

What is a Soundscape Composition? – towards a paradigmatic definition –

João Castro Pinto

CITAR – Research Center for Science and Technology of the Arts
Portuguese Catholic University - School of Arts
Porto - Portugal
jcpinto [at] porto.ucp.pt
<http://www.agnosia.me>

Soundscape composition is a genre of electroacoustic music that flourished during the late seventies as a direct consequence of the *World Soundscape Project*, a pedagogical oriented research group harbored at Simon Fraser University, in Canada. The main interests of this interdisciplinary group were firstly centered in the ecological noise pollution issues and, afterwards, expanded to other activities, such as the creation of soundscape compositions. The study of the soundscape composition thematic implies an analysis of the argumentative determinations and constituent elements of this particular area of electroacoustic composition. Throughout this paper we will seek to show, on the one hand, the basic principles of this compositional art, historically contextualizing them and, on the other hand, revealing conceptual issues relating both to theory and practice of soundscape composition. Firstly, we will contextualize the soundscape concept, synthetically revealing the genesis of this genre, while highlighting the role of its founders, in the World Soundscape Project context. Secondly, we will present a clear distinction between the analytical foundations of the soundscape concept (its features and goals) as suggested by the World Soundscape Project and Schafer, and the postulates coined by Barry Truax regarding the soundscape composition concept. The aforementioned distinction will mainly refer to the roles and definitions of perception (as listening), environment (as a medium of interrelationships) and sound (as the mediator between subject and environment). Finally, we will examine some conceptual constraints concerning the principles of soundscape composition, pointing as well to the explicitly ecological, ethical and social character to which the theory and practice of this kind of composition is subjected, exposing the aesthetical and creative limitations which can result from this character.

R. M. Schafer coined the term *soundscape* and defined it, generally, as “any portion of the sonic environment regarded as a field for study” (Schafer 1977: 274). Schafer’s theory was further developed by the theoretical contributions of composers / researchers like Barry Truax and Hildegard Westerkamp, gaining expression through the specific mode of composition known as *Soundscape Composition* (hereinafter SC) (Truax 2001). Since the dawn of this new form of creative expression, many associations, publications and journals (such as “Soundscape – Journal of Acoustic Ecology”; W.F.A.E.’s journal) were created, and although several articles / papers were written on the subject, it is still pertinent to conceptually determine, in clear premises, what a soundscape composition is and what problems arise from the search of a paradigmatic definition.

Due to the recent exponential development of computational technologies, the democratization of computers and the increasingly affordable digital audio recording technologies, many artists indiscriminately claim to create soundscape compositions, and what we can observe is that this term is being frequently misused, we suggest, due to the inexistence of a clear conceptual definition that can be discussed and theoretically complemented by artists / composers who work in this artistic area. This article intends to clarify the concept of soundscape com-

position and to raise questions that will eventually lead towards a paradigmatic definition of the term.

Contextualizing the soundscape concept

The twentieth century witnessed profound musical transformations, for several mutations occurred in its essential structures, namely: in the theory / compositional *modus operandi* (compositional techniques) and in the modes of reception / listening of musical works. Within the contemporary music scenario, after the *dodecaphonism* revolution (Schönberg), the path was wide opened for an intensive exploration of compositional methods. Simultaneously, the Futurist movement, through the *Art of Noise* manifesto (Russolo 2004), proposed the integration of the industrial revolution soundscape in music, through instruments designed for this purpose: the *Intonarumori*. In the post-war decades, and especially after the development of *Musique Concrète* (Schaeffer), *Elektronische Musik* (Eimert, Stockhausen) and Tape Music (Ussachevsky, Luening), synthesizers and computer technologies evolved in speed, storage and algorithmic possibilities of sound data processing. Due to the growing number of research centers and composers of experimental music (GRM, WDR Studios, CPEMC, IRCAM, SFTMC, CCRMA, etc...) ¹ several aesthetic statements

emerged, which justified this new context of *panauralization* (Khan 1999) or musicalization of sounds from the phenomenal world. In addition to the conclusions and perspectives of the *Traité des Objets Musicaux* (Schaeffer 1966), among other new significant music theory writings, several music definitions arose.

According to Varèse (Varèse 1983), music consists in organized sounds; for Berio (Berio 1981), music is all that is heard with the intention of listening to music; Cage affirms that all sound is music, corresponding the 4'33" piece to the overthrow of prejudices about the type of sounds that could figure on a musical piece. The soundscape concept (Schafer 1977) was born within this historical context of the World Soundscape Project (hereinafter W.S.P.) and instituted the discipline of acoustic ecology. A soundscape is considered any sonic environment regarded as a field for study (Schafer 1977), whether it is a particular location, a radio drama play or an electroacoustic piece. Schafer intended to study the relationship between the soundscape and the listener, postulating a causal link between the soundscape (as the environment) and the technological development of human societies. Being the soundscape portrayed as a musical composition (Schafer 1977), Man would have to be held accountable as the main responsible agent of its destruction (for he acts as the most intrusive composer). Schafer's goals were to reeducate the sense of hearing, seeking to reestablish a bio-sonorous balance in the world, eliminating unwanted sounds, while promoting and designing ecological sounds and acoustic spaces. Acoustic ecology researches eventually led to a new form of electroacoustic composition entitled soundscape composition (Truax 1999).

