Micro-ecologies of sound: Elemental dialog at work

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This article aims to investigate interactions between biologic elements of human bodies and soundwaves, paying attention to both the appropriate material of theoretic research and the artistic practices of recent years. Starting from the specificity of sound perception and its difference from visual one, thus highlighting the immediacy of soundwaves and their immersive cosmic character, the author goes on with consideration of approaches which try to operate with these features of sound equalizing humans with other «objects» on the planet as subjects of sound affection. Giving soundscape practices their due, the author demonstrates their still «all too human» intention to reorder «natural» sound assemblages to the please of human ear and suggests to explore artworks which immerse «listening bodies» into technically supported interaction with sound structures on the elemental level causing their modulations and mutations.

Elemental. Human. Agent. Scale. Interaction. Codependence. Ecology.

1. INTRODUCTION

As was anticipated more than dozen of years ago, many «cosmogonies» have entered the scene of political and social discussions: «Today ... the winds of history might begin to be felt again, so that the cosmogonies might become current and open again» (Negri 2009, 2). They propose new mappings of the world envisaging how it might have looked like before humans or without them. More then, these mappings inscribe humans directly into the Universe, dispersing them across cosmic space unbound to this (or that) planet (Thacker 2011). Therefore words from Joni Mitchell's song «we are stardust» acquire new sense today, more concretely and literally pointing at «the tenuous border between humanity [and] inanimate objects endowed with lifelike qualities» (Capucci, Torriani 2016).

One of the pioneers in media studies, a member of the so called Canadian School, Walter Ong, devoting a part of his studies to sound, inscribed himself into the cosmism movement in a way, when he was saying that «The centering action of sound effects man's sense of cosmos. For oral cultures, the cosmos is an ongoing event.» (Ong 1991, 122). Thus he made manifest that humans being dispersed in the cosmic space, are linked to one another and other objects by means of sound.

Cosmism since the beginning of the 20th century has always tried to consider human a part of the

complex macrosystem that unites elemental structures from stars to atomic particles, but by the same gesture, practically sending a man into space, it considered only one vector, namely going from man into space, thus presenting a man a center of the world, a little star, a sun. Ongoing discussions do not allow today any centrifugal ambition of man who could have placed her- or himself in the center of the Universe: dark ecology and flat ontology, taking into consideration global problems on former cosmic and now quasi natural (Morton 2013), then social and political levels reframed the view of worlds and planets, put much effort to convince that many fundamental processes do not reach the threshold of human perception, but should nonetheless be valued in order to make the future of human existence at all possible. Further considerations are to develop the theme of interaction through sound between different elements, including human, on levels from elemental to more complex ones, namely those that imply technical implementation. Necessarily the paper switches between theoretic and artistic practices aimed to reconnect humans to their surroundings, because only combinations of theoretical insights and material work are able to explain how surroundings modulate human structures.

2. SOUND FROM THE PERSPECTIVE OF IMAGE STUDIES

If on the «natural» level the linkage to environment reveals itself for humans through processes of perception, then let me briefly sketch the generally accepted scheme of how different senses, first of all vision and hearing as the most charged by information, are regarded in their complementability and differences.

Though it is generally accepted that sound perception is no less important than the perception of visual images, the large amount of image studies is statistically hardly compatible to that of sound studies, at least in the West. Image and sound were probably equally important in terms of adaptivity and evolution of human species, but on many reasons the desire to know more about images expressed itself in numerous approaches to the visual field. Formulating very generally the results of their work, one comes to express them in quite paradoxical manner: visual images are the most appealing, at the same time being called «abstract» thanks to their specific mode of addressing, that is, always acting through distance. References to authors from the cultural theorist Walter Benjamin to the philosopher Jean-Luc Nancy prove it quite well. The notion of «aura» of the former (proposed in 1936) implied distance, revealing the slippage and finally loss of the true object, featuring cultural change, registered in the visual field. The aura as a unique percept of what is far away, however close its subject might be, is parallel in its abstract and at the same time sense activating character to Nancy's notion of «l'image-distinct». Nancy points at double separation of the image: it is detached from the ground and inscribed into the *fond* (Nancy 2003). At a distance, he argues, each thing loses its status of a thing and becomes intimacy: being outside the world, it becomes the intensity of the world, which affects us.

