Traces of Sound

Reflections of Sounds Unheard

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Unforgotten Grooves: Reading and Listening to Rainer Maria Rilke's 'Primal Sound'

Markus Huss

> What the coronal suture yields upon replay is a primal sound without a name, a music without notation, a sound even more strange than any incantation for the dead for which the skull could have been used. (Kittler 1999, 44–45)

The first track of the 2011 album *Hidden Music: Sonic translations of the biological world* by the composer and scholar Milton Mermikides is called 'Primal Sound'. In his description of this compositional project in 'data sonification', Mermikides said the track was 'inspired by Rilke's 1919 Ur-Geräusch', referring to a short essay published 92 years earlier in the literary magazine *Das Inselschiff* by the Austrian poet Rainer Maria Rilke (1919). The track puts an experimental suggestion by Rilke into artistic practice, converting 'the contour of the coronal suture into musical data' (Mermikides 2011).[1] In a key passage of the essay, quoted by Mermikides, Rilke speculated on what would happen if a phonographic needle were placed in a 'naturally' occurring groove:

> What if one changed the needle and directed it on its return journey along a tracing which was not derived from the graphic translation of

1 A coronal suture is 'an arching line that separates the frontal bone from the two parietal bones, on the sides of the cranium' (Britannica 2020). See Fig. 1.

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> sound but existed of itself naturally—well, to put it plainly, along the coronal suture, for example. What would happen? A sound would necessarily result, a series of sounds, music. (Rilke 1919, quoted in Kittler 1999, 40–41)

Hidden Music is available online along with brief descriptions of the compositional method behind each track. According to the notes for 'Primal Sound', its 'source material' is 'The coronal suture of the skull of an unknown Victorian woman', which has been 'translated directly using MAX/MSP and Jitter (a visual programming language) into amplitude, frequency, harmony, timbre, musical event and spatialization'; this 'audio-visual translation', as Mermikides (2011) calls it, was then recorded. The result is almost 15 minutes of atmospheric, varied, and immersive sound experience.

Mermikides' composition raises a host of thought-provoking questions of importance for a volume engaging with traces of sound, most notably how to conceptualize and theorize the process of the sonification–audification of 'naturally occurring' traces. If we accept 'audio-visual translation' as a description of what Mermikides is doing, what is it, then, that is actually being translated? How are we to understand the concept of translation from the vantage point of Rilke's thinking and Mermikides' composition, in light of historical and contemporary sonification–audification practices? To shed some light on these questions, I will revisit Rilke's 'Ur-Geräusch' essay and its historical context, along with the literature about the history of audification and the relationship between translation and sonification, the better to understand Mermikides' project in the light of Rilke's essay.