The W.S.P. was founded at the Simon Fraser University (S.F.U.) in Burnaby, British Columbia, Canada, by Ray Murray Schafer during the late 60's. This project was erected in the context of the communication studies dept. of the aforementioned university. The primary intent of the soundscape studies materialized in educational and documentation / archiving purposes. The main task of the W.S.P. was the creation of an interdisciplinary academic group composed of experts in various fields of knowledge (sociologists, musicians, experts in acoustics, psychoacoustics and communication studies, students, etc...), in order to perpetrate poignant and comprehensive analysis about the state of the sonic environment which characterizes the contemporary soundscape. These studies² gave rise to the discipline of acoustic ecology and to the publishing of various sound recordings (as the double-CD and booklet "The Vancouver Soundscape"). The fundamental purpose of the W.S.P. was to reflect and alert to the increasing problem of

noise pollution, a rampant phenomenon that exponentially grew during the second half of the twentieth century.

In the introduction of the seminal book "The Tuning of the World", Schafer explains the perspective from which he will analyze the issues under consideration: "Throughout this book I am going to treat the world the as a macrocosmic musical composition." (Schafer 1977). This quote indicates that Schafer's concerns did not simply focus on the demand of eradicating the phenomenon of noise (through noise abatement laws), but also in understanding the intertwined reasons that founded its existence and the dialectical relationship of this kind of pollution with Man, considering its existential dimension in the world, as a creature amongst other natural life forms.

The main idea underlying Schafer's theory is Mankind's interdependence with the environment and the impact that this relationship has with the latter, regarding an ideal ecological balanced relation of Man and Nature. Specifically, Schafer asks what is the relationship between Man and the sounds of his environment and what happens when these sounds dramatically change? What are the consequences for Man, concerning his natural inclusion in the environment, regarding his perceptual abilities? Are Man's perceptual possibilities safe from modifications in the soundscape? What can we do, facing the ethical responsibility of being nature's main interveners, to rectify the changes that, thanks to our technological development, we have operated in the sonic environment? These concerns constitute both the W.S.P.'s and the acoustic ecology's research core.

The methodology proposed by the W.S.P. to analyze and access the causes and effects of noise pollution has in the soundscape, consisted, at first, in studying the evolution of the soundscape throughout history (mainly through literary testimonies and various documentation, focusing on the differences of the pre and post-Industrial soundscape) and, secondly, throughout a detailed sonic analysis of the soundscapes by field recordings, taking into account the characteristics of the environment (cultural and geographical [by creating isobel maps]), and systematically annotating the data for posterior conclusions, including realizing specific questionnaires to the studied populations / communities.

Following Schafer's departure from the Simon Fraser University, the studies of acoustic ecology continued, adding to the W.S.P.'s activity the creation of pieces entitled as soundscape compositions (Truax 2001).

Having presented the main context of the soundscape concept's birth, we should now figure out what is Schaf-

er's objective definition of the concept under consideration. In the glossary of the aforementioned book, a soundscape is formulated as follows:

"soundscape: the sonic environment. Technically, any portion of the sonic environment regarded as a field of study. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when the considered an environment." (Schafer 1977).

It is still important to note that Schafer, throughout the studies he was coordinating and developing with other colleagues (which were the subject of various publications), created an impressive and extensive glossary of terms that allows us to think, study and characterize the soundscape (in quality and quantity, having made a taxonomy of sounds) which, for obvious reasons, we can't present in its entirety. However, terms that are considered of main importance will later be referred in order to allow a proper understanding of our analysis.

The need for the distinction between soundscape and soundscape composition

Schafer, as previously explained, determined a series of principles, which take the form of characteristics, or features, that allow us to think and define the soundscape. Meanwhile, Barry Truax took the key assumptions of the later author and developed a communication theory centered in a triadic dialectic, namely: the listener > the sound < the environment. Sound consists of the mediation link between both exponents of the *continuum*³ (Truax 2001) *via* hearing or aural perception. This theory advanced the features and determinations which govern the postulates of SC, not only in theoretical but in practical terms. Nevertheless, and before we explain the imperative need for a clear distinction between soundscape and soundscape composition, we must present a few distinctions within the scope of the soundscape thematic.

Phonography, Bioacoustics and Soundscape Ecology: similitudes, differences and conceptual integration

The soundscape concept under consideration in this paper is structurally anchored to the theories of Schafer and Truax, although we consider and / or understand the relevance of soundscape satellite disciplines such as, for example, phonography. This discipline aimed to document natural sonic environments, by mapping them through "clean" field recordings, without any signal processing, gaining form in sound collections for various

purposes (ecological and other scientific studies). Regarding this matter, we should also consider the field of bioacoustics, a branch discipline of ecology (with an interdisciplinary focus that integrates biology and acoustics), devoted to the study of the animal sounds⁴ in the most diverse environments. This discipline also has clear affinities with the soundscape theme. Worth mentioning as well is soundscape ecology⁵, a discipline that also integrates the scope of ecology, which instead of focusing mainly on Man / Society (as the fundamental texts of acoustic ecology suggest) or animal / insect life forms (as the bioacoustics does), presents not only a holistic approach, dispensing therefore hierarchies or centralizations (anthropocentric or zoo-centric) as it defines, in a simple way, the structural assumptions that allow us to rethink the ecological question. As an emerging science, the soundscape ecology categorizes the constituents of the soundscape, namely the sounds of biological life forms as biophony (sounds produced by all organisms at a given location over a period of time); sounds from the geographical environment as geophony (climate, geophysical landscape features); human produced sounds as anthrophony, and finally, if considered in its negative expression as noise - anthropogenic noise - whether originating from human activities or variegated artificial machinery (Pijanowski et al. 2011). We will now present the principles of soundscape ecology, with the purpose of clarifying its distinction from acoustic ecology. In the introduction of the paper "What is soundscape ecology? An introduction and overview of an emerging new science", we find the basic principles and terms of this new science, we quote:

"The study of sound in landscapes is based on an understanding of how sound, from various sources— biological, geophysical and anthropogenic — can be used to understand coupled natural-human dynamics across different spatial and temporal scales. [...] We argue that soundscape ecology differs from the humanities driven focus of acoustic ecology although soundscape ecology will likely need its rich vocabulary and conservation ethic." (Pijanowski et al. 2011).

