issue 3 summer 2014

reflections

on process in sound

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CRISAP
CREATIVE RESEARCH INTO SOUND ARTS PRACTICE

Editorial

By Iris Garrelfs

Dear reader,

This third issue of *Reflection on Process in Sound* is a particularly satisfying one, featuring six substantial articles across a range of sound related practices. With it I hope that the journal continues to provide a useful space where artists can share experiences, views, and contribute more openly and directly to sound arts discourse. The fact that issue one and issue two each received over 500 downloads in their first months indicate to me that there is a real interest in reading such expressions!

In this issue, Viv Corringham gives an account of how her ongoing series *Shadow-walks* came about, as an amalgam of singing and walking, followed by jez riley french considering three specific trips he took this year to record telefericas, geological dissolves and other fascinations in Italy and Iceland.

Felicity Ford explores how wool and sound come together for her in her project KNITSONIK, with some excursions into feminist concerns, whilst Michelle Lewis-King explains how and why her *Pulse Project* blends accupuncture with sound.

Last but not least, Jo Hyde, who's *Seeing Sound* symposium at Bath Spa University has been very inspiring over the last few years, is considering his take on visual music – how sound and vision connect for him, and Rob MacKay disusses the parameters of the world's first concert for artificial and human voices in January 2013.

I would like to thank all contributors for their generosity in making their thoughts and process transparent, and investing a considerable amount of time in doing so! Thanks also to Peter Smith for designing it!

As some of you might already know *Reflection on Process in Sound* has found a new online home at http://www.reflections-on-process-in-sound.net, where you can now continue the conversation by leaving your own thoughts and comments. I look forward to them!

London, August 2014

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Voicing Place

by Viv Corringham

Viv Corringham is a British vocalist and sound artist based in New York, who has worked internationally for thirty years. She is a 2012 and 2006 *McKnight Composer* fellow through American Composers Forum. She received an MA Sonic Art from Middlesex University, London and is certified to teach *Deep Listening* by composer Pauline Oliveros.

Recent work has been presented at Soundworks, ICA London; Around Sound Art Festival, Hong Kong; SoundOut Festival, Canberra; Abrons Arts Center New York City; Tempo Reale Festival Florence; Serralves Museum of Contemporary Art Porto and C33 Gallery Chicago.

Articles about her work have appeared in many publications, including In the Field (UK), Art of Immersive Soundscapes (Canada), Organised Sound (UK), Musicworks (Canada), Playing With Words (UK) and For Those Who Have Ears (Ireland).

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Photo by Kris Douglas

Introduction

My background is that of a vocalist, active in several different idioms. I sing improvised and experimental music, *Rembetika* (often called *Greek Blues*) and various folk traditions, often in quite mutated ways with or without electronics. Approximately fifteen years ago I began making work that combines voice with walking and environmental sound, in order to relate to people's sense of place and their relationship with very familiar places, a subject that has interested me for some time.

Traditional links exist between walking, singing and the sense of place, such as the Aboriginal 'dreaming-tracks' often known as songlines. I am also interested in the writings of anthropologist Steven Feld, who studied the Kaluli people of Bosavi, Papua New Guinea and described their practice of song paths, the poetic song texts that take listeners on a journey through a local area. The audience does not move but goes on the journey through listening. The flow of these song paths is emotionally and physically linked to the sensual flow of the singing voice, and in performance the flow of voice merging with the flow of sung place names creates what Feld describes as 'waterfalls of song, a sense of place resounding' (1996, p. 92).

Song paths operate almost as maps in which places are placed in memory and they are connected to the ancestors and to cultural identity. The song path embodies the notion that 'Knowing where you are is knowing who you are' (2001, p. 205). Feld's writings were an important influence in the development of my practice.

Listening

Working with the American composer Pauline Oliveros and studying her method of *Deep Listening* has reinforced my interest in those everyday city sounds that it is often tempting to block out or ignore. Listening has become a way for me to open up to a greater awareness and appreciation of the world through the experience of sound. In my work I listen to my own improvisations and to the sounds around me and, in the project *Shadow-walks,* to the words of the person who takes me on a walk and later for the memory of that walk, trying to hear its traces on the route.

Vocal Strolls

This concern with environmental sound and musical improvisation led me to consider methods of exploring places and interacting with them vocally. Walking seemed the obvious place to start, as it is an activity I do almost every day. My first attempts, in 2002, were called *Vocal Strolls* and became a regular show on London's art radio *Resonance FM*[1] for a time. They consisted mainly of wandering in the city while listening to the environment and responding with improvised singing. I recorded these drifts with binaural microphones, which I still use, as they produce a subjective three-dimensional soundscape when heard back through headphones, as though the listener is also taking the walk.

This project is embodied: walking through a place. The voice is also embodied. The motion of walking allows a certain mental freedom and translates a place to a person kinaesthetically. Intimately

1 http://resonancefm.com

Photos, text & found objects displayed in CD jewel cases. (C33 Gallery, Chicago, USA, 2011)

connected to the body's movement is the voice. The singing and the speaking voice are equally affected: both sung improvisations and shared conversations flow easier with the motion of walking.

Vocal Strolls is a continuing project that consists of my interactions with the urban sonic landscape. The work seems to belong in the human-made cacophony of a city with its traffic and machine drones and squeals:

> The fact of the human presence and its relation to London's soundscape is clearly embodied in this work. That presence created the tumult that sometimes drowns out the human voice and sometimes becomes a complex and perfect accompaniment to it. Issues of acoustic ecology vie with an aesthetic enjoyment of urban noise. (2003 p. 25)

Urban Song Paths

In 2003 I decided that I wanted to pause these wanderings for a while in order to discover more about the places I walked through. My next project, named *Urban Song Paths*, was an extended form of these soundwalks, which attempted to address matters relating to the natural, cultural and historical origins and uses of a location. The name of the project is clearly derived from Steven Feld's writings and research. The combination of journey, the voice and a sense of place, inherent in the Kaluli song path form, resonated with my own concerns, and investigations began into creating a contemporary, urban form of the traditional song path.

One of these *Urban Song Paths* was a route over a disappeared London river – the Fleet – which I followed thirty or more times. I carried an armful of texts, both literary and historical, which I used as scores and lyrics for my improvisations. I was interested in discovering whether I could connect so intimately with the walk that I would eventually sense where the water used to flow (and still trickles in an underground culvert). There were occasions when I felt this watery awareness but suspected it was mainly imagination.

When I concluded that this particular route had been repeated sufficiently and I stopped my daily Fleet walk, I was surprised to notice my sense of nostalgia and regret. It had become my 'special walk' with some significance for me. This led me to wonder whether other people have their own special walks, also created through repetition, and later that year I began the project *Shadow-walks* with the intention of incorporating other people's experience of place into my work.

Shadow-walks

An idea attributed to James Joyce is that places remember events and I found this idea very engaging – as if everything that happens leaves traces that we might be able to sense. If a person walks through certain places repeatedly, along the same route, does that act of walking impose a trace that can be mapped across time and space? In a sense *Shadow-walks* is an attempt to make a person's traces, their shadow, audible through my singing, improvising voice.

So far the project has occurred in nineteen places in the USA, Canada, Europe, Australia and Asia. The process is straightforward. I arrive in a new place and ask to be taken on a special walk, one that has been repeated many times and has meaning or significance for that person. While walking together, I record our conversations and the sounds of the environment. I then go back along the same route alone, attempting to get a sense of my previous companion's traces on the walk. Then I sing what I feel using wordless improvisations.

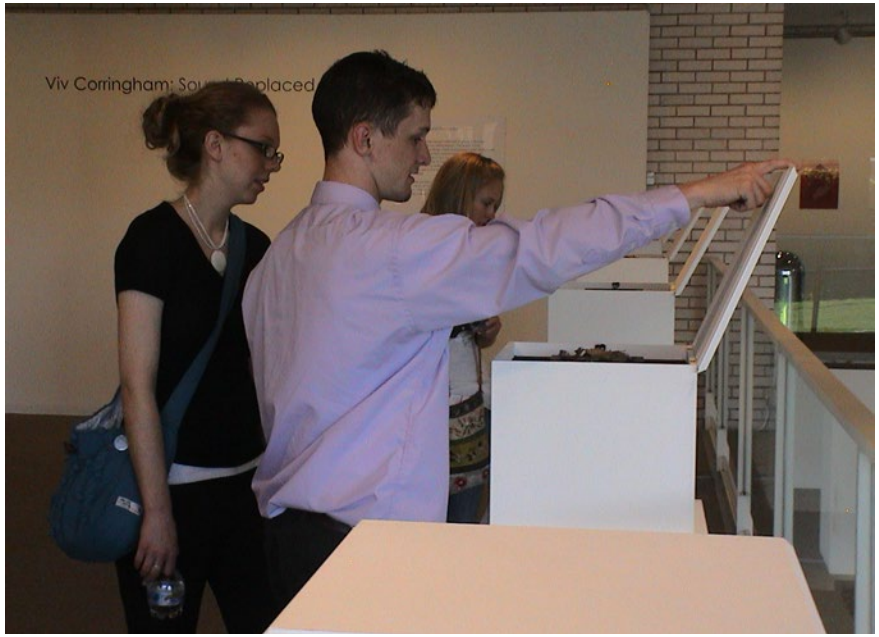
The process requires a temporary residency in the place. It takes at least three weeks and has a specific structure, refined through many repetitions: recording the walk, listening back to the recording, walking solo to record my singing and usually again to

record characteristic sounds and collect objects (see below). This is repeated for each participant.

Improvisation and composition

The many hours of recordings made at the residency are then taken back to my studio, selected and edited together to become the final work, the *Shadow-walk*. These raw materials are, in a sense, all improvisations: my singing, the conversations and the environmental sounds. When I begin to shape the work, I already have all of its elements. Except for equalisation, nothing new will be added in the studio. Sounds and singing heard in the final composition will all have been recorded in the actual location.

Installation of 'music boxes' containing audio and found objects. (Minneapolis College of Art & Design, USA, 2007.)



I edit the recordings into sound clips, some of which may be very short, and then I layer them together, integrating singing, narration and the sounds of the place. Sometimes a clear theme emerges from a person's walk that I might use as a compositional structure for the piece. I may drift from one person's walk into another in a dream-like way or I might make a clear transition. My prevailing question for myself throughout the compositional process is always 'What sound do I want to hear next?'

Found Objects

An element in many *Shadow-walks* and other place-based projects is the collection of objects found on the route. The work of British walking artist Richard Long inspired this practice. As his walks usually occur in rural locations, the materials he transfers to the gallery tend to be natural, such as mud, stones or slate. My walks usually take place in cities or towns and therefore the objects I find, with the exception of occasional feathers and leaves, are typically debris and litter. These found objects are easily ignored traces left behind by others and they create a fascinating collage of a place through its detritus. I photograph the objects and frequently incorporate these photos and the objects themselves into installations.

For example, *At the End of the Road* is a *Shadow-walks* piece based on my residency in Grand Marais, a border town in northern Minnesota, USA, on the shore of Lake Superior. Here amid the snow, ice and howling winds of April, I met a community of people, many who had left their hometowns in order to live close to the lake and wilderness. Nine people took me on their special walks and in each case I gathered objects from their route.

I made an installation from this work for a museum in Portugal and a gallery in San Francisco, which included a video of images of the place and also of the objects I had found there, many of which had been crushed beneath snow for months. The actual objects hung on fishing lines in transparent bags, creating a shimmering curtain through which visitors passed to watch the screen.

Another method of displaying found objects occurred in a residency at *New Adventures In Sound Art,* Toronto. I was taken on seven walks that had been chosen as special. Each walk was very personal, dealing with love, loss, nostalgia and fear.

There is something quite intimate about the sharing of a person's special walk. People reveal a great deal about themselves and their relation to the world by inviting me, a stranger, into their lives for the time it takes to walk the route together. It is a generous act, for I learn the territory through another's experience and I have a sense of something being revealed to me.

Installation of audio, video and found objects.
(Serralves Museum of Contemporary Art, Porto, Portugal, 2009)

For my installation in Toronto I wanted to extend this intimacy and shared experience to the visitor. I asked a carpenter to create a version of the traditional music box, an object that combines a sense of child-like wonder and personal agency: lift the lid and music plays, close it and it stops. I presented a series of white music boxes, each containing a different composition created from the *Shadow-walks.* In the original music box there was often a tray for jewelry, but in my version the trays contained objects found on the walks.

Shadow-walks have been disseminated in various ways: as audio-walks, radio works, at listening posts around a town and, most frequently, as sound installations in art galleries. It is important to me that they are presented in some way in the place where they were made and to the people who walked with me.

Voicing traces and place

How is it possible for memory, place and personal history to be interpreted through improvised singing?

In *Vocal Strolls* and *Urban Song Paths* my soundings are an intuitive response to the place through which I travel: to its soundscape and to my sense of its history and function. Or they might simply reflect my own unconscious, visceral reactions.

Photo of Viv Corringham by A. Dogan

In *Shadow-walks* I respond to the undercurrents of people's walks: the mood, their observations, the sound of their voices, the shape of the walk, our pace, or some other factor. Later, as I set out alone, I try to embody the essence of someone's walk and allow my singing to emerge freely from this source. However, while my improvisations aim to honestly express another person's walk, still the fact remains that as I follow their path I am also taking my own walk at a different time, in different conditions. As an improviser I naturally respond with sound to these elements. My walk inevitably acknowledges my own experience as well as the person's.

Sense of place

I have noticed when asking people to take me on their special walks, and also in my own place-based work, that the route selected usually reinforces a connection with our own localities, however mundane the walk may be. Few choose walks where natural beauty is the main feature; mostly the walk is embedded in our daily lives and, even with young people, often it relates to our own history.

I am very struck by that 'sense of place' which, according to sociologist Clifford Geertz, has not diminished in the contemporary world:

> For it is still the case that no one lives in the world in general. Everybody, even the exiled, the drifting, the diaspora, or the perpetually moving, lives in some confined and limited stretch of it - "the world around here" (1996, p. 260)

References

Feld, S (1996). Waterfalls of Song. In: Steven Feld and Keith H Basso (eds). *Senses of Place*. Santa Fe: School of American Research Press

Feld, S (2001). Lift-Up-Over-Sounding. In: David Rothenberg and Martha Ulvaeus (eds). *The Book of Music and Nature*. Middletown, CT: Wesleyan University Press.

Corringham, V. (2003). Vocal Strolls. In: *Musicworks* No. 86, pp. 22- 27

Geertz, C (1996). Afterword. In: Steven Feld and Keith H Basso (eds) *Senses of Place*. Santa Fe: School of American Research Press

Related Recordings

Viv Corringham, *Walking*, Innova Recordings, 2013
http://www.innova.mu/albums/viv-corringham/walking

Viv Corringham, *Gum + Butts*, Linear Obsessional, 2013 [listen at
http://linearobsessional.bandcamp.com/album/gum-butts

> end of article <

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personal | three positions

by jez riley french

Using intuitive composition, field recording, improvisation and photography, jez riley french has been exploring his enjoyment of detail, simplicity and his emotive response to places and situations for over 3 decades.

Alongside performances, exhibitions, installations, lectures and workshops he also curates the 'engraved glass' label and the 'a quiet position' series of online releases / forums exploring the broad ideas surrounding the act and art of listening through field recording .

Recent work includes commissions for Tate Modern (UK), Artisphere (USA) and for organisations in Italy, Iceland, Japan, Spain and the UK. A section of his piece for Tate Modern was also chosen to be part of the '500 years of British Art' series at Tate Britain.

In recent years jez has been working extensively on recordings of surfaces and spaces (natural and constructed) and has also been developing the concept of photographic scores. He is particularly associated with the development of extended recording techniques, including the recording of structural vibrations, contact microphone recording, ultrasonics, infrasonics, internal electronic signals via coil pick-up's and recordings made with hydrophones.

www.jezrileyfrench.co.uk

image from dordolla, italy

I recognise the importance, of course, in considering ones 'field' in as wide a context as possible, in avoiding an egocentric or even autocratic outlook. However, have we now arrived at a point where the personal is side-lined wholesale in favour of an increasingly imposed and expected detached and predictable rhetoric? There is all too often much talk of theory, but always based on text book examples and rarely on anything personal, or indeed much outside of the field under discussion. And always precise – no room for mistakes, moods, fits of peak or explosions of passion. It's possible to see that by an indoctrinated eroding of references to the full range of motivations, and emotions, behind creative work, concentrating only on certain academically led aspects, we dull our interest in and ability to perceive realities as anything other than a canvas for imposition.

When it comes to field recording, in all its forms, there are often certain frustratingly slim perceived divides within that discourse. For instance between work that stems from an emotive response, to place or motivation, and either a kind of sound-art-by-numbers attempt to render surfaces or objects as metaphors for various theoretical tropes or the new-age-ism that for some defines field recording as 'nature'[1] recording or a document of locations that can offer tranquility – a tranquility that is not a reality but rather a product of human subjectivity. To illustrate: a meadow on a warm summer evening is a scene we are taught from our childhood is restful, calm even, and not a place one inhabits for a particular time, complete with all of ones thoughts and feelings. In fairy tales, nursery rhymes, songs and contemporary cultural imagery the idea of 'nature' is established along lines that reinforce human idylls, political or social theories.

The reality, on the other hand, is that for the various other species what we call nature, even in its most still locations, includes ever present battlegrounds, slaughter yards and a cacophony of sounds above and below our limited range of hearing – a range that has grown narrower due to both evolution and our habit of inventing empowering technologies such as sound recording and then ways to limit them or undermine their power. For example, the mass use of harsh compression, applied to probably 99% of all broadcast, commercial sound we experience in our daily lives, means our ears have simply to hear (a passive act of consumerism where sound is processed for impact and its subtleties are restricted) and not listen with much in the way of active engagement. In effect our ears are becoming auditory couch potatoes, and yet it is so easy and enthralling to reverse that. Sensing more of the 'reality' of a locale or surface actually allows one to still take pleasure in whatever impression one wants or needs to find, but also more of the texture, the shade, the subtle ebb and flow of its moment-to-moment existence.

