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Cézanne and Music
BY PETER ABLINGER

Editor's note: what follows is the script for a lecture given by Peter Ablinger in 2013. A version of the German original was published in MusikTexte 140 (February 2014).

Preface:

That I'm speaking in the last part of the symposium[1] brings with it the unavoidable fact that many of my text's terms have already come up in earlier lectures – for example, the word 'hearing.' And yet it was rare that I had the impression we were talking about the same thing when saying, 'hearing.' As such, as a guide-post, I'd like to begin by noting that there is always a certain self-reflexivity in my use of words such as 'hearing' or 'perception.'

Beyond that, a few days ago just as I'd finished this text, the title of the symposium for which it was written finally caught my eye: "Historical and Contemporary Modes of Listening."[2] Well, the present appears in the text only in a few personal examples, and music history is only drawn on to demonstrate several of its shortfalls since the late nineteenth century (particularly in opposition to the visual arts). But the true dissonance between the symposium's title and my intentions is, for me, the restriction to "musical" hearing. Personally, I don't believe that we will ever learn much about hearing as long as we constrain ourselves to *musical* hearing. In any case, my text is about this dissonance.

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[1] "Historical and Contemporary Modes of Musical Listening, International Symposium," Kunstuniversität Graz, January 2013, http://musiktheorie.kug.ac.at/en/veranstaltungsarchiv/2013-historical-and-contemporary-modes-of-musical-listening-international-symposium.html (as of 28.iii.2014)

[2] Editor's note: this is the official English title of the symposium. A literal translation of the German title is simply, "History and Present of Musical Hearing"

CÉZANNE AND MUSIC

Perception and Perceptual Deficiencies / Music and Painting of the last 150 Years

Music and perception seem to be in competition, perhaps even mutually exclusive: music functions only by excluding reality and the environment. Jacques Attali's "Noise" as well as Murray Schafer's "The Tuning of the World" were published in the same year, 1977.[3] Schafer describes the artificiality of the concert hall's silence as the prerequisite for music, while Attali identifies the orchestral space of the bourgeois concert hall as a space of exclusion – keeping out everyday noises and the everyday itself.

The painters of the late nineteenth century left their studios and went outside to paint in the open air. Simultaneous with Hermann von Helmholtz' cutting-edge research, Ernst Mach and William James developed theories and concepts that led to the reformulation of form, color, composition, as well as the process of painting, the concept of the work, and the self-understanding of the artist.

At that moment, Paul Cézanne was the painter who went even further in his observation of objects, landscapes, forms, and colors.

When, for instance, Cézanne painted the edge of a table or the horizon of the sea, the result was not a straight line but a picture puzzle, a mosaic of nuances, the deconstruction of a straight line. When we ourselves observe the edge of a table or the horizon of the sea, we *think* we see a straight line. We don't see, we think we see. If as an exercise we would subject ourselves to insistent and precise observation, we would recognize that a line is actually not a line – that it jumps here and there, that it is sometimes stronger and sometimes weaker, sometimes sharper and sometimes more blurred, and that above and below its edges the most confusing modulation play out. The variability of these effects is multiplied as soon as we compare the area of the line in our focus with more peripheral areas. These effects are of course reminders of exactly how Cézanne himself would have painted a line. Cézanne did not paint what he saw, he painted seeing!

Paul Cézanne, Mill on the River, 1900–06, Watercolor, Marlborough Fine Art Ltd. London

Detail from: Mill on the River

But the further Cézanne went, the more he became conscious that his project could fail, that in the strictest sense it was unreachable.

