienced aspects?

This may sound like a lunatic speaking, but indeed this is the epistemological and methodological question at stake: Can we think our bodies in a bodily way? Can research in the natural sciences and in the social sciences finally abandon com-

pletely the outdated concepts of the human body or of sensory perception that use – strangely enough – ‘models of signal and data processing’? Science history teaches us – if anything – that it is highly probable that these nowadays very popular und intriguing models of the mind will seem in the very near future rather ridiculous and lacking of any historical self-reflexivity. They will seem restricted and poor, as any former concept of the human body – the body being thought of as an ‘electric network’ (in mid-twentieth-century concepts; Kalof/Bynum, 2010), a ‘steam machine’ (in mid-nineteenth-century concepts; Sappol/Rice, 2010), a ‘clockwork’ (in mid-eighteenth-century concepts; Reeves, 2010) or even a ‘container of juices and fires’ (in antique Greek and medieval concepts still hegemonic in the seventeenth century and still culturally dominant in eighteenth and even in the nineteenth centuries (Scully, 1995).

The French philosopher Jean-Luc Nancy offers a perspective for historicising these contemporary concepts of the human body with great aplomb. In the 1990s he published a small, very influential treatise called *Corpus* on how to ‘think’ bodies – today and in the near future. In contrast to most theories of the corporeal he proposes a notion of the body that finds at its core the characteristically changing and erratic quality of bodily experience and bodily performance: the body may be a semiotic and hermeneutic construction in Western thinking (so Nancy states), but in most of the world’s cultures the body is a physical ‘sine qua non’; and so it is in a truly intercultural and worldwide mass culture of migrating workers and traveling capital. Nancy, therefore, writes – as a philosopher – in a highly experiential and sensorial, in a truly physical way – in strong relation to contemporary research trends in anthropology and phenomenology. According to Nancy, we as human beings do feel a tension in our bodies in each moment we live, act and perform our lives. We can, fundamentally speaking, not possibly take an objective stance vis-à-vis this bodily tension. We *are* in a way this bodily tension:

Un corps, c’est donc une tension. Et l’origine grecque du mot est “tonus”, le ton. Un corps est un ton. Et je ne dis rien là qu’un anatomiste ne puisse approuver: un corps, c’est un tonus. (Nancy, 1992/2000, p. 126)<sup>4</sup>

Bodies resonate in tension. My body, yours, here and now – we are no static sculptures or showroom dummies, like the bodily models in primary school (Serres, 1985, pp. 205-216). And we are, anthropologically speaking, not grids of nerve nets and electric signals (as our contemporaries love to believe). In contrast, Nancy and other thinkers exercise a speaking of corporeal sensitivity which we can call ‘hypercorporealisation’ or ‘hypercorporealism’.<sup>5</sup> This extreme focus on the corporeal – even in methodology and in description – is a fairly young tradition of thinking; this tradition tries to contrast and to outweigh all the semiotic, the structuralist and the deconstructionist approaches of the last century. This new tradition asks: What

value could a bodily experience have that tries to leave the age-old empire of the signs – and that tries to de-scribe, to non-scribe itself, so to speak? An ‘excription’ (Nancy, 1992/2000, p. 76), a ‘de-writing’ or ‘unwriting’, as Jean-Luc Nancy coins it, that makes an effort to leave the scriptural paradigms of bodily concepts behind and more towards a more complex, experiential and inter-culturally as well as trans-historically adequate concept of the body that transcends theories of signs and signals and arrives at a sonic and experiential theory of the body:

Quand le corps n'est plus vivant, n'a plus de tonus, il passe soit dans la rigour mortis, (la rigidité cadavérique), soit dans l'inconsistance de la pourriture. Être un corps, c'est être un certain ton, une certaine tension. Je dirais même aussi qu'une tension est aussi une tenue. (Nancy, 1992/2000, p. 126)<sup>6</sup>

