■**David Wallraf**

Excerpt from *Limits of Hearing. Noise and the Acoustics of the Political* (Grenzen des Hörens. Noise und die Akustik des Politischen), Bielefeld: Transcript Verlag 2021

5.4. The Soundscape: a conservative areal

Two texts first published in 1977 are generally viewed as founding documents of Sound Studies. *Bruits. Essai sur l'économie politique de la musique* (*Noise. The Political Economy of Music*) by French economist Jacques Attali is considered one of the first attempts to theorize noise (*bruit*) in the context of musical and political developments.[1] *The Soundscape: Our Sonic Environment and the Tuning of the World* by Canadian composer and sound researcher Raymond Murray Schafer introduced the concept of the soundscape to public discourse. The first German edition of Schafer's book, published in 1988, was entitled *Klang und Krach* (sound and noise). A new translation was issued in 2010 as *Die Ordnung der Klänge* (the order of sounds) by Sabine Breitsameter, who, among other achievements, co-founded the Sound Studies master's program at Berlin's Universität der Künste. The title is not to be understood as a reference to Michel Foucault's *Les mots et les choses* (Engl. *The Order of Things*). In her introductory essay *Hörgestalt und Denkfigur*, Breitsameter clarifies:

> To carry out an order of sounds in practice, Schafer concludes, must be incumbent on the profession of acoustic designers – which is to be established – but also on attentive listeners

[1] A discussion of Attali's book is beyond the scope of this chapter. The ideas developed in *Noise* (Attali 1985) are elaborated by Marie Thompson (Thompson 2017, p. 136-139) and Paul Hegarty (Hegarty 2007, p. 9-15), a harsh criticism from a Situationist perspective can be found at https://www.notbored.org/attali.html

> and their ability to a shaping and sharpened auditory perception. This central idea was the starting point for the title of the present German translation, *Die Ordnung der Klänge*. (Breitsameter 2010, p. 10)

It is thus less an analysis of structures or an archaeology of the human sciences in the sense of Foucault than an appeal to tidy up and create order. Schafer is one of the founding fathers of Sound Studies. Some of the concepts he designed have proven to be extremely influential and still form an indispensable element of its conceptual toolkit. Among them, the concept of the soundscape stands out. It is defined by Schafer as "[t]he sonic environment. Technically, any portion of the sonic environment regarded as a field for study.". For the author, "[t]he term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an environment" (Schafer 1994, p. 274). As a conceptual tool, the soundscape has enabled a new form of attention to the audible. The focus on acoustic environments has made possible approaches to research that cannot be reduced to either a scientific discipline such as acoustics or the theoretical field of musicology. The soundscape as a concept has been laid out by Schafer as a figure of thought as holistic as possible, which at the same time should correspond to a specific attitude of the listener and is described by Breitsameter in her preface in this way:

> The concept of the soundscape is an auditory gestalt grounded in a certain attitude of perception: in the auditory appropriation of the totality of all sound events of a place, space or landscape, all around and complete, down to the slightest sound. [...] It is also a figure of thought that reformulates auditory perception. [...] In place of [the] traditional, linear pattern of appropriation, Schafer places his audio-tactile, lifeworld model. (Breitsameter 2010, p. 15)

The point is not to examine the audible from a logic of "frontal reception" (ibid.), in which a stimulus or information is transmitted linearly from sender to receiver. The perception of the soundscape, and thus the term itself, is meant to suggest a kind of equal-floating attention in which, if possible, there is no hierarchy between the objects of perception. The soundscape is to be understood as an area or space that is first formed from a collective of partly distinct, partly obscure sound events.

However, the concept developed by Schafer is not as non-hierarchically as it is implied. Rather, criteria are established that amount to a division of 'good' and 'bad' soundscapes. Two fundamentally different forms are contrasted: the early, natural or rural and the urban or (post)

industrial soundscape. These are defined in terms from consumer electronics as hi-fi and lo-fi, respectively. Fidelity, meaning 'faithfulness' or 'honesty', morphed into a term for acoustic fidelity in the 19th century as devices for recording and reproducing sound were developed. Cultural and technological historian Jonathan Sterne writes about this reinterpretation:

> Fidelity, after all, is the quality of faithfulness to some kind of pact or agreement. The very choice of the term *fidelity* (first applied to sound in 1878) indicates both a faith in media and a belief in media that can hold faith, a belief that media and sounds themselves could hold faithfully to the agreement that two sounds are the same sound. We need this faith to have a sense of equivalence among original and copies since, in addition to the philosophical quagmire introduced by the locution perfect fidelity, identity between original and copy is impossible from a purely technical standpoint – leaving aside the larger metaphysical question. (Sterne 2003, p. 221 f.)

