Traces of Sound

Reflections of Sounds Unheard

Henrik Frisk and Sanne Krogh Groth (eds.)

PUBLICATIONS FROM THE
SOUND ENVIRONMENT CENTRE
AT LUND UNIVERSITY REPORT NO. 20

This publication can be ordered through Lund University at:
https://www.ht.lu.se/serie/ljud. Email: skriftserier@ht.lu.se

Cover photo by Jacob Kirkegaard from a field recording
for his work Crossfire (2022).

Publications from the Sound Environment Centre
at Lund University No. 20
ISBN 978-91-89874-19-0 (tryck)
978-91-89874-20-6 (digital)
DOI https://doi.org/10.37852/oblu.255
ISSN 1653-9354

Typesetting by Gunilla Albertén, Media-Tryck, Lund University
Printed in Sweden by Media-Tryck, Lund University, Lund 2024

Nordic Swan Ecolabel 3041 0903

Contents

Introduction to Traces of Sound: Reflections of Sounds Unheard

Sanne Krogh Groth & Henrik Frisk

What is sound when it is not heard?
How does sound affect us?
What can sound tell us?
What may sound reveal?
How would we know?
And how do we recall the sound when its source is no longer accessible?

Even unheard sounds can be perceived and not only the ear hears sound, so does the body. The thing that constitutes sound, changes in air pressure, happens obviously also when we cannot hear it, and even if we listen, we may not hear it. From a physical point of view there is little difference between the frequencies that fall outside the audible range and those that fall within it; both are functions of changes in air pressure. Sounds that have not yet been heard, those that are imagined, and those that have long been silenced are all part of our listening, and perceptually are as real as physical sound.

Drawing a line between heard and unheard sound is difficult, and debates within the fields of sound art and music have also moved away from it. Sound is simply more than merely its audible properties. Sound can be a potentiality or a method. Sound can be significant of something past or something not yet realized. It can be an embodied

https://doi.org/10.37852/oblu.255.c608

experience, physical beyond the meaning of the physicality of the sound waves, and it can be a reaction of the autonomic nervous system.

The questions that open this essay were put to the contributors to the book, and we asked them to reflect on them in their essays. The authors come from a wide range of different academic disciplines, but they all have in common that they work with sounds that are not immediately audible to humans. Thus this is a book about music archaeology's interest in ancient music-making and its investigation of the silent traces it has left. About laboratory work and auditory envelopment—how the human brain experiences reverb. About theoretical physics' use of sound as a measurement of the universe's smallest and largest units. About imagining the sounds that could appear from the cracks of a human skull. About how manipulated sounds can conjure up the past, as if it were present in the sounds being played. And about how the art of unheard sounds in specific places can invite new reflections.

With this in mind, we are interested in how different notions of sound depend on epistemological and even ontological perspectives; how these perspectives are presented and what effect sound has on us; and what stories and information are derived from or added to the material, and what the methods in doing so are.

All the essays were first presented at the online symposium *Spår av Ljud (Traces of Sound)* in 2021, held in Lund in Sweden. The symposium papers and sounds were recorded, edited, and uploaded to the Lund University Sound Environment Centre's official YouTube channel, and much revised versions are published in this book. This virtual online, yet highly situated, symposium was a more elaborate version of the many online symposiums we organized and attended during the pandemic, when the demands of distance, isolation, and limited numbers gave extra weight to video and streaming technologies, substitutions for the shared spaces we once took for granted. What came with it were mediatised settings and high-quality recordings, carefully documenting what was said and performed, leaving the traces of what evolved into the volume *Traces of Sound*.

The idea for the symposium came from Fredrik Wetterqvist, the permanent secretary at the Royal Swedish Academy of Music (KMA), who contacted us and asked if we would join the celebrations of the Academy's 250th anniversary by looking at the work of Cajsa S. Lund. Lund in 2019 had received the KMA's medal for her work on music archaeology, which the KMA itself had supported in its early years. The KMA has not only played a role in media archaeology, but was also an important partner in the 1990s debate about sound environments, eventually helping establish the Lund University Sound Environment Centre in 2005. The first time Lund presented her research at the centre was shortly after it opened at a symposium in 2007 (Mossberg 2008).

The book opens with Lund's survey of her 50 years of work with sound archaeology and prehistoric musical instruments. She revisits her engagement with prehistoric instruments and provides insight to today's imaginations of prehistoric listening to auditory landscapes and surroundings. Cajsa S. Lund is an institution, having pioneered the field and inspired both researchers and artists. At an art exhibition at Charlottenborg in Copenhagen in 2012, the Scottish artist Ruth Ewan's installation *The People's Instruments*, which included a piano being sacrificed in a pond, Lund's voice was quite literally present, as she appeared as interviewee in a poetic video installation. Though long retired, Lund is still active researcher. She is one of the research leaders of the European Music Archaeology Project, which is an offshoot of the Study Group on Music Archaeology of the ICTMD, a UNESCO body.