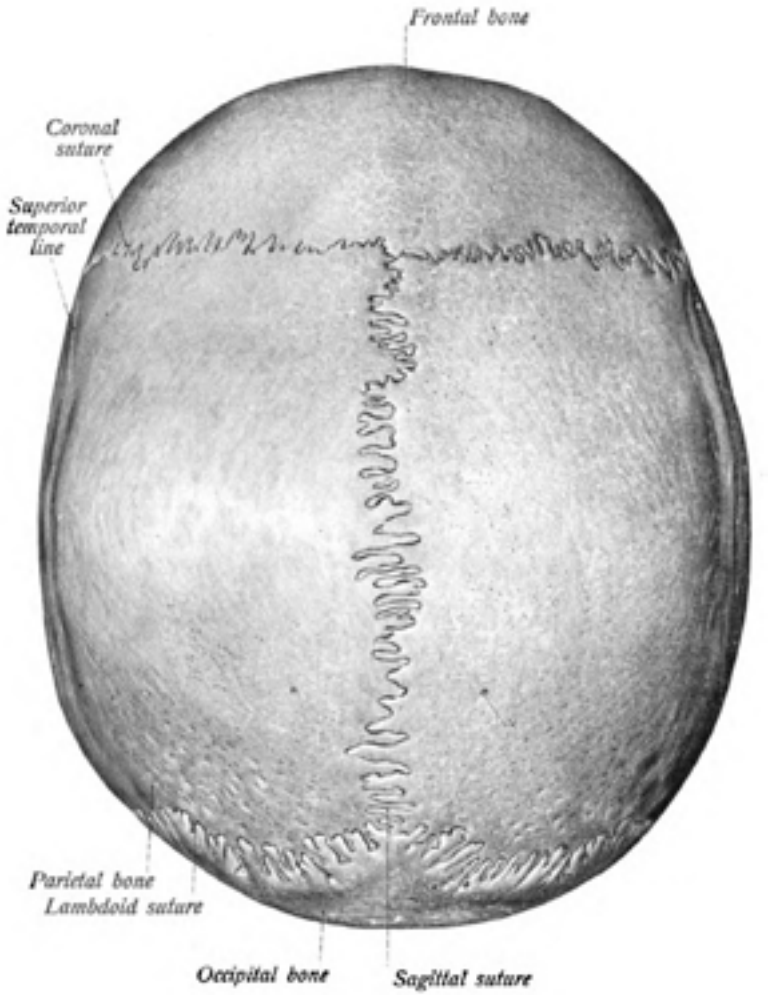

FIGURE 1 Illustration of coronal suture from Sobotta's *Atlas and Text-book of Human Anatomy* (1909). (Wikimedia Commons/Public domain)

'Primal Sound' 1919

The essay 'Ur-Geräusch' (Primal sound) opens with an account of a deeply ingrained memory from Rilke's school years. On the instructions of their enthusiastic physics teacher, schoolchildren constructed a rudimentary phonograph out of cardboard, a piece of paper, a bristle from a brush, and a cylinder coated with candle wax. The recent invention of the phonograph, Rilke wrote, was 'a chief object of public wonder', which extended to the physics teacher and his pupils (Rilke 1919, quoted in Kittler 1999, 38). Together they are able to produce a rudimentary recording by speaking into the funnel, thereby causing the tiny needle to move and leave a trace on the cylinder covered in soft wax: 'when the moving needle was made to retrace its path … the sound which had been ours came back to us tremblingly, haltingly from the paper funnel, uncertain, infinitely soft and hesitating and fading out altogether in places' (39).

Rather than the uncanny experience of listening to the reproduction of their voices, it was something else that would stay with the young Rilke: 'what impressed itself on my memory most deeply was not the sound from the funnel but the markings traced on the cylinder; these made a most definite impression' (Kittler 1999, 38). Some 15 years after the phonographic experiments at school, Rilke found himself attending 'anatomy lectures in the École des Beaux-Arts' in Paris (38). The human skeleton, particularly the skull—that 'most solid protection for the most daring feature of all, for something which, though itself narrowly confined, had a field of activity which was boundless' (40)—fascinated him to such a degree that he obtained a human skull to study by candlelight in his digs. At one point, glancing at the by then familiar object, he suddenly realized the similarity between the skull's coronal suture and the etched pattern on the wax cylinder from his experiment at school: 'I knew at once what it reminded me of: one of those unforgotten grooves, which had been scratched in a little wax cylinder by the point of a bristle!' (40). Ever since this sensation, the poet continued, he had repeatedly felt the urge to make 'this perceived

similarity the starting point for a whole series of unheard-of experiments', despite 'the most unrelenting mistrust' (40) on his own part and a lack of proof for his speculation. He continued, almost apprehensively, to present his bold idea:

> What if one changed the needle and directed it on its return journey along a tracing which was not derived from the graphic translation of sound but existed of itself naturally—well, to put it plainly, along the coronal suture, for example. What would happen? A sound would necessarily result, a series of sounds, music. (Kittler 1999, 40–41)

He hesitated to suggest a name for such a 'primal sound', but continued to ponder the possibility of other naturally occurring objects to play, or, in his words, to 'put under the needle and try out'. 'Is there any contour that one could not, in a sense, complete in this way and then experience it, as it makes itself felt, thus transformed, in another field of sense?' (41).

In a media archaeological reading of Rilke's essay, Jan Thoben (2014, 174–5) has demonstrated the extent to which Rilke was inspired by the musical aesthetics of composer Ferruccio Busoni and his thoughts on 'silent primal music', a topic which Thoben contextualizes against the backdrop of early theories of audification and the experiments by Rilke's contemporaries. Rilke, however, seemed unaware of previous experiments closely resembling his theoretical speculations, Thoben continues, mentioning the acoustician Rudolph Koenig's 'wave siren' (see Pantalony 2009, 152–7), which decades earlier had made random airwaves audible (Thoben 2014, 184).

