



HYPERNATURAL SOUNDS #2

UNHEARD

texts by **Marco
Donnarumma,
Mélodie Fenez,
& Interspecifics**

curated by
**Desiree Förster
& Pedro Lopes**

C Hullmandel's Patent Lithoumt

1 RHINOLOPHUS AURANTIUS
2 CYSTIGNATHUS DORSALIS

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Part I

CAN YOU HEAR THIS?

Contemporary attempts to render the invisible visible or to make the unheard heard are numerous. Whether if it is signals from space, the complex microbiome ecologies on and under our skin, or the inner processes of plants, we may experience it all. There is a richness of phenomena beyond our limited percepts that we can reach by translating into relatable reference points – with the help of technological infrastructures, sensors, processors, synthesizers. Scientific findings and the development of the mediating technologies, increasingly suggest that other species – such as bacteria, fungi, etc. – have a huge impact on the environment that we are sharing. Being confronted with this rich world of communicating plants, the survival strategies of super-organisms and complex symbiotic and parasitic relations, we still lack ways of responding to them. And response, to speak alongside Donna Haraway enables response-ability [1].

Therefore, in the second edition of the series **Hypernatural Sound#2: unheard**, we invited artists that go beyond the limited perception of the (ego-centered) human mind that is currently obsessed on information received via the visual apparatus. They kindly wrote their experiences and thoughts here in this booklet, that we know invite you to read, aloud and silent, to share and to become-with beyond the ability of human language.

In this edition we have: **Marco Donnarumma**, performance artist, sound artist, musician and writer, freshly graduated from Goldsmiths University, explains in his article Taken Apart and Put Together: Human, Machine and Sound Technologies how he incorporates self-made bio-medical technologies, in order to create novel sounds. His text follows the refiguring of the body from being a mere operational part, a controllable tool, towards an active agent, that, in Marco's practice, together with the machinic infrastructure co-creates an event, in this case: sound. In Marco's performances, biophysical sensors capture the neuronal voltage and bio-acoustics sounds of his moving body, signals that then interact with an interface that autonomously responds with light and sound effects.

Then, Melodie Fennez, a.k.a. **a.melodie** reflects in her contribution “Random thoughts about the unheard (... and where it led my mind to wander)” about her work with plants. Plants, in the western culture are usually perceived as a background milieu, objects without brains, without an intention to act, entities that re-act and clearly fulfill a role within the ecosystem, not more not less. Recent studies inform us about the highly complex nervous system of plants, that enable them to communicate – with each other and across species – and their differentiated social lives. In taking plant life seriously as entities we can interact with, we might start to actually think-otherwise, to think ecosophically - reflecting the space around us and finding ways of response.

Waveforms and matter interweave into sound in the work of the **interspecifics** collective. Leslie Garcia and Paloma López investigate how the human certainties, such as the co-created fiction of the human as superior to other beings, is been shaken by phenomena we can observe and experience on microbial levels. In their contribution they pose the question, that we want to invigorate with this publication as well. What can artistic practice add to these multidisciplinary research chasing the unknown, what is the potency of a new aesthetics that is evoked from the unheard?

—Desiree Förster & Pedro Lopes, 2016

Part II

REFLECTIONS ON THE UNHEARD

Chapter 1

Random thoughts about the unheard *[Mélodie Fenez]*

(... and where it led my mind to wander)

Sounds of plants, Music made by plants, Plants play music; how else was it phrased before?

Having to write about my practice in other words than those in the opening line... I am not hearing the unheard. What I hear is a plain old blank page – Urban silence: the neighbor hammering a nail in the wall and my tinnitus due to lack of sleep.

I am not going to write an academic text. I don't know how to do that and I don't think I have anything conclusive to say about the unheard. Hence, I would rather talk to you about Roald Dahl's *The Sound Machine* [2]. The short story about Klausner who builds a device that would allow us to hear the unheard: a whole world of sounds that he believes to exist but sit outside of our hearing (frequency) range. When he finally tries out the device in his garden, he hears screams of pain coming from roses, as they were cut and trees as they were hit with an axe. A great read that you might attribute as "totally fictional" until you stumble upon scientific papers about the inner life of plants. Not so "inner" in fact.