In a more specific description, we can understand that:

"Our working definition of soundscapes is the collection of biological, geophysical and anthropogenic sounds that emanate from a landscape and which vary over space and time reflecting important ecosystem processes and human activities" (Pijanowski et al. 2011).

The "Niche Hypothesis" theory (Krause 1998) is part of the basic texts of soundscape ecology and bioacoustics,

and confirms Schafer's idea that the soundscape has varied rhythms, in terms of sound presence, and that it has specific spectral niches where animal sounds occur in natural harmonious relations. Bernie Krause, researcher of soundscape ecology, states in this theory, based on empirical data (2.500 hours of field recordings and spectral analysis – Wrightson 2000), that the balance of the natural habitat is dependent on the health of the sonic spectrum. He observed that animals and insects communicate through a scheme that implies a natural partition of the sonic spectrum, which when severely disturbed has fatal consequences for its inhabitants.⁶ We presented this distinction, not for the need to emphasize the scope of the highly environmental worries of soundscape ecology, for this is not the focus of this paper, but to emphasize that the determinations by which it characterizes the soundscape will be taken into account in our analytical perspective. The other purpose was to demonstrate that other research possibilities of thinking and analyzing the soundscape exist and can have aesthetic consequences.

The synthesis between Schafer and Truax: soundscape definition and features

Returning to Truax, who proposed a communicational approach for analyzing the soundscape, where sound acts as the mediator between the listener and the environment, we can assure that, as noted, he was responsible for establishing the principles regarding the criteria for identification of soundscape compositions. Because it is now logically pertinent, we suggest the most significant terms coined by Schafer about the concept of soundscape, which later influenced Truax's postulates.

According to Schafer, a soundscape is made of a plurality of dynamic factors. The more significant are the following: sound marks, considered as sound milestones, like terrestrial landmarks, as they depict the peculiarities and uniqueness of the physical and cultural environment (sounds of water mills, bamboo houses or other specific constructs in terms of materials, which are distinguished by a more or less durable and recognizable pattern in the soundscape); keynote sounds, are sounds that are heard continuously enough, in a certain localization, that form a kind of sonorous background that expresses itself as the main key or tone (hence the analogy to the main tonality of a music composition), so to say, of the soundscape, and which can be produced by the geographic characteristics of the environment and climate, or by other agents (machines, factories, etc...), being steadily present over the sonic horizon from which stand out and are perceived sounds from other activities and events (like the sound of the sea, to a community that is located

near the sea, or the low rumble of traffic chaos, for those who inhabit the center of a megalopolis, these types of sounds correspond to a listening mode entitled background listening – a mode that does not call for a specific attention focus, being more or less unconsciously undertaken); sound signals, are those sounds which are consciously heard, more specifically any sound towards which the attention is particularly directed, such as signals relating to warnings (sirens, traffic lights acoustic signals, etc...) which communicate vital information to human beings and imply a directionality of attention; sound events, are defined as actions or movements that have a symbolic and semantic structure that can be analyzed and occur in a certain place during a determined period of time, consequently triggering sonic gestures and textures. The exposed terms, specially the later, configure a sound approach that focuses and enhances the idea of context (of understanding sounds topographically within the inter-relationships they established between themselves and Man), rather than on Schaeffer's *objet sonore* approach, a perspective linked to phenomenology, which favors the study of the isolated variables and attributes of sounds, taken separately in its formal perceptual presentification.

Other definitions of crucial importance are the LO-FI (low fidelity) and HI-FI (high fidelity) soundscapes, the first of which, as the name implies, refers to saturated / polluted urban environments (sonic spectrum wise) by noises that operate a masking effect by overshadowing the presence of the abovementioned different types of sounds, which constitute the functional criteria for the identification of the soundscape, causing the listener to be separated or alienated from his or hers sonic environment. In other words, a LO-FI soundscape has an unfavorable signal-to-noise ratio and this fact does not allow aural perception of different sound perspectives (background and foreground planes), nor of sound diversity, in terms of sonic quality. The HI-FI soundscape is precisely the opposite, i.e., a rich landscape in diversity and rhythmic sonic features (seasonally and according to day and night cycles) in communication information (favoring a harmonious and meaningful relationship of the listeners with the acoustic community), for its contents are harmonically ordered by occupying distinct parts of the spectrum, allowing therefore the perception of correlations between foreground and background planes. In this type of soundscape, which is characterized by having a wide acoustic horizon, there is generally a balanced sonic environment that presents more sound diversity than sound amplitude. The LO-FI soundscape can imply a reduced aural space, and poor hearing acuity, subjecting the listener to consider the soundscape only in terms of amplitude (of volume), reducing his aesthetic appreciation to

the simple operators of loud and quiet, bad or good sounds, for he is unable to appreciate variety, rhythm and subtleties of the soundscape.

We can conclude, although certain concepts remain to be elucidated, that these notions should be studied in terms of the relationships and roles they play with the aforementioned concepts, in order to draw a coherent scheme that properly exposes the Schaferian philosophy, as: *schizophonia*, archetypal sounds, ear cleaning, clair-audience, sacred noise and the varied definitions and implications of noise (Schafer 1977).