This tradition of regarding the visual image as, on the one hand, ever moving the farther away the closer the viewer tries to come, and making imagination work harder and harder to fill this gap, on the other hand, is so powerful that practically no other attempts could dramatically overcome it. Occasionally authors tried to shift the emphasis to other perception abilities, as the visual and media scholar W.J.T. Mitchell who argued that «there are no visual media» and gave advantage to haptic oriented approach (Mitchell, Hansen 2010), or earlier the cinema theorist Michel Chion, who developed a tiny theory of «added value» of image to prove that cinematic images often depended on sound structures of a film that made images be effectively perceived (Chion 1990). The sound director Roland Kazaryan, the author of the only vocabulary article on sound appreciated by the famous leader of semiotics Michail Lotman, on his part, too, maintained the importance of properly chosen sound for cinema.

An interesting shift to materiality of images and therefore, to the location of images in the material cosmos could have happened in the late 1980s, when many visual scholars worked with Charles Sanders Peirce's notion of index, a type of a sign that has direct connection to its object. It might have explained the deep relation of image with the physical process of its emergence. Scholars tried to see a direct imprint, however delayed, as the origin of any image. For example, the art critic Rosalind Krauss was looking for ways to grasp many layers of light skin taken one by one by the photocamera from one and the same person, or studied direct inscriptions of Marcel Duchamp's many identities in the very visual side of his works (Krauss 1986); the culture historian Hans Belting explored many objects beyond the frame of art paying particular attention to their physical connectedness with the material they are made of and to the conditions by which these material structures influenced practices of their use (Belting 2011). The philosopher Philippe Lacoue-Labarthe, in his way, was working with «typographies» as imprints that both received form as informe substance and expressed the activity of the form (Lacoue-Labarthe 1998).

Another way to blur the differences between various senses and perceptions, visual, audible etc., or to work with them all in one artistic piece was attempted by avant-garde experiments with synaesthesia. Though it was more announced in manifestos than materially embodied (Lista 2006), these ideas were further developed under more sophisticated technical conditions of the end of the century. The same is the situation with some notions proposed by the philosopher Maurice Merleau-Ponty, including that of the «flash of the world». They were elaborated not only to blur the borders between perceiving subject and the perceived, regarding and being watched, thus discovering a sort of reversibility between perceived and perceiving, but to show how the watching and feeling subject is produced from the «flash of the world». Equally, by his contemporaries this language was considered «vague» and hardly operative, but today seems appropriate to describe material interactions, even entanglements with what is around (Barbaras 2008, Cassou-Noguès 2003, Gély 2006).

All the facts that were just listed seem only to prove the general view of the visual as distanced, that demands projections, imaginations, meaning-giving gestures etc, i.e. lacking various forms of mediation which would put images in proper contexts and finally explain what the eyes «see» (Stella's «you see what you see» thus has to remain a marginal view). In comparison to that, sound seems to be much less mediated, since from the very beginning of its investigations (going as far as to Pythagorean idea of music expressing “the harmony of the

spheres”) and by its very nature it enters the body literary and makes it resonate, transmitting the «communication» through sound from the imagery level (characteristic for visual images) to the level of real physical interactions. This is also a base to consider sound immersion much more effective than visual one.

3. SOUND-AS-SUBSTANCE VS. SOUNDSCAPES

Besides the physical development of sound waves, neither audible organs construction that humans gained in the process of evolution, nor preconscious structures that are connected to it, almost do not have filters that would be able to organize the stream of sounds. We can only totally «shut» our ears cutting ourselves from the environment, but doing so is dangerous in terms of biological adaptivity. Thus by their biological structures human beings can't avoid to percept «sound as substance» that is around us and that goes inside and through us.