1 for the record I reject the definition of 'nature' that does not include our species. It seems to me an act of, perhaps unconsidered, arrogance to separate ourselves from the rest of nature and one can only imagine how differently things might have been had we not decided, sometime in our distant past, to begin the process of assuming superiority and considering nature as something 'other' than ourselves.

Likewise, I am often puzzled, and always have been, as to why interviews with artists or reviews, articles etc. concentrate only on the influence of other artists' work. This 'in-breeding' of reference runs the risk of drifting from a sense of creative focus and rigour in exploring ones work and its context towards a rarified poverty of theoretical and conceptual vistas. It is a cliche but in this sense it is certainly true that travel broadens the mind, whether to different countries, through the act of walking out into one's immediate locale or, most importantly, through an acceptance of the effect time and life can have.

Of course we all collect elements from everything we hear, see, experience – and that is my point – it's from everything that one can draw inspiration and not just from the creative output of others or from elements that fit in with reading / listening lists drawn up by those in positions of power or influence within 'the arts'. How utterly bizarre it is that we continue to reference and qualify work by just one thread of its motivation and how much, much more interesting it would be to hear what really drives people, to begin to expect artists to be as open and informed about the impact of their wider life (though of course it is easy to see why this is not something some would find either easy or comfortable).

I'm not advocating an expectation of an ever present confessional voice but rather an acceptance, celebration and equal exploration of all the influences and motivations that lead

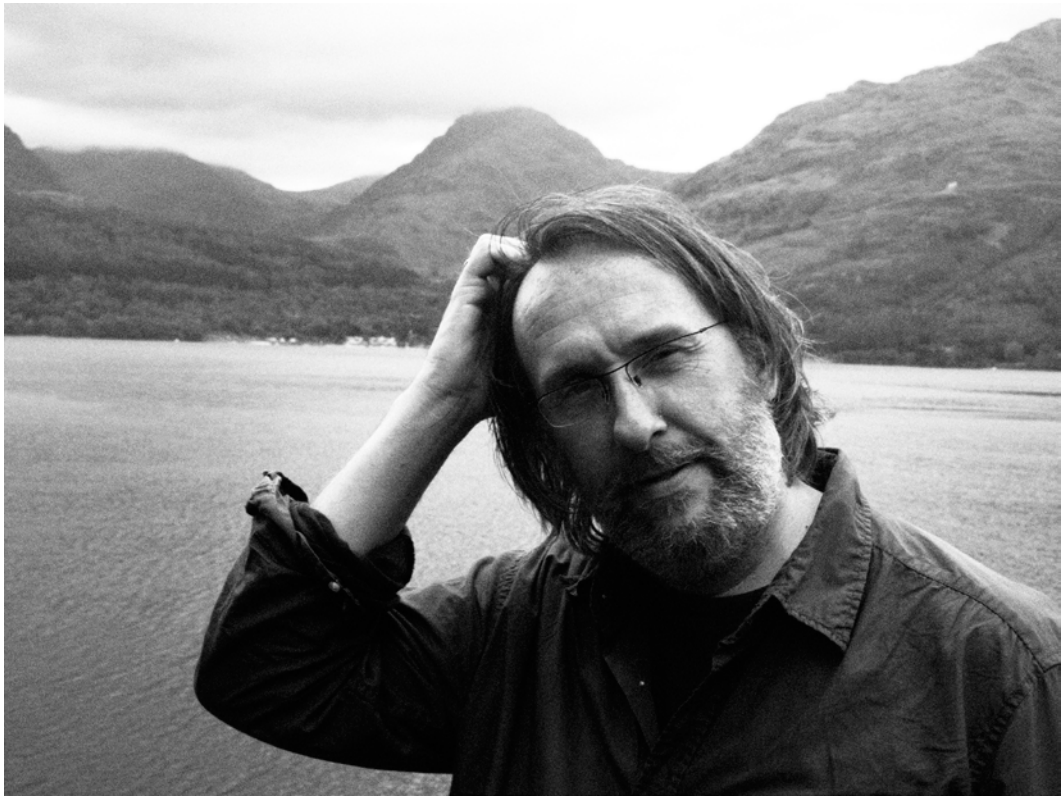

image of jez riley french by pheobe riley law

to the creation of art. For artists to look elsewhere for inspiration, especially young artists – who should view advice as to who is 'influential' in their field with both curiosity and a healthy amount of suspicion.

image from dordolla, italy by jrf

Whilst on a personal level I often find it difficult to fully explain all the things that motivate me, and sometimes it can be my intuitive reaction to avoid any expectation to explain, I do know that the initial sparks come from the myriad aspects of daily life and experience; how I feel, the meal I am thinking about preparing later in the day, stress, freedom of time and, of course, my response to experiencing various aspects of creativity. My interest in very quiet spaces for example comes not from any academic study of minimalism or reductionist theory, but from my experiences as a choirboy as a youngster when I would listen to the building, accepting its sound as an essential addition to the music, just as the composers of early church music did, knowing that each building had its own tuning – often enhanced by sound jars placed in the structure itself. The question of whether there is a separation between my everyday chores, pleasures or feeling fatigue and my choosing when to sit and listen, press 'record' or the shutter of a camera... or indeed when to accept that I need to rest, is not straightforward. There are differences, uniqueness in everything for sure, but it seems to me that thinking of ones work as separate can serve to restrict it's range. That said, this also is not an 'approach' – a theoretical formula decided upon in order to achieve particular aims – but simply the way in which I find myself working, naturally so to speak.

...I'm fortunate that I can spend time listening and finding ways in which those experiences can move from simply being part of the enjoyment I take in life and having further artistic content. I'm a home bird for sure and yet I am often lucky enough to be travelling and in recent months I've taken three trips overseas; to listen, to invite, to share, to struggle at times and to enjoy the moments...

april to july 2014 – three positions:

dordolla, italy (val d'aupa), perhaps 40 or so residents.... i am in this small mountain village to create a performance piece and installation for the forthcoming *Ewige Baustelle* festival and to search for more telefericas, a constant recording activity in recent years.

(pause)
teleferica: tensioned wire mechanisms found in certain italian villages. their primary use was, and sometimes still is, to transport timber from the upper slopes down into the village for use as firewood or for construction. there are numerous examples still to be found but only a few have a special intense sound character – cavernous drones audible only at certain times via the use of specially constructed, very sensitive and wide frequency range contact microphones and generated by the tension of the wires, the strength of the breeze, the humidity and heat in the air – and a constant shower of sonic events caused by insects, leaves and birds landing on the wires – small incidents that create monumental waves of sound. I sit and listen to these structures for hours, full days – getting past that initial 10–20 mins of a basic interest and allowing them to slowly reveal their ever changing intricacies – allowing the locale to impose itself on me, the listener and not the other way round.

https://soundcloud.com/jezrileyfrench/teleferica-wires-topolo

image of a teleferica, italy

there is an ice-blue river in the valley across the dolomite limestone.

day one – no recordings, just listening, settling in.

day two – foot bridge, resonating in the breeze, surprisingly good tones from this one recorded with c-series contact mics,[2] several locations along the span also with geophones[3] on the cement block supports.

it's always been the way for me that one recording triggers the process and seems to open up the locale and its nearly always not a recording I have planned or predicted. i can sometimes spend days in a place without stumbling across this one sound – listening (not recording) and then listening (recording) again. in fact the difference between those two acts is, at least for myself, one of the constant challenges of field recording. microphones aren't ears, they don't filter sound as we do and so if one only ever records focused on their perspective alone it might indeed result in technically proficient (conventionally speaking) work, but that does not account for the emotive or creative response. i remain convinced that putting one's headphones to one side and getting back to the act of listening au naturale is elemental to finding one's own voice, and to really taking pleasure in the sounds one finds.

2 c-series contact microphones collect sound via vibration rather than 'in the air'. The ones I use I have designed and built myself and have a very wide frequency response.

3 geophones are designed to measure seismic activity, vibrations in the earth as a result of earthquakes, volcanoes or other natural activity. I've been adapting them to give a better audible output that also allows for the infrasound (sound below our range of hearing) of any vibration to be recordable.

day three – attempting to record the village teleferica, tight but no tones. tadpoles in water trough, water source loud.

first geological dissolve[4] of the trip – dolomite chalk and iron ore.

ants eating a strawberry – small species, very quiet, breeze sounding the wires of the adapted contact mics.

second teleferica, along the main road, some distance from village – again not singing, but some tones.

village teleferica again – stronger breeze so some tones.

ants nest – below village teleferica – recorded with c-series contact mics.

bats in the evening – 2 species at once.

day four – more teleferica recordings – drive up the valley to the snow, listen to cuckoos – record the spring / water trough and the chickens nearby – there is now a may pole in the village square, with ribbons attached to nearby trees and fences – record this with c-series contact mics, very subtle sound of ribbons and the tree fibres of the still freshly cut pole adapting to its new place.

4 dissolves: the act of placing minerals from a location into a mild acidic solution, resulting in various gases escaping. Hydrophones are used in order to listen to this intensely detailed sonic experience.

day five – today i will try some more geological dissolves, with different rocks from the river line.

a short drive to explore the region finds a road up in to the mountains and a further teleferica – a good one indeed, sound wise – stretching from one side of a wide valley to the other, tight and its path cleared of overhanging branches. slight rain, a change in air pressure alters the sound.

reviewing recordings each evening – the ones that 'work' contain more than mere sound, they capture, for me at least, something of my time here – not just the act of listening but also the walking, eating, sleeping – this is something elemental, but hard to describe – i only know that some recordings work and some don't and how i feel about them is not mere theory or technology, it is emotive, intuitive.

(pause)
'field recording' (whatever that is) has increasingly sharp divisions along its myriad paths. there are those who think of it as a being a science, a show of one's ability to predict locales and master technology. then there are those for whom there is an acceptance that all spaces do not perform for us, that we are not separate from them and that they never repeat (i count myself in this

image from topolo, italy, by pheobe riley law

strand). for some its an element for composition or heavy processing. this range, this powerful aspect of its inherent personal, democratic nature is one of the most interesting aspects and yet, inevitably, the more it becomes 'saleable' the more 'rules' are invented by those seeking to define it in certain ways. i would say, at this point, there are sound collectors / technicians and listeners who engage with that act as more than a mere technical check – one would think the two go hand in hand, yet often they don't. to operate a recorder and position microphones according to some technically pre-determined standard mostly, understandably, fails to give the resulting recording sensory worth beyond the documentary.

put simply, every single moment is unique and so when it comes to work that has more to it than technical polish (we don't accept that as being enough in any other art form so why do we when it comes to sound?) it is folly to believe there is a predictable, correct way to listen or record. for myself, my choice of shoes on a long walk with my recorder has more input than carrying a tape measure for microphone placement.

day six – back to the mountain teleferica – i have to say that usually returning to a place might offer up something equally special but can lack that initial spark of discovery,

image of krafla mud pools

but today this teleferica is even better – the air temperature, the wind and the eventual rain storm all contribute – a good example of how the emotive / creative side of field recording is not something purely technical and predictable. then 4 more dissolves of various minerals.

day seven – preparation for the performance tomorrow and then installation in the village.

day eight – performance: 12:30, 100+ austrian citizens arrive by coach in dordolla for the event.

the 'stage' is a meadow behind the house with the carrot painting. light breeze, half way through a leaf falls on the track pad of the laptop and stops the piece – the locale asks for a pause – the piece continues, fades slowly and for several minutes we all allow the locale to continue...

people in the audience mention that during and after the piece they found every other sound around them seemed clearer, more defined, that they began to hear sounds they had missed before...this lifts...

iceland, north east – now an annual trip – leading a workshop along with Chris Watson, taking recordists from around the world to different regions of this fascinating country.

image of krafla geothermal power plant

day one: an 'interesting' start to the trip with me going to the local hospital for tests ! i'm fortunate that i'm very busy with creative work and it's typical that at the same time, i've had a period of feeling exhausted due to some as yet unclear imbalance in my health, probably a vitamin deficiency. this of course does sometime affect how much recording i do but not how much listening and this workshop is no exception.

day two: meet up with the participants and Finnbogi Petursson (friend, sound artist and our icelandic language assistant and additional driver) & begin our 8 hour drive to the north east (an hour or so south of husavik).

days three to four: we're staying in an old school building some 26km along a gravel track from route 1 (the only main road around the island). the location is ideal – sure, the drive back & forth is somewhat bumpy & dusty, but here we have the surroundings to ourselves save for the occasional farmer's car. In these first days we explore along the track, to the lake beside a remote farm, and venture further afield to lake myvatn (the lake of flies). we drive beyond the lake to krafla, visiting the sulpher pools and steam vents – always interesting and challenging to record, especially when one decides to test ones hydrophones[5] in those 100˚C mud pools!

5 hydrophones are devices for recording in liquids, opening up a whole new sound world of tides, aquatic insects, fish, plants releasing gases during photosynthesis etc. etc. Again, I use my own design.

http://soundcloud.com/jezrileyfrench/krafla-mud-pools-with

https://soundcloud.com/jezrileyfrench/geothermal-vents-iceland

a real revelation of this drive is the valley where krafla geothermal power station sits – a multitude of small dips and ridges littered with massive steam vents, each with its metallic igloo control hut. every second the wind and the terrain serve to shift the amazingly detailed sounds across the entire landscape. wherever one stands or sits the sonic experience is powerful, immersive and, due to the equally intense infrasound, somewhat exhilarating. the ground itself vibrates in places and one is constantly reminded of the sheer force of the power just metres below the surface. i make an executive decision and announce that we will be coming back here later on in the week – luckily at least one van full is equally fascinated and the other will spend longer re-visiting lake myvatn, with its visible columns of thousands and thousands of flies swarming.

during the week the hire vans gradually become covered with dust from the gravel roads. eventually the vans begin to split – some folks wanting to head for locations with plenty of wildlife and the other (with me driving) deciding on a more 'lets see' approach, which is always my preferred way to head out, and perhaps look for antenna wires, mud pools, caves and the like. someone takes it upon themselves to write 'tweets' in the dust on one vans door and 'squeeks' on the other. the success of these workshops depends

recording the krafla steam vents with an adapted geophone

on the social element, and on the ability of all to respect the space and stillness of others.

> day five: to husavik to meet with Dr. Marianne Rasmussen, an expert on whales and other sea mammals, who will join us on a whale watching trip and later give the group a short presentation on her work studying the whale populations around iceland. i have to admit that whilst the whale watching trip was interesting i did feel somewhat uncomfortable with all the boats chasing after any slight sighting. there was one point where we got the skipper to stop & turn off the engine & this for me was the highlight. had it been up to me we'd have stayed there & taken our chances on what we saw and heard, calmly bobbing on the swell while others dashed around.

image from topolo, italy, by pheobe riley law

in the evening, after Marianne's talk, we visit a new gallery and residency space, fjúk arts centre, and meet with the nice folks there – cast whale bones from Sonia Levy, shell capes and drawings of cocoons by Marina Rees... then to the harbour for a long session listening to (and recording) the cod, krill and tide.

https://soundcloud.com/jezrileyfrench/cod-grunts-and-other-species

> days six – eight: we take our time exploring further and returning to krafla – between helping others i make several recordings of different locations in the valley + geophone recordings of the steam vents at the sulpher pools and recordings placing hydrophones directly in some of the 100 degree c + boiling mud pools.

reykjavik: myself, Chris and Finnbogi give a presentation at a gallery then go for food and drinks with friends – some folks from the workshop and locales. we talk with Bjork about her plans for a new piece and show her some of the mics we use that might be suitable for one aspect. we also talk about Young Marble Giants and the Kukl days. a good way to round off this year's trip to iceland.

topolo, italy – 20 or so permanent residents, swelled during the *Stazione Di Topolo* arts festival. my third visit and the second time with my daughter, artist / photographer Pheobe Riley Law, to explore the locale and present some new recordings and images. we choose this year to focus on the architecture of natural

objects: plants & geology. photography has always been a passion of mine and i certainly find various links between it and field recording – on the surface an apparently fixed though adaptable technology, accessible to all and yet it is the individual response that is essential. to watch Pheobe taking such pleasure in the format and developing her own 'eye' is indeed a joy. i'm also here to present the release of '*room tone*' – a series of pieces recorded with geophones capturing the subtle infrasound of quiet spaces – aspects of which were exhibited in the sound art gallery, *Continuo Associazione Culturale*, udine, curated by Antonio Della Marina, one of the people involved in the festival.

https://engravedglass.bandcamp.com/album/room-tone

some of the hill climbs are somewhat slower than usual this year!

for us topolo is something more than just another festival – it's a place full of friends and that's why we come here. so, what with all the distractions the process of beginning work is different. Pheobe works with multiple exposure – whilst i begin with geophone recordings in the locale around the village.

i collect different stones from the forest tracks.

(pause)
i venture back to the telefericas i recorded extensively here last year. i do this a few times over the week but only one recording

image from topolo, italy, by pheobe riley law

'works' – an evening recording of the church road teleferica which begins quietly but gradually alters as the light evening breeze turns more intense. a 28 minute recording of a rise and subside in this one evenings teleferica activity. on the walk back to the house where we're staying we see glow worms in the bushes.

as Pheobe's images begin to gain momentum, i concentrate on a series of geological dissolves (with hydrophones) – another sound world that i've been fascinated by for some time. i collect snail shells and dissolve those also – a more frantic sound, but equally fragile.

we install a video piece created from aspects of our work in the village last year – *5 short films from topolo*[6] and prepare prints, projections and sound for the friday evening performance in the old school house, including live dissolves of stones and shells and the sound of nuts and seeds.

as the old school house fills with familiar and new faces, me and Pheobe know that we are so very lucky to be able to take pleasure in the things we see and hear – and in sharing them with others.

after the performance and some questions for us both from the audience i give a short presentation about the trips to iceland and dordolla – trying, with the help of some translation by Cosimo Miorelli, to simply express how excited and enthralled i am by certain sounds. yes, i could talk for hours about the theory behind my motivations, or the way in which my 'work' sits in or outside of various cultural structures, but really that is only such a very small aspect of creativity, though it wears a big (too big) hat in 'the arts' – i sit behind the table full of cables, microphones, stones, seeds, nuts and shells, legs aching, my daughter beside me...

listening

becomes more than

6 *5 short films from topolo* is available from http://vimeo.com/101299400

Further links:

pheobe riley law http://www.pheoberileylaw.yolasite.com

engraved glass label https://engravedglass.bandcamp.com

microphones http://jezrileyfrench.co.uk/jrf-audio-supplies.php

all images by jrf unless otherwise indicated.