Modes of listening and the soundscape composition: criteria and principles

Having exposed the guidelines about Schafer's analysis of the soundscape, it is now time to determine to what extent Truax presents his definition of soundscape and soundscape composition, so that we can highlight the reasons that justify a thorough distinction between the two terms. According to Truax, the soundscape consists of, and we quote:

"An environment of sound (or sonic environment) with emphasis on the way it is perceived and understood by the individual, or by a society. It thus depends on the relationship between the individual and any such environment. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an artificial environment." (Truax 1999).

If we analyze both soundscape definitions (Schafer's and Truax's), we quickly realize that Truax emphasizes the perceptual phenomenon of human hearing, providing full justification to the previously presented scheme, which determines sound as a mediator of the relationship between Man and the environment (note that, from this perspective, the soundscape is also what the society conditions it to be). This definition, as pointed out earlier, refers to an acoustic communication theory⁷, that is correlated, in acoustic ecology, with an argumentative anthropocentric point of view, rather than a more holistic approach, such as soundscape ecology suggests. He points out that the soundscape depends on the relationship between the individual / society and the environment. We can't fail to interpret these words as having an eminently socio-political character. By focusing his concerns on Man's existential condition as a listener, our author advocates, beyond the creation and expansion of Schafer's glossary, some innovations that we shall characterize, namely the attempts to understand and explain the various modes of environmental mediation, i.e., to

understand and explain the main human hearing typologies. In perceptual terms, the brain is previously tuned to recognize differences in time and spectrum and, thus, it is also trained to reduce its attention to continuous sounds (Truax 2001). The first type of hearing is somehow related to the aforementioned conclusion, and its entitled *listening-in-search*. This mode of hearing refers to the disposition we have to orient ourselves by sonic hints, searching for significantly different details regarding sound's behavior⁸, without noticing it, for example, paying attention to echoes in the context of poor visibility - what Truax calls *echolocation* (Truax 2001). This mode of listening is well developed in blind people.

Another important mode of listening evidenced by Truax is called *listening-in-readiness* and it refers to situations when, although being tuned in the background listening mode (a kind of listening that isn't focused on any sound in particular) we are, however, aware of specific sounds that emerge from the acoustic horizon which promptly direct us for an activity or intent (this happens, partially, in virtue of past psychological associations). The classic illustrative example is a mother (Truax 2001) who wakes up to the sound of her baby's cry and ignores the sounds of heavy traffic on the street, or alike noises with equal amplitude and similar spatial location. These listening modes (background listening and *listening-in-search*) are identical to Truax's distracted and analytical listening concepts. Our author states that, due to the postulated dialectical interdependence scheme of mutual influence between: listener -> sound <- environment, and has Schafer had announced, we generally possess a sick or an underdeveloped aural acuity, which we should develop and cure, for it is this acuity that can reintegrate us into the acoustic community.

Considering the exposed so far, we should, however, clarify the definition and criteria of the soundscape composition. Truax affirms that a soundscape composition has to respect the following principles: a) - the pieces have to strive for recognition of used environmental sound source material, b) - the knowledge that the listener has from the environmental and psychological context of the soundscape material has to be invoked, so that the listener completes the meaning ascribed to the piece, c) - the knowledge which the composer has from the environmental and psychological contexts should be explored in order to modulate the composition at all levels, being, ultimately, inseparable from the aspects of reality that one wishes to portray, and d) - the composition should emphasize and promote our understanding of the world (in environmental terms) and the influence that the latter operates in our perceptual habits. (Truax 2001).

Truax deepened the principles of SC in a scientific paper published in *Organised Sound* (Truax 2002), (that also presents soundscape composition techniques), which are listed as macro-compositional approaches. In this article, Truax highlights the following arguments: a SC cannot be defined only by being a sound product that is composed by the use of environmental field recordings, in the first place because the digital processing technologies can disfigure its structure and morphology so dramatically that the sounds can be listened to as they were an abstract composition, with no references that invoke the environmental contexts, and, secondly, because an arbitrary juxtaposition of various environmental sounds (in multi-track software, for example) doesn't respect any perception of a given context and its sonic characteristics (including the keynote sounds, the sound marks, sound events, etc...), nor has it a consistent syntax.

Truax determined that SC pieces are so diverse that one cannot intend to describe all its genres, for this task would be impossible to realize. Notwithstanding the abovementioned, he determines that SC pieces are located somewhere on the *continuum* in between the macro-compositional antipodean approaches of "found sounds" and "abstracted approaches." What this means is that there may be at least, we interpret, three distinct typologies of SC pieces: 1st - those that are the result of field recordings which have such sonic interest, that the recording itself (i.e., an unaltered recording) constitutes a found sound of artistic relevance and can, therefore, be considered as a SC⁹ (the realm of found sounds); 2nd - those compositions which have a certain level of signal processing, but don't convey, however, ambiguities in terms of recognition of the sound sources and environmental portrayed contexts. In this case, it still results in a reliable SC, as far as it can feasibly present itself sounding like a real soundscape. As Truax affirms,

"[...] many composers like to create an imaginary world with processed sounds of various origins, and if the result is heard as a coherent soundscape, even if unrealistic in its details, one can make a connection to the soundscape composition approach. One such example might be Trevor Wishart's *Red Bird*, with its factory and garden "landscapes", as described by the composer (Wishart 1986, 1996), realized almost exclusively with vocal sounds." (Truax 2002).

Finally, the 3rd mode – those soundscape compositions that mix both field recording materials (of single or multiple locations) and use emphasized electroacoustic signal processing, altering the sound features into a considerable abstraction level. These pieces will result in

soundscape compositions, according to Truax, if they manage a balanced interplay between natural world references and the abstraction level, by invoking the listener's imagination and associations, towards the environmental and psychological contexts of the recorded sounds.