Materiality of the sound waves is used in several recent artistic works. Hans van Koolwijk's *Oorsprong* (2007) was created as long, enclosed, metal cylinder (approximately 30' long and 5' high) with a heavy door at one end. Upon entering, two hidden machines at the enclosed end roar to life, which immerses the visitor in a dense sonic field. As the artist's notes describe, the emergent sound field makes it obvious that «sound is substance», which is a consequence of the sound waves pushing against the human body. In another work, exhibited in Struer sound festival in 2019, powerful soundwaves transformed from solar energy caught by the telescope put on the roof of the tower in the port area, affected visitors on levels from basement to the last floor in quite an immediate manner, making their bodies physically modulate, due to the amplitude of soundwaves, as all other bodies around, including inorganic constructions of the building.

The «sound as substance» of these two examples orients the search of appropriate tactics to explore the links between human and non-human elements, though these works are probably too «objective» in their tearing “the human” down, in their treating humans as something like stones. Of course one can hardly write «substance» without citation marks after all critical enterprises of the 20th century. But do we really have the right to quite uncritically use «sound spaces» or «soundscapes» in almost 2020s when global human fault is under investigation? Let's try to be more attentive and accurate.

Exploration of links between human and non-human elements of sound structures does not deny the methodology of «deep listening» (Schafer

1977) or «quantum listening» (Oliveros 2010), it only tends to shift the accent. Namely, the task of «listening in as many ways as possible simultaneously – changing and being changed by the listening» (P. Oliveros) seems actual for not only human perspective. Even more so, it might be one of implementations of sound-based interaction, if humans are considered as sound structures among many other objects, that is, if human bodies perceive, keep, produce and transmit sound structures as any object around them. (This does not mean that human bodies are mere mediators of sound: if there is no privileged position given to any perceiver or sender of sound, there seems to be no «terms» as end points of mediation, therefore human bodies should be considered as sound structures among many others. But in the perspective being elaborated in this article there should be no boundary between (human) self and sound, because sound waves in a way equalize objects they work upon.) The focus on elemental which is important for this article does not imply any specification or complex differentiation, including for example even that of gender.

What seems in soundscape practices problematic in terms of elemental, is their combination of «object(ive)» plane (where human is equalized with other «objects» around as listener and sound producer) with «subjective» attitude. Thus the formula of long-termed professional in soundscape activities Hildegard Westerkamp «the nature of this fluidity between our inner and outer sound worlds is both highly personal and at the same time universal» (Westerkamp 2017, emphasis added) might have been considered an expression of «cosmic» pattern («we are stardust»), if it did not have these poles of «personal» and «universal». These poles are indefinable on the elemental sound level which is explored here, because poles and oppositions imply the agent that regards them, or the observer, that is, they point back to human point of view, they can't but make it matter.

Similar desire to insist on human usage of sound manifests itself in today numerous proceedings of «transcoding» of what was heard into another «substance» by means of «corrections» or «improvements», being done again from human point of view. As was already pointed out, sounds equalize humans with other sound structures, but human desire to restructure sounds around to remake the environment to please human ears guides many art practices. There is no judgment here whether it is bad or good, but this desire remakes the environment and rebuilds it to what might be called «third nature», if the first is «natural order of things», prehuman and now lost, the second is human use of nature in industrial scale, and the third is reconstruction of industrial (already unnatural) environment. The soundscape manifesto had obvious purposes : «The moment of a factual

recording of a sonic situation, of a soundscape, and the further processing of such a recording is seen as less important in this context than the existential and environmental situation connected with the actual act of subjective listening to the manifest acoustic events present in the given space and time». But what it practically came to, as we can see now from a slight historical distance? It seems that many records (including field records outdoor, or what was called «in nature») were made, and these records were then elaborated and organized in sequences that correspond human sense of «pleasant atmosphere», which is sometimes called «ambient».