[3] Jacques Attali: *Bruits: essai sur l'économie politique de la musique*, Presses Universitaires de France, 1977 [Ed. – in English, *Noise: the Political Economy of Music*, translated by Brian Massumi (Minneapolis: University of Minnesota Press), 1985]. Murray Schafer: *The Tuning of the World* (New York: Random House), 1977; in German: *Klang und Krach. Eine Kulturgeschichte des Hörens* (Frankfurt am Main: Athenäum), 1988

What is said in this text about Cézanne, or Seurat, about Helmholtz and late nineteenth century visual perceptual research, I learned[4] from Jonathan Crary's "Suspensions of Perception. Attention, Spectacle, and Modern Culture."[5] Apart from that, I would describe my text as a "braid": an interlacing of this reading with other readings and my own notebook entries.

Back to Cézanne's failure. Crary speaks *precisely* about a "*deficiency* of attention"[6]: to pay attention to one thing means withdrawing it from many other simultaneous things. Cézanne became painfully conscious of how fundamentally sight and *over*sight[7] are linked, how much he – in seeing – overlooked. But at least Cézanne was not alone in his observation of inattention and in putting the unobserved squarely into his sites. On the contrary, he and his painter colleagues found encouragement and specification in contemporary scientific research. Crary recounts researchers around 1886 siting the eye in the body and describing its self-perception.[8] For instance, Helmholtz describes techniques through which one can see the blood vessels of one's own retina. Another phenomenon are the tiny particles, blotches, and shapes in the vitreous humor of the eye we call "floaters"[9] (which, by the way, without any particular contrivances we can decide if we want to see, or not). Ernst Mach drew the limits of own eye's visual field.

In self-perception, says Crary, the dualistic division of subject and object is attacked. Just how *much* our attention is accustomed to filtering out precisely such self-perceptions in the everyday is also something which caught the attention of contemporary researchers: (William James, 1890) "The deepest inattention is to subjective optical sensations, strictly so called, or those which are not signs of outer objects at all."[10]

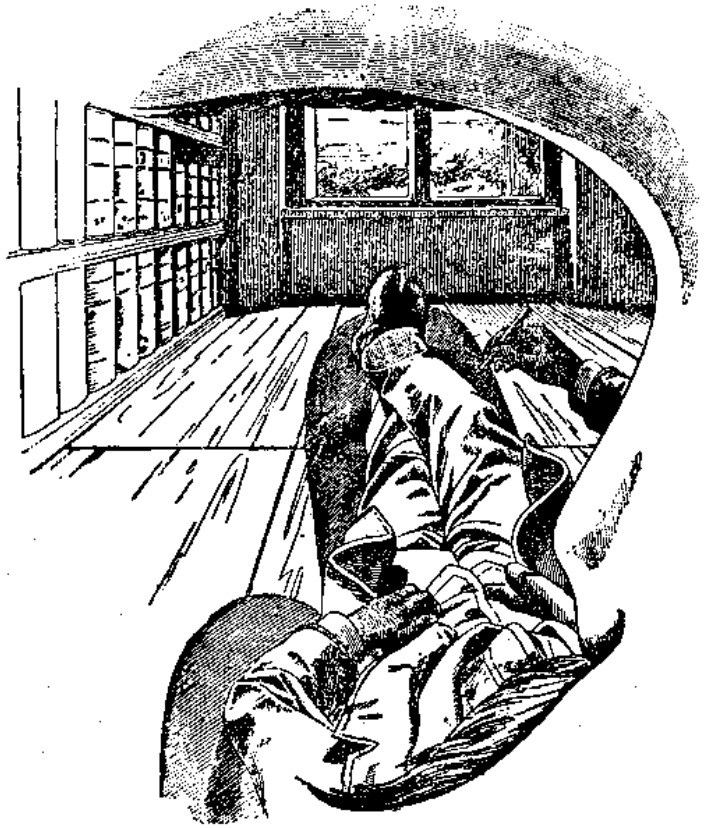


Abb. 60 Ernst Mach, Illustration aus *Beiträge zur Analyse der Empfindungen*, 1885.

Ernst Mach, Visual Field; looking through Mach's left eye at his own body stretched out in his studio; limited by the curvature of the eye socket, one sees his nose and beard.