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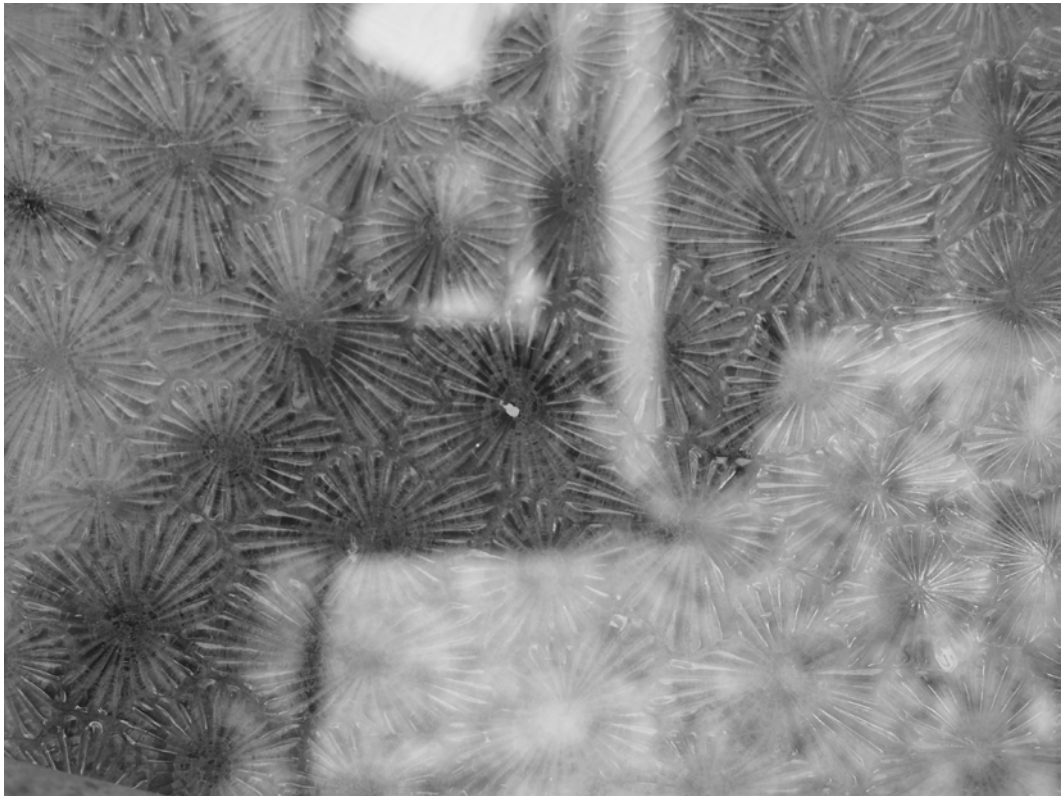


Image from topolo, italy, by pheobe riley law

KNITSONIK: connecting knitting with sound

by Felicity Ford

Felicity Ford, AKA Felix, is a knitting sound artist. Focused on domestic spaces and practices as sites for creative, sonic investigation, she has recently turned her attention to knitting. Her KNITSONIK projects combine knitting with sound. They include making a sound map to document the provenance of Shetland wool (*Listening to Shetland Wool*); creating speaker systems that combine DIY soldering with hand-knitted coverings (*Hûrd* – a KNITSONIK Production); building spindles which work with electronics to amplify the sound of hand spinning yarn (SONIK SPINDLE); crafting editions of the KNITSONIK podcast; spray-painting KNITSONIK on her car so sheep farmers can see her coming; knitting her own custom-made field-recording tunic; and raising 12.7K on Kickstarter to make a knitting book plus album centred on celebrating everyday life through stranded colourwork. The KNITSONIK *Stranded Colourwork Sourcebook* is published in November 2014. In this article, Felicity explains how the KNIT and the SONIK coincide within her practice.

http://codephd.wordpress.com

Introduction

I did not coin the phrase KNITSONIK until 2011, but I began synthesising knitting and sound into a single practice much earlier, in 2005. I was studying for my MA in Sonic Art & Composition at Oxford Brookes University, and – living in a new city and searching for friends and comrades – I joined a local knitting group. I don't like to compartmentalise ideas too much; I am much more interested in how things are connected. So, knitting at my knitting group and reflecting on the day's academic content, I began forming a set of questions. These questions still underpin KNITSONIK projects, and emerged through a rich and untidy melding of artistic and knitting practices, and through pollinating ideas across traditionally separate areas of cultural production.

To speak to this publication's focus on creative process, I will explain these questions, and then describe their generative role in different KNITSONIK creations.

Key KNITSONIK Questions:

- How are knitting and sound connected with ideas around texture, a sense of place, provenance and site-specificity?
- Why are speakers and cables called technology while knitting is labelled craft, and what does this distinction mean?

This image features a stranded colourwork design celebrating Felicity's much-loved and battered EDIROL R-09; photo by Fergus Ford

- Can knitting be reframed as an expressive medium – a site or context for artistic interrogation – and if so, what can be said with and about this medium?
- Can sonic practices like writing scores, recording sounds and editing radio be reframed as craft processes?

Sound in Shetland.

Connecting knitting and sound with a sense of place, provenance and site-specificity

The first question grew out of reading about site-specificity in visual art, discussing ideas from acoustic ecology in the MA programme and exploring the origins of different yarns with which we were knitting with my knitting comrades. Miwon Kwon's excellent book *One Place After Another: Site-Specific Art and Locational Identity*[1] impressed on me the key role that site and context play in the creation of meaning in art, while the very term 'soundscape' in R Murray Schafer's book, *Our Sonic Environment and The Soundscape*[2] implies a relationship between listening and landscape.

These artistic theories added extra dimensions to discussions about where hand knitting yarns come from, and I was especially thrilled by the idea that theoretical frameworks like site-specificity and soundscape could find tangible applications in the real-world (and practical) context of hand-knitting. Why not connect with a place through selecting a local material (wool) and creating an object from that material with an embedded artistic meaning (as in Kwon's book); why not listen to the specific places from where that material came as in the soundscape (as in Schafer's book)?

Exploring the provenance of woollen yarns inevitably leads to discourses about land use, fashion, history and regionality – especially in Britain, where different sheep breeds and textiles retain strong economic and cultural ties with specific landscapes (Fair Isle knitting from Fair Isle in Shetland; Harris Tweed from the Outer Hebrides, etc.). I am interested in using wool and sound together to elucidate these connections between geography, materials, imagination and meaning, and these are themes underpin several KNITSONIK projects including Hûrd; my KNITSONIK residency in Estonia, and *Listening to Shetland Wool*.

1 see http://mitpress.mit.edu/books/one-place-after-another

2 see http://books.google.co.uk/books/about/The_Soundscape.html?id=_N56QgAACAAJ

Image sequence depicting pure wool coverings being applied to speakers.

Technology vs. Craft

This second question arose because knitting can be intensely technical, and yet this is not widely celebrated as one of its key features. Instead, bland reports like the one recently published in the Guardian sporadically appear, erroneously citing a knitting 'revival' and focusing on its 'soothing' or 'relaxing' qualities.[3] Shetland-based writer, knitter and podcaster Louise Scollay has written an excellent riposte to this annoying trend[4], and I share her sentiment that perhaps only knitters can 'truly know the revelations and intricacies of the knitting world we occupy'.

Though some knitting can be relaxing, focusing solely on this aspect diminishes all the skill, variety, labour and technique present elsewhere within the craft. Nobody would say to a field-recordist that recording sounds must be very relaxing and yet people say this to knitters all the time. Why is pressing a record button assumed to be so much more important than knitting a sock? Is it because the iconography of field recording is so often of the lone male on an important quest in the landscape, while the iconography of knitting typically features underpaid women in inauspicious, domestic settings? If that seems a bold claim, consider the nearly all-male cast and imagery of the recent Pat Collins film, *Silence*[5] vs. the offensive *Shreddies* advertising campaign which I have criticised elsewhere.[6]

When I first attended *The Oxford Bluestockings* – a local knitting group – there was a heated discussion about the best way to turn a heel; I saw hand-knitted lace for the first time; and everyone seemed to be working for the Oxford English Dictionary and to have a knitting blog. I had no opinion on optimal sock construction; found lace knitting a terrifying prospect; and hadn't even heard of blogging. I experienced the competitive atmosphere as an immensely positive thing, and felt there was a lot to learn if I was going to be able to keep up.

When I was first learning to record sounds, I was frustrated by the impenetrable nature of the technology. Which microphone should I use and why? What is the difference between mono and stereo, etc. When one of my brothers showed me how to solder wires

3 see http://www.theguardian.com/theobserver/she-said/2014/apr/09/knitting-and-needlework-relaxing-hobbies-or-seditious-activities

4 see http://www.knitbritish.net/andknitting

5 see http://thedomesticsoundscape.com/wordpress/?p=5353

6 see http://vimeo.com/80363707 and http://thedomesticsoundscape.com/wordpress/?p=4491

onto speakers I realised that my biggest barrier to understanding electronic equipment was simply my own preconception of myself as an un-technical person. I have since abandoned this destructive perception of myself and concluded that it was formed by the same unhelpful, sexist baggage recycled in *Shreddies* advertisements, portrayals of male field-recordists as heroes, and ill-researched newspaper articles that bang on about how 'relaxing' knitting is rather than focusing on the actual work or accomplishments of knitters.

The KNITSONIK logo has been designed to reflect these ideas; it is a political protest against representations of knitting which diminish its status as a technical pursuit.

Knitting as a rich social context

As a feminist I celebrate and honour the distinctive contexts from which women have spoken in the past, while seeking new freedoms for women in the present. Within this paradigm, knitting is rich and resonant. Historically, knitting speaks of cultural identity; familial transmissions and economics; the significance and value of clothes; visible connections between landscapes, agriculture, and creativity; and – often – of the amazing skill and resourcefulness of women (though of course there have historically been some very brilliant male knitters). However in contemporary times, hand-knitting is developing additional dimensions and associations: *Ravelry*[7] – a specialist online website for knitters and crocheters

7 available from http://www.ravelry.com

Knitting pattern for pillow speaker covering and sound map, produced for Shetland Wool Week 2013 to enable knitters to listen to Shetland Wool through Shetland Wool

Recording sounds off the coast of St. Ninian's Isle, Shetland, photo by Lisa Anne Auerbach, amazing sweater knitted by Alice Simpson of Whalsay

– has over 4 million members now, and the global reach of the internet is creating new entrepreneurial possibilities for independent designers and textile producers all over the world (the majority of whom are women).

Additionally, several activist movements present hand-knitting as an alternative to the unsustainable and globally unequal production mechanisms behind the 'fast fashions' of the High Street.

What excited me when I joined *The Oxford Bluestockings* was a new perception of hand knitting as an activity which could add deeper meaning to the textiles in my everyday life, and through which I could enjoy greater civic and political participation in the world: you can say a lot with knitting.

The Language of Instruction
In that rich period of joining a knitting group and attending my MA in Sonic Art & Composition classes, I became intrigued by the instructional languages

of music scores and knitting patterns. These instruction scores seemed to play very different roles in the production of culture. Music scores (and I use the loosest definition of that term, to include instruction scores, text scores etc.) produce artistic performances while knitting patterns and cooking recipes produce functional items like food and clothing. Certain scores suggested an enticing overlap or conflation of the two. For instance, in *Proposition #1* by Alison Knowles, the outcome of the instructional document is both an art performance and a useful salad, which may be eaten.

> *Proposition #1*
> Make a salad
> 1962
> Alison Knowles

Reframing the instruction as a score celebrates the action of making a salad as a cultural performance; it puts the private, domestic, undervalued act of cooking onto the public platforms of art and music. Could knitting be reframed in a similar way, and what would be the outcome?

> *Proposition #1 (After Alison Knowles)*
> Knit a garment
> 2014
> Felicity Ford

On the MA programme we read *Some Sound Observations* by Pauline Oliveros[8] and *Purposeful Listening in Complex States of Time* by David Dunn.[9] Through these critical listening experiences I discovered that working with sounds is most interesting to me as a route into exploring topics beyond sound: I want to know how working with sounds can change how we feel about our everyday lives and the environments we inhabit.

Oliveros puts the whole idea of being a human being into *Some Sound Observations*. She oscillates between her thoughts and physical sensations, and is present to the sounds of the world around her in a way which appears tactile, sensual and curious. The idea of her walking sixteen blocks with Terry Riley specifically to listen to a building ventilator offers an exciting promise of discovering the city in a new way and of finding new ways to behave in urban space.

David Dunn's score, *Purposeful Listening in Complex States of Time*, caused me to train my listening, too; however I struggled to understand its real world applicability. Where Oliveros's writings suggest discovering the world afresh through listening, Dunn's score imposes an abstract framework onto the activity of listening – an exercise to be performed largely for its own sake. I thought a lot about that Dunn score and tried to prise my objection to it apart: I concluded

8 see http://www.fraukebehrendt.com/wp/wp-content/uploads/2011/03/Oliveros05Some-Sound-Observations.pdf
9 see http://www.warrenburt.com/storage/ways_of_listening/Plicsot.pdf

that the score privileges the activity of listening above any meaning in sounds to which listening draws attention. For me, practices of listening for the sake of listening seem of limited social use.

Pauline Oliveros's writings can transform our perceptions of the world around us and redefine our relationship with it in relationship to the body and to memory; to a limited degree the same might be said for Dunn's score, however his framework seems unnecessarily complex and inaccessible.

Looking at a knitting pattern which I found difficult to follow – *The River Stole* by Sharon Miller[10], my first lace project – I concluded that its language was no less specialist than the instruction language of Dunn's score. However where the main product of following Dunn's score is a new perspective on listening, Miller's knitting pattern offers a blueprint for producing a useful garment. Miller's pattern will never garner the academic attention reserved for Dunn's score, yet many knitters will enjoy following her score and wearing the outcome. To me it is worth questioning the elevated status bestowed on the musical score vs. the knitting pattern and I am inspired by the idea that these two instructional documents might one day enjoy the same sort of radical equivalence envisaged in Knowles's brilliant *Proposition #1*.

Working with different yarns and reading Oliveros, I was struck by the correspondences between the sensual possibilities for inhabiting a tactile world of sounds, and being a person who knits things. The potential to embed meaning in everyday life through reflective knitting and listening really speaks to me – not least because it suggests a practice with real-world, socially useful applications.

Exploring these questions has produced a growing body of work which continues to expand, and I will now unpack in more detail how each research question has informed the development of various KNITSONIK Projects.

The knitted speakers

Back on the MA programme, I wanted to present field recordings from around my home to an audience and decided to disseminate

Acrylic knitted speakers

10 see http://www.ravelry.com/patterns/library/river—-lacy-wrap

domestic field recordings through little speakers covered in hand-knitting. It wasn't a huge success; the relationship between the sounds and the speakers wasn't as obvious as I'd hoped it would be and the knitting was poor as I hadn't been doing it for very long.

Mistakes are wonderful learning opportunities; that piece threw up many questions around relationships between contexts, materials and sounds; making sound work accessible; and how or where to present knitting. The tangle of speakers clad in brightly-coloured yarns was faintly nightmarish and did not remind anyone of home, while grainy minidisc recordings of me making tea and boiling rice were experienced as being abrasive and unwelcoming, rather than evoking the elusive, precious textures of *home*.

KNITSONIK Prick Your Finger

I needed to perfect my field recording techniques, and to find better ways of contextualising sounds for listeners or engaging them with my sonic content to prevent it from being experienced as a mass of unexplained and unwelcoming noises. I also felt the garish colours had unwanted associations: I had used the wrong materials. These realisations set up an exciting research context for my PhD research – *the domestic soundscape and presenting everyday sounds to audiences*[11] – in which I continued to explore areas around collecting, gathering and sharing recorded sounds (particularly in relation to domestic practices and materials).

In 2011 – after completing my doctorate – I undertook a residency at *Prick Your Finger,* a haberdashery/gallery in London run by artist, Rachael Matthews. I interviewed knitters who entered the shop about the sound world around their knitting, and recorded sounds to accompany their commentary. I created a range of playful jingles and features such as the *knitting hit parade top twenty sounds show*[12] designed to engage knitters in discussions about what they could hear while knitting.

I mixed the results into KNITSONIK 01[13] and played this back to the shop's customers through the knitted speakers at an evening event. Unlike in the former, sterile gallery space, in this knitterly context,

11 see https://radar.brookes.ac.uk/radar/items/7e50609e-9838-91b2-a2fc-86103493075a/1/

12 see https://audioboo.fm/boos/356037-knitsonik-knitting-hit-parade-top-twenty-sounds-show

13 see https://archive.org/details/Knitsonik01

the speakers and their sonic content made sense. Also, unlike in my earlier project – where I was simply presenting recordings from my own home in a white gallery space – the relationship between the audience and the sounds played through the speakers was far more dynamic and reciprocal: through participating in interviews and conversing with me, knitters had played a key role in shaping the piece and could recognise themselves within it; in contexts like *Prick Your Finger* or *Shetland Wool Week*[14] I feel I can use sounds to bring something extra to a collective celebration of knitting.

S H E E P for framework:afield

As my interest in knitting has grown, so has my knowledge of yarn production. While writing up my MA in Sonic Art & Composition, I stayed with Julia Desch – a knowledgeable shepherd with an amazing flock of coloured Wensleydale sheep.[15] Julia described growing and producing yarn here in the UK, and I was so interested that I asked if I might record her for a radio show telling the story – the yarn – of how wool starts off on a farm and ends up as garments we can wear. I made this show and it was aired on Patrick McGinley's long-running *framework:afield* series, in 2009.[16] Meeting Julia was an important for me; she explained the meanings of different baas, (this sheep has a sore foot; this one is calling for its ram-lamb; this one is saying hello because I have a bucket of food etc.) and exposed me to challenges faced by wool producers in the

Wensleydale sheep from Julia Desch's flock

UK today. This sparked my interest in the provenance of wool, which in turn inspired me to co-create WOVEMBER[17] with Kate Davies and Tom van Deijnen (a website dedicated to celebrating wool and campaigning against the mislabelling of non-woollen textiles as wool). Several KNITSONIK projects now specifically explore the provenance of wool in distinctive landscapes.