For example, the acoustics of space might be tuned to amplify a single tone, as in Shea Michael Trahan projects, where cymatics (the way surfaces vibrate) and three dimensional printing technology are used for constructions which «sing back» when someone walks in and sings this or that note. Michael Fowler, a member of the audio communication group at the Technical University of Berlin, works with existing structures adding to them, for example, vibrating façades that might cancel out noise by exploiting the physics of interference: a sound wave at the right frequency and wavelength might counteract the sound waves of an «unwanted noise». That is, apartments near airports might be constructed in the way that sound of the airport disappears because of the active «noise» cancellation from the whole building. Jordan Lacey, a research fellow at RMIT University, Melbourne, and his students construct installations that aim to organize «sound parks», that is, they pick up the traffic noise, mix it with musical sounds and play them back through loudspeakers in the park area. It enables people sit on their balconies, instead of shutting themselves off from the outside. Karen Van Lengen, an architect at the University of Virginia and her colleagues designed the conceptual MIX house with windows acting as «sonic dishes» that can be angled in different directions to capture sounds from the surrounding neighborhood. Homeowners can then mix these sounds through an audio system to create musical compositions where «a dog barking becomes an ambient soundtrack».

Two further artistic examples also try to reorganize a connection between human and environment, but in another way. First, they both do not use or correct the environment in order to make it sound pleasant for humans. Second, their basement is not someone's personal experience, rather it is a collective opening of senses in an unsettled manner, when a link to the surrounding milieu might or might not happen. Hunter Noack constructs the situation which might course the specific experience: in his project «In a Landscape» he brings a Steinway piano and 300 pairs of wireless headphones to some of Oregon's

most beautiful outdoor spaces. Though he formulates his task quite modestly saying that his project «permits listeners to enjoy classical music amid natural beauty, rather than confine inside a formal concert hall», the result is more complex. He himself has to deal with wind and other «noises», his audience, partly classical music fans, partly local people who have relationships with particular places and no experience with classical music, are supposed to be «transported into another world». What does this «another world» mean? Is it a better world of dreams? or closer to «nature»? Is this «another world» the same for all, or does each have a specific combination of perceived images, sonic and visual? Each combination consists of music sounds from headphones and the view perceived by eyes only, cut from other scenes, including sonic flows of the environment. Noack comments: «outdoors, you really feel the preciousness of being here now», «a heightened sense of being present». A strange commentary, if the surrounding space (deserts, lakes) and even organized flows of sounds are aspects of reality that has no correspondence to human experience. But Noack seems to find a specific technique: he multiply switches perception channels and substitutes visual with audible and v.v., making them constellate. By this technique he manages to stay on the edge between human and non-human, neither going further into inhuman landscapes, nor reorganizing the surroundings in a human-cosy way. By this technique he totally acknowledges the uneasiness of stating a connection between humans and their surroundings under today's conditions: «landscape does as much as if not more for people than the music», he says, revealing his view of ecology. Which in turn means that above mentioned «preciousness of being here now» just reveals human precariousness for humans themselves. This is why he is convinced that «natural world... is infinitely more complex and beautiful than the music».

Another shaky way of «being in a landscape» presents the project «Music for Natural History». It also problematizes the link between humans and what surrounds them, but consistently, in the direction of artificialization of all components of this linkage, except the voice. It is a live performance in the space of museum, replacing existing sounds of a particular place with the live sounds of sixteen vocalists, sound artists and music instrumentalists that spent weeks learning to replicate the sounds of wind, birds and ocean surf of the Pacific Northwest. The project thus «blurs boundaries between sonic mimicry, soundscape composition, classical music, and dadaist sound poetry» within the already paradoxical setting of the Museum's exhibitions. The creators of this performance called the piece «part tragic love song for the wilderness, part performative sound art» (Pearson, Walde 2017).

Whether this performance is «a part of a growing global movement of art projects that intend to foster renewed connections with the biosphere», as singers write, or not, a «longing for remembering what we no longer hear, and what we no longer sing», or not, for «hard core» sound ecology (that of Marie Thompson for example) these two examples (Noack's and «Music for Natural History») would go further in blurring the boundaries and dispersing the human. Since introducing a term of «sonic» she writes that it needs to be taken broadly, insofar as it involves «movement, technological processes, mechanisms, objects, frictions, atmospheres, space, knowledge, power relations and so on». In short, the sonic does not just involve sound: it is constituted by a nexus of audible and inaudible processes, relations and inter- and intra-actions. And noise does not need to be heard as unwanted, loud or excessive in order to exist – it need not be heard at all. This «ethic-affective approach decentralizes the listening subject: noise no longer «needs me». This decentralization of the listener runs contrary to the sonic anthropocentrism of a subject-oriented definition and some phenomenological accounts of noise, in that it allows for the noise that remains hidden out of earshot – be it through habits of listening, thresholds of perception and attention or through error correction mechanisms that counter noise before it reaches the level of audibility» (Thompson 2017, 6).