Building on Lund's fascinating work, we the editors have cast our net wide to include researchers and artists working in related areas. How do other fields trace sounds that cannot be heard? Markus Huss is an associate professor of German literature at Stockholm University. In his essay, he speculates on the traces of sound that could be caused by a needle 'playing' a skull's coronal suture. He concentrates on a contemporary piece of music, 'Primal Sound', based on data sonification of the skull of an unknown Victorian woman. The title is a direct reference to the German poet Rainer Maria Rilke's essay Ur-*Geräusch*

of 1919. Rilke reflected on his schooldays, when he was introduced to the phonograph and sound recordings with a needle on a wax cylinder. Rilke speculated what the sound would be if a phonograph needle instead played the cracks in a skull. 'What would happen?' he asked. 'A sound would necessarily result, a series of sounds, music'. Huss meditates on what such peculiar sounds could tell us—and what would be missing—as Rilke's reflections found their way into media archaeological and archaeoacoustical contexts.

Sandra Pauletto is an associate professor of media technology at the Royal Institute of Technology in Stockholm. 'Sound is a trace, a ghost, a signifier of feeling' she writes. 'It tells us about the past, the present, and the future; it is contingent and transient; it lives inside and outside our bodies'. With this, Pauletto sums up a debate that has kept musicologists and sound theorists busy for half a century, ever since Pierre Schaeffer coined the concept of the sound object. With a close analysis of the production and use of sound in films and documentaries, the article argues that objectifying sound is highly questionable, as the nature of sound in these settings is too ambiguous to capture as an unambiguous unity.

Jacob Kirkegaard is an artist who has dedicated his career to making the inaudible audible. In works such as *Testimonium*, inspired by the sound of rubbish burning or decomposing in huge waste plants in Ethiopia and other places, and *Melt*, inspired by the sound of ice melting, he creates sound worlds from things we as listeners did not even know existed. Even if we knew that ice melting made a sound, his special technique of putting sensors on key objects creates a particular sound world where sounds pop out of their environment and create a world of their own. In an interview, he considers his role in this process. Since works such as *Aion*, recorded in Ukraine before the war, may seem to have a political undertone, this was a topic of discussion.

Thomas Lund, a researcher associated with the Finnish loudspeaker manufacturer Genelec, enlarges on the subject of auditory envelopment, something of great interest in the field of acoustical engineering. The brain, through efferent nerve fibres, communicates with and changes the auditory system for reception, which plays a role in all

kinds of listening, but also in the ways in which we feel satisfaction because of certain stimuli. Auditory envelopment can be described as a positive response to a particular listening activity, specifically indoors. When the sound is reflected from the walls, ceiling, and floor of a hall, the reverb effect created promotes a sense of envelopment in the listener. The practice of performing music in indoor spaces that can create this envelopment is thousands of years old and is observed in musical practices in caves, churches, and every kind of manmade space. The text includes the results of a survey of both trained listeners and children, studying an emerging sense of envelopment.

The final contribution is an abridgement of the paper by Leif Lönnblad, a professor of theoretical physics at Lund University, given at the seminar in Lund, in which he explains in layman's terms how the universe was created, what quantum field theory is, the Large Hadron Collider at CERN and its part in the history of the Higgs particle. He explains the nature of sound in space and how we can listen to the universe, concentrating on the process of two enormous black holes collapsing in on each other to generate unimaginable amounts of energy as gravitational waves. Such waves were detected in 2015 and their waveform was actually in the audible range. It is possible for us to hear collapsing black holes.

Sound is more than what we hear, and everything we hear is not what we ordinarily think of as sound. The interrelation between the sound source, our listening and our perception of it has long been our focus. From the metaphysics of the early Enlightenment, when perception was everything, to the phenomenologically inspired theories of reduced listening by Pierre Schaeffer in the 1950s, when what mattered was the sound object, sound is far more than what we might first think. Sound exists far away in the universe and isolated inside our minds where it is disconnected in both space and time. It can tell us something about what happened, how, and where, but one of the most powerful sound producers may still be our minds. We can imagine the sound of a found archaeological object by sensing its shape and material, or a sound that is the reflection of a needle on a skull. Sandra Pauletto tells us that sound can be something too ambiguous to be

understood as an object, too volatile to be captured. We may also imagine an object from an unknown sound, such as in Jacob Kirkegaard's works, or imagine a safe place through the sensation of envelopment. Finally, we may experience physical processes that are almost unimaginable in size and impact through a tiny sound recorded billions of light years after the event.

Taking the essays in this book to their logical conclusion, we would argue we all need traces of sound if we are to understand the world. Sound is omnipresent and easy to take for granted, but however cursorily we listen to it there is so much more to be heard and understood. The epistemological capacity of listening has been discussed in several disciplines (Kvicalova et al. 2019, Gautier 2015, Bijsterveld 2019) and several contributors to this book point to the connection between sound, listening, and knowledge. To listen is to know and to know is to hear.

Traces of sounds are everywhere, and objects revealed through sound are repeatedly created and recreated. We are constantly affected by sound, and it carries continual information about our environment, close by and far away. Life is all about sound. Even if we do not hear it.

References

Bijsterveld, K. (2019), *Sonic skills: Listening for knowledge in science, medicine and engineering (1920s–present)* (London: Palgrave Macmillan).

Gautier, A. (2015), *Aurality: Listening and knowledge in nineteenth-century Colombia* (Durham, NC: Duke University Press).

Kvicalova, A. (2019), *Listening and knowledge in Reformation Europe: Hearing, speaking and remembering in Calvin's Geneva* (Cham: Springer).

Mossberg, F. (2008) (ed.), *Sounds of history* (Lund: Sound Environment Centre, Lund University).