14 see http://www.shetlandwoolweek.com/may-2013-newsletter
15 see http://www.woolcraftwithwensleydale.com
16 available from http://www.frameworkradio.net/2009/03/231-2009-03-22
17 see http://www.wovember.com

Hûrd, a KNITSONIK Production

I love wool. Good wool is soft, springy and strong: it smells of sheep and landscapes shaped by their occupancy. Lots of wool also looks like land; for instance the complex greys and browns of the Herdwick fleece bear an uncanny resemblance to the fells in Cumbria favoured by that breed. Many commercially prepared hand-knitting yarns have for obvious reasons had the dirtiest traces of land and sheep removed from them but I love these sheepy elements, and one way of returning them to wool that has been washed and mill spun is to do so with sound.

The rusty squeak of an old iron gate; the sturdy thunder of Herdwicks being rounded up by a sheepdog; the low moan of the wind across a treeless fell – these are all sounds which can be combined with wool as a reminder of its provenance, and this was the focus for *Hûrd*, a KNITSONIK Production. This was presented at Rheged gallery at the *Wonder of Wool*[18] exhibition. For this piece, I stripped the acrylic yarn from the miniature speaker system and recovered it in British wool – some of which I spun myself, from raw fleece. I then drove all over Cumbria recording sheep, shepherds and weather, and then mixed and played my recordings through the newly woollen speakers.

Hûrd is the pronunciation spelling for herd as in 'herd of sheep' and heard as in 'I heard a sound', and Bridgette Kelly from the Wool Marketing Board said that experience the piece 'is like listening to wool'. The voices of shepherds and the sounds of the weather and sheep recorded on hill farms can help to reintroduce the sense of place that has been stripped from so many commercially produced textiles.

18 see http://www.rheged.com/wow-wonder-wool-and-art-knit-and-stitch

Hûrd installation

Herdwick ram from Pam Hall's flock in Cumbria

KNITSONIK in Estonia

After working with the distinctive sounds of hill farms in Cumbria I travelled to Estonia to undertake a residency there, focused on the sounds[19] and wool[20] of the Estonian wool industry. This residency took place at MoKS Center for Arts & Social Practice and was funded by the British Council, Estonia. I went to investigate whether there are demonstrable differences between the sounds of producing woollen textiles in Estonia and Britain, continuing that first KNITSONIK question regarding wool, sounds and site-specificity.

My niche interest brought me into contact with a number of shepherds seeking to have the native Estonian sheep recognised as a discrete breed, and unpacking the history of sheep breeds in Estonia revealed a disturbing history of annexation as subsequent invaders eradicated native stocks and replaced them with their own. This history is also present in the sounds of the technologies used to process wool, such as the spinning wheels introduced by German landlords before serfdom was abolished in 1816. These German, double-drive wheels were used by Estonian women to churn out miles of yarn given as villainage to landlords, and their distinctive sound has associations with both the ingenuity and brilliance of these women, and the mechanisms of oppression. To give a different example: the presence of wolves in the Estonian landscape – which have long since left the UK – means that

19 available from http://www.sound-diaries.co.uk/category/recent-projects/hurd/
20 available from http://thedomesticsoundscape.com/wordpress/?p=4001

Estonian spinning wheel

shepherds are obliged to protect their flocks with huge Maremma dogs, whose distinctive bark is far different from the familiar sound of border collies which are more commonly used in the UK to round up the flock.

KNITSONIK in Shetland: Listening to Shetland Wool

Following my work with wool for WOVEMBER and in Cumbria and Estonia, in 2013 I was invited to act as guest patron for Shetland Wool Week and created a lecture presentation entitled *Listening to Shetland Wool*. I applied similar methodologies to those used in Cumbria and Estonia to my readings of Shetland, and travelled

to the isles in August 2013 to listen in the Shetland landscape. To research for this trip, I spent hours combing the Tobar an Dualchais[21] archives, listening to oral histories in which Shetlanders describe the significance of sheep and wool – or oo as it is known in Shetland – in their lives. These accounts revealed a cultural context in which knitting and fishing were historically bound together for crofters up until the middle of the last century. This dual income is reflected in the sounds of the landscape. You cannot record a sheep and a seabird separately from one another, and are never more than a mile from the coastline.

Within the music of Shetland, references to woollen textiles production abound; Shetlander Elizabeth Johnston[22], professional hand spinner and knitter, described for me how the complex rhythms of a particular reel – *Doon da Rooth*[23] – is based on the timings of a Shetland spinning wheel, which would still have been heard as part of daily life up until 1902 when the first mill spun yarn was produced in the isles. In 2013, Wool Week opened with a performance of a tune based on the rhythm of the composers' mother's knitting needles. *Listening to Shetland Wool* used sound to evidence and amplify these aspects of landscape and culture surrounding knitting and wool in Shetland.

As part of this project, I also produced a soundmap containing recorded sounds with texts describing their relationship to Shetland wool.[24] Promote Shetland and the Shetland Museum and Archives produced an amazing kit for sale at *Wool Week* which included my own knitting pattern,[25] Shetland wool and yarn, and a pillow speaker. This kit enabled knitters to knit a Shetland wool speaker through which to play sounds relating to Shetland wool.

The political roots of KNITSONIK

Underscoring all the works described so far is an implicit feminist politics and a stubborn wish to work in knitterly settings. This stems from two influential ideas encountered during my undergraduate studies: the notion that 'The Personal Is Political' – a phrase popularised by radical feminists in the 1960s and 70s[26] – and Marshall McLuhan's declaration that 'The Medium Is The Message' first published in 1964 in *Understanding Media: The Extensions of Man*. These ideas seemed interrelated, given that the feminist practitioners whose work I find most engaging is all about using the public platform of art to speak about private things in political terms; and that the materials for this protest art are nearly always created from the actual stuff of women's lives: laundry, food, clothes, magazines, lipstick, crockery etc.

Along with Alison Knowles, whom I have already mentioned, two of my favourite artists are Bobby Baker and Mierle Laderman-Ukeles,

21 see http://www.tobarandualchais.co.uk
22 see http://www.shetlandhandspun.com
23 see http://www.tobarandualchais.co.uk/en/fullrecord/89967/1
24 see http://aporee.org/maps/work/projects.php?project=shetlandwool
25 see http://www.ravelry.com/patterns/library/knitsonik-knitted-speaker-concept-realised-in-jamieson--smith-aran-yarn-for-shetland-wool-week-2013
26 http://en.wikipedia.org/wiki/The_personal_is_political

who both appropriated intimate, domestic materials and practices to produce meaning in their work.

In the 1970s Baker decided cake would be her sculptural medium of choice. She developed an extraordinarily rich practice from this important idea. Performing in village halls and her own kitchen, and working with a huge range of foodstuffs and domestic objects, Baker's work explores motherhood, womanhood, the divisive class system of Britain and mental health issues. Her work speaks powerfully through the media and sites which she chooses, because they are substantively connected to the topics they explore.

Shetland wool speaker

Laderman-Ukeles brought housework into the foreground in *Manifesto For Maintenance Art 1969! Proposal for an Exhibition 'CARE'* (1969). In this work, Laderman-Ukeles performed her housework and familial care duties in the public space of an art gallery, interrogating the complicated divisions between her work as a wife and mother, and her work as an artist. I love the complex relationships between site, media and message in the work of these early feminist practitioners, and the rebellious revisions to the entrenched sexism of the 1970s art world proposed by their dangerous cakes and manifestos.

Deciding cake is an art medium and housework is an art performance destroys the ideal of domestic space as a private retreat for working men to retire into for comfort and succour outside of their busy, working lives. In this new feminist paradigm, the labour which produces comfort and succour in the home is highlighted, interrogated, and reclaimed as an expressive, physical art language: the identity of woman as caregiver and nurturer is supplanted by the identity of woman as artist and creator-of-meanings, and the tools and practices of the uncomplaining housewife become dynamic materials for the production of meaning.

Such approaches offer rich critique on important themes like women's un-canonised contributions to culture; unequal divisions of labour re: housework; unequal pay; the gendering of materials and practices; and the secondary status given to the practices and

materials of women's creativity in the male-dominated art world of the 1960s.

Like Baker's cakes and Laderman-Ukeles's manifesto, my work retains strong ties to its roots in personal, lived experience, and the implicit politics of everyday life. I'm interested in how sounds are part of life and therefore connected with wider social issues, memory, our sense of place, and subjectivity: I connect sounds with community interests, history, specific geographies and the wonderful stories of people.

If knitting is examined from this perspective, it is an ideal medium with which to speak about women's un-canonised, historic contribution to culture; the discrepancies between what men and women are paid for their labour; forms of creativity embedded in everyday life; the politics of clothing oneself in 2014, and the history of women. Though much has changed since the 1970s and many social freedoms have been won for women since Baker and Laderman-Ukeles baked art cake and did art housework, I still feel that true equality has not yet been achieved. Women still do not earn as much as men, and continue to do the greater share of housework and childcare in many homes.

Though KNITSONIK is not overtly political in the same senses as that early feminist work was, it is implicitly a continuation of that protest and manifesto. I have deliberately chosen to use sound to highlight and celebrate the medium of hand-knitting in my work

Biscuit score – an early experiment in combining the idea of a recipe with a score, and using domestic materials to speak about sounds – 2006

because – like so many things that have historically been important to women – I think it still does not get the respect that it deserves.

I have no interest in exploring sounds from a purely phenomenological or abstract perspective; for me, working with sound recordings is all about evidencing, amplifying, celebrating and foregrounding aspects of life which may otherwise go unrecognised; sound recordings can convey time and texture in ways that few other media can, and in many of my KNITSONIK projects I draw specifically on this. Having access to broadcasting technology allows me to speak about the

extraordinarily rich and exciting context of knitting and textiles in my own words, and often in reference to the resonant, humble, wonderful material that is wool.

Spinning yarns: KNITSONIK stories

Towards the start of my PhD I had a special academic blog which was geared towards writing up my research findings, and a separate knitting blog where I wrote about what I was knitting, listening to, eating, baking and thinking about. I fear I had internalised some pre-conceived idea of what a creative investigation of domestic sounds should look like, and at first I did not have the self confidence to assert that – like Bobby Baker's cake sculpture, or Alison Knowles's salad score – my maverick domestic recorder/baker/knitter activities could be framed as legitimate cultural interventions in soundart. My confidence slowly grew as I recognised the strands connecting my work with that of these former practitioners, and I eventually conflated the two separate blogs into a single entity – thedomesticsoundscape.com/wordpress – recognising that it would undermine my mission to do anything else.

The KNITSONIK podcast: yarns and textures

What connects knitting with sound are the shared concepts of words yarn, texture, and transmission. The majority of my sonic output has a storytelling or narrative dimension to it because words can really contextualise and humanise environmental sounds and put them into context for a listener. In that failed first knitted speakers piece, the lack of language and the confusing montage of

Felicity Ford knitting in MoKS Center for Art & Social Practice, Estonia, photo by Siiri Kolka

sounds was unwelcoming to listeners and the organisation proved impenetrable. It is far scarier to put my silly, failing, imperfect voice into things than to hide behind a grandiose wall of field recordings, but I think the payoff is enormous, because my presence in the work offers a route into the sounds; my approach since those knitted speakers has been to use my naturally enthusiastic voice to bring people into my world, and to use sounds to lead and inform conversations which I think are important, concerning topics which affect us all: food, clothing, shelter, family etc.

When working on a narrative section for my work, I often draw together many disparate ideas, like the old idiom 'to spin a yarn'. This is exactly like the process of adding twist to loose fibres to draw them together to produce a continuous yarn to knit with; in *Knitting with Bells on*[27] – a podcast episode which I produced about a year ago, I keenly remember the sense of drawing together ideas to do with bells; sheep bells, the bells I have embedded in a special spindle I have built; the little angel chimes I purchased for their sonic properties etc. these sounds provided an amazing sonic continuity on which I was able to hang a rich narrative about materials, sounds, wool, shepherding... with the bells providing a leitmotif connecting everything else.

Texture is also common both to the craft of audio production and the art of knitting and the senses of touch and the sense of hearing seem extremely close; for instance if someone whispers in my ear it is possible to feel the soundwaves physically vibrating areas inside my ear; and certain sounds can produce shivers and goosebumps and the uncanny sensations of physically being somewhere. When I listen to recordings I have made I often remember the weather, how I was standing and the dull ache in my body from standing still. I do not have the same physical sense of recall when looking at photographs, perhaps because they do not contain equivalent stretches of time. Like field recordings, hand knitted objects are repositories of time and a sweater such as my

'Knitting with bells on' – the podcast set-up featuring mixing desk, microphones, headphones, home-made spindle, angel chimes and field recordings

custom-built field recording LISTENING TUNIK[28] can contain hours of knitterly presence and work.

Sound recording practices can be used to document and amplify the sonic texture of the landscapes where wool grows and imaginative connections can be formed between sounds such as the wind blowing sideways across the stone walls of the Cumbrian

27 see http://www.knitsonik.com/2013/12/07/knitsonik-02-knitting-with-bells-on

28 see http://thedomesticsoundscape.com/wordpress/?p=5023

fells and the rough wool from the Herdwick sheep that graze there: the scratchy wool of the Herdwick sheep feels like the wind sounds.

Transmission

Finally the term transmission is interesting. I am always thinking about the listener at the end who is receiving my sounds, and about the relationship between transmitting and receiving sounds. I've talked already about the knitted speakers which connect

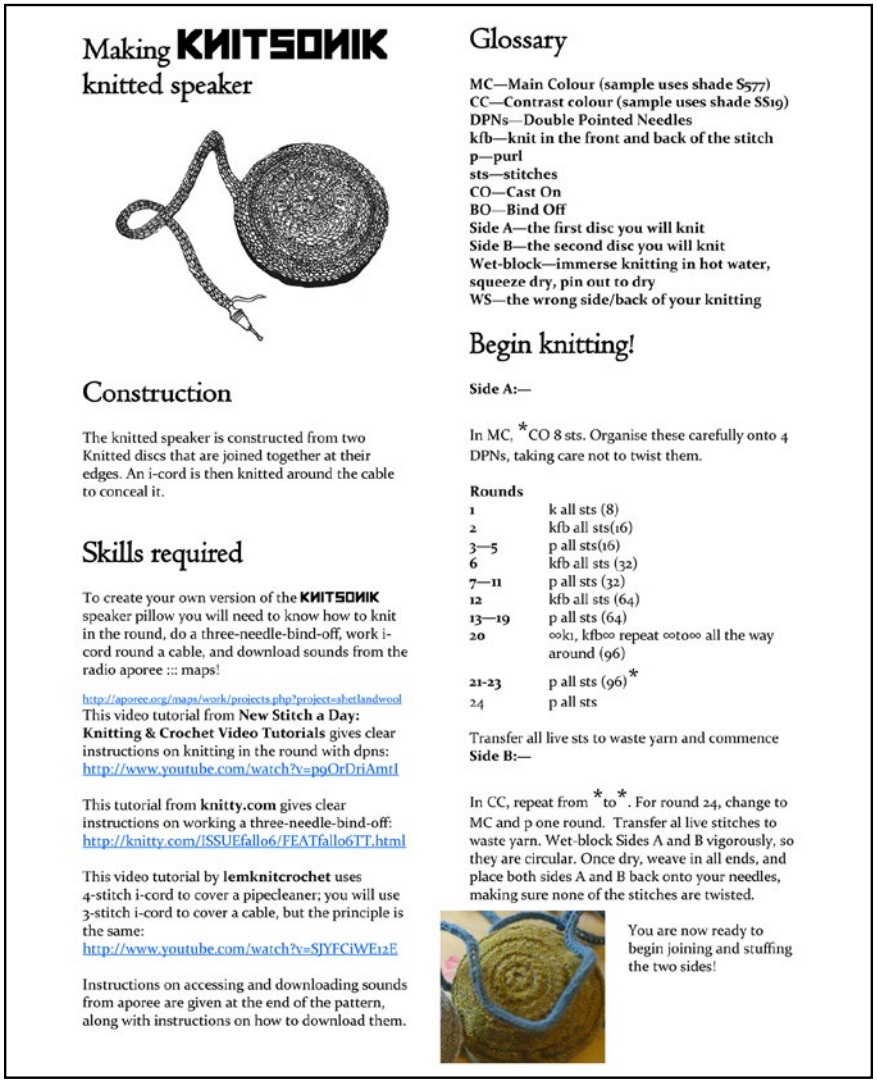
Felicity Ford in her KNITSONIK listening tunik

touch and sound, and which engage the listener physically with the source of sounds, but it is also worth reflecting on the idea of knitting a jumper for someone as a form of transmission – a message from one person to another – and on the other forms of transmission which I've worked with since that inaugural knitted speakers idea: podcasts; workshops; sound-recording workshops; and specific uses of sound such as the *Baa-tone*[29] which I composed from sheeps' baas and encouraged knitters to use as a ringtone as a reminder of the origins of wool. Obviously a sound is involved in that transmission, but the whole story of that sound and its social applications and role within the Wovember campaign are also part of the transmission.

I have started writing knitting patterns for knitted speakers and making my source sounds available for download; at some point I realised that the exciting place to meet with fellow knitters is in the actual knitting, rather than in a gallery where knitters can only see and hear what I have made. Publishing patterns enables knitters to engage with my ideas through their own knitting practices and is a form of transmission native to the context. Is there any reason why written directions cannot be considered an analogue broadcast of concepts, transmitted on the frequencies particular to knitters?

My KNITSONIK podcast series has become a space for exploring the idea of transmission; the podcast explores many of the ideas I've discussed here – the distinctive sounds in landscapes where

29 see https://soundcloud.com/felixbadanimal/baa-tone



Making KNITSONIK knitted speaker

Construction

The knitted speaker is constructed from two Knitted discs that are joined together at their edges. An i-cord is then knitted around the cable to conceal it.