Furthermore to the above criteria, which raises several questions (such as: how can we access and evaluate, quantify and qualify, if the selection and inclusion of certain sounds in a piece will be able to evoke such knowledge of context to the listener?) Truax also notes that there may be cases where, regardless of the origins of the material in use (either natural or mimetic)¹⁰, if this material convincingly represents a natural sound environment to the listener, i.e., if it sounds and is listened to as a coherent soundscape, then it should also be considered as a SC.

The urgency to distinguish between soundscape and soundscape composition lies, precisely, in the possibility of establishing a systematic framework that reveals the identity of the pieces of this compositional genre. To finalize, we will present our objections in relation to the above exposed determinations.

Firstly, soundscape sounds and features, considered as data analysis, were coined in order to serve the study purposes of acoustic ecology and acoustic design, as they contribute to the understanding of the complex relationship that Man establishes with the sonic environment, thus allowing us to define strategies and lines of action (even political ones) that can contribute to solve the main problems of soundscape. Thence, the principles that establish as necessary to promote the listeners recognition of the sources of the recorded material, determining by that token that only soundscape compositions which display the elements of the natural soundscape are worthy of this definition, could represent a discriminatory attitude towards the potential aesthetic artistic creation, regarding this compositional area. In this sense, we argue that the criteria of "environmental purism" (so we state), which sustains the obligation to provide recognition of the environmental / psychological context in soundscape compositions, follows the preliminary propaedeutic and ethical principles concerning the educational mission of acoustic ecology. According to Truax, and also to the W.S.P.'s philosophy, one of the most important goals of SC was that its pieces should ensure that the listener gains a deeper understanding of the world and the ecological environment, by operating radical transformations in perceptual habits, contributing to trigger a renewed acuity (an analytical listening) resulting, thus, in a positive reintegration of Man in the

sonic environment. We do not believe that, in order to achieve this effect, it should be mandatory to limit the creation of soundscape compositions to this idea, for this reflects nothing more than a purpose which, despite the urgency and socio-ethical validity of the thematic, has nothing to do with the fields of aesthetics and free artistic creation.

In addition to these objections, we can further note that to suggest the representational criterion of displaying the features of the soundscape (keynote sounds, sound marks, etc... of certain locations) as a core principle of SC structuring and simultaneously to appeal to a subjective nature criterion, such as the ability to convince the listener that what he or she is listening to is in fact a soundscape, despite of the status of the presented source sound material, seems quite problematic.

Also we can stress yet another formal constraint regarding the principles of SC: in general terms, the average layman listener does not possess the same aural acuity as a composer or soundscape investigator and, especially regarding transformed sound. Hence, to derive the validation of SC through the free psychological sonic associations of a listener who is not accustomed to realizing them¹¹, seems like placing both the composer and the potential listener of SC, on the same knowledge and ability planes.

Finally, the criterion for evaluating the uniqueness of sonic spaces (keynote sounds, sound marks, land mark sounds, etc...) through SC pieces, states an intent to document (by gathering sound collections with the purpose of historical preservation of the aural cultures, as a way of valuing the "positive sounds" that, according to acoustic ecology, should be encouraged) which again reveals an attitude circumscribed to the studies of acoustic ecology, and therefore shouldn't be of binding nature in terms of compositional approaches, for it could condition the composer's creativity.

Although Truax deals with the aesthetic question, concerning SC principles (Truax 2012), stating that a SC is conceived in between two continua: an Internal Dominant (text) and an External Dominant (context), he continues to postulate that SC has a figurative dimension as representation of the outer reality, i.e., of the world. Text is here stated as the intentional structuring of the musical pieces (the composer's subjective inspiration elements), and context as contextually driven work (figuring and trying to represent the real) (Truax 2012)¹². In this paper, Truax reiterates that the SC has social concerns and, therefore, we conclude, social fundamentals, we quote: "Of particular interest, however, is work that

combines artistic creativity with social concerns, work that I broadly refer to as soundscape composition." (Truax 2012).

Towards a paradigmatic definition

The social, ethical and health concerns of the SC genre result in a kind of "medical attitude", for this attitude represents (in analogy) a kind of doctor / patient relation: once the diagnosis is done, one should prescribe the proper medicine and therapeutic treatment to cure the patient's ailments. In a similar way, acoustic ecologists study the environment and then figure ways to act on it, trying to solve its problems, and the soundscape composition pieces are considered as part of the *panacea*, part of the possibility to (re)gain aural acuity. We don't contest acoustic ecology's principles, methods and actions, what we question is the need of circumscribing SC pieces to these principles, being therefore aesthetically conditioned by them.

The need for a paradigmatic definition is related to the ambiguities we stressed and it serves not the intent of presenting a closed formulation, but to present a definition that, by not being hermetic, will not suffer from extreme conceptual constraints.

Beyond the conceptual differentiation between soundscape and SC (i.e., between analysis and creation), and in order to prevent further ambiguities, we suggest that the ideal conceptual definition regarding this kind of composition should be a paradigmatic one. But what is a paradigm? We won't adopt here Kuhn's definition of a paradigm, in the sense that a paradigm is a set of ideas or principles shared by a scientific community (Kuhn 1996).