Rilke's speculations would later be put to the test by Richard Woodbridge (1969, 1465), a pioneer of archaeo-acoustics, who gave an account of his 'experiments establishing the principles of recalling ancient sounds from antiquity': '(1) the recording of sound on wheel-thrown clay pots, and (2) the recording of sound in paint strokes applied to canvas'. The experiments suggested that actual sounds and human voices from the past, unintentionally 'recorded' in pottery and

the like, could as it were be replayed with the aid of modern technology. In a similar vein, Mendel Kleiner and Paul Åström (1993) claimed to have been able to record sounds on a self-made clay cylinder.

The possibility of placing a gramophone needle onto such grooves from the past, accidentally produced by vibrations carved into soft surfaces, recording long-gone human voices or whole soundscapes, continues to be a thrilling thought. Yet there is an important difference between Rilke's notion of placing the phonographic needle in a groove 'occurring naturally' and the archaeo-acoustic experiments of the 1960s and 1990s. The latter presupposed the existence of a source material that was not entirely arbitrary, but instead followed a certain pattern emanating from a specific source—traces of human voices captured in clay objects. These patterns would be *replayed*; according to this logic, we would be able to experience the source material *again*, to relive a past soundscape in the present.[2] In contrast, and despite 'Primal sound' being the title of Rilke's essay, the sound produced by letting the needle trace the coronal suture's path would not be a *reproduction* of something primitive, original or earliest—the ur- in *Ur-Geräusch*—but a production of something hitherto unheard.[3] Rather than experiencing the past anew, Rilke envisaged us entering a new 'field of experience' (1919, quoted in Kittler 1999, 41).

Friedrich Kittler underscores the radicalness of Rilke's musings in 'Primal Sound' by putting his thinking into perspective against the background of scientific development of his day, arguing that his conclusions were 'more radical than all scientific boldness. Before him, nobody had ever suggested to decode a trace that nobody had encoded and that encoded nothing' (Kittler 1999, 44). Rilke's speculations, prompted by the sight of the coronal suture, testified to a historical shift in how writing was conceptualized: 'Ever since the invention of the phonograph, there has been writing without a subject. It is no longer necessary to assign an author to every trace, not even God' (45).

2 In Huss 2016 I discuss sonification in terms of 'replaying' a planetary past.

3 Pasewalck 2013, 12, n. 22 suggests the title of Rilke's essay was chosen by the publisher Katharina Kippenberg, though Rilke was concerned and would have preferred 'Experiment' instead.

The possibility of using a machine to transform the contour—or to 'complete' it 'in another field of sense' (Rilke 1919, quoted in Kittler 1999, 41)—was at the heart of Rilke's fascination. Such a form of 'intermedial translation' (Schober 2010, 164) would still have to be understood as something rather different from what we usually regard as a translation. Rilke's primary source for his experimental transformation—the coronal suture—in fact negated any designation as 'text' when understood as a system of conventional signs; on the contrary, this manoeuvre would have to be described as an intermedial creation rather than a translation (I shall return to this with reference to Mermikides' composition). The *fons et origo* of such a creation, as imagined by Rilke the poet, would be neither poet nor divine entity ('not even God'), but a machine.

With reference to Kittler's reading of Rilke, Thoben (2014, 173) picks up on the paradox of an author who celebrated the creation of white noise that no writing would be able to store, for Rilke was fascinated by the visual qualities of the coronal suture, resembling writing, but which would potentially—if 'replayed'—produce something entirely different to a sequence of encoded sounds. Rather than echoing the late Romantic trope where sounds and noises were ascribed meaning in terms of a 'voice of nature', Rilke was concerned with a sensory expansion by means of technology, a sensory dimension unattainable by means of language (174–5). For Kittler (1999, 46) 'Replaying the skull's coronary suture yields nothing but noise. And there is no need to add some hallucinated body when listening to signs that are not the result of the graphic translation of a note but rather random anatomical lines. Bodies themselves generate noise. And the impossible real transpires.'[4]

In the literature as in Rilke's train of thought, the 'unforgotten grooves' radically differ from a piece of poetry on an ontological level: whereas the poetry *signifies*, the grooves simply *are*. Thoben (2014, 184–5) argues the sound produced by the phonograph is an 'objet

4 Like Thoben drawing on Kittler's reading of Rilke, for Christoph Haffter 2015, 13 the sound which would be produced by the needle placed on the coronal suture is 'a technically transmitted Real' (Haffter).

trouvé sonore', a readymade sound, to be aesthetically experienced, and that Rilke insisted on the difference between the poem's 'sublime reality' and 'a new and infinitely delicate point in the texture of reality' produced by the makeshift phonograph.