It is to the credit of these researchers – *in the realm of the visual* – that that which was excluded was focused upon. Their painter contemporaries took up this research and developed it further in their art. Helmholtz and others *also* did research in the realm of the acoustic. The situation on the music side of things however reveals itself as quite contrary.

[4] Actually, in the case of Cézanne I have a more specific and long term relationship. When I was 14, I road my bike 90km to the next bigger city to get a book on him...
[5] The book itself was a gift from Bill Dietz. Jonathan Crary, *Suspensions of Perception. Attention, Spectacle, and Modern Culture* (Cambridge: MIT Press), 1999 [Ed.: page numbers throughout refer to the English original]
[6] From the Introduction, p. 1, italics in the original
[7] Ed.: The hint of the supervisory meaning of overseeing is not present in the German *sehen / übersehen* opposition
[8] *Ibid.*, p. 214-221
[9] Ed.: The literal translation of the equivalent German colloquialism would be "flying mosquitoes"
[10] James, *The Principles of Psychology* (1890), as quoted in Crary, p. 216

Singled out in the following short *responsory* are three of Helmholtz's objects of study from "On the Sensations of Tone as a Physiological Basis for the Theory of Music,"[11] each accompanied by a remark (or *lament*) on its missing or belated musical repercussion:

One of Helmholtz's chapters deals with the difference between noise and sound as a difference between periodicity and aperiodicity

- *until* Varèse it was precisely that noise instrument par excellence, percussion, that kept its distance from any trace of aperiodicity!

Another chapter, combination-tones

- Helmholtz's book has taken on in the meantime the greatest value for those younger composers dedicated to just intonation; which is to say, in the last few decades!

Third example, beating

- It has often been noted that Alvin Lucier's music is not based on science, but rather on nineteenth century research; it might as well be mythology!

The deficits of the music and the lack of receptivity to the fundamental theories and physical realities of sound in the composers of Helmholtz's time are manifest. But also even within Helmholtz's own research, one should not overlook the fact that his work on acoustics (in contrast to that on visuality) is focused less on perception itself and more on determining the physical laws of sound treated consistently as an exterior object.

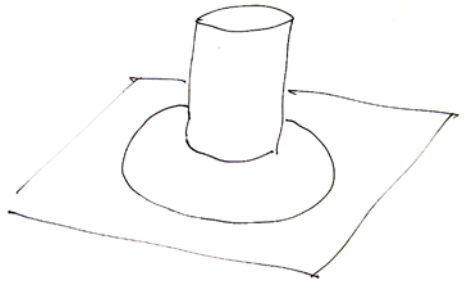
Environmental noise, on the other hand, the periphery of acoustic perception, the un-heard[12], will remain excluded from music and science for a much longer time.[13]

Personally, music history has taught me next to nothing about the characteristics of the act of hearing and the un-heard, I have however learned a bit from the history of the visual arts, and most of all from my own work. Through observation and studies which had no or almost no music historical point of reference (for instance, examining white noise and other phenomena), I began to turn my attention to the way in which consciousness, knowledge, culture, and education effectively push themselves between us and that which is heard. Dealing with noise, one can discover acoustic illusions that function like a projection – which reduce the *actual*, *factual* thing which is heard to a background, a screen. The projection schema reverses the alleged direction of the perceptual act: external stimuli are no longer represented in our brains, and instead, the brain projects itself onto the external stimuli. The inside and outside, subject and object, simply switch places!

Mode of Perception

In no way does perceiving mean that the brain, with the help of the sense organs, reproduces what occurs outside. The constitutive role of memory in perception was detected already in Helmholtz.[14] In reading William Kentridge's "Thinking aloud,"[15] which deals with anamorphosis, it occurred to me that the act of perception is comparable to the setup of an anamorphic drawing.

[The following example is Kentridge's, though the drawing is my own, as I've lost the book.]