Corporeality is, according to Nancy, a genuinely sonic and tactile phenomenon – as a tonus between ‘habitus’ and ‘persona’: a tension that discerns living human *beings* from dead human *bodies*. This tension, as contraction or as relaxation, trembles through our bodies as a tone. Single sounds do span and shiver through the very physical structures that you and I are: our ‘areal’, our area, as Nancy calls it. There is a merely material presence and impact of sound; and the tonus in living human beings is nothing else than a carnal realisation of the ‘sonus’<sup>7</sup> propagating through our world. Following the tradition of media phenomenology (Seitter 1997, 2002), the corporeal experience of media transmissions is crucial and central in our individual existence. The British music critic and DJ Kodwo Eshun describes this intensity in the field of audio media from the hearing perspective of club culture as follows:

There is no distance with volume, you're swallowed up by sound. [...] Not only is it the literary that's useless, all traditional theory is pointless. All that works is the sonic plus the machine that you're building.

So you can bring back any of these particular theoretical tools if you like, but they better work. And the way you can test it out is to actually play the records. (Eshun, 1998, pp. 188f.)

The sonic is a physical power that realises itself in the individual body and its tensions.

## A particular form of organized sound

Close to the end of this article I would like to travel back a number of decades and research cultures. In 1854 the Austrian writer, music critic and one of the most important founders of musicology in its present form, Eduard Hanslick, published a seminal book, *Vom Musikalisch Schönen* (Hanslick, 1854) – *On the Musically Beautiful*



(Hanslick, 1986). Hanslick poses a question that remains relevant today: How can we speak about sound – in *geisteswissenschaftlichen Begriffen*, or (in his case) in musicological terms? He tries to answer this question in a different way than Helmholtz – but under the same epistemological model of consequences, following Immanuel Kant. He opens with an almost lethal attack on all non-musicological writing about sound and music:

Die bisherige Behandlungsweise der musikalischen Ästhetik leidet fast durchaus an dem empfindlichen Mißgriff, daß sie sich nicht sowohl mit der Ergründung dessen, was in der Musik schön ist, als vielmehr mit der Schilderung der Gefühle abgibt, die sich unser dabei bemächtigen. (Hanslick, 1854, p. 1)<sup>8</sup>

To cut the interpretation of this passage and what follows short: Hanslick, on the one hand, fights the truly idiosyncratic and non-scientific speaking of musicians or enchanted listeners (so-called ‘Schwärmerei’ or mindless enthusiasm; what you might call ‘fandom’ today), and he struggles and finally manages, as history has proven, to lay the grounds for a terminologically distinct and generally understandable way to speak about music – beyond any (as his more elitist contemporaries might have seen it) ‘uninformed babbling of dull laymen’, in terms of a theory of aesthetics. The approach and the terminological definitions of Hanslick paved the way for a professional and educated musicology.

On the other hand, we can observe how Hanslick – as a perfect case study of the obsessions of Eurocentric research traditions – refuses, vigorously, to speak about the profane materiality of the sensory or specific, individual and bodily auditory experiences. We can observe how he erects one glorious theoretical artefact of high abstraction, mathematisation and distance from actual sonic experiences. He conceptualises music as organised sound with a strong emphasis on the organisational structure (less on the auditory specificities which are seen as accidental): the triumph of non-, in some passages even aggressively anti-corporeal and anti-sensational writing about sound and music.

So, how do we interpret this rather strategic move to secure the non-experiential and anti-individualistic concept of research that Hanslick undertakes in his work? The philosopher and sinologist François Jullien emphasises in his writings (Jullien & Marchaisse, 2000) that anything what Western culture calls ‘philosophy’ – as an ahistorical, fundamental and general way of thinking – would in the end be nothing more than a genuinely particular, European way of thinking.

According to that idea, we might also say, as ethnological studies have repeatedly proven, that what Western culture calls ‘music’ – as a general approach to organising sounds via composition, orchestration, rehearsal and performance – with its institutions, performative rituals and discourses could be seen as nothing more than a genuinely particular, rather European way of organising sound. The

rest of the known universe, that is, the rest of human music cultures on this earth, operates more or less differently in some or all aspects of performing sound, conceptualising sound, living with sound.