It must be emphasized that Schafer carries out his qualitative subdivision of the soundscape by means of a concept (the fidelity) that only makes sense in relation to the distinction of a copy from its original. The soundscape though *is* already a representation, it is not a first nature that is judged as environment, but a second nature (i.e. the cultural coding of environment). On the emergence of the division into high and low fidelity after World War II, media historian Greg Milner has made this observation: "What high fidelity actually meant was unclear. By 1949, it referred generally to high-quality audio equipment [...]. Soon enough, high fidelity meant anything you wanted it to mean." (Milner 2009, p. 138). Hi-fi and lo-fi, in Schafer's sense, denote nothing more than a division into 'good' and 'bad'; a faithful and clearly intelligible recording on the one hand, and a noisy and unintelligible copy on the other.[2] From the perspective of information theory, the main distinguishing feature between the two is the signal-to-noise ratio, and this separation is applied by Schafer to the acoustic environment:

> The hi-fi soundscape is one in which discrete sounds can be heard clearly because of the low ambient noise level. The country is generally more hi-fi than the city; night more than day; ancient times more than modem. In the hi-fi soundscape, sounds overlap less frequently; there

[2] A 'bad' or lo-fi recording makes us conscious of the properties of different media, e.g. when we listen to the crackle of a vinyl record or a glitching mp3 file. Mark Fisher indicated this in *Ghosts of my Life*: "[W]e are habituated to the 're' of recording being repressed." (Fisher 2013, p. 23). The word recording itself hints at the metaphysical connotations of event, copy and memory: it stems from Latin *re* (back) and *cor* (anatomically: the heart, metaphorically: soul or mind).

> is perspective – foreground and background. […] In a lo-fi soundscape individual acoustic signals are obscured in an overdense population of sounds. (Schafer 1994, p. 43)

This distinction combines acoustic and information-theoretical reasoning. The hi-fi soundscape allows a neat separation between useful signal and interference, while in the lo-fi soundscape the selection of the 'right' signal becomes difficult. "Uncertainty which arises because of errors or because of the influence of noise is undesirable uncertainty" (Shannon/Weaver 1964, p. 19), as it is called in information theory. Schafer's distinction hints at an evaluation of soundscapes characterized by Marie Thompson as "aesthetic moralism", since preference is always given to the natural-rural soundscape.[3] Thompson has attempted to refute this prejudice using the example of an audio work by Francisco López: *La Selva. Sound Environments From a Neotropical Rain Forest*. The field recordings made by López in the forests of Costa Rica hardly allow for a distinction between acoustic foreground and background. The sounds of rain, plants, insects, and mammals form an immersive and simultaneously chaotic auditory field in which spatial orientation or localization of individual sound sources is hardly possible:

> In López's piece, the presence of the noisy milieu/medium is not minimized. Rather, signal and noise, foreground and background, event and context are presented together, alluding to the notion that what is heard stems from the combination of sound source and its environment. […] Though it is often imagined to be inimical to it, noise, as López's piece demonstrates, is by no means antithetical to the natural. The rainforest is full of noise. (Thompson 2017, p. 88)

Such ambivalence or disorder is unthinkable in Shafer's system. His image of nature is pantheistic; to him everything seems animate. In his lyrical descriptions of natural sounds, vitalism and anthropomorphism combine to evoke natural beauty. This becomes particularly clear when he writes of water: "Water never dies. It lives forever reincarnated as rain, as bubbling brooks, as waterfalls and fountains, as swirling rivers and deep sulking rivers" (Schafer 1994, p. 18), or "[a]ny visitor to the seashore will find the recital of the waves remarkable, but only the maritime poet, with the ostinato of the sea in his ear from birth to grave, can measure precisely the systole and diastole of waves and tides." (ibid., p. 17).