Plants send hormones into the air when they are attacked. It is thought that they aim at warning their peers about the presence of the attacker. Other researchers say it's not their aim but it's the consequence anyway. It is not meant to be a message, yet it is delivered. You might think you were not aware of this messages, but in fact, you smelled these hormones yourself when you walked by a freshly cut lawn and your nose started itching. The message was delivered, just not decoded. There are plenty of other

occurrences of plants doing things we wouldn't suspect from them. Like calling on a wasp to get rid of a caterpillar eating its leaves. Plants have lots of friends and foes. Not only do they know them, but also in some instances, they know the foes of their foes, and they know how to use this information. It seems to me that humans are the worst at inter-species communication. Maybe because we, so desperately, want to only communicate in our own language. Plants have so much to say that we're not able to understand...

And there comes art.

Und die Kunst hat nichts getan, als uns die Verwirrung gezeigt in welcher wir uns meistens befinden; Sie hat uns beängstigt, statt uns still und ruhig zu machen.

—Rainer Maria Rilke Notizen zur Melodie der Dinge, chapter XI. [3]

In 2012 the Deutsch Guggenheim hosted the collaborative exhibition *Found in Translation*. Amongst other art pieces there was Alejandro Cesarco's *Untitled (Dante/Calvino)*: ten texts aligned on a wall. I proceeded in reading them. These seemed to be descriptions of the same landscape from different points of view. Perceptual subjectivities of a painting, I thought. The physicality was common although not so obvious. What shone through each text, the atmosphere, the words, was kind of different but not quite, at the same time. They were obviously all related, but in a puzzling way. Upon discovering that it was in fact, 10 translations of the same excerpt from Dante's *Divine Comedy*, I went back and tried to figure out the original text. It hurt my brain, so I gave up. Why does this artwork come to my mind when thinking about my practice?

Whether plants make sounds, we don't know. If they do, we surely cannot hear them. I believe my music is a subjective interpretation of a physiological process happening in the plants, translated into sounds. It also has to do with how I view plants, my relationship to them. Someone else using my device would do something completely different, yet we would deal with the same reality of what plants are. Or rather, we would deal with the same complexity of what plants are; yet, maybe, focusing our attention on a certain aspect of it.

There is one term of the problem, which you are not taking into account: precisely, the world. The real. You say: the real, the world as it is. But it is not, it becomes! It moves, it changes! It doesn't wait for us to change.. It is more mobile than you can imagine. You are getting closer to this reality when you say as it 'presents itself'; that means that it is not there, existing as an object. The world, the real is not an object. It is a process.

—John Cage, *For the Birds: John Cage In Conversation with Daniel Charles* [4]

I am asked so many questions about my practice that I sometimes forget: as an artist (even though, I still have a hard time describing myself as such), I like to set a picture and keep certain aspects of the truth behind it latent. You can get on my discourse and you can choose your own. Letter from Siberia [5], 1957 (!), a movie documentary with a voice over all along adding

meaning to the images. As we are fully taken into the story, the narrator stops his speech and comes back three times to the same footage of a crowded bus, a then modern car and workers building a road, giving three different ideological interpretations to the sequence: pro-Soviet, somewhat neutral and anti-Soviet.

You can see this excerpt (left) or whole documentary (right) by pointing your camera to these codes or copying the URLs below:



youtube.com/watch?v=cGVQ3cU8AFc



youtube.com/watch?v=AkyfqHD1u-s

Chris Marker illustrated brilliantly the power we, ourselves, give to images. He meant to call on the audience to have a critical sense and not believe everything they are told because they can see it. But when it comes to art or some aspects of daily life, to me, it calls on us to give sense. It opens a world of analogies. A plant can be a silent immobile inanimate object, if you choose so; or there can be more to it.