Would it be possible to choose ecologically between these alternatives of dealing with sound? I would like to mention the idea of sound immersion that draws a perspective in which sound matter due to its physical specificities allows to investigate what might be called not-only-human, at the same time still leaving possibilities for humans to stay, if even technically slightly recalibrated.

We as (still) humans obviously have difficulties with opening towards not-only-human interactions. Holistic humanist view of complex body, though it is intended to be perceived today as a mix of organic biostructures and inorganic components, with McLuhan-like ideas of prostheses already shifted in the direction of «l'intru», seems to defend its position. Soundwaves are considered to penetrate such a body «from outside», or from outer space. Such a body might be carried into what is left from «natural scape» (as in Noack project); or used to construct a message by almost artificial means, where only a component of human voice is natural, to be sent into space where it might reverberate (as in Tina Pearson and Paul Walde project); or for conscious assemblage of a totally technological environment for the (dis)comfort of this body (as in sound parks examples); or to be erased as such, again in a manner of totality, dissolving into a «sonic» (as in Marie Thompson project). But in the

flow of this article it is worth to consider interactions of elements that are recognizable as «human», and the elements of the «milieu» (this notion is used to differentiate it from «environment» that seems to operate with «big data» of bodies and objects) that are not foreign to us, that are valuable for mutual growth of human and milieu, including such materials as sound waves.

The linkage between human and environment on a larger scale, or more precisely, the interaction between (human) elements and the milieu on the more elemental or microlevel might be treated in terms of immersion (Helmreich), contagion (from Lev Tolstoy to Steve Goodman), energy (from Galloway to Donnarumma), to name the most attractive. All these notions imply blurred boundaries between (human) «self» and the surrounding milieu. We do not tend to discuss here communication, connectedness or presence (though these characteristics continue to be used to describe the effects of sound art works) because these notions are either reconstructing the category of human on the «old» base, or had lost their credits in processes of appropriation by power structures (communication diluted into empty word block chains, connectedness is managed through GPS surveillance, presence is less and less felt unmediated).

In my view, new phenomena that now demand a new language of description, prove contagion as less operational than immersion or energy, though the former seemingly equates different bodies that are subjects to the process of reconstruction in affected areas. But the process of contagion does not speak only about very specific penetration of boundaries between different zones, it goes further without stops and finally leads in one-directional manner to a total destruction of affected pieces in their former mode of existence. In contrast, «immersion» or «energy» imply interaction and growth, even though the latter goes on through various kinds of resistance. Taken in a broader (broader than only political usage) and at the same time in a more elemental scene (where human as well as non-human elements are subjects to chemical and organic transformations) these terms may be applied to sound-based interactions. Taken politically and ontologically, «immersion into the world» causes «pain» and describes deep processes of interaction that transform body and its contours while leaving it live. Taken with reference to cell interaction descriptions, immersion might characterize interaction processes (through membranes etc) and mutations that take place on a more elemental level. For example, human eardrums provide the resistance that can interrupt many vibrations so that they might be translated into tympanic movement—sound—in the ears. Lots of vibrations pass right through our bodies. Underwater sound, for example, is largely

registered by bones in the skull, which allow enough resistance for vibrational motion to be rendered into resonances in the body (this is why unaided human ears perceive underwater sound as if emanating from within one's own body). Then it is possible to speak of «auditorily inspired attention to the modulating relations that produce insides and outsides, subjects and objects, sensation and sense data. Rather than seeing from a point of view, then, I suggest tuning in to surroundings and to circumstances that allow resonance, reverberation, echo- senses» (Helmreich 2016).

The idea of immersion underlines these mutations and modulations of inside and outside, embracing «sides» in a powerful movement, where agent, be it human or not, is being involved, taken, driven. By sound in the first place. Characteristically, this agent is rather «placed», then «thrown». Thus immersion implies less violence though having a strong effect on the agent being immersed.