Water is an inorganic compound, it is not alive. But not only does the separation of animate and inanimate matter begin to rustle here, the problem of a demarcation between nature and

[3] Cf. Thompson 2017, p. 92

culture arises. In Schafer's remarks on water, it sometimes seems unclear which sphere serves as a placeholder for the other: art as an imitation of nature's beauty or – in recognizing aesthetic-cultural patterns in the environment – nature as a stand-in for art? In the words of Theodor W. Adorno, art in its naturalistic form represents nature "by abolishing it in effigie, all naturalistic [art] is only deceptively close to nature because, analogous to industry, it relegates it to the status of raw material." (Adorno 2003, p. 104). The experience of natural beauty, put in a nutshell, is shown to be a profoundly culturally infused achievement. Paul Hegarty describes this fact with the example of a walk in the woods disturbed by airplane noise: "While ostensibly it is a human noise that disrupts the tranquillity of the forest, what is actually being disturbed is the walk, a cultural phenomenon, with its human demand for calmness, with its foreknowledge of just how much nature you're going to get." (Hegarty 2007, p. 8). What is perceived as nature is conditioned and sometimes shaped by culture. A 'natural nature', the ideal of stillness and harmony, has nothing to do with a pristine nature that can be contrasted with the man-made. It is a pastoral ideal that for centuries has served as a vanishing point for civilization fatigue, world-weariness, and being overwhelmed by (post)modernity. The valorisation of the natural soundscape is thus subject to a cognitive distortion effect that Thompson characterized as a beauty bias in her discussion of Schafer:

> Schaferian acoustic ecology's nostalgic characterization of the 'natural' soundscape of the past and the 'unnatural' soundscape of the present reflects […] a beauty bias inherent to many ecological practices, with which 'positive' and 'negative' environments are delineated according to aesthetic notions of beauty and ugliness. This is enforced by the marked preference in ecological practices for 'pristine', 'remote' and 'wild' locations – virgin forests, undisturbed wetlands and ungrazed grasslands – that remain untouched by human activity or development. By contrast, urban and human-dominated landscapes have only recently been recognized as an important point of focus for ecology and have typically been viewed as aesthetically and environmentally inferior. (Thompson 2017, p. 92)

Which auditory impressions predominate in natural or pre-industrial soundscapes cannot be precisely delimited. The examples given by Schafer range from the pastoral idyll par excellence, the shepherd playing his flute in the meadow, to various animal and other environmental sounds and the (pre-industrial) noises produced by human activity. Yet noise also existed in the pre-industrial era, of which Schafer gives three examples: war and the battlefield, the city with its criers and street musicians, and finally a form of sonic event that he calls "sacred

noise." For this particular kind of noise, in which violence, gigantic proportions and the sublime interfere with each other, again three examples are given. The first and most primal draws a parallel between the biblical apocalypse and natural disasters: "In the imagination of the prophets the end of the world was to be signalled by a mighty din, a din more ferocious than the loudest sound they could imagine [...]" (Schafer 1994, p. 28), which is said to find its real-life equivalent in a volcanic eruption documented for the year 1883 in the Indian Ocean: The explosion of Krakatau could still be heard 4500 kilometers away, the "[…] loudest noise heard on this earth within living memory" (ibid.). Second, drawing on Claude Lévi-Strauss' *Mythologiques*, the thesis is advanced that noise (in the sense of loud or 'spectacular' sound) originally corresponded to the sphere of the sacred, while the everyday life of pre-modern societies was characterized by silence. Third, and finally, Schafer describes how this acoustic of the sublime and sacred is profaned by industrialization. Machines and factories universalize the particular and weave a continuous tapestry of noise out of what was once reserved for special events, thus compelling an involuntary idolatry of industry:

> During the Industrial Revolution, Sacred Noise sprang across to the profane world. […] The association of Noise and power has never really been broken in the human imagination. It descends from God, to the priest, to the industrialist, and more recently to the broadcaster and the aviator. (Ibid., p. 76)

Corresponding to this levelling of differences (i.e. the descent from sacred noise to profane noise), the character of noise as such also changes during the transition to the 20th century. Violent, catastrophic, or sacred noise was always distinguished by its temporal limitations; by the fact that it set caesuras in quotidian normalcy. The industrial revolution introduced a new quality and quantity to the soundscape, a "flat line in sound" in Schafer's terms.[4] The sounds of machinery condensed into a persistent static wave or wall of noise that disfigured the soundscape, killing off everything alive in it and leading a kind of metaphorical zombie existence itself: "We may speak of natural sounds as having biological existences. They are born, they flourish and they die. But the generator or the air-conditioner do not die; they receive transplants and live forever." (ibid.) These undead machines form the negative echo to Schafer's notion of the eternal life of water. The natural soundscape is good, and culture can only be so up to a point. It is easy to attribute to Schafer a conservative world-loathing; an

[4] Cf. Schafer 1994, p. 78

audiology in which anything that does not conform to the ideal of an environment characterized by tranquillity, clarity, and order must be seen as decay, transgression and violence. From the perspective of Schafer's acoustic design, technical innovations can hardly be explained in any other way than as ominous demonstrations of power: "When sound power is sufficient to create a large acoustic profile, we may speak of it […] as imperialistic. For instance, a man with a loudspeaker is more imperialistic than one without because he can dominate more acoustic space." (ibid., p. 77). At the time of Schafer's book's publication, noise was not yet a term that would have been applied to music other than polemically, perhaps with the exception of the first punks who proudly wielded such insults as emblems of their movement.[5] Noise as a genre was to be some years in coming. Regarding electronically amplified music however, Schafer had this to note at this time: "[…] popular music, which was frequently performed outdoors, ultimately turned the amplifier into a lethal weapon by pushing sound production up to the threshold of pain." (ibid., p. 114).