According to Plato, the paradigm is an example / model that should make intelligible an object or idea. Plato's "The Statesmen" (Plato 1995) presents the paradigm of the weaver as an analogy or example of the ideal politician. As the Italian philosopher Giorgio Agamben affirms: the paradigm is a singularity (not an universal, nor a particular) considered within the *medium* of its knowability, so what makes something intelligible is the paradigmatic exhibition of its own knowability, i.e., its relation to a certain aspect of an object or a class of things / objects. But how can we understand the functioning of this paradigmatic example? If we understand that the paradigm shows its belonging into a class but for this very reason it steps out of this class in the very moment it exhibits and defines it (Agamben 2002)¹³. Although philosophical, this idea of paradigm seems to be quite interesting for our future SC definition purpose, because it states that the exemplarity of the paradigm resides in the means of its own knowability, meaning that, we interpret, it can be

observed through several perspectives without ever being enclosed in its own determination. In Plato's dialectics, the paradigm exemplifies the nature of the relationship between the sensible and intelligible worlds, between ideas (essences) and appearances (shadows).

We suggest the enterprise of thinking / reaching for a paradigmatic definition regarding the subject of SC for this position should be pragmatic and, simultaneously, wide enough to capture both a satisfying level of non-indetermination (specifying tangible / evident determinations) and leave an open space for a wide integration of possible works of art intentionally done under soundscape composition category.

An aesthetic argument: the *Acoustic Atmospheres* as a possible conceptual approach to the soundscape

If we consider the ideas Schafer implied when coining the soundscape term, one understands that its use is seldom deprived of its original meaning, for it is often misused in the fields of music and even cinema. Many pieces of music are billed as soundscape pieces because they incorporate environmental sounds, when in fact they are merely musical pieces that integrate natural sounds. There is also the implicit common sense idea / assumption that a soundscape is something like a background atmosphere, like a movie soundtrack that accompanies an image, representing the ground for its narrative, rather than assuming the role of directing and enhancing the plot, allowing us, therefore, to aesthetically experience the depicted environment¹⁴. In this regard, there are perspectives that consider the aesthetic nature of atmospheres, as German philosopher Gernot Böhme presents in the essay "Acoustic Atmospheres - A Contribution to the Study of Ecological Aesthetics" (Böhme 2000). Böhme states that a new ecological aesthetics is needed in order to understand the implications of the relations between Man and environment. As he refers:

"This idea became the content of Ecological Nature Aesthetics: to examine the relationship between environmental qualities and human sensibility. Atmospheres became the primary focus of this Aesthetics because atmospheres constitute the "In-between" between environmental qualities and human sensibilities." (Böhme 2000).

These atmospheres stand, according to Böhme, between subjects and objects and they can be described as object-like emotions, which are cast into space, although they have to be described, simultaneously, as subjective, for they are revealed and experienced only by the subject, and their value lies in this in-betweenness character. Böhme concludes that human emotional responsiveness

to music is due to its eminently spatial character. As Böhme puts it:

"[...] what does music's so called emotional effect actually consist? In opposition to the helpless association theories and the theories that called upon fantasy to mediate, the Aesthetics of Atmospheres gives a simple answer to the question: music as such is a modification of space as it is experienced by the body." (Böhme 2000).

The aesthetics of atmospheres is a theory that philosophically ponders our relation with the environment / the soundscape, and we briefly exposed some of its main ideas to affirm that there are currently ideas which can result in new soundscape approaches, beyond the objective or exterior features that acoustic ecology gathered, with coherent and valid aesthetic conceptual arrays.

Conclusion

The distinction between soundscape and SC is a task of paramount importance, if we are to create a hermeneutic that sets up the possibility of opening new aesthetic views in the field of electroacoustic music and sound creation.

We think that to determine the elements that constitute the soundscape is one task, and this will be governed according to the scientific field of study that we focus in, thence different features and concepts will be found and created according to our goals (eg. acoustic ecology points certain features and soundscape ecology others). This is the field of analysis, a field that allows us to understand the soundscape and to think and develop strategies in order to act upon it, regardless of our conceptual framework (being it ecological, socio-political or ethically orientated). Another task is to create soundscape compositions, and here one shouldn't be limited by the conceptual array which acoustic ecology created. This doesn't mean that there is no validity in the W.S.P.'s researches. One can take its conclusions and apply them in the composition, like the idea of background and foreground sounds (creating two interrelated planes for distinct and complementary sound narratives), the optimized spectral distribution of sounds and their variety in terms of rhythm, quality and complexity¹⁵, etc....

Schafer's and Truax's theories, although distinct, are complementary and show extraordinary potential considering Man's ability to solve the most pressing environmental issues of the soundscape and, therefore, allowing us to achieve a reintegration into the sonic environment, adapting and harmonizing Man with its soundscape. However, the creation / musical composition task

cannot, nor should it be reduced to theoretical limitations, holding, on the one hand, structural ambiguities regarding SC principles of identity / composition, or showing, on the other hand, too tight or reductionist definitions. At stake is, and this is one of the main goals of the present argument, the development of a definition, possibly in a trans-conceptual form, that can incorporate in a consistent and paradigmatic way, determinations regarding the SC, opening up further possibilities of creative scope.

Although, we are not going to formalize in this paper such a definition, we advance criteria that according to our perspective are questionable, while dealing with SC.

From our point of view, we should not observe as obligatory principles for SC the following aspects: 1st- the documenting intent question: the features of the soundscape don't have to be extensively described or sonically depicted, trying to represent an actual sonic environment of a landscape (like enumerated by Schafer, and in a phonography like approach); 2nd- the sound genesis question: it is indifferent, from a production and philosophical standpoint, if the used sounds are synthesized or gathered by means of field recordings, as long as the referential symbolic aspect is clearly connected with the soundscape diversity (may it be Hi or Lo-Fi oriented, depicting biophony, geophony or anthrophony sounds); 3rd- the environmental context question: it is not mandatory to create a SC which is guided by a linear purpose, as far as the listener's invocation of the environmental and psychological context is concerned, i.e., the interplay between found sound and abstracted approaches doesn't have to be done respecting the educational intent conveyed by the acoustic ecology principles. This means that these approaches could freely occur in time (along the duration of the piece), for no specific environment message is there to convey, beyond the composers explicit and documented artistic / conceptual intents of the composition.