## **An anthropology of the senses**

So, luckily, there *are* other ways of living and embodying sound; there are other forms of bodily incorporated sonic knowledge; and there are highly individual, even idiosyncratic artists' and performers' theories on sound and sonic experiences. A historical and cultural anthropology of sound explores exactly that diversity, heterogeneity and multiplicity of all the ways of sounding and hearing (cf. Attali, 1977). And to make things even more complicated, when we speak about sound we always speak about the senses, we speak about the whole bodily sensorium.

At the end of this article I would like to point to an approach to a cultural theory of the senses that is still not widely read or known. The French science historian, mathematician, member of the Académie Française and pronounced thinker in mixtures and 'mélanges', Michel Serres, published in 1985 a groundwork for any sensory anthropology and any anthropology of sound. *Les Cinq Sens* has just recently been released in an English translation (though – in my reading – with a rather questionable lack of poetic quality that is thoroughly essential to Serres' writing and thinking), which means that we can surely expect a new reading and a fruitful discussion of this highly controversial and highly inspiring work in the 2010s.<sup>9</sup> Serres' approach should at least be acknowledged as a necessary critical rereading of long established and falsely dogmatic theories of sensory perception in the Western world – in consumer media technology, in commoditised psychology, in market-oriented sociology, even in the commoditised emanations of anatomy and medicine.

In his book *Les Cinq Sens* Michel Serres repeatedly attacks, above all, the truly outdated and aged model of 'separated channels of sensory perception' – and, in addition, he deconstructs our conception of 'processing sensory data': both being metaphors that have gone wild and which bear near to no relation to our actual experience of intermodal and transmodal sensory perception – at least in everyday life. These two metaphors of signal processing and separated channels are probably nothing more than obsessions and constructions deeply ingrained in Western culture as Serres shows in his insightful and inspiring historical and philosophical analysis. In a historically broad, individually and poetically narrated work with an inspiring sensibility to situations, moments, ruptures, overseen continuities and subtleties, he arrives finally at an essential conclusion for any sensory studies as epistemology:

La grammaire ou la logique fait le monde où elle aura raison (Serres, 1985, p. 209)<sup>10</sup>

This sentence reflects the on-going discussion of logocentrism and its ramifications in society, the sciences, the arts, in politics and in all individual lives and relations between human beings and lovers. Serres also draws this conclusion from individual experience as a pupil and student in the specific French education system of the early and mid-twentieth century with its still recognisably strong hierarchies and its focus on memorising and the reproduction of knowledge. He describes this structure as the dehumanising core of all modern institutions: the army, public administration, the industry, public transport, academia. Finally, he expands this to the point where the sensory deprivation inherent and codified in these institutions is a huge hindrance to any individual development and inspiration.

In the way this study was written, Serres also proves to us in actu how important the personal sensorial experience of the researcher in sensory studies is – not only the experience of reading and writing down arguments and definitions. He explains, convincingly, how fast human beings (not only researchers) are with their descriptions and words and categories and evaluations and final decisions and rejections – and how intense and difficult a work it is to truly experience a specific sensation, in all its genuine and original qualities, in all its specificity, and how hard it is to try to verbalise it in an adequate way, to narrate this individual experience adequately.

Psychologically speaking, in fear of highly individual and too close experiences human beings in modern times (as researchers are) tend to speak in a somewhat abstract and anonymous manner and to strongly praise their own labour of distancing themselves and preserving their rationalist presumptions and ambitions. But it could be that maybe any strife for objectivism is, after all, nothing more than a highly subjective and narcissistic (and *not at all* objective) project to secure oneself from irritating and erratic experiences.

The danger that Serres faces with such an approach – as does Eshun (and maybe, humbly speaking, also this article) – a danger, feared by quite a number of scholars and researchers it seems, that in the course of this individualisation and sensorisation of discourse any contact to inter-subjective and commensurable discourse could be lost. So the main methodological issue is: Can we strengthen a personal and individual sensitive way of speaking in research and, nevertheless, produce an inter-subjectively conceivable and epistemologically insightful research product? And can it be that the argumentative rigour of an article is actually weakened and blurred by a sensory complex narrative, or is such a narration of individual sensory experience not an ideal and frank reference to the empirical source of such research? Could such articles, rich with strong arguments and suggestive narrations, still be regarded as presentations of research results, or do authors who write in this style simply leave the academic realm?