For sure science can, and does help us to, give meaning. But it's also up to us to create bounds. I talk to my plants. Science can tell me that it is pointless to do so and people can even go as far as to say I am crazy. Truth is, it makes me feel good and it makes me care about them much more. So why would it matter that my words are unheard to them if they thrive anyway?

—Mélodie Fenez, 2016

Chapter 2

Unfolding the unbounded field from which we are all part of [Interspecifics]

In 1998 a multidisciplinary research group in Japan led by Dr. Matsushashi, reported from the production of sound waves in bacterial cells [6]. Continuous single sine waves produced by a speaker at 6–10, 18–22, and 28–38 kHz that promoted colony formation by *Bacillus carboniphilus*.

The repercussions of this and other similar findings immediately inspired us to retake the philosophical act into an empirical committed form of inquiry. Not just by using experimental data but also by creating actual open and decentralized tools for performing ontological experiments driven by the need to unlock, unveil the nature of our universe.

Questions such like the fundamental “Who am I?” that takes a totally different path when considering the balanced ratio of resident microbes and human cells that symbiotically collaborate inside our bodies. Not surprising, if we think they’ve been around for millions of years more prior to us. In this sense the idea to create an interspecies communication system using sound as a transduction bridge, is less of an unfamiliar approach to the otherness than a sharp challenge of what we believe to be ourselves.

At Interspecifics we daydream about our endeavor as an opportunity to unfold the unbounded field from which we are all part, the creation of what Paul B. Preciado calls a “material counter-technology of consciousness production”. Given that “we” still sense ourselves as separate entities (probably because we are just a mere interface for the universe to happen and this interface comes with its own, sometimes limited configuration), we asked ourselves: “what if we could use a set of code from within our

own interface features to access a point beyond experience?” Hence sound. A physical vibratory phenomenon transduced in collaboration by our senses into a physiological experience and by our brain into a psychophysical form of perception. Traversing universe levels from an imperceptible form of vibration that set into motion waves through molecular structures to an active, sometimes emotional, experience within the human hearing range. Thus, any wave-like behavior with characteristics from the signal universe can be mapped, or at least be interpolated, to perceptible sound frequencies. So this is basically what the Energy Bending Lab stands for, from a speculative artistic point of view; the object explores the relationship between waveforms and matter seeking a pattern-based understanding of our context that can illustrate the underlying order within the universe and human consciousness that appears to be intimately related to vibration.

How else would we approach all these levels of understanding if not through: Open knowledge, dispelling hierarchies in to multitudes in a space of dialectic exchange where we all can equally contribute and distribute response-abilities. Joining forces from the main areas of expression of human creativity in a relation of mutual barter of methodologies all driven by the fundamental questions that motivate and fed them, and from which new forms of knowledge can arise, forms that are not completely determined by science or merely by the subjectivity of art.

—Leslie Garcia and Paloma López, 2016

Chapter 3

Taken apart and put together: human, machine and sound technologies

[Marco Donnarumma]

One of the unique characteristics of sound lies in that, among all the energy waves that surround us, acoustic waves actively influence the human body at different levels, from intangible emotion arousal to physical induction of resonances, from pleasure and melancholy, to stillness and dance. From another point of view, for the human being sound is sound only when it is heard. It is in our ears that acoustic waves become a discernible event that we can feel, listen to and define as a sound. Because the experience of sound is intrinsically linked to the human body, the performance of music and the design of musical instrument have, for the most, been grounded in body motion. An obvious example is provided by the centuries-old history of traditional musical instrument making. String, wind and percussion instruments are all based on an interaction model whereby the kinetic energy of the human body excite the body of the instrument which then produces sound.