Also, we should stress, we cannot find a reason for not incorporating noise(s) in soundscape compositions, firstly, because noise does exist in the contemporary urban soundscapes (and could be considered as beautiful) and, secondly, because noises can be composed in a creative way. As Cage stated in the lecture *The Future of Music: Credo* (1937), "Wherever we are, what we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating." (Cage 2009: 3). Although we understand Schafer's *Tuning of the World* fourfold noise definition¹⁶, we think that this kind of appreciation of noise purely serves the acoustic ecology inquiries or oth-

er analysis (as the acoustic design tasks) but not, specifically, an aesthetic domain of creation/ composition.

We agree with Peter Cusak's (sound artist) observation that acoustic ecology's sound determination of desirable and undesirable sounds is questionable, as he affirms that there is an "[...] inbuilt moral assumption that Lo-Fi = bad and Hi-Fi = good. How many people agree with this assumption?" (Cusak 2000). Although this can't be considered a scientific inquiry, Cusak has questioned approximately 200 Londoners, about their favorite London's soundscape sounds, being, maybe surprisingly to acoustic ecologists, the urban transport sounds were one of the most popular choices (mainly the underground sounds).

SC is, in fact, a genre of electroacoustic music that has been affirming itself for approximately 40 years, but we can still find issues inhabiting its principles. The problem of determining which pieces are in fact soundscape compositions and what principles should one grasp to find their identity is, nowadays, a difficult task considering, beyond other possibilities, two factors: 1st – the diversity of approaches that have been developed in recent years (due to the increasing number of sound artists / labels experimenting and exposing new possibilities); 2nd – the relative short time of existence of this type of composition and its tendency to be fused with acousmatic music. As an example, we ask: how should one characterize Natasha Barrett's more environmental orientated compositions (Barrett 1998, 1999, 2000), for instance "Three Fictions" (Northern Mix) or "Red Snow" or even "Viva La Selva" (2001)? Are these soundscape compositions or acousmatic pieces? And Eric La Casa's work *Air.Ratio* (2006)? is it mere phonography? are these just experimental sound pieces made through the use and exploration of selective soundscape elements? These questions show us the urgency of rethinking the SC principles and definitions, and we hope to have contributed with this paper to further in-depth analysis concerning this fascinating thematic.

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¹ INA-GRM - Institut National de l'Audiovisuel, Groupe de Recherches Musicales; WDR Studios Cologne; CPENC - Columbia-Princeton Electronic Music Center; IRCAM - Institut de Recherche et Coordination Acoustique/Musique; SFTMC - Studio di Fonologia Musicale at Milan Radio; CCRMA - Center for Computer Research in Music and Acoustics.

² Several studies were published as the W.S.P. as the field studies in Europe, which led to the publication of Five Village Soundscapes (Schafer 1977) and European Sound Diary (Schafer 1977).

³ The *continuum* is a central concept of Truax's acoustic communication theory. Our author states that there is a relation between three

systems: speech, music and soundscape, and that this relation is dialectical and it occurs in a continuum of information exchange. In the words of the author:

“We place music between speech and the soundscape in this continuum, because it is a human form of communication that is based (until recently) entirely on “abstract” sounds derived from the environment except for the voice itself. [...] The continuum is only a useful and simplified model that allows comparisons to be made [...] It also allow us to understand the three systems in any of their particular manifestations as “points” along the continuum, which display tendencies of a certain “direction” towards other points.” (Truax 2001: 50-53).

⁴ Bioacoustics studies not only the sounds emitted by animals (insects, mammals, batrachian, amphibian, etc...) but also by Man. We mentioned specifically the sounds of animals, as it is one of the fundamental aims of this ecological discipline, in order to state a distinction between the principles of this discipline, acoustic ecology and soundscape ecology.

⁵ Soundscape ecology actually integrates concepts of several disciplines, as: bioacoustics, psychoacoustics, spatial ecology and acoustic ecology. Its focus is centered on a holistic ecological research.

⁶ What follows is that not only is there a sonic spectral consistency and variety in natural environments that inhabit native species inhabit, as if this balance is altered, the power of communication among its inhabitants is distorted and, ultimately, with irreparable consequences (through overlappings or masking effects in those spectral niches). We may present a small example to better understand what is at stake. Imagine a bird species which, by instinct and among other signs, announces the time of its reproduction through the intonation of a particular song, it will not be difficult to understand that, assuming a possible imbalance of the sonic environment, either by the intervention of anthropogenic noise, or by an invasion of other species, that the extinction of this species is a real possibility. The theory of niche partition of the sonic spectrum implies that the adaptation and evolution of acoustic communication of animal diversity refers both to the sounds of other animals and to the sounds produced by geophony.

⁷ Truax conceptualizes the soundscape through a communicational approach. This approach is distinct of the energy model transfer, which implies the study of the acoustic phenomena in relation with psychoacoustic effects. At stake is the idea of context and information exchange and, among other particularities, the difference of hearing and listening. Hearing, could be an analogy of the energy model transfer approach, in which the acoustic phenomenon of sound is transduced into the ear by physiologic and psychological processes, the key idea in this scheme is of linear and passive process. Listening, on the contrary, would be the analogy for the communicational approach. In Truax’s words:

“Whereas hearing, in the end role of the receiver in the linear model, is the processing of acoustic energy in the form of sound waves and vibration, listening is at core of the communicational model. [...] The exchange of information is highly dependent on context, whereas the transfer of energy is not.” (Truax 2001: 11).