[11] Hermann von Helmholtz, "Die Lehre von den Tonempfindungen als physiologische Grundlage für die Theorie der Musik" (Braunschweig: Vieweg), 1863. [Ed. – in English, *On the Sensations of Tone as a Physiological Basis for the Theory of Music*, first translated by Alexander J. Ellis (London: LONGMANS, GREEN, AND CO.), 1875]

[12] Ed.: the original German *überhören* is symmetrical with *übersehen*, both signifying a lack of attention with respect to each sensory modality; "over-heard" is of course even less possible here than "over-seen" before.

[13] More on Russolo below. Don't even Cage's observations of inner ear noise seem scandalously late in relation to the observations of one's own retina in the 1880s?

[14] Crary, p. 335

[15] William Kentridge, *Thinking aloud, in conversation with Angela Breidbach* (Cologne: Verlag Der Buchhandlung Walther Konig), 2005

An anamorphic classic: if we place a mirrored cylinder on a piece of paper and draw a ring around it, the line's mirror image will describe a straight line. On the other hand, if one wants to see a circle in the cylinder, one has to draw something like a stretched bean...

In perception, the circle is the exterior stimulus which is to be captured. The mirrored cylinder is the perceptual apparatus, the *brain*. Only, in perception, we don't know exactly which form the cylinder takes. Otherwise, we might at least indirectly deduce how that which we see *really* looks or how that which we hear *really* sounds. But with perception, the only thing certain is that that which we perceive doesn't sound like it sounds. The minimalist conception of "color as color" (e.g., for Frank Stella) or the Cagean "sound as sound" is an abstraction that doesn't function this way. The only thing certain is that our brain shows us that which is perceived in a particular 'mode.'

The situation is comparable to the book "Flatland" where a society lives entirely in 2 dimensions, and is fully incapable of accepting the idea of the 3-dimensional.[16] When we see the line in the cylindrical reflection, we call it a line, and we therefore deem it a line. But if we knew more about the way the mirror (our brain) works, we could re-synthesize the true form of the line and recognize it as a circle!

No Cézanne

Music is a system of exclusions which has seen to it that the last 150 years of perceptual observation and research that are my focus have been marginalized in both musicology and in the working processes and constitution of musical works. There has never been a Cézanne of music. A so-called *early* example of composition explicitly relating to perception would date back to just 1988 – James Tenney's 'Critical Band.' To me, before this date there were many meaningful aesthetic upheavals and serious changes in reception, but (almost) never works explicitly according the perception of a stimulus precedence over the stimulus itself.

Regarding that 'before this date,' a few exceptions: in minimal art – the visual art of the 60s – aspects of perception and *self-perception* were dealt with intensively, and that, at least, had a prompt echo in minimal *music*. In certain respects, La Monte Young's work even preceded the visual arts. But in opposition to minimal *art*, which in its strict methodological approach was superseded by conceptual art, minimal *music* constricted the wide spectrum of hearing possibilities which had characterized its beginnings and went on to become a form of pop music. A truly open and simultaneously systematic handling of auditory perception is rare to find in music history: luckily we still have the one who was already mentioned above, Alvin Lucier!

If one looks back at *classical* new music, which is to say European avant-garde music up to now, one might have the impression that hearing in music has yet to take place! The actual history of hearing, for me, does not begin with hearing, but instead with 'hearing hearing,' with the observation of observation!

A greater contrast to the visual realm is nearly unthinkable. Let us recall again the intensive exchange between scientific theories and (visual) artistic practice – for instance in the work of Georges Seurat, whose working method one might almost call conceptual in its systematic examination of visuality![17]

At least since the second half of the nineteenth century, a rift between the thinking and making of the visual and acoustic has opened up, a rift which expanded in the twentieth century to an abyss, and which today remains to be overcome. Emblematic of this rift would be painters' going out into the world at the same moment that walls of concert houses began to become thicker and even less porous (2 important dates for that: the construction of the Vienna Musikverein, begun around 1863, and the Vienna Konzerthaus, begun around 1890).