Poetry meets sound machine

Despite Rilke's insistence on the difference between the two spheres, the rest of his essay is dedicated to a poetological reflection informed by precisely this difference: a meditation on the possibilities and limits of the human senses in poetry in light of modern technology. The essay came at a critical juncture in his *oeuvre*, usually regarded as marking the beginning of his late works which would include the *Duino Elegies* (1923) and *Sonnets to Orpheus* (1923). According to Hanna Milena Klima (2018, 227), Rilke's 'Ur-Geräusch' essay formed an important part of his poetological reflections, in turn influencing his own lyrical practice. Indeed, the second part of the essay opens with a comparison of European and Arabic poetry, in which Rilke criticized the dominance of sight in the former at the expense other senses, not least hearing; not so in Arabic poems, 'which seem to owe their existence to the simultaneous and equal contributions from all five senses' (Rilke 1919, quoted in Kittler 1999, 41). What he called 'the perfect poem', however, 'can only materialize on condition that this world, acted upon by all five levers simultaneously, is seen, under a definite aspect, on the supernatural plane, which is, in fact, the plane of the poem' (41).

Thoben (2014, 175) includes a reproduction of a pencil sketch Rilke is supposed to have used as visual aid to explain his essay when visiting Thankmar von Münchhausen in 1920. For Thoben, the sketch was a 'poetical parallelization' (179) between the coronal suture and a circle representing 'the world's whole field of experience' (Rilke 1919, quoted in Kittler 1999, 41). Along with a rudimentary phonograph, a skull, a coronal suture, and other details, the sketch shows a circle divided into five separate sections representing the five senses. These sections are in turn separated by larger, grey areas, representing those sections of reality unattainable for the five human senses. Citing a similar 'diagram'

in the essay, Rilke had earlier described how the five human senses were only able to grasp limited sections of reality, between which were larger, grey areas unattainable for the human senses. 'The question arises here', Rilke continued, 'as to whether the extent of these sectors on the plane assumed by us can be enlarged to any vital degree by the work of research' (42). His answer, having mentioned 'the microscope' and 'the telescope' as examples of new scientific devices, tended towards a 'no', since 'the increase thus achieved cannot be interpreted by the senses, cannot be 'experienced' in any real sense' (42). Rilke is careful to suggest that, on the contrary, we should consider 'the artist who develops the five-fingered hand of his senses (if one may put it so)' to be the one who 'contributes more decisively than anyone else to an extension of the several sense fields' (42; cf. Klima 2018, 231). The artist–poet, then, would in some respects be superior to the new scientific devices, widening those sections of reality available to us through our five senses.

Rilke's essay does not end in a defiant disregard of new technology; quite the contrary. He directs our attention to the grey areas between the five sensorial sections of experience to overcome the separation between them.[5] In Thoben's reading, the grey areas should be regarded as the ambient noise (the *Grundrauschen*) in all channels of communication. By extension, the placing of a phonographic needle on the coronal suture would open an intersection between the listener's five sections of sensory experience and a sound machine by tapping into the grey areas—or as Rilke put it at the end of his essay,

> But if we are looking for a way by which to establish the connection so urgently needed between the different provinces now so strangely separated from one another, what could be more promising than the experiment suggested earlier in this recollection?' (Rilke 1919, quoted in Kittler 1999, 42)

5 Klima 2018, 232 draws on Pasewalck's study of the poetics of Rilke's late works to point out that Rilke does not aim for the erasure of difference between the five senses, but rather argues for what Rilke described as a 'correspondence' between 'all five levers simultaneously'.

Rilke did not claim it was within the sphere of his own imagination to be able to 'complete' the sound produced by a needle running along the coronal suture. Quite the opposite, for he wished to put his experiment into the hands of technological experts, as was evident from a letter he wrote to the publisher Katharina Kippenberg (Thoben 2014, 183–4).