That noise can be characterized as a detrimental form of sound or acoustic form of violence which is accompanied by corresponding consequences – restlessness, hearing loss, sleep deprivation and other psychological and somatic damage – is not to be disputed. Schafer's plea for a close analysis and critique of the acoustic environment has made possible research approaches without which the present work would also be inconceivable, and some of his reflections have been incorporated as supporting documents in this text. With his conservative division of the soundscape, however, he denies himself possible gains in knowledge, since his definition of noise, while acknowledging the differences of the term, ultimately obscures these by ascribing exclusively destructive attributes to them. Thompson recognizes in this the conflation of two concepts of noise into one: "[…] in Schafer's framework, it appears that noise (as interference, perturbation, low fidelity or lack of clarity) and noise pollution (as it pertains to damaging and destructive levels of environmental sound) are conflated, so that virtually all manifestations of noise within the contemporary soundscape are taken to be a problem." (Thompson 2017, p. 100). Drawing on Francisco López's field recordings from the Central American rainforest, however, it can be noted that noise as a 'static wave' of indistinguishable environmental sounds can be as much biological as industrial in origin. Any soundscape can

[5] In 1977, the publishing date of *The Soundscape's* first edition, the Sex Pistols released their album *Never Mind The Bollocks.* In the song *Seventeen*, Johnny Rotten sings "We make noise, it's our choice / It's what we wanna do."

tend to be disorienting, threatening, or disturbing, but this arises more from the aesthetic experiential horizon and sociocultural orientation schemes of the listening subject than from its intrinsic qualities – silence can become a very noisy affair for people unaccustomed to it. Characterizing an auditory experience as unpleasant, eerie, or harmful is consistent with the everyday pejorative use of the term noise in the sense of annoying sound: an etho-aesthetic judgment that says more about the judging person's cultural background and class affiliation than about loudness or signal-to-noise ratio (since the problem of disorientation in an unfamiliar acoustic environment is mainly the inability to distinguish the 'desired' signal from the 'undesired' background noise).

Based on the concept of the soundscape, an acoustics of the social can be formulated that makes it possible to question an environment in terms of what is audible in it and how it is listened to. However, such a theorization would have to take place beyond the established and hardened distinguishing criteria of sound and noise in order not to fall back on Schafer's aesthetic and aestheticizing criteria. Not only are his aesthetic standards conservative, but also the politics of the acoustic that can be derived from them. Schafer misses the point of the political and renders the reshaping of the soundscape the task of an elite: "Once acoustic design is established as a useful profession, and young designers move out into positions in government and industry, they will be able to effect numerous practical repairs to the soundscape." (Schafer 1994, p. 240). Similar to the foundations and results of commercial sound design and audio branding, whose protagonists partly refer to Schafer's theories and have incorporated the concept of the soundscape into the arsenal of brand communication, the design of acoustic environments becomes the task of specialists and cannot even be thought of in terms of collective appropriation. Sterne also criticizes this privileging of the individual over the collective when he writes in *The Audible Past*:

> [Schafer's] ideal sound culture is one limited to what he calls a *human scale* – the spatiality of the unamplified human voice. For Schafer, the human is small. This definition of humanity reduces it to the scale of a single human being and confuses cacophony with social disorder or, worse, inhumanity. Schafer's definition of a 'hi-fi' soundscape conceals a distinctly authoritarian preference for the voice of the one over the noise of the many. (Sterne 2003, p. 342-343)

This narrowing of soundscape theory is also noted by Thompson when she writes: "[Schafer's politics] advocates for the purported quietude of the singular over and above the cacophony

of the collective. […] Consequently – and against acoustic ecology's own ambitions – the complexity, heterogeneity and mutability of the soundscape is reduced to series of simplistic polarities." (Thompson 2017, p. 101). In this system, 'nature' or 'the natural' becomes a placeholder for sociopolitical ideals: The ideal society would sound like an idea of nature. Drawing on more advanced theories of soundscape from the field of sound ecology, the next chapter will tackle a more precise definition of natural and cultural acoustics.