Here are two further positions in musical thought which, though un-canonized, could, in the next few years or decades, play an important role in the rehabilitation of music. Both of them are located squarely in the middle of the 100-year span between Helmholtz's "On the Sensations" and La Monte Young's "Composition Number 7."

The first, who particularly in relation to hearing should not be forgotten, is Josef Matthias Hauer. Hauer accorded hearing the highest artistic status,

[16] Edwin Abbott Abbott, Flatland: *A romance of many dimensions* (London: Seeley), 1884

[17] If Seurat were alive today, he'd be the favored victim of 'artistic research' discourses.

even higher than that of the work. For Hauer, the composition of a twelve-tone-'spiel' was "child's play." And though the performance of a twelve-tone-'spiel' required a significant measure of craft and skill, real art could only occur in its proper audition. In a sense, Hauer turns the hierarchy of composing, performing, and hearing on its head.

The other figure, just before Hauer (even partially overlapping), is Luigi Russolo. Coming from painting, he manages to break out of the bourgeois concert hall and to invite us on a sound-walk through a large, noisy city!

Tolerances

How or what did earlier generations hear? I'm not sure that *before* Murray Schafer this question had been systematically posed. Schafer's work could be the basis for a 'history' or perhaps a 'prehistory of hearing' in so far as it thinks socio-culturally instead of music historically.[18] Perhaps the most obvious chapter in the history of hearing is that of consonance and dissonance. The fact that in the in middle-ages a third was not found to be adequately consonant is interesting only when connected with the question of *tolerance*. How far can intonational deviation go before the identity of a particular interval is lost? This question is a variant of that of 'Critical Band' – a question of 'hearing correction'[19] – something which testifies to that which we *want* to hear, and as such, to cultural identity. A characteristic example is Debussy's faux-pas of interpreting the gamelan music at the Paris World Exposition in 1889 as pentatonic. Then again, instead of a culturally conditioned misunderstanding, perhaps we should see this as imperialistic intolerance pure and simple?

Let us compare such lack of differentiation to the painter Cézanne, who was brought to the brink of desperation because that that which he painted did not correspond with what he saw, who because of this lack of correspondence and frustration penetrated into the micro-intervals of color and brushstroke to include the idiosyncrasies of the human retina in the picture. To paint what his eye saw, and not what his brain thought.

Another observation in this history of tolerances and 'hearing correction' is that until the beginning of the 1980s, one can very clearly observe in recordings of 12-tone music that performers have no innate sense for the equal-tempered tuning system. Instead, they follow their own sense of intonation, orienting themselves to extant harmonic derivatives. This is even the case with Schönerg's contemporaries and closest associates – for example, the recordings of Rudolph Kolisch. This went on over the decades until the early 80s when there was a decisive generational shift in the world of performance (of which the nearly simultaneous emergence of Ensemble Intercontemporain, Ensemble Modern, and Klangforum Wien is symptomatic). Only since then has there been music with equidistant chromatic steps in the strictest sense. That this music has been playable from this point onward I take as an indication that it is also only since then that such music is also *audible*.

In a 'history of hearing,' the following evaluatory shift should not be overlooked: the determination whether hearing is inherently of a passive or active nature. Even with Lachenmann one still occasionally heard about the supposedly passive sense of hearing. A typical argument for hearing as a passive sense is (or was) that one cannot close the ears as one can the eyes, that one cannot choose what one hears and doesn't hear. In the meantime we know much more about the active role of the ear, how pointedly selective it is capable of directing attention, in particular in relation to speech recognition. From medical research, we have even learned that the ear itself produces sounds. The so-called otoacoustic emissions in the auditory canal of the inner ear generate sounds in particular when either outside stimuli are absent, or during continuous noise – or white noise.[20] The noise illusions which I mentioned earlier might also be explained physiologically here. We should take note then that the absence of sound as well as an excess of sound both raise the auto-activity of the ear. This suggests an explosive follow-up question – namely, whether or not this also works the other way around: if stimulation and diverse sound contours prompt our ears' passivity, inactivity...