Skills required

To create your own version of the KNITSONIK speaker pillow you will need to know how to knit in the round, do a three-needle-bind-off, work i-cord round a cable, and download sounds from the radio aporee ::: maps!

http://aporee.org/maps/work/projects.php?project=shetlandwool

This video tutorial from **New Stitch a Day: Knitting & Crochet Video Tutorials** gives clear instructions on knitting in the round with dpns:
http://www.youtube.com/watch?v=p9OrDriAmtI

This tutorial from **knitty.com** gives clear instructions on working a three-needle-bind-off:
http://knitty.com/ISSUEfall06/FEATfall06TT.html

This video tutorial by **lemknitcrochet** uses 4-stitch i-cord to cover a pipecleaner; you will use 3-stitch i-cord to cover a cable, but the principle is the same:
http://www.youtube.com/watch?v=SJYFCiWE12E

Instructions on accessing and downloading sounds from aporee are given at the end of the pattern, along with instructions on how to download them.

Glossary

MC—Main Colour (sample uses shade S577)
CC—Contrast colour (sample uses shade SS19)
DPNs—Double Pointed Needles
kfb—knit in the front and back of the stitch
p—purl
sts—stitches
CO—Cast On
BO—Bind Off
Side A—the first disc you will knit
Side B—the second disc you will knit
Wet-block—immerse knitting in hot water, squeeze dry, pin out to dry
WS—the wrong side/back of your knitting

Begin knitting!

Side A:—

In MC, *CO 8 sts. Organise these carefully onto 4 DPNs, taking care not to twist them.

Rounds

1	k all sts (8)
2	kfb all sts(16)
3—5	p all sts(16)
6	kfb all sts (32)
7—11	p all sts (32)
12	kfb all sts (64)
13—19	p all sts (64)
20	∞k1, kfb∞ repeat ∞to∞ all the way around (96)
21-23	p all sts (96)*
24	p all sts

Transfer all live sts to waste yarn and commence
Side B:—

In CC, repeat from *to*. For round 24, change to MC and p one round. Transfer al live stitches to waste yarn. Wet-block Sides A and B vigorously, so they are circular. Once dry, weave in all ends, and place both sides A and B back onto your needles, making sure none of the stitches are twisted.

You are now ready to begin joining and stuffing the two sides!

One of the pages from the knitted speakers pattern: KNITSONIK knitted speaker concept, realised in Jamieson & Smith Aran Yarn for Shetland Wool Week, 2013

wool is grown; the gendering of technology; and the celebration of knitting itself and whatever it is that I am making. Rozsika Parker and Griselda Pollock (whom I've already mentioned) argue that work made in the home, by women, out of domestic materials, usually in familial contexts, comprises 'a distinctive form of art with different kinds of relations between maker and object and between object and viewer': in the context of the KNITSONIK podcast you could add 'transmission and listener', because the knitting podcast is a specifically domestic audio format through which knitters transmit and share our knowledge from home to home.

Conclusions

I hope this article has provided a coherent introduction to some of the ideas behind KNITSONIK.

I am currently working on a book entitled *KNITSONIK Stranded Colourwork Sourcebook* funded through Kickstarter. This book aims to celebrate links between knitting, listening, a sense of place, and the superlative qualities of wool. The associated audio release – KNITSONIK Audible Textures Resource – will convey sounds from Shetland and Reading (where the wool was respectively grown and knitted) while the book shows how everyday inspirations might be turned into stranded colourwork knitting.

Like the work I created in the early days of my MA, the project reflects a rich, untidy melding of ideas from knitting and soundart. The joint book and CD release point to the possibility of combining

knitting and listening activities, and the knitting contained in the book is described as a knitterly equivalent to field recording.

The most exciting ideas in creative sound process are the ones that remain interesting for years – the long ideas – and I feel this current work shares much of the impetus present in those early knitted speakers: a wish to point to human commonalities and express the elusive quality of feeling or being at home; a tactile and sensuous engagement with everyday life; and a desire to merge knitting and sound into a unified, expressive language. However, unlike those early speakers, the book has many subsequent KNITSONIK research projects from which to draw its inspiration. Exploring a sense of place in the textiles of Cumbria, Estonia and Shetland inspired me to begin founding a textile tradition particular to where I live, in Reading, and the book reflects this is in its chapters on the wonderful histories of this town. In the sonic release that will accompany the book, I will revisit the places which inspired the knitting and finding the best way to contextualise the sounds that are present. As with hand spinning, I am looking forward to drawing it all together: to working with the threads through which all of this is connected.

References:

Kwon, Miwon. (2002). *One Place after Another: Site-Specific Art and Locational Identity*. London: MIT Press

McLuhan, Marshall (1944). *Understanding Media: The Extensions of Man*. Cambridge, Mass: MIT Press. First publsihed in1964

Oliveros, Pauline. (1968). Some Sound Observations, In: Cox, C. Warner, D. (eds) (2005) *Audio Culture: Readings in Modern Music*. London: Continuum, pp.102 – 6.

Schafer, R. M. (1994). *Our Sonic Environment and The Soundscape, the Tuning of the World*. Vermont: Destiny Books

Further references are given inside the text as footnotes, with direct links to texts available online.

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'Wonders of electricity swatch' from the KNITSONIK Stranded Colourwork Sourcebook

Pulse Project

a sonic investigation across body, culture and technology

by Michelle Lewis-King

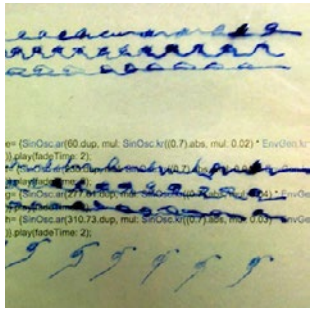
Michelle Lewis-King is an artist-acupuncturist, lecturer and PhD research fellow for the Cultures of the Digital Economy Research Institute, Anglia Ruskin University and her research investigates the cultural interfaces between art, medicine and technology. Michelle's artistic research explores the practice of Chinese medicine as a critical and performative intervention within the contexts of (western) biomedical clinical praxis. Her research has published in the Journal of Sonic Studies and ELSE Journal for Artistic Research, and her work has also been recently exhibited at the V&A Museum, Ex-Teresa Museum (Mexico) and Spike Island.

http://codephd.wordpress.com

Figure 1: Pulse Reading Cambridge 1 (2014) © Michelle Lewis-King Photo: Léna Lewis-King

A set of Pulse Project compositions can be found on sound cloud:

https://soundcloud.com/cosmosonicsoma/sets



'Pulse Landscapes', a collection of 14 encounters, were relased on Clang and can be found at:

http://clang.cl/pulse-landscapes-2

1. Introduction

One of the fundamental characteristics of my practice as an artist and acupuncturist is an enduring interest in the human body and its processes, e.g., a fascination with the ecosystems and rhythms of the body, in sensorial experience, in thinking of the body as a formal landscape, etc. This fascination with the body and embodied process is complemented by another key concern, which is characterised by my practical and theoretical meditation on the aesthetic, anthropological, social and ethical aspects that arise from the relationship between the self and others. In my work I explore these reflections on embodied processes and the relationality between the self with others from a transdisciplinary perspective, one which draws on my experience of training and working in both art and science contexts.[1] My transdisciplinary practice manifests as a creative engagement with the ontology of listening to and 'caring' for others from the two processual[2] vantages of art and science.

It is in this spirit that my current research utilises my artistic practice in tandem with my clinical experience as an acupuncturist (this experience includes investigating patients' biomedical conditions in addition to formulating treatment strategies according to the knowledge systems and traditions of Chinese medicine). The aim of my research is to formulate a social sonic practice that critically explores art, medicine and technology practices from a broader cultural perspective – one where Western approaches to the science and technology studies are not the dominant perspective.

1 Originally trained as a sculptor (1986 -1994), I began working with sound and sound installations when I studied for my MA in sculpture at Chelsea College of the Arts in 1994 and continued to exhibit my sound work until returning to university in 2002. Between 2002–2005, I studied biomedicine and Chinese Medicine: Acupuncture at the University of Westminster, receiving a BSc in Acupuncture in 2005 and continued my studies on Chinese Herbal Medicine and biochemistry 2008–2009. I also ran a full time clinical practice between 2005 – 2011 before undertaking my current PhD study.

2 Please refer to the Glossary at the end of Section 5 for a definition of this term.

As this article forms a reflection on how I apply my clinical knowledge to my creative practice, I have organised it in the following manner: Section 2 – In this first section I reflect on the physical, theoretical and metaphysical dynamics of the clinical encounter. In Section 3 I provide an account of my creative practice research case study titled *Pulse Project* (2011–2014), which is a sound research performance series investigating the relationship between the researcher and participants (this study also draws contemporary and historic connections between art, the humanities, medicine and technology). In Section 4 I provide further reflections on some of the implications raised by the sonic processes of my creative practice research. Section 5 provides a final summary of my practice.

Figure 2: Pulse Reading at the V&A, London 2013
© Michelle Lewis-King. Photo: Nick Fudge

2. The artist-acupuncturist: the convergence of art and science

As a fine artist who undertook medical training and the establishment of a clinical practice, I had first to subject myself to certain constraints and responsibilities that scientists are subject to, e.g., the rigors of studying biology, anatomy, physiology, pathophysiology, differential diagnosis and evidence-based medicine research – of obeying strict clinical protocols and ethical codes, prioritize the care of others as a profound charge. Yet, at the same time, and more in line with the concerns of my artistic practice, I studied bodily process from the metaphysical approach of early Chinese medicine where the body can be understood to be an assembled cosmological landscape that is shaped and altered by continuous alchemical processes.[3]

It was this experience of continually working with embodied alchemical processes that became central to my practice as an artist-acupuncturist. Chinese medicine methodology enabled me to regard the body from another perspective, offered creative strategies for interacting with and intervening into the emergent spaces of the body (as interventions that are simultaneously medical and artistic) and allowed me to think poetically about the bodily processes of others. To explore further how I connect the

3 I will give an introduction to these alchemical processes in Chinese medicine in Section 3.3 (where I will also give an account of how these alchemical processes inform my composing process). Additionally, please see the terms *wuxing* and *yinyang* in Glossary as these concepts form the fundamental theoretical basis for understanding alchemical process according to Chinese medicine.

performative aspects of medical practice with artistic practice, the next section presents a reflection on the clinical encounter of Chinese medicine and the manner in which it is able to bring poetic and scientific speculation and production together.

2.1. A clinical encounter case study: questioning, listening and responding

In this section I offer an account of a 'typical' acupuncture clinic encounter to give an example of the thoughts, experiences and perspectives of this type of clinical situation. This example provides a point of reference for how the intimate, diagnostic and prescriptive aspects of the clinical encounter can be reconsidered and reconfigured into a wider sense of experimentation, interpretation and play via the creation of performances, drawings and bespoke soundscapes.

Though S has been consulting with her GP for several years about her dysmenorrhoea (painful periods), high blood pressure and excessively cold hands and feet and has been coming to see me at the clinic for several months in search of another approach. S sits next to me and I ask her questions about her experiences over the week since I last saw her, i.e., what is better and what needs focusing on. I listen carefully to the events, impressions and situations she wants to me to pay attention to as she speaks about her week. I not only look for symptomatic 'signs' or listen to keywords, but I also listen for tones and inflections in her voice and bodily gestures conveying her state of being. It is this intensive form of listening that directs me towards a deeper understanding of her 'condition' and also informs my treatment strategy.[4] But it is the reading of her pulse that provides the deepest understanding of what might be taking place internally. To take S's pulse using Chinese pulse diagnosis is to step sideways from the biomedical

4 The treatment strategy in acumoxa therapy refers to the set of acupuncture points a practitioner selects, (the acupoint locations along the meridians), the direction in which the needles should be inserted and twisted (these techniques affect the direction, amplitude and flow of energy and blood) and whether the points should be warmed with moxa (mugwort – Artemisia argyi) etc. These decisions are directed by specific Chinese Medicine therapeutic principles. For more information please see: Vivienne Lo's, 'The Influence of Western Han Nurturing Life Literature on the Development of Acumoxa Therapy' in Innovation in Chinese Medicine. Festschrift in Commemoration of Lu Gwei-djen, ed. Elisabeth Hsu (Cambridge, CUP, 2001), 19–51.

Figure 3: Pulse Reading at the V&A, Detail, London 2013
© Michelle Lewis-King
Photo: Nick Fudge

epistemological approach of measuring and plotting the body via grids and vectors and instead – to listen through touch to the warp and weft of the shén (spirit/consciousness), qì (active energy or transformative agent existing both within the body and throughout the universe), jīng-luò (the networks/meridians running throughout the body), jīnyė (body fluids), xuè (blood) and zàng-fǔ (organs). Chinese pulse diagnosis offers a methodology for listening to the interior worlds of others with a complexity that exceeds simply quantitatively counting heart-beats or listening for irregular sounds with a stethoscope. If a practitioner is sensitive and extensively trained in Chinese pulse diagnosis, according to early Chinese medical texts, the entire cosmology of the body and state of consciousness can be read at the meeting place of the 'vessels' – at the wrist (Hsu, 1999; Unschuld, 1986).

The physical characteristics and other impressions received from each pulse reading consultation are then written down as 'clinical notes'. This form of notation is an integral part of the diagnostic process, which also includes the processes of interpretation and 'recording' (i.e. making a record of what is 'significant' about the person's pulse and interpreting how these findings provide a 'picture' of what is occurring within the person in relation to the concerns the person initially presents with). These diagnostic records also inform the physician on what form of intervention or tactic they might adopt.

It is this juncture within the clinical encounter – the diagnostic process – that my research reflects on and extends through adopting artistic methodologies that amplify the creative and experimental aspects of the diagnostic process in order to examine them further through 'play'. In my work I look to separate out the swift and easy relationship between a cause and its effect that typically occurs during scientific/medical investigation process, i.e., the ipso facto relationship between a diagnosis and a treatment within the clinical setting. Instead of participating in the 'stabilization' of diagnostic meaning or in creating a predictable clinical scenario, in my sound work, I am interested in the materiality of the diagnostic process, in exploiting, teasing out and elongating this moment of 'experimental inscription' (Latour and Woolgar, 1986, 88) and 'play' that exists between these modes of constructing logical scenarios in the clinic (or what might be considered the creation of 'ritual' in another context). When the diagnostic process becomes purely creative, a physician is free to 'play'. Clinical notes could be then transformed into musical notes, graphic notations and drawings and the moment of the encounter between themselves and others can become a form of music.

3. 'Pulse Project', a pataphysical[5] translation of the clinical encounter

In this section (and its subsections), I discuss my doctoral research project Pulse Project in order to explore the processes of artistic

5 Pataphysics, originally defined by Alfred Jarry as the 'science of imaginary solutions' (Bok, 2001, 88) is fundamental to informing my approach in bringing art and science into conversation. For further reading on the imaginary science of pataphysics, please see Christian Bok's Pataphysics: The Poetics of an Imaginary Science (2001).

translation of the following: a) a method of pulse diagnosis that allows a physician to listen more deeply to the range of vibrations and oscillations within others, b) the creative moments of analysis and speculation of what is occurring within the interior universe of another person via clinical notation, c) the unique form of intimacy that exists within a performative clinical encounter that is both public and intensely private – which also results in the creation of a unique soundscape, d) the ellipse of the playful, poetic, experimental and serious aspects of formulating a medical intervention, and the subsequent healing transformation that occurs within the body of another (and between us as a life force).

Pulse Project (2011–2014) is a performance and sound study series that creates new connections between artistic, medical, and technological practices. In this study, I embody research practice itself through becoming an instrument or medium between myself and others and between cultural traditions for understanding and mediating the body. Pulse 'reading,' case histories, notations of pulses and programming soundscape compositions are all used together as tools for exploring the cultural encounter between artist, audience and medicine.

In trying to listen deeply into the internal vibrations of others from the position of intuitive and corporeal experience, *Pulse Project* takes its sonic inquiry of the clinic and attempts to open it outwards towards the direction of lived experience. As building rapport is a crucial part of my methodology, this study also engages with and

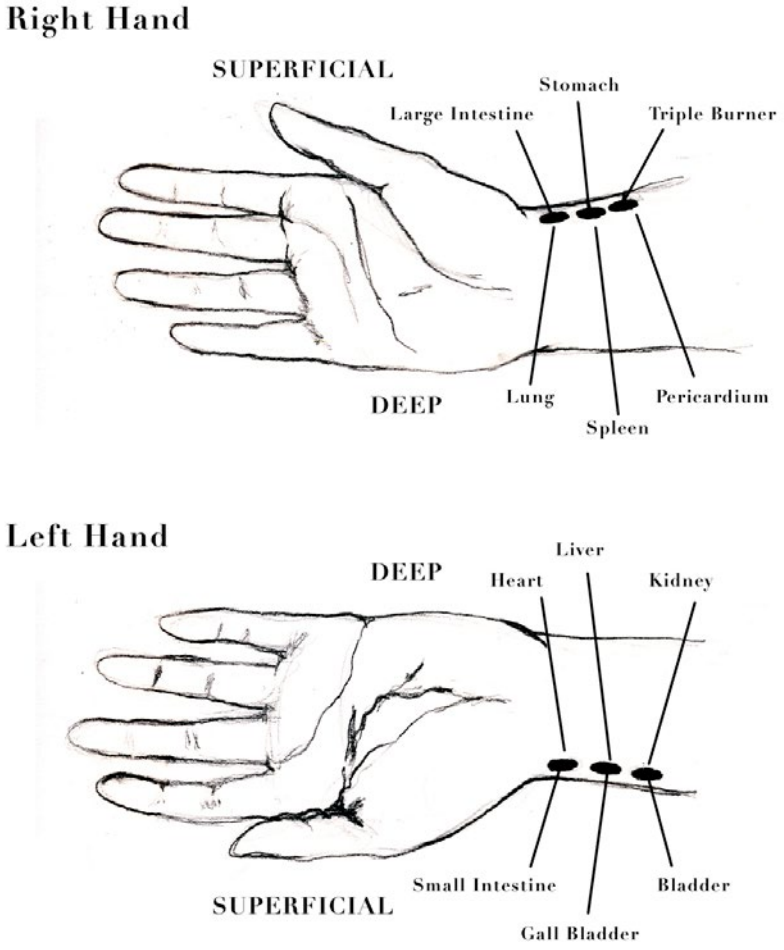


Figure 4: Pulse Reading Positions (2013) © Michelle Lewis-King

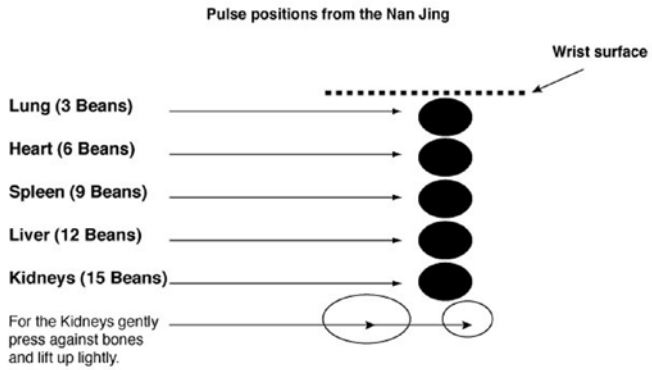


Figure 5: Nan Jing Pulse Diagram (2013) © Michelle Lewis-King

includes the complex 'presence' of participants within its approach to listening and composing. The software SuperCollider (an audio programming language) is used to compose bespoke algorithmic soundscapes. These soundscapes are not sonifications of western principles of circulation but offer another perspective to conceive of/listen to the interior spaces of the body – as each participant's pulse is interpreted as a unique set of sound-wave images based on traditional Chinese pulse diagnosis (a complex set of 28+ waveform images corresponding to states of being) and also according to traditional Chinese music theory (Lewis-King, 2013).