Sonification as hermeneutic negotiation

Returning to Mermikides' composition, the similarities with Rilke's essay are evident, but also the crucial differences. It is instructive to use the theoretical framework for analysing sonification practices proposed by Giacomo Lepri, because his interdisciplinary approach is particularly suitable for examining a composition inspired by what one might call Rilke's poetology of sonification *avant la lettre*. Lepri (2020) compares sonification practices with translation theories, finding common ground in the concern of 'the transfer of information from a semantic system to another' (212). A semantic system is defined as a 'set of information coherently organized (e.g. a sequence of data represented in a binary numeral system)' (212). Lepri, however, cautions against equating sonification with translation, since unlike translation between languages it 'comprises the transformation of data into acoustic signals where information traverse different media' (212). In order to capture the shift from one medium to another, Lepri regards 'adaptation' as a more apt term, drawing on Umberto Eco's understanding of translation and adaptation as a negotiation (Eco 2013). Whether translation or adaptation, something from the source text is inevitably lost in the process, but simultaneously is also made visible—or in our case, audible:

> The interpretation of complex and large data sources based on the isolation of *features* through digital signal processes can be considered as an example of such loss. For instance, while filtering and smoothing large data-sets we *ignore* a large amount of the original data; nonetheless, thanks to these processes, we are able to discover and convey hidden information out of complex data. (Lepri 2020, 215)

Mermikides' compositional process, which resulted in the track 'Primal Sound', is thus best understood as *sonification as adaptation*, a process in which certain features are isolated, filtered, and smoothed, whereas others are ignored, enabling the listener to experience something previously inaudible. Lepri also underscores the role of the interpreter–sound designer in this process, a role necessarily engaged in a hermeneutic practice guided by certain contexts and purposes, which in turn will influence the result (216). By turning to the various subcategories of translation proposed by Eco (literal translation, semantic interpretation and use, critical interpretation), Lepri demonstrates how different sonification practices can be categorized along such a spectrum, ranging from the goal of achieving 'unambiguous and faithful relations between data and sound' to sonification entailing 'semantic interpretations' on the part of the sound designer, aiming to 'propose further contents or suggest imaginative and emotional allusions in relation to the input data', and finally a 'critical interpretation' devoted to the analysis of expressive or creative acts of sonification (214).

Mermikides' description of his compositional technique, the overall compositional project, and the resulting track together expose the tension between literal and semantic interpretations and uses. The coronal suture is said to have been 'translated directly' by the use of digital software, but this translation between media (what Mermikides 2011a has as 'visual–audio translations') necessarily entails a loss of source data features, as Lepri points out. The subsequent steps in the design process—digital 'compositional structuring, panning and mixing'—make the crucial role of the composer–designer and their aesthetic choices evident. As opposed to Rilke's thought experiment (yet to be attempted) in which a phonograph needle is run along a coronal suture, the mediation process of Mermikides' project is a far more complicated, advanced technical affair. Further, Mermikides (2011b) describes the overarching aim of his album as being the exploration of 'the field of data sonification in that digital audio technology is employed in the systemized translation of biological processes to sound design'. Unlike Rilke's musings that the coronal suture resembled writing or Kittler's reading of it as an inscription 'encoding nothing', Mer-

mikides' project does seem to suggest an information transfer of sorts between the source text (coronal suture converted into digital code) and the target text (musical composition). Mermikides' description, on the other hand, spells out how such a process of audio-visual translation is at one and the same time a process of artistic creation and a technological transformation, something captured in Lepri's concept of sonification as negotiation. Pasewalck (2013, 12) characterized Rilke's thought experiment as a practice 'oscillating between discovery and invention', testifying to a similar dynamic.

How Rilke would have reacted to Mermikides' track we will never know, but his 'poetical parallelization' of the human sensory apparatus and acoustic technology, uncovering hitherto unknown 'grey areas' in the human sensorial spectrum, suggests it would have piqued the poet's interest. Among Mermikides' key questions to be explored were echoes of Rilke's parallelization of artistic practice (poetry) and science: 'How can traditional and electronic composition, data sonification and collaboration with non-musician scientists most effectively interact?' (Mermikides 2011b). Mermikides' creative engagement with Rilke's thought experiment in 'Primal Sound' testifies to its ongoing relevance as a source of artistic, philosophical, scientific, and sonic speculation and experimentation.

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