Obviously, to write a sensory narration such as Serres' or even a 'sonic fiction', as Kodwo Eshun coined it, is no easy task. As it is necessary to apply diverse forms of

discourse to one text, this poses a great challenge for any researcher and writer. But this challenge is worth taking on – and Serres agrees with me here: the true labour in research and in the humanities, he states, lies in an adequate, sensible and fearless approach to whatever affects us, an approach that needs to present in an article the long winding roads from situative and immersive perception to distinct and articulate arguments. Following Serres, we do not only need a ‘bouche d’or’ (Serres, 1985, p. 166) as Serres coins it, a ‘golden mouth’ (Serres, 2008, p. 153) that speaks eloquently; we need a ‘deuxième langue’ (Serres, 1985, p. 169), a ‘second tongue’ (Serres, 2008, p. 156) that really and intimately tastes, silently. So that all these sensations could come together in a ‘third tongue’, a ‘third mouth’ that sensibly relies most of all on ‘la sâpience et la sagacit  ’ (Serres, 1985, p. 177) – sâpience and sagacity (Serres, 2008, p. 163):’

J’h  site, dit la troisi  me langue’. (Serres, 1985, p. 178)<sup>11</sup>

## Notes

1. This critique on inadequate ‘reifying’, an objectification via modelling in the science history of acoustics is supported by the seminal work of Barry Blesser: ‘Confusing scientific models with real life leads to an unconscious belief that abstractions are reality. Heisenberg framed the warning “Concepts initially formed by abstractions from particular situations or experiential complexes acquire a life of their own.” This is called “reifying” – making of abstract concepts something “real.” Elegant models that describe extensive laboratory data become a work of art that instills pride in the creators. However, that elegance comes with a price – severely limiting the applicability of model results outside the confines of the laboratory’ (Blesser/Salter, 2006, p. 315; cf. Hacking, 1983, 1999).
2. According to the original first English translation from 1885 (in original orthography and grammar), ‘Not only music but other kinds of movement can produce similar effects. Water in motion, as in cascades or sea waves, has an effect in some respects similar to music. How long and how often can we sit and look at the waves rolling in to shore! Their rhythmic motion, perpetually varied in details, produces a peculiar feeling of pleasant repose or weariness, and the impression of a mighty orderly life, finely linked together. When the sea is quiet and smooth we can enjoy its colouring for a while, but this gives no such lasting pleasure as the rolling waves. Small undulations, on the other hand, on small surfaces of water, follow one another too rapidly, and disturb rather than please’ (Helmholtz 1885, p. 251; cf. similarly Helmholtz, 1857).
3. Original translation: ‘Melodic motion is change of pitch in time. To measure it perfectly, the length of time elapsed, and the distance between the pitches, must be measurable. This is possible for immediate audition only on condition that the alterations both in time and pitch should proceed by regular and determinate degrees’ (Helmholtz, 1885, p. 252).
4. Original translation: ‘A body is therefore a tension. And the Greek origin of the word is tonos, “tone.” A body is a tone. I don’t say anything here that an anatomist couldn’t agree with: a body is a tonus’ (Nancy, 2008, p. 134).
5. Though Nancy does not explicitly refer to the essential works on the body and the senses by Merleau-Ponty (maybe another case of an all too obvious anxiety of influence [Harold Bloom]?) the concepts of ‘spatialit   de position’ and ‘spatialit   de situation’ (Merleau-Ponty,