In using a sensitising form of touch to connect with participants, this temporal, interrelational and embodied aspect of my creative practice instantly builds a mutual trust and rapport between myself and participants in the study and the creation of soundscapes that digital 'instruments' alone cannot produce, thus developing a hybrid form of techne that places intuitive, embodied and temporal forms of material knowledge and experience into a dialogue with the rationalist architectures of a digital programming language.

3.1 The pulse reading process

On each wrist, there are three positions where the fingers are placed in order to palpate the pulse and this makes a total of six positions of palpation altogether (refer to Figures 4 and 5). From each position, the practitioner registers at least two levels from which the pulse waveform qualities can be felt and are referred to as 'superficial' and 'deep' (making a total of 12 points of palpation altogether for the pulse). Each position is also associated with specific organs and networks called zàng-fǔ.[6]

Each position has a designated lexicon of pathological and physiological ideal 'pulse waveform images'. For example, at the middle position on the left wrist (the position of the Liver and Gallbladder zàng-fǔ pair), there is a list of corresponding images: 'bowstring', 'choppy', 'replete', 'fine', etc., and these waveform images (and their amplitude and vibratory quality) reveal the state of health of that network (Flaws, 1995; Lewis-King, 2013). There is more 'data' than just the pulse images and vibrations, a practitioner also intuits other sorts of information from touching others, i.e., how they feel about their place in the world, their living situation, an image of courageousness or a sense of their being diminished, etc.

6 Refer to the Glossary for the definition of this term.

During the performance, each pulse reading case study is recorded through producing a set of notes of clinical impressions based on Chinese medicine therapeutic principles (see Figure 6). A hand drawn graphic notation of each person's pulse is also produced as part of the performance consultation. This notation is given to each participant of the performance as a record of the encounter and as an artwork that is created uniquely from and for them (see Figures 7 and 8). Each notation is a live translation of the unique waveforms of the participant's pulse at that moment in time.

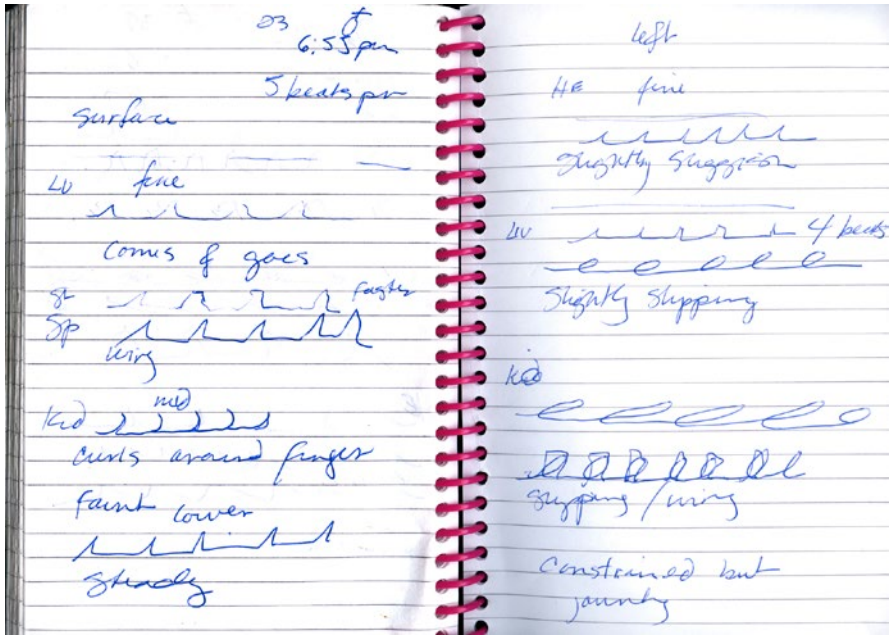


Figure 6: Clinical Notations 1 (2011) © Michelle Lewis-King. Photo: Barbara Butkus

Each notation is also a recording of the circuit between myself and others – an inscription of the moment of my breathing (and their breathing), of touching (and their being touched), of listening (and their being listened to), of interpreting and responding (and their being interpreted and responded to). Each notation is also a crucial aide memoire to the composing process of each soundscape as the lines of the notation remind me of the sensation of each waveform impression. The strength or weakness of each line informs me on the strength or weakness and unique signatures of each waveforms felt on the wrist. The drawn lines also describe more than just clinical 'data'. I perceive/intuit something about each person from the moment of being literally in touch with them. This 'something' can be an image that suddenly arrives in my mind or a particular musical signature or cadence, etc., and each of these 'extra' impressions help me to meditate on each person as a unique symphony of embodied being.

3.2 The composing process:

Composition occurs in rhythmic processual[7] layers. The first layer is performance in which I gather data using the human technology of (diagnostic) touch, produce interpretations of pulse impressions, create records and notations, etc. The second phase of the composing process is the translation of the notations into a digital language of commands (as sound 'objects') – the third phase is the playback of soundscapes via sound installation (this layer manifests the interior infrasonic body into an exterior set of sonic bodies).

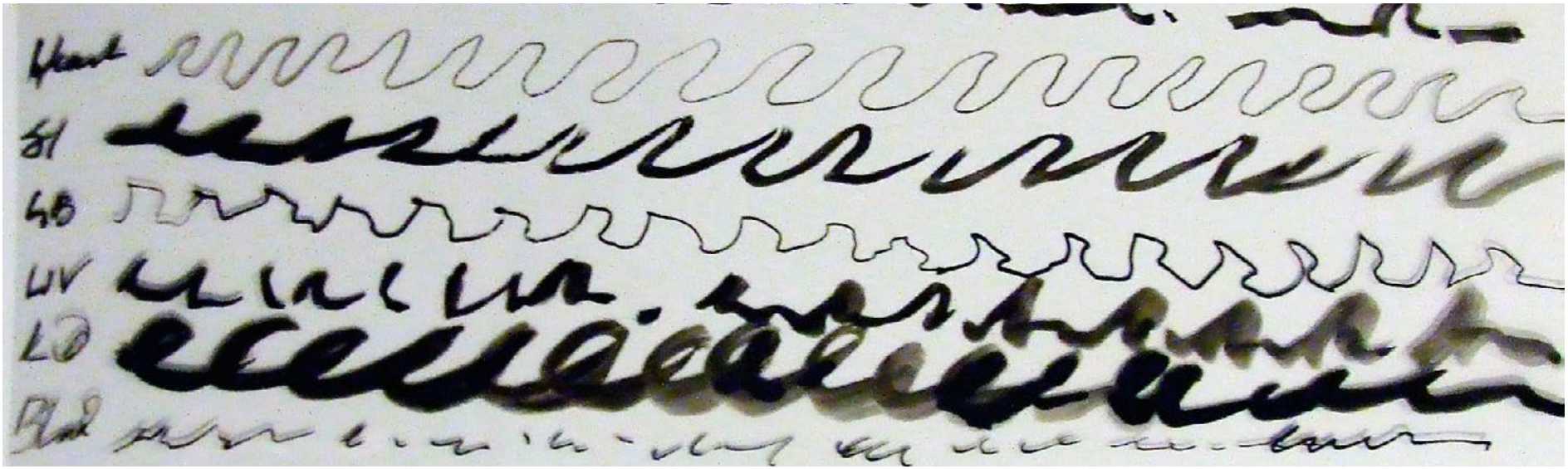
7 See the Glossary for a definition of this term.

Though the software I use (SuperCollider[8]) is used as a live-coding audio synthesis instrument by the majority of its users in practice, I find I need the time, quiescence and psychic space to consider each person, their pulse reading and what my response will be before I compose each piece. So whilst the composing of clinical notations and graphic notations occurs 'live' (during the performance), the process of composing each of the algorithmic scores takes place in my studio quite a bit time after the live performance event (some compositions can take up to a couple of months, especially if there is a long queue of them). I use SuperCollider's programming language because it enables me to specify the shape, pitch, tempo, dynamic range, etc., of each waveform line that is demonstrated in the accompanying graphic notation (see Figure 8). I also prefer SuperCollider to other audio synthesis programmes for the wide range of dynamic and fluid sounds it produces.

The algorithmic composition process is also informed by the 'treatment strategy' and 'prescription' functions of the clinical encounter. These functions of the clinical encounter are then

8 For more information on SuperCollider (including tutorials and free software downloads), please visit: http://supercollider.sourceforge.net/

Figure 7: Graphic Notation – Cambridge 1 (2014) © Michelle Lewis-King. Photo: Léna Lewis-King



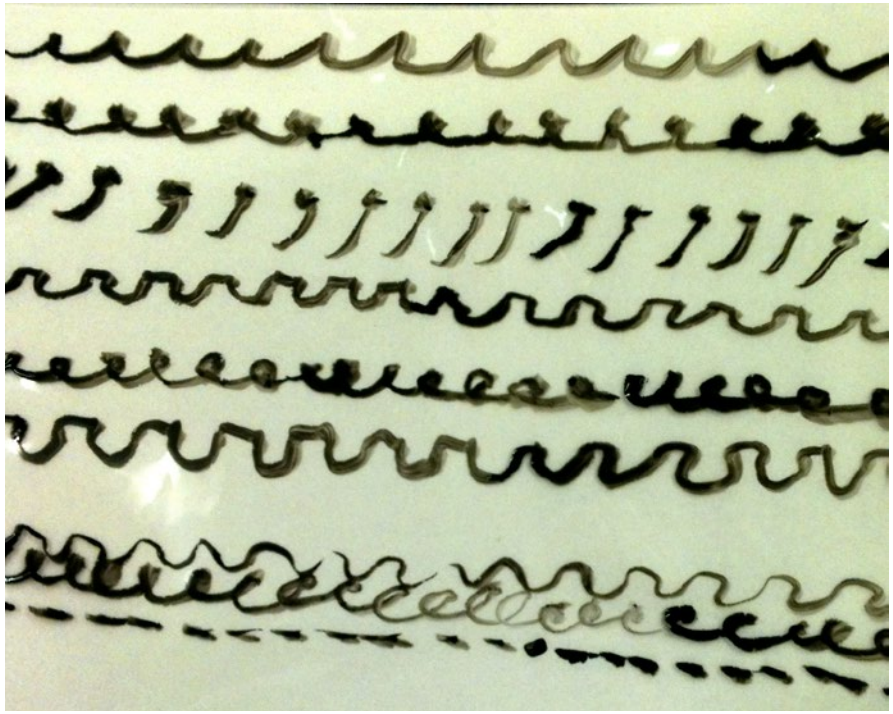


Figure 8: Graphic Notation – V&A (2013) © Michelle Lewis-King.

extended further into creative interpretation and the production of soundscapes. Within each composition I consider each person who has participated in the performance very carefully. Each of the tones/frequencies, amplitudes, etc., selected as part of the composition process have been informed by my reading of that individual's pulse in relation to the 'therapeutic' principles of Chinese medicine and music theories (this is explained further in the next section). In addition to being an artistic interpretation of the encounter with another person (as a portrait that is inscribed and sculptured by sound), these soundscapes are composed to describe a relationship of 'care'–of listening to and caring about another person as a creative act. I meditate upon each person's pulse not simply as a set frequencies, waves and rhythms, but in as a considered, playful and caring (therapeutic) response to the life of each person and to their act of generosity in offering of themselves to be read by me.

```
//Intermittent/Irregular 6bpb Female: 70's - Zhi Scale (Low)
(
a= {LFPulse.ar(99,0,LFTri.kr(0.6,0,0.7,0.5),0.02) }.play(outbus:1);
//produces pulsating saw tooth sounds
b= {LFPulse.ar(98,0,LFTri.kr(0.6,0,0.5,0.5),0.02) }.play(outbus:0);
// Synth definitions 'c' through 'g' represent the Yang Zhi Scale
c= {SinOsc.ar([399.86, 399.86], mul: LFNoise0.kr([2, 2]).max(0) *
0.05)}.play(fadeTime: 7); // Red = Fire Pitch
d= {SinOsc.ar([439.97, 439.97], mul: LFNoise0.kr([4, 4]).max(0) *
0.05)}.play(fadeTime: 7); // Yellow = Earth Pitch
e= {SinOsc.ar([530.29, 530.29], mul: LFNoise0.kr([4, 4]).max(0) *
0.05)}.play(fadeTime: 7); // White/Silver = Metal Pitch
f= {SinOsc.ar([589.06, 589.06], mul: LFNoise0.kr([3, 3]).max(0) *
0.05)}.play(fadeTime: 7); // Indigo = Water Pitch
g= {SinOsc.ar([657.95, 657.95], mul: LFNoise0.kr([2, 2]).max(0) *
0.05)}.play(fadeTime: 7); // Vermillion = Wood Pitch
// Synth Definitions 'h' through 'j' produces random oscillations to
match irregularities evidenced in the pulse
h= { var ctl = HPF.kr(LFSaw.kr(0.3), SinOsc.kr(XLine.kr(0.03), 60,
20, 22)) ;
    SinOsc.ar(ctl * 116 + 130.81, mul: 0.07);
}.play(outbus:1);
i= { var ctl = HPF.kr(LFSaw.kr(0.3), SinOsc.kr(XLine.kr(0.03), 60,
```

Figure 9: Sample of SuperCollider Composition (2013). Screenshot © Michelle Lewis-King

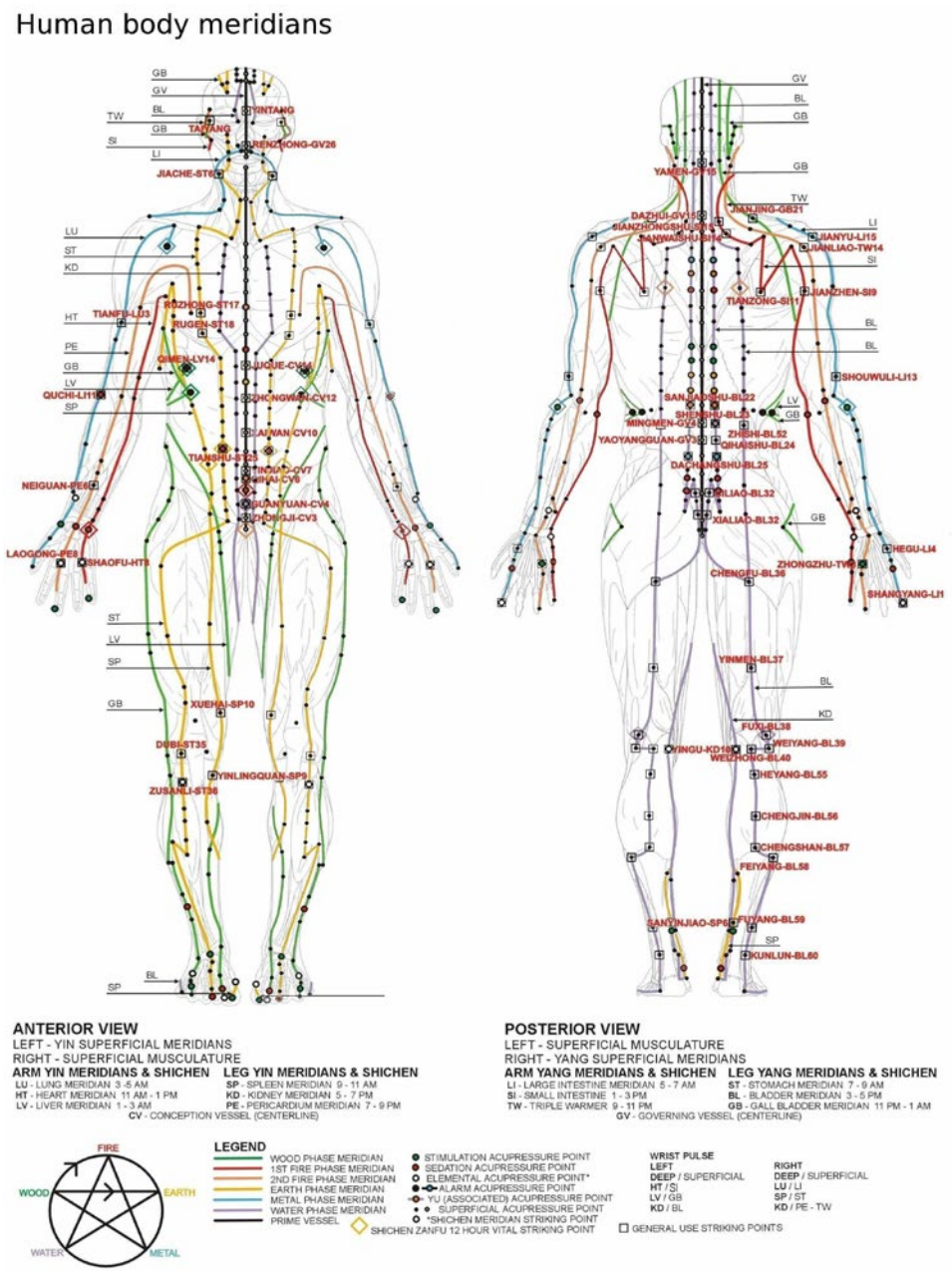


Figure 10: Acupuncture Chart of the Meridians. (2010) KVDP. Wikimedia Commons. Public Domain Attribution

3.3. A brief introduction to Chinese medicine and music theories that inform each SuperCollider composition:

According to the Huángdì Nèijīng, a seminal Chinese medicine text compiled by unknown authors from as early as the 3rd and 4th century BCE, (Unschuld and Tessenow, 2011), there are 5 yīn[9] zàng organs: the Spleen, Liver, Heart, Lung and Kidneys, and 6 yáng[10] fǔ organs: the Stomach, Gall-Bladder, Small Intestine, Large Intestine, and Bladder (Unschuld, 1986, 408). Each of the zàng and fǔ organs possess an associated energetic network, or 'channel' that runs between the depths of the organ to the outer reaches of the body (Unschuld, 1986, 408). The Pericardium, as an organ which encloses the Heart is regarded in Chinese Medicine as the 'Heart protector' and is thought of as an 'extra' organ of the Heart zàng (Unschuld, 1986, p. 312). So, when we include the 'extra' yīn Pericardium organ-network, the total zàng-fǔ organ-network pairs make a total of 6 pairs and twelve energetic networks or channels (see Figure 10). As it is these twelve channels that emerge from the six yīnyáng zàng-fǔ pairs that are felt for and listened to in the pulse (and are therefore fundamental to pulse reading), the twelve channels form the fundamental structural basis for my graphic notations and SuperCollider compositions (Lewis-King, 2013).