⁸ In this regard we note that this mode of listening is a form of selective attention, refers to the particularity of directing the focus of attention to a particular sound, through a cacophony of sounds. This capability is described in what is termed as the << cocktail party effect >>, i.e., being able to direct the aural perception to a determined stimulus or sound in particular, while segregating other stimuli. (Culling / Hawley / Litovsky / 2003)

⁹ This kind of pieces are akin to the first studies and phonography practices of the W.S.P., referring to the pieces that are created through techniques of simple recording, editing and mixing transparent, i.e., with no signal processing.

¹⁰ E.g. Trevor Wishart’s Red Bird (1978) piece, where through the use of his own voice mimics sounds from the soundscape.

¹¹ We refer to the sense of understanding what potential abstraction modes and sonic results can be expected, when one treats environmental sounds by signal processing, being able, therefore, to operate symbolic associations between raw and processed sounds. To understand how the layman listener positions himself towards this listening situation, one has to remember, if one his a composer of electroacoustic music, when first discovering the effects of the sonic results using processes as delay, reverb, resonator, granular synthesis, spectral filtering, etc..., it was sure surprising to listen to the results, which were impossible, in certain degrees, to relate or foresee with the natural sounds in a previous instance.

¹² Truax also affirms that SC may be situated along the practices of sonification, phonography and virtual soundscapes, being this last one the practice that has known greater expression in the last decade. (Truax 2012).

¹³ The paradigm, according to Agamben, is actually presented closer to a paradigmatic relation, than to a fixed example or model, in Agamben’s words: “[...] the exemplary or paradigmatic relationship takes place between a phenomenon and its own intelligibility or knowability.” (Agamben 2002).

¹⁴ In this respect, one should read Andrey Trakovsky’s thoughts about sounds: “Above all, I feel that the sounds of this world are so beautiful in themselves that if only we could learn to listen to them properly, cinema would have no need of music at all.” In quotes, *Journal of Acoustic Ecology* 1/1: 35. Vancouver et al.: World Forum for Acoustic Ecology (WFAE), 2000. Retrieved from <http://wfae.proscenia.net/journal/index.html>

¹⁵ One also benefits, in terms of SC, of the approaches and techniques that Truax exposed, mainly:

“Fixed Perspective: emphasizing the flow of time; or a discrete series of fixed perspectives (techniques : - layering in stereo ; layering in octophonic), Moving Perspective: smoothly connected space/time flow; a journey (techniques : classical cross-fade and reverb); Variable Perspective: discontinuous space/time flow (techniques : - multi-track editing - "schizophonic" embedding).” (Truax 2002).

¹⁶ Noise is defined in the Tune of the World’s glossary in a fourfold definition:

“1. *Unwanted sound*. The Oxford English Dictionary contains references to noise as unwanted sound dating back as far as 1225. 2. *Unmusical sound*. The nineteenth-century physicist Herman Helmholtz employed the expression noise to describe sound composed of non-periodic vibrations (the rustling of leaves), by comparison with musical sounds, which consist of periodic vibrations. Noise is still used in this sense in expressions such as white noise and Gaussian noise. 3. *Any loud sound*. In general usage today, noise often refers to particularly loud sounds. In this sense noise abatement, through laws, prohibits certain loud sounds or establishes their permissible limits in decibels. 4. *Disturbance in any signaling system*. In electronics and engineering, noise refers to any disturbances which do not represent part of the signal, such as static on a telephone or snow on a television screen.” (Schafer 1977: 273).

[Abstract in Korean | 국문 요약]

소리풍경soundscape 작곡이란 무엇인가? - 모범적인 정의를 향하여

주앙 카스트루 핀투

소리풍경soundscape 작곡은 캐나다의 사이몬 프레이저 대학교Simon Fraser University에 소재한 교육 지향 연구 단체인 세계 소리풍경 사업World Soundscape Project의 직접적인 영향으로 1970년대 후반에 유행하게 된 전자 음악의 한 유형이다. 이 학제적 단체의 주 관심사는 초기에는 생태학적 소음 공해 문제였으나, 이후에는 소리풍경 작품을 만드는 것과 같은 다른 활동으로 확대되었다. 이 글은 한편으로는 이 작곡 예술의 기본 원리와 그 역사적 맥락화에 대해 논의할 것이며, 다른 한편으로는 소리풍경 작곡의 이론과 실제 양쪽에 관한 개념적 논점들을 보여 줄 것이다. 첫째, 그 기원과 창시자의 역할을 강조하며 소리풍경의 개념을 맥락화한다. 둘째, 세계 소리풍경 사업과 셰이퍼Schafer, R. Murray가 제안한 소리풍경의 개념(그 특징과 목적)에 대한 분석적 근거와 소리풍경 개념에 대해 트루악스Truax, Barry가 내놓은 선결 조건 사이의 명확한 차이를 밝힐 것이다. 이 차이는 (청각으로서의) 인지, (상관 관계의 매개체로서의) 환경, (주체와 환경 사이의 중재자로서의) 소리에 대한 정의에 입각한다. 마지막으로, 이러한 방식을 사용한 작곡의 이론과 실제 사례에서 보이는 명백히 생태학적이면서도 윤리적이고 사회적인 특성을 시사하고, 또한 이러한 특성으로부터 귀결되는 미적, 창조적 한계점을 밝히면서 소리풍경 작곡 원리와 관련된 개념적 한계를 고찰할 것이다.