With the arrival of analog synthesisers, the role of the human body in the performance of sound technologies shifted from sourcing acoustic energy to the instrument, to controlling its modulation parameters. Switching knobs, plugging and removing electrical cables, or tapping on a switch became understood as another gesture vocabulary. The idea of the body as a means to control sound technologies was then strengthened by the coming of digital computation, in the form of laptop computers and digital music software. Orchestras of ‘virtual synthesisers’ are operated by simply typing on a keyboard and moving a mouse. The performance of laptop music minimises the impact of the player’s physical effort on sound production in exchange for an easy access to a virtually infinite number of musical parameters and operations. With the

increasing accessibility of technologies that gather information on a user's gestural motion, and with the rise on the market of portable devices, the performance of sound technologies have gone through a re-evaluation of the player's physical engagement in the production of sound. This is our first core concern:

How to leverage a player's physical engagement with sound and computational technologies to enable the creation of new sounds and exciting performance strategies?

In which ways can we move beyond a metaphor of control towards an open-ended and mutual mediation of the player and the instrument?

It would be misleading however to discuss the shifting characterisation of the body in the performance of electronic music without adding to the picture the equally mutable characterisation of the body in the cultural milieu. The human body is cultural and political. It is cultural in that it is the active means by which public cultural artifacts are conceived and made. It is political because it is the subject and object of social strategies involving power, ethics and belief. It follows that the cultural understanding of the human body has important, yet often overlooked, repercussions on the understanding of the player's body in a public musical performance.

Before the establishment of a dedicated field of studies, the body has been discussed as merely an operational part of the overarching structure of society. This approach has prompted a reductive understanding of the human body that have been rendered most notably through the views of essentialism and social constructivism. The former view, indebted with Descartes philosophy of dualism, sees the human being as an entity split between the higher activity of the mind and the lower fleshly mechanisms of the body. Social constructivism on the other hand, sees human beings as individuals whose subjectivity is constructed through the social making of culture. Thereby social constructivism does not account the body nor the world we live in as means of production of the social, but rather as results of it. Public critical discourses addressing directly the body have first surfaced from the second feminist wave during the '60s and the '70s. The feminist critique has addressed the objectification of the female body by a male-dominated power structure. Specifically, a broad public debate has focused on issues like family, sexuality, workplace conditions, and reproductive rights. Since then, a sociology of the body, or body theory have been established. Sociologists, philosophers, and scientists have investigated the body as the site where and through which identity, gender, religion, and knowledge are nurtured. These perspectives have in turn fostered the cultural analysis of the relation between the machine and the human body. Namely, the humanities have elaborated new definitions of what means to be human in the view of the increasingly intimate integration of the human body and machinic, computational,

and biological technologies. This is formulates the second core question of relevance here:

How can we discuss critically the integration of man and machine at a cultural and political level?

How can such understanding inform the way we design technological musical instruments and the related performance strategies?

The term ‘integration’ is used above purposely to indicate not a mere pairing of the machine and the human body, but the intermixing of two things that have been long segregated. The integration of the human and the machine is not intended at a metaphysical level, but at a practical one. Biomedical technologies, or biotechs in short, have provided us an entry point to a still largely unexplored territory where human and technological bodies blend together. DNA cells are used to do computations in test tubes, the entire human genome heritage is stored and categorised in digital database accessible via the Web, artificial organs are used to replace malfunctioning human organs, electrical and mechanical signals produced by physiological processes are channeled through the circuits of robotic prosthesis that enable human beings to restore their bodies. This is the result of a long history of research in the field of biomedical engineering and its branches, which include neural, genetic and tissue engineering, medical implants and prosthetics, and biomedical equipment design. Far from wanting to center this matter on biomedical engineering, it is being shown how the knowledge produced in that field has been re-appropriated by performance art practice towards the critical questioning of human physicality and biology.

—Marco Donnarumma, 2015

Editor’s note: You can read the follow up, and newer version of this essay in the book: **Experiencing the Unconventional: Science in Art**, World Scientific Publishing Co. (2015)

References (all texts)

[1] Haraway, D., *Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective*, 1988.

[2] Dahl, R., *The Sound Machine*. First appeared in *The New Yorker*, September 17, 1949.