Each zàng-fǔ pair are also each associated with one of the following five elements or wǔ xíng[11]: Fire, Earth, Metal, Water and Wood i.e., Stomach/Spleen = Earth, Lung/Large Intestine = Metal, Kidney/

9 See the Glossary for this term.
10 See the Glossary for this term.
11 See the Glossary for this term.

12	Ratios	Calculate	Calculate	Calculate	Calculate	Calculate	Calculate	Calculate	Calculate	Calculate				十二
Lü	Used for	from	from	from	from	from	from	from	from	from				律
Names	Calculations	440.00	469.86	495.00	528.64	556.88	594.39	626.48	660.00	704.79	742.50	792.86	835.31	
Huang Zhong	1/1	440.00	469.86	495.00	528.64	556.88	594.39	626.48	660.00	704.79	742.50	792.86	835.31	黃鐘
Da Lü	2187/2048	469.86	501.75	528.60	564.52	594.67	634.73	669.00	704.79	752.63	792.89	846.67	892.01	大呂
Da Cu	9/8	495.00	528.60	556.88	594.73	626.48	668.68	704.79	742.50	792.89	835.31	891.97	939.73	大蔟
Jia Zhong	1968/1630	528.64	564.52	594.73	635.15	669.07	714.13	752.70	792.97	846.79	892.09	952.59	1003.60	夾鐘
Gu Xian	81/64	556.88	594.67	626.48	669.07	704.79	752.27	792.89	835.31	892.01	939.73	1003.46	1057.19	姑洗
Zhong Lü	1771/1311	594.39	634.73	668.68	714.13	752.27	802.94	846.30	891.58	952.09	1003.46	1071.06	1128.40	仲呂
Rui Bin	729/512	626.48	669.00	704.79	752.70	792.89	846.30	892.01	939.73	1003.51	1057.19	1128.90	1189.34	蕤賓
Lin Zhong	3/2	660.00	704.79	742.50	792.97	835.31	891.58	939.73	990.00	1057.19	1113.75	1189.29	1252.97	林鐘
Yi Ze	6561/4096	704.79	752.63	792.89	846.79	892.01	952.09	1003.51	1057.19	1128.95	1189.34	1270.01	1338.01	夷則
Nan Lü	27/16	742.50	792.89	835.31	892.09	939.73	1003.03	1057.19	1113.75	1189.34	1252.97	1337.95	1409.59	南呂
Wu Yi	5905/3277	792.86	846.67	891.97	952.59	1003.46	1071.06	1128.90	1189.29	1270.01	1337.95	1428.70	1505.19	無射
Ying Zhong	243/128	835.31	892.01	939.73	1003.60	1057.19	1128.40	1189.34	1252.97	1338.00	14099.59	1505.19	1585.79	應鐘
		Yu scale on Huang Zhong base freq.		Shang on Da Cu base freq.			Gong scale Zhong Lü base freq.			Jue scale on Yi Ze base freq.		Zhi scale on Wu Yi base freq.		

Figure 11: Chinese Music and Gamut and Scales. (2011) Joseph C.Y. Chen and Patrick Edwin Moran. Wikimedia Commons. Creative Commons Attribution-Share Alike 3.0 Unported license.

Bladder, Water, Liver/Gall Bladder = Wood, Heart/Small Intestine = Fire, Triple Heater/Pericardium = 'Ministerial' Fire.[12] The zàng-fǔ pairs are also associated with fundamental colours: Fire = Red, Earth = Yellow, Metal = Silver/White, Water = Indigo/Black, Wood = Green (Unschuld, 1986, 256). Each element also has a fundamental musical tone associated with the traditional Chinese pentatonic scale, i.e., gōng, shāng, jué, zhǐ, yǔ. The frequencies I use are calculated using traditional pentatonic tones (Cheng-Yih, 1996, pp. 44–48; Lewis-King, 2013). (See Figure 11) A more detailed explanation regarding the significance of these pentatonic frequencies/pitches and their relationship to the zàng-fǔ is given below in Section 3.4.

12 The organs as conceived of by Chinese Medicine are capitalised here to differentiate them from the same organs that we conventionally recognise within biomedicine.

3.4 Soundscape composition as a healing modality

The standard practice for SuperCollider programmers and community of users is to create logical arguments for each sound object as the basis for composing. Whereas my use of SuperCollider programming language intensifies its focus on listening as the basis for composing each landscape. I adjust the shapes and functions within each programming command by 'ear' in order to create sounds that match the fluid and electric-like nature of the vibrations I feel and intuit within people's pulses. Each clinical impression and graphic notation produced from the performance create a record of the moment of being 'in touch' with another person. These notations inform my meditation on and interpretation of the particular rhythms and cadences of another person and also aid my interpretation of the energetic movements that pass between another and myself. These interpretations are then translated into sound using SuperCollider.

In order to convey the landscape of the body according to Chinese Medicine pulse diagnostics, each SuperCollider synth sine wave is modulated to exemplify the signature qualities of the pulse waveforms described in the notations. For example, the command '{SinOsc.ar(262.dup, mul: LFNoise2.kr(3, 3).max(0) * 0.009)}.play;' corresponds to an aspect of a pulse emitting a 'fine, slow, and irregular' oscillation along the 'Spleen' channel. The gōng tone – at the frequency of 262 Hz – corresponds to the Spleen and Stomach networks. It is used in my composition to both represent and 'boost' the energy of the Earth zàng-fǔ network. The gōng pitch is associated with the Earth zàng-fǔ because this pitch/frequency is considered to be the most therapeutic tone/vibration for the 'Earth' zàng-fǔ network according to Chinese medicine theory (Gao et al, 2010). A basic explanation of the logic of SuperCollider code is given in the footnote below.[13]

Each *Pulse Project* composition is constructed to both mirror my impressions of an individual's pulse reading, yet 'therapeutic' aspects are also added to the composition – specific to what the individual's pulse indicates they might need according to Chinese Medicine therapeutic principles. I am not offering a 'medical' diagnosis of course. However, my soundscape compositions draw upon my experience as an acupuncturist in that I respond to and try to moderate imbalances I feel within participant's pulses. Each of my compositions aim to harmonise and rebalance the overall 'pitches' of the participant's zàng-fǔ networks in order to promote the health and well-being of each participant (Gao et al, 2010). The 'ideal' pitch of each of the zàng-fǔ, or the pitch at which the organ network ideally oscillates at and responds best to are as follows: Heart/Small Intestine [Zhǐ – Fire pitch: 399 Hz], Spleen/Stomach

13 Given the command, '{SinOsc.ar(262.dup, mul: LFNoise2.kr(3, 3).max(0) * 0.009)}.play;' an explanation is as follows: SinOsc is a sine wave sound object which is played back at the frequency of 262 Hz, this sine-wave is then shaped/modulated through a low frequency noise object (LFNoise), the pure sinewave (262) oscillation is then reinterpreted at the frequency control rate of 3 waves per cycle in both output channels 'kr(3, 3)' with an amplitude '* 0.009'. These synth objects: frequency, shape (created by the sound objects such as LFNoise, EnvGen, etc) and amplitude are the main constituents used to shape the sine waves.

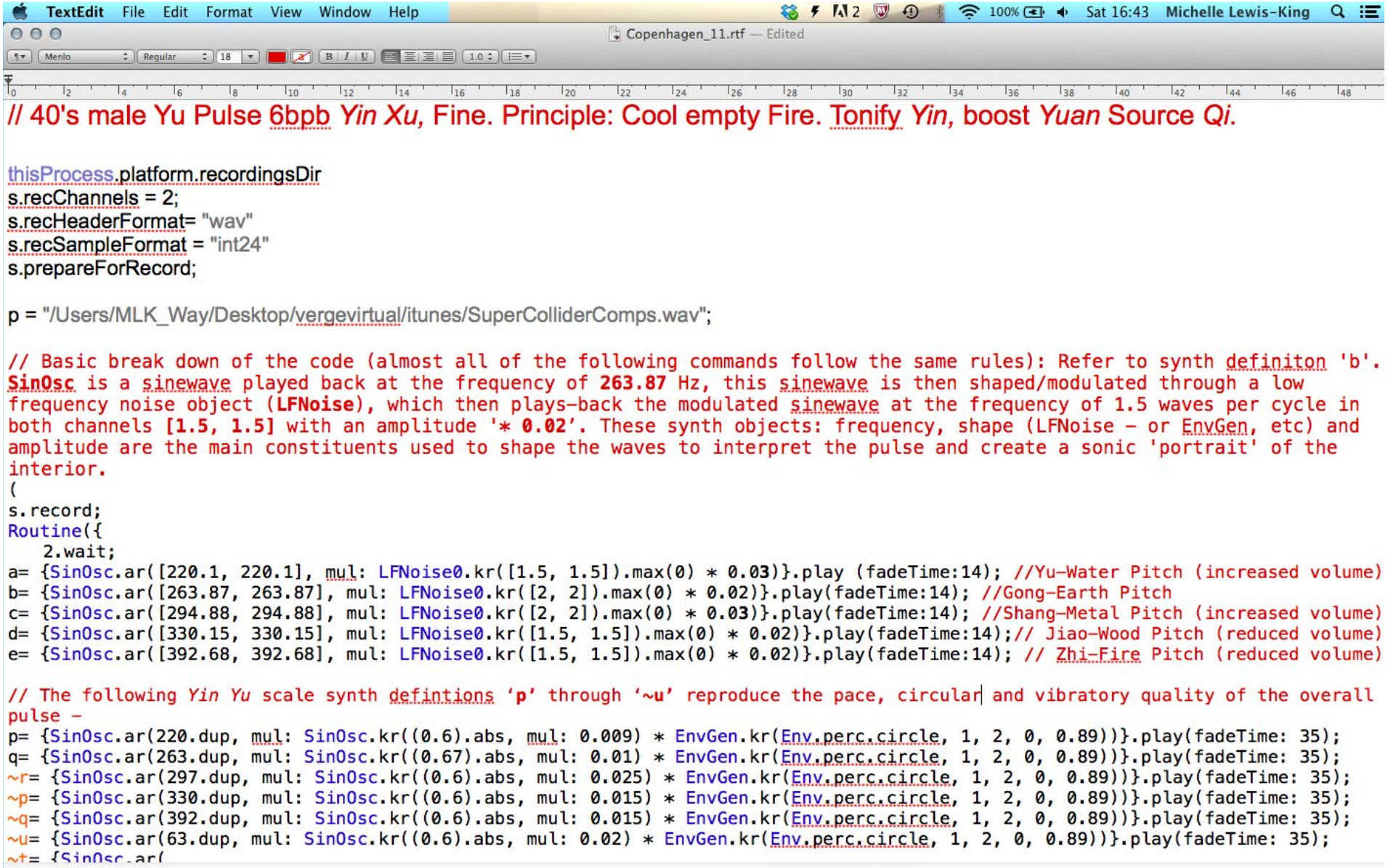


Figure 12: 40's male. Yǔ Pulse. Yīn Xū, Fine. Treatment Principal: Cool empty Fire. Tonify Yīn, boost Yuán Qī (2014) Screenshot. © Michelle Lewis-King.

[Gōng – Earth pitch: 264 Hz], Lung/Large Intestine [Shāng- Metal pitch: 295 Hz], Kidney/Bladder [Yǔ – Water pitch: 440 Hz], Liver/Gall Bladder [Jué/Jiao – Wood pitch: 350 Hz] (Gao et al, 2010). Selecting the appropriate pitches for each participant is based on my assessment of the specific and overall characteristics of the participant's pulse according to Chinese Pulse diagnostic theory.

Each composition is titled according to the diagnostic characteristic of their pulse. For example, a composition of a man in his mid-40's is titled as follows: 40's male. Yǔ Pulse. Yīn Xū, Fine. Treatment Principal: Cool empty Fire. Tonify Yīn, boost Yuán Qǐ. In this particular individual's reading (refer to Figure 12), a very thin and rapid quality was felt on the Kidney Yīn position of the pulse. This 'weak' quality was contrasted by an overly strong, percussive and rapid quality felt from the Gallbladder position. To create a sonic composition that would 'harmonise' the overall pitches of the zàng-fǔ of this individual, the pulse impressions indicate that boosting the Water pitch, decreasing the Wood pitch and slowing the pace of entire the composition down would all be beneficial to this individual. The Water element with a pitch of 440 Hz was considered to be the most beneficial tone for the individual overall in

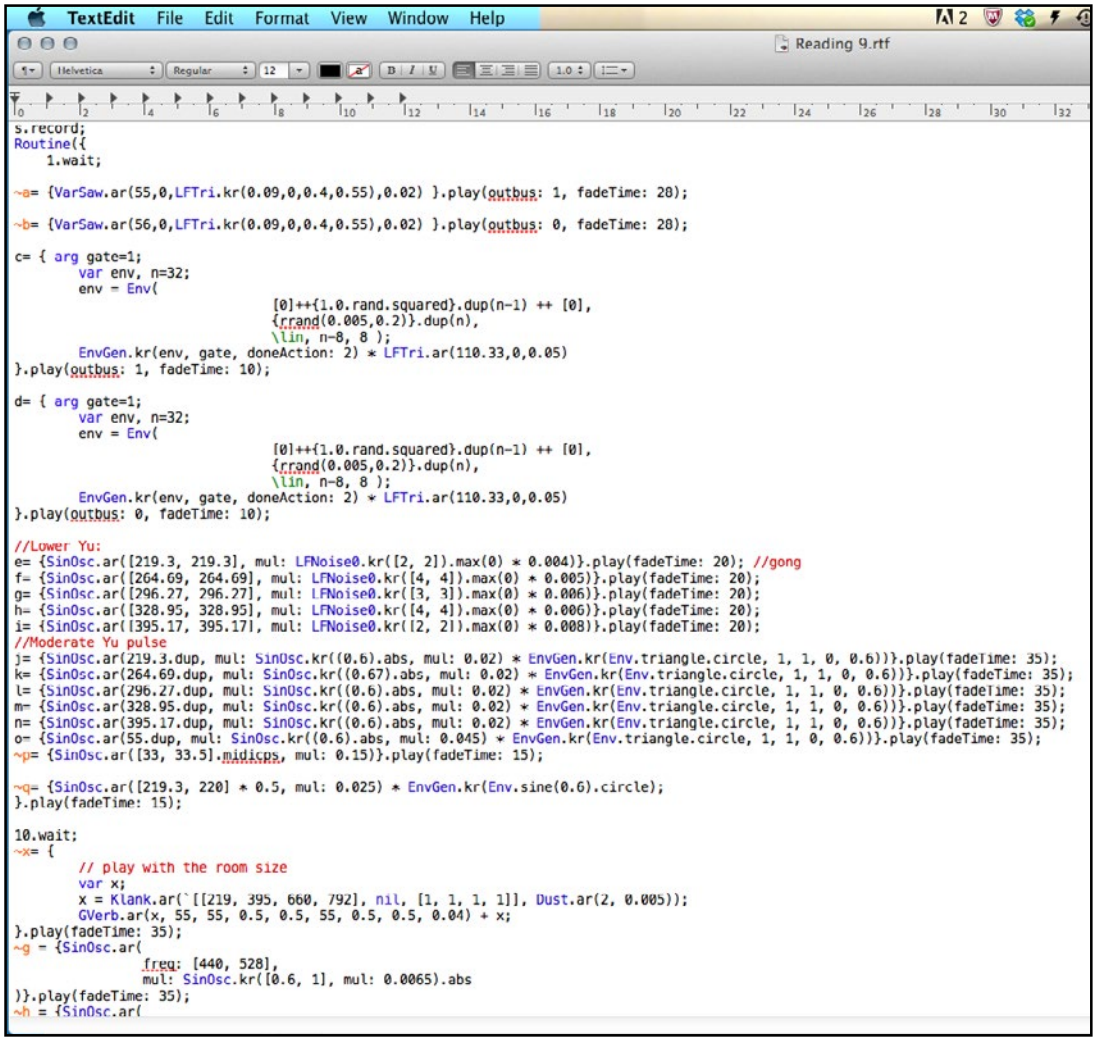


Figure 13: Sample of SuperCollider Reading_9 Composition. (2013) Screenshot. © Michelle Lewis-King.

this case and therefore forms the fundamental frequency for the tuning of the (Water/Yǔ) pentatonic scale of this composition. The pitches/frequencies of each organ-network within each composition are amplified or diminished order to balance the Five tones (refer to Figure 12 for an example). This particular composition adopts a Yīn Yǔ scale to reiterate and enhance the overall yīn[14] aspect of the pulse, which was felt to be low.[15]

3.5 The instrumentation process of 'Pulse Project'

I use SuperCollider (SC) to instrumentalise my soundscapes into multi-channel installations as SC allows me to design each layer of sound, the directions they travel within a given space (i.e. the panning of sounds to and from particular speakers, etc.), assign pitches, tempos and define the shapes of the waves of each sound object. SC plays each composition by systematically evaluating lines of code. Each sound can be streamed by scheduling each line to be played at a certain time, for a certain duration, etc., by programming each line into an overall 'routine' or 'sequence'. The SC language sound object 'Routine' notifies the SC server to evaluate each line of code in a queue of sequential patterns, from top to bottom (see Figure 13 for an example of a standard routine). To give dimensional shape to the 'body'of the composition (the body of the composition is in itself a description of a 'body' according to Chinese theory), each stream of sound can be routed (via program commands) to specific speakers within a multi-channel speaker system – creating an exterior embodiment of the interior rhythms of others.