Let's consider in this perspective of immersion an example of Adrian Paci's work to demonstrate the modulations caused exactly by sound and moved to the level of high intensity to trigger a specific experience by technically generated milieu. *Interregnum* (2017) is constructed as video that uses footage from official state and national television broadcast archives. Spanning an entire century, it connects different Communist societies «through the shared language of grief»: individuals, groups, kilometer long chains of people, mass parades in a state of loss, dramatic uncertainty about their future. Art critics and curators mostly stress political aspects of «interregnum», proposing that, on the one hand, viewers of the video observe the increasing depersonalization, and on the other hand, describe how viewers are being involved in what they see (thus apparently dissolving as individuals in these processions). It is important to underline how these descriptions shift from visual perceptions to audible ones: «Shifting from close-ups to wider views of the masses, the film makes us witness to a crescendo where the manipulation..» (Rea 2017; emphasis added). These words are not a contingencies or figures of speech. It would be possible to analyze how the audio-visual milieu is constructed in this work, probably with the help of Chion's ideas. But it is probably more important that the work in terms of its sound design is structured by growing sound, and electronic component in it becoming more and more obvious: if at the beginning it is more or less similar to mass act of mourning, it transforms then into roar, which makes understand that «interregnum» is not only an unsettled period between two governments (or dictatorships, more precisely), as it is the unsettled «place» of humans as such. And this recognition comes on quite «elementary» level of sound construction that affects our audible channels. It is also worth

mentioning that Paci represents a group «Protocinema» that explores structures activated before we have words to name them or label with this or that genre.

This suspense, this absent «place» that human does not have, which «Interregnum» underlines and which it generates, seems to be characteristic for immersion. In the latter it is very little left from topology, space and even zone analysis: being immersed, you only sink. Or you resist. This is an effect that sound elements produce. And their action seems even more clear in the works that bet on sound as «energy», as ones of Marco Donnarumma. His time-based 8 minute long installation *Nigredo* (2013) can be experienced by one person at a time in a special black chamber where the visitor is sitted in front of a one-way mirror. At the center of the piece is heartbeat and other muscles vibration data sensed and processed by a custom-made instrument, worn by a participant. After the state of sensory deprivation, the visitor gets exposed to various visual and audio stimulations that arise in response to the person's bodily processes and provoke visceral and neural effects. Donnarumma works with the principle of bioacoustics, the idea that the body produces low frequency vibrations that can be interpreted as sounds. Such vibrations are generated by blood flow pulsations, heartbeat, as well as muscle sounds that can be tracked through mechanomyogram (MMG). Heartbeat is in fact less a pulsation of the blood, but a muscle vibration. The contraction of a muscle in response to the action potential (electric impulse sent from the central nervous system to the muscle cell) produces vibrations that transmit to the skin in a form of longitudinal pressure waves that become the MMG signals. These signals are then processed via an algorithm that applies to them a special mathematical formula. The result is the humming low frequency pulsating sound field that engulfs the visitor on a visceral level both acoustically and through the very surface of the body. In his description of the piece Donnarumma refers to scientific research on the effects of sound waves on the body, that may include displacement of organs and other structures of the body, cardiovascular and respiration alterations, as well as cognitive discordances, e.g. in processing the incoming sensory information, or memory. Altogether, the experience is first designed to be felt, and felt as a mutation in perception. As Donnarumma states: «*Nigredo* reifies a condition of mutual codependency where the human and the machine bodies perform each other by exchanging acoustic energy» (Donnarumma 2015, 63; emphasis added).

These sound-based interactions, technically supported and involving both human biostructures and milieu impact, are interactions that foster the

mutual complex development and life growth. They happen neither in the «cold» «space» nor in appropriated «landschaft», but in a common milieu that is penetrating and being penetrated. And it enables to discover and investigate the opening contours that modern scholars are looking for, proclaiming the necessity of coexistence with others (Morton 2016). It is not so much about hospitality, because the guest is the one who finally goes, invasion («l'intru») even less. They rather reveal interactions which already are going on, though on a smaller scale, and less pathetic scale, and which we should look at more attentively.

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