5.5. Geophony, Biophony and Anthropophony

The equation of culture with 'nature' inherent in Shafer's concept of the soundscape obscures his theory's perspective on social contexts. His thinking unfolds a polemical potential with regard to the preservation of a state that is in itself a fiction of pre-modernity. In his assessment of actors to whom he ascribes acoustic power – e.g. industrialists and aviators – without further consideration of economic and political power relations. Projecting ecological ideas onto social issues causes distortions that make it appear as if the environment and society are one and the same: "When the rhythms of the soundscape become confused or erratic, society sinks to a slovenly and imperiled condition." (Schafer 1994, p. 287). The critical investigation of an acoustic environment, that is, a research approach that makes distinctions where the concept of soundscape tends toward ambiguity, requires more precise criteria.

The sound researcher, bioacoustician and pioneer of field recording Bernie Krause has taken such a precise approach in the paper *Anatomy of the Soundscape*. In it, he distinguishes between three areas that make up an acoustic environment: geophony, biophony, and anthropophony. Geophony includes all natural sounds that are not of biological origin, that is, the effects of "wind, weather, water and geophysical forces." (Krause 2008, p. 73). These movements of the inorganic form the background noise throughout the planet, against which the sound events produced by organisms stand out, or by which they are masked, given the appropriate volume. Weather and the audible effects of tectonics can produce sounds that do not fit into the notion of a 'calm and peaceful' nature. Krause's enumeration of geophysical sound sources includes "earthquakes, avalanches, volcanoes, and other geothermal events."

(ibid.). It can be supplemented by storms, wildfires and floodings to provide a more or less complete catalog of those natural disasters that are not further mentioned in Krause's account of the soundscape. The area of biophony, Krause's actual field of research, is occupied in his model by the sounds of the organic:

> By far the most complex and laden with information, this unique feature of the soundscape is comprised of all of the biological sources of sound from microscopic to megafauna that transpire over time within a particular territory. In biomes rich with the density and diversity of creature voices, organisms acoustically structure their signals in special relationships to one another, cooperative and/or competitive, much like instruments in an orchestra so that each one can be heard distinctly from another, thus reducing masking effects. (ibid.)

It is evident that Krause, like his mentor Schafer, takes the concept of information from Shannon's theory and applies it to biophony, but then does not consider its implications further. The soundscape is viewed as a complex system of transmitters and receivers, transmission channels and sources of interference. Nature itself provides the distinction of the different message sources:

> For instance, in many healthy habitats, certain insects occupy specific frequency and temporal niches of the creature bandwidth and moment, while birds, mammals, and amphibians occupy others not yet taken and where there is no competition. Thus the biophony, which only human quietude makes plain, has evolved in a manner so that in many habitats each voice can be heard distinctly and each creature can thrive as much through its iteration as any other aspect of its being. (ibid., p. 74)

Within the field of biophonic soundscapes, formed from eco-acoustic niches, no space is wasted, each species occupies its own area in the frequency spectrum. In this "great orchestra of animals" the most 'natural' order imaginable prevails, the order of nature. Humans, for Krause, do not belong to the sphere of biophony. Although living beings themselves, they appear in the natural habitats mainly as stressors. Biophony can only be understood by the "silence of man" (although "man", is the only one capable of listening to it from a scientific perspective and also the addressee of Krause's theory). Anthropophony here is treated exclusively under the aspect of the destruction of nature. An exception are those people who Krause calls "earth-centered groups":[6] autochthonous people living in harmony with their

[6] Cf. Krause 2008, p. 75

natural environment, who know how to interpret the biophonic and geophonic signals surrounding them and do not introduce disturbing interruptions into the natural cycles.[7]

Krause divides anthropophony into four different areas. He distinguishes between electromechanical and physiological, and also controlled or incidental sound. These definitions overlap in some respects. While the distinction between electromechanical and physiological sound sources can be drawn sharply, each can either belong to the realm of the controlled or the incidental. The examples of physiological sounds chosen by Krause include "talking, grunting, body sounds" (Krause 2008, p. 73); while incidental sounds include those induced by "walking, clothes rustling, sneezing, or coughing." (ibid., p. 77). Controlled sound can include the electromechanical as long as it remains limited, i.e. confined to enclosed spaces such as theaters or cinemas, with the exception of "venues and shows relying on excessive levels"(ibid.). The boundaries between incidental and controlled physiological sound are difficult to draw in this model since Krause's categorizations of anthropophony can only be used meaningfully in their relation to biophony. A noise or a sound is to be considered controlled if it does not cause disturbances to biophony, understood as pristine nature:

> Anthropophonies, particularly the unregulated, incidental, random, and mechanical kinds, have a profoundly negative effect on those essential connections [to natural habitats]. The same is true for those humans living in noisy cities who endure stress levels that impair both the quality of life and health […]. (ibid., p. 75)

From Krause's remarks, a possible definition of noise does emerges: a by-product or residue of civilization, a thoroughly man-made affair. In *Anatomy of the Soundscape*, a lexical boundary is drawn: Geophony and biophony are consistently referred to as sound (including the acoustic effects of avalanches and earthquakes), while noise is reserved for anthropophony-and therefore consistently includes speech and music insofar as they become sources of disturbance to pristine nature. But where is this untouched nature to be found?

Undisturbed biophony, uncontaminated by noise pollution, is in decline worldwide. In his book *The Great Orchestra of Animals*, Krause notes, "At every site I had recorded in the western United States and where I had returned over time to record again, patterns where beginning

[7] It must be noted that under the auspices of environmental protection, indigenous people ('earth-centered groups') are getting displaced from their homes by neocolonial measures. 'Healthy habitats' are being increasingly policed and turned into fenced luxury commodities or zones of extraction. Cf. https://earth.org/conservation-indigenous-people/

to emerge, such as shifts in the number of bird species and the density of their total numbers […]." (Krause 2012, p. 91). The decline of animal species in certain biotopes is just one effect of global processes: "As the truly wild sites become fewer in number, the likely result is that human habitation or industry will always be close enough within range that anthropophony will almost never be completely absent." (ibid.) This also drastically affects the working conditions of field recordists:

> The impact of noise on my work has increased exponentially: taking into account the effect of habitat loss due to land development or resource extraction, I'm sorry to say that to record one noise-free hour of material now takes more than two hundred times as long as it did when I first began more than four decades ago. (Krause 2012, p. 92).

By narrowing its focus to the reserves of authentic biophony that need to be conserved, and by perceiving the acoustic aspects of the social primarily as nature-destroying anthropophony, sound ecology necessarily moves toward a conservative position. It appears as a reaction against the noise of civilization, without taking social, political and economic processes into consideration. Nature appears as something disconnected from society, which precisely in this idealizing demarcation appears as a place of longing.

The positioning of sound ecology in a conservative and reactionary spectrum should not be understood as ignorance towards the man-made conditions of an increasingly hostile environment. Rather, it is meant to draw attention to the fact that sound ecology has narrowed its perspective to an aspect of acoustic environments that, for the vast majority of humanity, bears no relation to the reality of their lives. In a study on population distribution, urbanization, and migration, the United Nations noted a serious break in 2008: for the first time in human history, half of the world's population lived in cities.[8] This development will accelerate in the coming decades. It raises the question as to what extent the division into biophony and anthropophony is tenable at all in the current global situation. Not only are there hardly any areas of the world left that are not in some way influenced by the sounds of civilization. Rather, since the beginning of industrialization, the entire biosphere has been reshaped by human intervention to such an extent that since the early 2000s the concept of

[8] United Nations Department of Economic and Social Affairs (2008, p. iii): *United Nations Expert Group Meeting on Population Distribution, Urbanization, Internal Migration and Development*, https://www.un.org/en/development/desa/population/publications/pdf/urbanization/population-distribution.pdf

the Anthropocene, coined by geologist Paul Crutzen, has become a contested issue occupying ecology, earth sciences, philosophy and sociology alike. The Anthropocene is defined as a new geological age following the Holocene, i.e., a clearly demarcated layer in the Earth's crust detectable in geological strata. Crutzen has dated its beginning to the late 18th century, the onset of industrialization and the concomitant increase in CO^2 concentration in the Earth's atmosphere, while geologist Jan Zalasiewicz has suggested the mid-20th century as the caesura, since it is only at this time that widespread impacts can be detected in the geological strata.[9] The Anthropocene feeds on various factors: Industrialization and the subsequent worldwide utilization of fossil fuels or the beginning of the atomic age in 1945 are mentioned as key dates. The effects of the Anthropocene include detectable deposits in sediment layers, ranging from microplastics to traces of radioactive fallout.[10]