The determination of how heavily or weakly our ear influences what is heard,

[18] Shamefully, this text contains much too little about hearing beyond the musical. My text works a bit like Mahler's cow bells which point to an outside, but remain inside

[19] Ed.: in the sense of post-production "image correction"; translation is not literal. The German original is *zurechthören* – a related word would be *zurechtschneiden*, cutting something to fit into a given pattern.

[20] I have Maryanne Amacher to thank for pointing me to the phenomenon of otoacoustic emissions

how much it is to be manipulated or adjusted, is also a form of activity. First and foremost, we hear what we *want* to hear. Perceptual 'hearing correction' is a violence not far from not hearing, from ignoring – which is in fact the activity the hearing apparatus is busy with more than 90% of the time. Helmholtz says: "We practice observation on sensation only to the extent necessary for clearly apprehending the external world."[21] It is astounding however how little of the outside world we allow ourselves to take in. Not only is our auditory system *most* adept at hearing things away (selective hearing), in architecture, landscape design, and city planning, built structures of non-hearing or hearing reduction are playing an ever increasing role. In the concert hall we *pay* for sound. Outside the concert hall we pay for every small diminution of sound. Just think of all the diverse sound isolation measures taken up in city planning, the hundreds and thousands of kilometers of sound isolation corridors surrounding highways and train tracks.

In the shifting tolerance for certain intervals to the difference between Debussy and Cézanne which I've been tracing, we should not forget that the historical mutability of perceptual modes occurs within a spectrum of degree, that any given mode indicates a more or less. Cézanne's ideal of correspondence between image and observation can never be reached with our perceptual apparatus, it must always remain an approximation. Debussian ignorance, on the other hand, is structurally immanent. Oversimplification is the irresolvable prerequisite of perception.

In the process of re-synthesizing environmental sounds with orchestral instruments in my own work, I observed the following: from a certain density of instruments with which I tried to approach the results of given analysis – 30 or more divisi parts, the same inaccessibility of sound which everyday urban situations can so easily take on would emerge. Only a simplification down to a few tones would lead to immediately meaningful (legible) results and musical pleasure. It became obvious that "immediacy" coincides entirely with mediation – with the selection or the reduction through which something becomes accessible to us. The shattering conclusion for my own working methods is that immediacy is a cultural product, something mediated, an illusion!

In 1850, Helmholtz measured the speed of nerve transmission and came to the number 27½ meters/second. What is actually being measured here is the divide between stimulus and reaction, between perception and its object! The present is that which occurred a fraction of a second before – the apparent present is actually the past.[22] Helmholtz, says Crary, is more decisive than any other in his insistence that there is no direct correspondence between sensual experience and its object.[23]

The Sense of Time

"Given the phenomena of the duration of a light impression on the retina, synthesis is the unavoidable result," writes Seurat in an 1890 letter.[24] One should note the word 'duration' in connection with sight! Seurat's images in which forms and color values from unmixed pigments are synthesized are referred to by Crary as 'perceptual synthesis.' Seurat didn't paint a picture of *something*, he painted a picture of the act of perception! Even the spectral syntheses of the Parisian musical variety 100 years later are, for me, in comparison, almost never posed as questions of *perception* itself (though that doesn't necessarily mean there is nothing to perceive in them). By the way, however: my own re-synthesis works are not spectral syntheses, but rather first and foremost temporal syntheses – a re-synthesis of time!