[3] Rilke, R., *Aufsätze und Rezensionen*, CreateSpace Independent Publishing Platform, 2013.

[4] Cage, J., *John Cage In Conversation with Daniel Charles*, London/New York: Marion Boyars, 1981.

[5] Marker, C., *Letter from Siberia*. Production Argos-Films et Procinex, 1957. Documentary. 1h 2m

[6] Matsushashi M., et al., Production of sound waves by bacterial cells and the response of bacterial cells to sound, in *Journal of General and Applied Microbiology*, 1998 Feb;44(1):49-55.

Part III

BIOGRAPHIES

Mélodie Fenez, is the electronic music project of Mélodie Fenez. The project centers on the awareness of plant life and their communication to the outside world. a.melodie consists of self-made synthesizers that are then hooked up to an array of different plants. The plants, who have their own unique timber shape the sound of each oscillator. Because of physiological reactions, mainly due to their defensive system, the plants modulate the frequency they produce, creating an alive and ever morphing sound. On stage, a.melodie composes with the sounds produced and modulated live by the plants. Mélodie has performed at venues such as Café OTO (UK) and Casa da Música (PT).

Interspecifics is a project by Paloma López & Leslie García in which a set of custom-built modular synthesizers creates a real-time sonification from the electric properties found in some bacteria. Conceptualized as a DIY interspecies system, the interface amplifies the microvoltage produced by these microorganisms transducing their oscillatory features into raw electronic signals tuning the internal clock of the whole system and producing an unexpected array of sound patterns. The object explores the relationship between waveforms, matter, and the physical form of frequencies. The project has been developed at Cimatics in Brussels, Today's Art in The Hague and Insomnia in Tromsø; and built while traveling using different fabrication laboratories across Europe.

Marco Donnarumma is a performance artist, sound artist, musician and writer. He uses human bodies and machines as materials. Working with biophysical media, that is, biomedical technologies, sound devices, computer software, sensor and transducers, he creates artworks where human bodies and machines extend, transform or disrupt each other. He has received a number of awards, most notably the first prize in the Guthman New Musical Instrument Competition (Georgia Tech, US) for the system Marco used at Hypernatural Sounds; the Cynetart Prize for Computer Based Art, among others.

Desiree Förster is a Berlin based curator and researcher collaborates within various disciplines such as (synthetic) biology, computer science, philosophy and humanities, and is interested in creating space for assemblies that cross assumed and naturalized relations. While organizing workshops, talks and concerts, she is writing her Ph.D. and works at the Haus der Kulturen der Welt Berlin. She gave presentations about her research on interspecies relationships, human-machine entanglements and new artistic practices at conferences such as the Annual Meeting of the Social Studies of Science Copenhagen 2012 and Denver 2015, gave workshops on Foucault's "heteropia" at the Utopia School Copenhagen 2015 and is strongly engaged with the local artist and project space scene Berlin.

Pedro Lopes is a turntablist metamorphosed into a percussionist by night and a Human Computer Interaction researcher by day. When playing live he deconstructs his instrument, the turntables, into a vehicle of a rapid, post-scratch and post-jazz, musical dialog of analog intonation and acoustic overtones. In Pedro's music the needles do not merely amplify the vibrations stored in the grooves of the vinyl records. For him, the needles are microscopes that enable us to hear otherwise unheard micro-realities, such as the sound of a fingernail scratching a membrane, a coin revolving as it falls, a brush dragged across a plastic surface. Pedro has been

collaborating with artists such as Reinhold Friedl, DJ Sniff, Imre Thormann, amongst many others, in a life entangled deeply with his research on interfaces and performance arts. This extra-musical investigations have led him to produce pieces for Transmediale, a Fundação de Serralves, Fylkingen, Ausland, and Goethe Institut.

Hypernatural Sounds is a series curated by Pedro Lopes and Desiree Förster. This series brings together musicians and theorists for sharing with the audience the philosophy behind sound art and music.

Part IV

SAMPLE THIS WORK



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