- 1945, p. 116f) as well as his general reflections on the 'corporeité' (Merleau-Ponty, 1964) are fundamental for Nancy's reflections.
6. Original translation: 'When the body is no longer alive, has no more tonus, it either passes into rigor mortis (cadaverous rigidity), or into the inconsistency of rotting. Being a body is being a certain tone, a certain tension. I'd also even say that a tension is also a tending' (Nancy, 2008, p. 134).
  7. Sonus defined as 'Geräusch, Laut (-erscheinung, -gestalt), Schall, Ton (-höhe, -qualität, -schritt, -stufe), Klang (-farbe, -charakter, -gestalt), Musik, mus. Phrase; außerhalb der musiktheor. Traditionen auch Sprache, Äußerung, Rede, Tonfall, Akzent, Gerücht, Geschrei' (Hentschel, 1972).
  8. According to the original first English translation from 1891, 'Musical Aesthetics up to now has for the most part laboured under a serious methodological error, in that it occupies itself, not so much with careful investigation of that which is beautiful in music, but rather with giving an account of the feelings which take possession of us when we hear it' (Hanslick, 1986, p. 1).
  9. It is important to note the essential groundwork in sensory anthropology that Steven Connor did in promoting, analysing and teaching the approach of Michel Serres (Connor 2008, 2005a, 2005b).
  10. According to the original first English translation from 2008, 'Grammar and logic create a world in their own image' (Serres 2008, p. 193).
  11. Original translation: 'I am hesitant, says the third tongue' (Serres, 2008, p. 163).

## References

- Attali, J. (1977). *Bruits: essai sur l'économie politique de la musique*. Paris: Presses Universitaires de France.
- Augoyard, J.-F., & Torgue, H. (Eds.). (2005) *Sonic Experience. A Guide to Everyday Sounds*. Montreal: McGill-Queen's University Press.
- Blessner, B., & Salter, L.-R. (2006). *Spaces Speak, Are You Listening? Experiencing Aural Architecture*. Cambridge, MA and London: The MIT Press.
- Bull, M., & Back, L. (Eds.). (2003). *The Auditory Culture Reader*. New York: Berg Publishers.
- Connor, S. (2008). Introduction. In: Serres, M., *The Five Senses: A Philosophy of Mingled Bodies* (pp. 1-16). London: Continuum Publishers.
- Connor, S. (2005a). Michel Serres' *Les Cinq Sens*. [<http://www.stevenconnor.com/5senses.htm>] In: Niran Abbas, N. (ed.), *Mapping Michel Serres* (pp. 153-169). Ann Arbor: University of Michigan Press.
- Connor, S. (2005b). Michel Serres' five senses. In: Howes, D. (ed.), *Empire of the Senses. The Sensual Culture Reader* (pp. 318-334). London: Berg Publishers.
- Diaconu, M. (2005). *Tasten, Riechen, Schmecken – Eine Ästhetik der anästhesierten Sinne*. Würzburg: Königshausen & Neumann.
- Erlmann, V. (2010). *Reason and Resonance. A History of Modern Aurality*. New York: Zone Books.
- Eshun, K. (1998). *More Brilliant Than The Sun. Adventures in Sonic Fiction*. London: Quartet Books.
- Goodman, S. (2010). *Sonic Warfare. Sound, Affect, and the Ecology of Fear*. Oxford and Cambridge: MIT Press.
- Hacking, I. (1983). *Representing and Intervening*. Cambridge: Cambridge University Press.
- Hacking, I. (1999). *The Social Construction of What?* Cambridge: Harvard University Press.
- Hanslick, E. (1854). *Vom Musikalisch Schönen*. Leipzig: Rudolph Weigel.
- Hanslick, E. (1986). *On the musically beautiful: A contribution towards the revision of the aesthetics of music* (trans. G. Payzant; 8th ed. of the 1891 English trans.). Indianapolis: Hackett.
- Helmholtz, H. (1863). *Die Lehre von den Tonempfindungen als Physiologische Grundlage für die Theorie der Musik*. Braunschweig: Druck und Verlag von Friedrich Vieweg und Sohn.