For the *Anatomy of the Soundscape* sketched by Krause, this raises troubling questions: If the effects of human activity have entailed such profound changes that they have become geologically detectable, if nearly every aspect of biophony has been manipulated by human intervention (from the mass extinction event to climate change – a destructive form of geoengineering), and if even the sphere of geophony exhibits changes that can be attributed to civilization effects – what sense does the division into three distinct spheres of the soundscape still make? Acknowledging that a natural nature no longer exists, that one is rather dealing epistemically with a cultural construction and ontologically with the effects of human action when speaking of 'nature' might put people in a pragmatic position of radical responsibility for their actions in the world without the moralism of the ecological discourse described here. Such a position is inconceivable without a critique of political and economic contexts; it must reflect the interrelationships between capitalist economics and resource exploitation. In response to the COVID-19 pandemic, the Chinese author-collective Chuang has written about the relation of nature and capitalism:

> The fact is that the 'natural' sphere is already subsumed under a fully global capitalist system that has succeeded in changing baseline climatic conditions and devasting so many pre-capitalist ecosystems that the remainder no longer function as they might have in the past. […]

[9] Cf. Zalasiewicz 2017, p. 207

[10] "More widely, a clear Anthropocene imprint has been demonstrated even in distal or slowly-accumulating deep marine oozes such as those of the Arctic […]. Any sample of these will now typically contain microplastics […], include detectable traces of artificial radioactive fallout […], and will also likely include the spherical carbonaceous particles (of fly ash) that have been found globally in terrestrial settings […]." (Ibid., p. 213)

> The reality, then, is that it's a misnomer to think of such areas as the natural 'periphery' of a capitalist system. Capitalism is already global, and already totalizing. It no longer has an edge or border with some natural, non-capitalist sphere beyond it, and there is therefore no great chain of development in which 'backward' countries follow those ahead of them on their way up the value chain, nor any true wilderness capable of being preserved in some sort of pure, untouched condition. Instead, capital merely has a subordinated hinterland, itself fully subsumed within global value chains. (Chuang 2020)[11]

A sound ecology that reacts to such conditions would by necessity have to step out of its fixation on reservations segregated from humanity and become a political actor that can distinguish the destructive forces of capitalism from the too often vague and abstract concept of anthropophony. Moreover, it remains to be asked what distinctions could be drawn between 'human' and 'nature' that might express more complex relations than the strict division between 'anthropophony' and 'biophony'. A hint can be found in McKenzie Wark's 2015 publication *Molecular Red – Theory for the Anthropocene*. Drawing from a variety of sources, including dissident theorists from the early days of the Soviet Union, ecofeminist scholar Donna Haraway and science fiction author Kim Stanley Robinson, she develops a conceptual interconnectedness between humans and nature that revolves around labor as the irreducible link between the two. By necessity, human life and activity take place both *in* and *against* nature:

> Technology offers leverage on the world, but always from a particular vantage point. Nature can always surround or surmount it. The 'dialectic' of nature always eludes the apparatus of labor and technology. Nature is the enemy of our species-being. Technology can only soften it. There's no end to the struggle in and against it. The unruliness of nature never goes away, not least because it is part of the technical anyway, an unsleeping rust. (Wark 2015, p. 105)

Human society and thereby life is unimaginable without a struggle in and against nature, but society itself is not natural, it can be organized, changed, revolutionized. The exploitation of both human labor and natural resources is not an inescapable, 'natural' fact. As Wark notes, "[…] we are making our way inside the world, and in response it is pressing down upon us with equivalent force. […] There's no enclosure that can keep nature out." (ibid.). The balancing of this system of pressure and counterpressure would be a case of aforementioned radical

[11] The virus behind the present epidemic (SARS-CoV-2), was, like its 2003 predecessor SARS-CoV, as well as the avian flu and swine flu before it, gestated at the nexus of economics and epidemiology.

responsibility and, by necessity, generate soundscapes that dissolve the boundaries of anthropophony and biophony.

The soundscape concept of sound ecology is based on two central dichotomies: an aesthetic juxtaposition of noise and sound, and an ethical one of human and nature. In the process, intersections between the two fields are formed, preparing the ground for an etho-aesthetics of the audible that is ultimately based on a notion of purity: pure nature, purity of sound, and the idea of an ideal soundscape in which the two are indistinguishable. An 'impure difference' – such as that the distinction between natural and man-made acoustic environments is itself man-made, artificial or 'unnatural' – remains below the epistemological horizon of sound ecology. The latter 'overlooks' the tendency to mix biophony and anthropophony by neatly separating the two spheres and assigning everything that seems neither pure nor natural to the domain of the anthropophonic. Moreover, the focus on a *natural nature* and on a *human nature,* both of which must be protected from unnatural noise, makes it impossible for sound ecology to develop a political idea of acoustics. Socioeconomic issues are largely ignored by Schafer and Krause; sound ecology has little concept of power relations and resistance or of (economic) exploitation. For them, capitalism can only be conceived in the register of natural nature and its destruction (the word generally does not appear in Krause and Schafer's vocabulary). Their focus lies on the interactions between people and nature and not on the movements that take place in the social sphere. For example, there is no contradiction between economics and ecology from Krause's perspective. Part of his argument amounts to a commodification of nature:

> Soundscapes are a resource for business. Currently used in film, public spaces (theatre, museums, zoos, and aquariums), games, and on the Internet, each soundscape has inherent and intrinsic value as intellectual property to be studied, developed, and licensed. […] Special emphasis on the pairing of research and technology development in multiple media offers exciting potential for new product development in a variety of applications. (Krause 2008, p. 79)

The utilitarian impetus of sound design can be recognized in this statement. The pseudo-sacral understanding of the soundscape as a sanctuary of nature explicitly does not apply if its representation, its recording or 'preservation' can be made the object of economization. The soundscape becomes a resource for enterprise, it is "relegated to the status of raw material" (Adorno) and made into an intellectual property that is the subject of intellectual property law.

It is turned into a commodity with exchange value and in this it follows similar mechanisms as capital accumulation: exploitation of resources, land grabbing, colonization of territories. What is decisive is by whom it was first declared property and who has the power to enforce this claim. Its scope lies somewhere at the intersection of designing and subjugating. As Wark notes, the temptation to confuse ecology with economy must be resisted in order to not fall into the trap of viewing markets as something natural: "[…] while natural history might be self-organizing, it is not homeostatic. There is no invisible hand at work in either natural or human affairs. […] To dispense with the invisible hand , and with homeostatic ecology as a basic metaphor, is to live once again after God is dead. " (Wark 2015, p. 209).

But how can we think and name a spatial division of the audible in which the products of specialized sound designers and everyday life meet, in which people, groups, and bodies interact in the register of the audible? How are socioacoustics constituted, in which sound and noise, music and noise, information and noise are strategies of demarcation and enclosure, of taking up space, of dissolution of boundaries and transgression? What relations of power and resistance play out in this auditory field, and what divisions of the sensory result from the resulting conflicts?

Sources

Adorno, Theodor (2003): *Ästhetische Theorie*, Frankfurt a.M.: Suhrkamp (my translation)

Attali, Jacques (1985): *Noise. The Political Economy of Music*, Minneapolis: University of Minnesota Press

Breitsameter, Sabine (2010): »Hörgestalt und Denkfigur«, in: Schafer, R. Murray: *Die Ordnung der Klänge,* Mainz: Schott (my translation)

Chuang (2020): Social Contagion. Microbiological Class War in China, https://chuangcn.org/2020/02/social-contagion/

Fisher, Mark (2013): *Ghosts of My Life. Writings on Depression, Hauntology and Lost Futures,* Winchester/Washington: Zero Books

Hegarty, Paul (2007): *Noise/Music. A History,* London/New York: Continuum Books

Krause, Bernie (2013): *The Great Animal Orchestra,* New York: Hachette

Krause, Bernie (2008): »Anatomy of the Soundscape«, in: *Journal of the Audio Engineering Society* 56, 1/2 (Jan/Feb. 2008), p. 73-80

Milner, Greg (2009): *Perfecting Sound Forever. The Story of Recorded Music,* London: Granta

Schafer, R. Murray (1994): *The Soundscape*, Rochester, Vermont: Destiny Books

Shannon, Claude/**Weaver**, Warren (1964): *The Mathematical Theory of Communication*, Urbana: University of Illinois Press

Sterne, Jonathan (2003): *The Audible Past*, Durham/London: Duke University Press

Thompson, Marie (2017): *Beyond Unwanted Sound. Noise, Affect and Aesthetic Moralism*, New York: Bloomsbury

United Nations Department of Economic and Social Affairs (2008): *United Nations Expert Group Meeting on Population Distribution, Urbanization, Internal Migration and Development,* New York, https://www.un.org/en/development/desa/population/publications/pdf/urbanization/population-distribution.pdf

Wark, McKenzie (2015): *Molecular Red. Theory for the Anthropocene*, New York: Verso

Zalasiewicz, Jan et al. (2017): »Making the Case for a Formal Anthropocene Epoch. An Analysis of Ongoing Critiques«, in: *Newsletter on Stratigraphy* 50, 2, p. 205-226.