Yesterday, Klaus Lang offered an attractive formula: "Music is time perceived through sound." And indeed: one can hear time! The sense of temporality in hearing trumps all else by far. In comparison, the spectral sense is rudimentary. An instrumental sound without transient, that is, without its temporal envelope, is no longer identifiable. What we identify as an acoustic sense of color might prove to be no better than an illusion. On the other hand, we can hear the temporal difference between two impulses in the millisecond range – far below and up to the size of an individual sample, approximately 1/40th of a millisecond – and in that range even *as* color!

What I'm claiming here is based on experiential data and self-tests, which I'd like to demonstrate in closing. Readers can find these tests at

http://ablinger.mur.at/zettel_sample.html

There, one can hear the difference between a millisecond, half a millisecond, a quarter of a millisecond, an eighth, a sixteenth, all the way down to the

[21] Helmholtz, Contents IV

[22] Crary, p. 309-310
[23] *Ibid.,* p. 319-320
[24] Crary, p. 152

difference between one sample and another (0,00227ms).

There are no digital artifacts! You might recognize comparable characteristics in Lachenmann's 'Ein Kinderspiel.'[25] The basic principle can be demonstrated *even* simpler than *child's play*[26] by repeatedly and 'simultaneously' tapping two fingernails on a table-top... The higher the audible 'overtones,' the more simultaneous the attack.

Finally then, what is *really* at stake in hearing is *time*!

Also for Jonathan Crary, time would play a key role in counteracting 'deficiencies of attention.' As he puts it, our (visually dominated) culture is founded upon insulating people from the experience of time, thereby rendering us disempowered.[27] And perhaps that is indeed precisely the purpose of visual dominance, to quash the influence of the *sense of time*. The experience of time, of mortality, of an individual's position within a limited temporal frame is that which makes a person aware of him- or herself. The first book of Moses already told us this. On the other hand, cutting the cord to temporal consciousness is a means to incapacitation. In opposition to that incapacitation, hearing is *the* sense through which we can perceive time at its most differentiated. Of course, that's not by any means the case with EVERYTHING which we hear. Or put another way: it *is* the case for EVERYTHING which we hear, only not for that which *hinders* us from hearing EVERYTHING.

Peter Ablinger 2012/13
Translated by Bill Dietz

[25] Lachenmann, Ein Kinderspiel, Part 3
[26] Ed.: Play on the Lachenmann title
[27] Crary, Introduction, p. 3: "Thus, as I will argue, spectacular culture is not founded on the necessity of making a subject *see,* but rather on strategies in which individuals are isolated, separated, and *inhabit time* as disempowered."

Peter Ablinger was born in 1959 in Schwanenstadt/Austria He first studied graphic arts and became enthused by free jazz. He completed his studies in composition with Gösta Neuwirth and Roman Haubenstock-Ramati in Graz and Vienna. Since 1982 he has lived in Berlin, where he has initiated and conducted numerous festivals and concerts. In 1988 he founded the Ensemble Zwischentöne. In 1993 he was a visiting professor at the University of Music, Graz. He has been guest conductor of Klangforum Wien, United Berlin and the Insel Musik Ensemble. Since 1990 Peter Ablinger has worked as a freelance musician. Since 2013 research professor at the University Huddersfield. Festivals at which Peter Ablinger's compositions have been performed include the Berlin and Vienna Festwochen, Darmstadt, Donaueschingen, and festivals in Istanbul, Los Angeles, Oslo, Buenos Aires, Hong Kong, London, New York. The Offenes Kulturhaus Linz, the Diözesanmuseum Köln, Kunsthalle Wien, Neue Galerie der Stadt Graz, the Kunsthaus Graz, the Akademie der Künste Berlin, the Haus am Waldsee Berlin, the Santa Monica Museum of the Arts have showed his installation work over the last few years. Together with Bernhard Lang, Klaus Lang and Nader Mashayekhi Ablinger founded the publisher ZEITVERTRIEB WIEN BERLIN. Since 2012 Ablinger is member of the Akademie der Künste Berlin, in the same year the Academy opended the Peter Ablinger Archives.
http://ablinger.mur.at/