- Helmholtz, H. (1885). *On the Sensations of Tone as a Physiological Basis for the Theory of Music* (2nd English trans. by Alexander John Ellis). London: Longmans, Green, and Co.
- Helmholtz, H. (1896). *Vorträge und Reden. Erster Band. Mit dem Bildniss des Verfassers und 51 Holzstichen. 4. Auflage*. Braunschweig: Druck und Verlag von Friedrich Vieweg und Sohn.
- Hentschel, F. (1972). Sonus. In: Eggebrecht, H.H., & Riethmüller, A. (Eds.), *Handwörterbuch der musikalischen Terminologie* (HmT). Wiesbaden & Stuttgart: Franz Steiner Verlag.
- Howes, D. (Ed.). (2005). *Empire of the Senses. The Sensual Culture Reader*. London: Berg Publishers.
- Jullien, F., & Marchaisse, T. (2000). *Penser d'un dehors (La Chine). Entretiens d'Extrême-Occident*. Paris: Éditions du Seuil.
- Kalof, L., & Bynum, W. (Eds.). (2010). *A Cultural History of the Human Body*. Volume 1-6. Oxford: Berg Publishers.
- Montaigne, M. (1595/2001). *Les Essais* (1595 text). Edited by Jean Céard, Denis Bjaï, Bénédicte Boudou, Isabelle Pantin. Paris: Hachette Pochothèque.
- Merleau-Ponty, M. (1945). *Phénoménologie de la Perception*. Paris: Editions Gallimard (Bibliothèque des Idées).
- Merleau-Ponty, M. (1964). *Le Visible et l'invisible*. Suivi de notes de travail. Paris: Editions Gallimard.
- Nancy, J.-L. (1992/2000). *Corpus*. Paris: Editions Métailié.
- Nancy, J.-L. (2008). *Corpus* (trans. Richard A. Rand). Bronx, NY: Fordham University Press.
- Reeves, C. (2010). *A Cultural History of the Human Body in the Enlightenment (1650-1800)*. Volume 4. Oxford: Berg Publishers.
- Rheinberger, H.-J. (2010). *On historicizing epistemology. An essay*. Stanford: Stanford University Press.
- Rheinberger, H.-J. (1994). Alles, was überhaupt zu einer Inskription führen kann. In: Haas, N., Nägele, R., & Rheinberger H.-J. (Eds.), *Im Zug der Schrift* (pp. 295-309). München: Wilhelm Fink Verlag.
- Rheinberger, H.-J. (1992). *Experiment, Differenz, Schrift: zur Geschichte epistemischer Dinge*. Marburg/Lahn: Basiliken-Press.
- Sappol, M., & Rice, S.P. (2010). *A Cultural History of the Human Body in the Age of Empire (1800-1920)*. Volume 5. Oxford: Berg Publishers.
- Schulze, H. (Ed.) (2008). *Sound Studies: Traditionen - Methoden - Desiderate. Eine Einführung*. Bielefeld: transcript Verlag (Sound Studies Series Volume 1).
- Schulze, H. (2007). Spatial Body Sound. An Anthropology of With. In: Seiffarth, C., & Sturm, M. (Eds.), *Sam Auinger. Katalog* (pp. 75-87). Wien-Bozen: Folio Verlag.
- Schulze, H. (2007). Wissensformen des Klangs. Zum Erfahrungswissen in einer historischen Anthropologie des Klangs. *Musiktheorie - Zeitschrift für Musikwissenschaft*, 22, 347-355.
- Scully, T. (1995). Tempering Medieval Food. In: *Food in the Middle Ages. A Book of Essays*. New York: Garland Publishers.
- Seitter, W. (1997). *Physik des Daseins*. Bausteine zu einer Philosophie der Erscheinungen, Wien: Sonderzahl Verlagsgesellschaft.
- Seitter, W. (2002). *Physik der Medien*. Materialien, Apparate, Präsentierungen. Weimar: Verlag und Datenbank für Geisteswissenschaften.
- Serres, M. (1985). *Philosophie des corps mêlés: Les Cinq Sens*. Paris: Éditions Gallimard.
- Serres, M. (2008). *The Five Senses: A Philosophy of Mingled Bodies* (trans. Margaret Sankey & Peter Cowley). London: Continuum Publishers.
- Stanitzek, G. (2011). *Essay - BRD*. Berlin: Vorwerk 8.
- Wulf, C., & Schulze, H. (Eds.) (2007). *Klanganthropologie: Performativität - Imagination - Narration*. Berlin: Akademie Verlag.