4. Further thoughts on the sonic process of 'Pulse Project':

> Everywhere where there is interaction between a place, a time and an expenditure of energy, there is rhythm. (Lefebvre, 2004, p. 15)

My transdisciplinary research aims to enact a practical analysis of an expanded sense of rhythmicity (through creating 'pulse' soundscapes) by bringing early Chinese medical technologies to inform and rethink contemporary Western artistic, digital and scientific practices and how they can be brought to work better together (Yu, 2003). As my research moves between several strata (i.e., the interpersonal relationship between oneself and others, across cultural practices, across time and disciplinary boundaries, etc.), my project also engages with the idea that composing each soundscape is an act of participation in and contribution to a larger always-emerging composition of ecological being and discourse – as an activity that maintains a connection with the gestalt unfolding of the world.

French philosopher Henri Lefebvre's *Rhythmanalysis* (2004) is particularly relevant to the manner in which my project constitutes

14 Refer to the Glossary for this term.

15 For further reading on the relationship between Chinese Medicine, music and health, please see: http://www.accordinstitute.org/2010_6_2_five_zang_organs_harmonize_pitch.htm; and http://www.theepochtimes.com/n2/china-news/chinese-music-five-elements-5137.html.

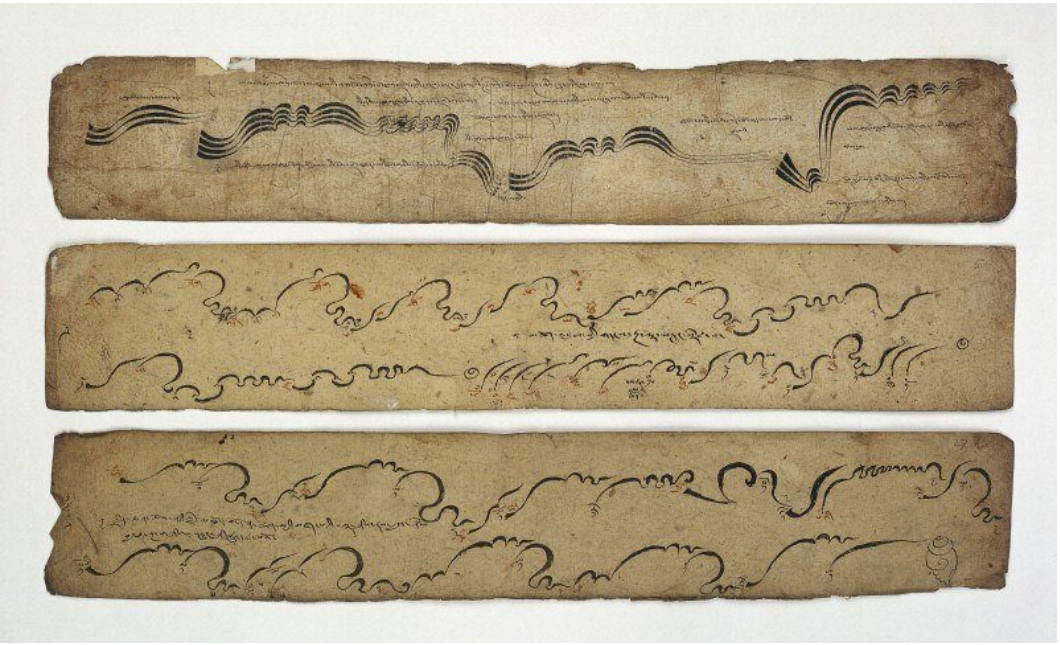



Figure 14: A Tbetan music score (N.D.) said to score 'experience'. Source: Fredrick Woodruff http://www.frederickwoodruff.com/post/74242777847/a-tibetan-musical-score-these-are-sublime-you

a new approach to thinking about and producing works in sound. Lefebvre's *Rhythmanalysis* confirms the direction my project takes in its use of creative practice to form an analysis of scientific method, i.e., layering poetic speculation together with diagnostic speculation as means for contributing to and extending contemporary cross-disciplinary practices involving art and science. As Lefebvre remarks:

> The rhythmanalyst will not be obliged to jump from the inside to the outside of observed bodies; he should come to listen to them as a whole and unify them by taking his own rhythms as a reference: by integrating the outside with the inside and vice versa.' … It is not only in music that one produces perfect harmonies. The body produces a garland of rhythms, one could say a bouquet, though these words suggest an aesthetic arrangement, as if the artist nature had foreseen beauty – the harmony of the body (of bodies). (2004, p. 20)

Pulse Project brings together both imagined and phenomenal aspects of embodied sound appreciation and production and constitutes a divergent approach to sonic practice. Instead of trying to participate and contribute to a purely conceptual and exterior phenomenal world of digital and analogue sound, this study reverses the trend to focus on attention more on the interior world of sounds.

My artist-acupuncturist sonic practice enacts and extends Lefebvre's analysis of rhythmicity by recording and interpreting the interior rhythmic warps and wefts of the body and translating my analysis across art and science and form the interior of the body into exterior acoustic spaces. By using the human technologies of touch and creative interpretation as a form of diagnostic 'rhythmanalysis', it becomes possible to produce soundscapes capable of including the grounded human relationship between self and others and interior experience. As a practitioner who places my analysis between the biological, technical and the poetic, I extend Lefebvre's speculations on rhythmicity and analytic operation:

> Often coupled empirically with speculations (see, for example, doctors in the field of auscultation, etc.), the analytic operation simultaneously discovers the multiplicity of rhythms and the uniqueness of particular rhythms (the heart, the kidneys, etc.). The rhythmanalysis here defined as a method and a theory pursues this time honoured labour in a systematic and theoretical manner, by bringing together very diverse practices and very different types of knowledge: medicine, history, climatology, cosmology, poetry (the poetic), etc… he pursues an interdisciplinary approach. (Lefebvre, 2004, pp.16–22)

Pulse Project also uses Chinese pulse diagnostics together with performance and algorithmic programming to critique and widen the notion of the clinical encounter. It is precisely in using informed diagnostic touch, imaginative speculation and the mathematical logic of audio programming together that enables this project to perform a 'rhythmanalysis' in the manner that Lefebvre speculates on. The audio works of this study do not attempt nor claim to be a straight representation of the inside of the body from within the Cartesian logic of the 'cogito' (Lefebvre, 2004, p. 16) but uses Chinese medical and philosophical approaches to widen theoretical and practical discourse surrounding the body and embodiment. In resisting the representation of sound in 'realistic' technoscientific terms, this study also sonically explores the phenomenal and metaphysical interior and in-between spaces and processes of the body as a means to capture the more enigmatic 'inner' aspects of embodied reality than those currently being explored by technoscience or those acoustic ecologies which deny the co-presence of the infrasonic ecology of the interior of the body with exterior sonic ecologies.

5. Summary

From the position of conducting artistic practice as a form of acupuncture inquiry, I am interested the physical, meditative, and interconnective aspects of constructing knowledge through performative duration, i.e., demonstrating knowledge through lived experience that is grounded and expressed through the body over time. To place emphasis on the body and temporal becomings is to make our experiences 'matter'. My compositions offer a way of visualising and listening to the emergence of others through the medium of touch – to be 'in touch' with others and the 'otherness' of the world – to celebrate the finite, indeterminate and unknowable passages and complex patterns of somatic experience that are folded into the gestalt becoming of the world.

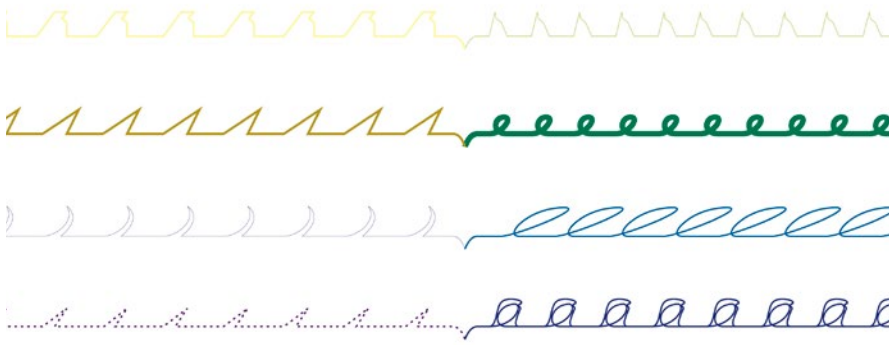


Figure 15: Digital Notation Oakland 8 (2011). © Michelle Lewis-King.

My research and artistic practice also seeks to rethink the direction of new media and digital technologies by emphasizing that technological 'advances' should be brought into balance with (or made in accordance with) 'human' technologies – particularly the inner technologies of the body (of which diagnostic touch is just a small example of) that have been largely overlooked when we popularly speak of and conceptualise what 'technology' is and enacts. To formulate intelligent digital technologies, the human technologies of intuition, interpretation and creative expression should be thus incorporated. My compositions, drawings, notations, performances and encounters are steps in this direction, to call for and maintain a more ethical balance between the technologies of embodied experience and intercultural emergence with digital technology and technoscience.

Glossary

1. Processual – Defined online on Google's dictionary as: 'relating to or involving the study of processes rather than discrete events'.

2. Wǔ xíng – Often called the 'five phases' or elements (Earth, Fire, Metal, Water and Wood), this term describes a systematisation of phenomena into five distinct movements or phases. These phenomena could describe the movement and characteristics of the changing seasons of spring, summer and so on. These elements have a specific relationship and order in relation to each other. One element may generate or control another, i.e., winter generates spring, whereas autumn is in contrast to spring. These elemental phenomena could describe the phasic interaction between cosmological entities or between the organs of the body as the early Chinese saw them (Rochat de la Vallee, 2009).

3. Yīn (yáng)–Yin, whilst it tends to refer to phenomenal processes such as cooling, contracting, sinking, solidifying, storing, etc., it is not a separate entity in and of itself but is always considered in relation to its opposite – yang. Yinyang describe two opposing yet interdependent and interconnected primal forces that are characterised by such phenomena that are cyclical or on a spectrum, such as 'day and night', 'hot and cold', internal and external', etc. This continually shifting pair of opposites constitutes the fundamental basis for early Chinese philosophy and science – they also form the fundamental 'substances' of the body in Chinese medicine that describe a myriad of bodily processes (Sivin, 1995). For example, Liver 'Yang' is the 'immaterial' energy expressed during a fit of anger while Liver Yin cools and subdues Liver Yang through storing the blood within the Liver Zang, etc. (Sivin, 1995).

4. Zàng-fǔ – Zàng refers to the five yīn organs of the body: Heart/Pericardium, Spleen, Liver, Lung, Kidney. Fǔ refers to the six yáng organs: Large Intestine, Small Intestine, Gall Bladder, Urinary Bladder, Stomach, Triple Burner. These zàng-fǔ each have an associated channel that extends the energy of the organs along points across the body. As simple definition of the functions of the zàng-fǔ: the five yīn organs are said to 'store' and produce essential fluids, while the six yáng organs transform essences into production of movements/ energy (Unschuld, 1986)

Figure 16: Images from the first Pulse Project performances in California in 2010

References:

Bok, Christian (2001). *Pataphysics: The Poetics of an Imaginary Science*. Illinois, Northwestern University Press

Cheng-Yih, Chen (1995). *Early Chinese Work in Natural Science: A Re-examination of the Physics of Motion, Acoustics, Astronomy and Scientific Thoughts*. Hong Kong: Hong Kong University Press

Gao, Dadi., Chen, Andy.G., Gao, YeTao., and Shi, Sanquan (2010). The Five Organs Harmonise Pitch: Modern research and clinical treatment of the lost theory and technology. In: Huang Di Nei Jing. *Journal of Accord Integrative Medicine*, 6(2) pp. 75–92

Flaws, Bob (1995). *The Secret of Chinese Pulse Diagnosis*. Boulder, CO: Blue Poppy Enterprises, Inc

Hsu, Elisabeth (1999). *The Transmission of Chinese Medicine*. Cambridge: Cambridge University Press

KVDP (2010). *Chinese Meridians*. Wikimedia commons. Available from http://upload.wikimedia.org/wikipedia/commons/f/fc/Chinese_meridians.JPG. [accessed July 30th, 2014] Image: Public Attribution.

Latour, Bruno and Woolgar, Steve (1986). *Laboratory Life: The Construction of Scientific Facts*. Princeton: Princeton University Press

Lefebvre, Henri (2004). *Rhythymanalysis: Space, Time and Everyday Life*. New York: Continuum

Lewis-King, Michelle (2013). Touching as Listening: *Pulse Project*. In: *Journal of Sonic Studies*. 4(1). [online] May. Available at from http://journal.sonicstudies.org/vol04/nr01/a12 [Accessed 15 June 2014].

Lo, Vivianne (2001). The Influence of Western Han Nurturing Life Literature on the Development of Acumoxa Therapy. In: *Innovation in Chinese Medicine*. Festschrift in Commemoration of Lu Gwei-djen, Elisabeth Hsu ed., Cambridge, Cambridge University Press. pp. 19–51

Moran, Patrick Edwin (2011). *Chinese Music and Gamut and Scales*. Citation for first two columns but with 16384/19683, 131072/177147, and 32768/59049: Joseph C.Y. Chen (1995). Early Chinese Work in Natural Science: A Re-examination of the Physics of Motion, Acoustics, Astronomy and Scientific Thoughts, p. 99. wikimedia commons. Available from https://commons.wikimedia.org/wiki/File%3AChinese_Music_Gamut_%26_Scales.svg. [Accessed March 10th, 2013] Image: Creative Commons Attribution – Share Alike 3.0 Unported license

Rochat de la Vallee, Elisabeth (2009). *Wu Xing. Taos*. New Mexico: Redwing Book Company

Sivin, Nathan (1995). *Science in Ancient China. Researches and Reflections*. Aldershot: Variorum

Unschuld, Paul (1986). *Nan-Ching: The Classic of Difficult Issues.* Berkeley: University of California Press

Unschuld, Paul and Tessenow, Hermann (2011). *Huang Di Nei Jing Su Wen: An Annotated Translation of Huang Di's Inner Classic* – Basic Questions: 2 Volumes. Berkeley: University of California Press

Yu, Ning (2003). Metaphor, Body and Culture: The Chinese Understanding of Gallbladder and Courage. In: *Metaphor and Symbol.* 18(1), pp.13 -31

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Linking sight and sound

a personal take on Visual Music

by Joseph Hyde

Abstract

In this article Joseh Hyde explores his views on Visual Music. Responding to a set of questions he considers what attracted him to the field, its main conponents, how sound and vision connect in experience and conception, influences such as Oskar Fischinger, how visual music compares to working in other interdisciplinary contexts, the Seeing Sound symposium at Bath Spa University and his understanding of music.

Joseph Hyde's background is as a musician and composer, working in various areas but in the late 90s – and a period working with BEAST in Birmingham – settling on electroacoustic music, with or without live instruments.

Since then, his work has diversified: whilst music and sound remain at the core of his practice, collaboration has become a key concern, particularly in the field of dance. Here he works both as a composer and in a broader capacity working with video, interactive systems and telepresence. His solo work has also broadened in scope to incorporate these elements, and he has made a series of audiovisual Visual Music works, as well as writing about work in this area.

Hyde also works as a lecturer/academic, as Professor or Music at Bath Spa University in the UK – as well as teaching on the BA Creative Music Technology, he runs the MMus in Creative Sound and Media Technology and supervises a number of PhD students. Since 2009 he has run a symposium on Visual Music at the university, Seeing Sound.

http://www.josephhyde.co.uk

Still from 'Zoetrope' (1998)

Question 1. How did you start working in Visual Music and what attracted you to the field?

I'd always been interested in sound and image, both in isolation and in combination. As a child I was interested in music and art, and only consciously chose one over the other (music over art) when forced to do so by my exam selections. Early in my career I tried to combine the two, but it took me a while to find my feet. I briefly dabbled in music for film and television, but quickly came to the realisation that this field was a dead end for me – I didn't like the secondary role music seemed to occupy in traditional TV and cinema (Looking back, I have to admit to a certain amount of youthful arrogance there. Also, though, I think film and TV music and sound have developed and diversified in the 25 years since then), and the way that music in this context is often required to act as a kind of emotional shorthand – something I still find myself questioning.

Having moved from instrumental to electroacoustic music and enrolling on a PhD at the University of Birmingham to become part of a Jonty Harrison's BEAST community, I put these interests to one side for a while. However, I did make one audiovisual piece during this period, *Songlines* (1994)[1]. I think this was very much a transition piece for me as an artist. It's not entirely successful, partly due to an overly complex collaboration, and partly because I was still stuck in the traditional cinematic/televisual paradigm

1 see http://www.josephhyde.co.uk/video/songlines

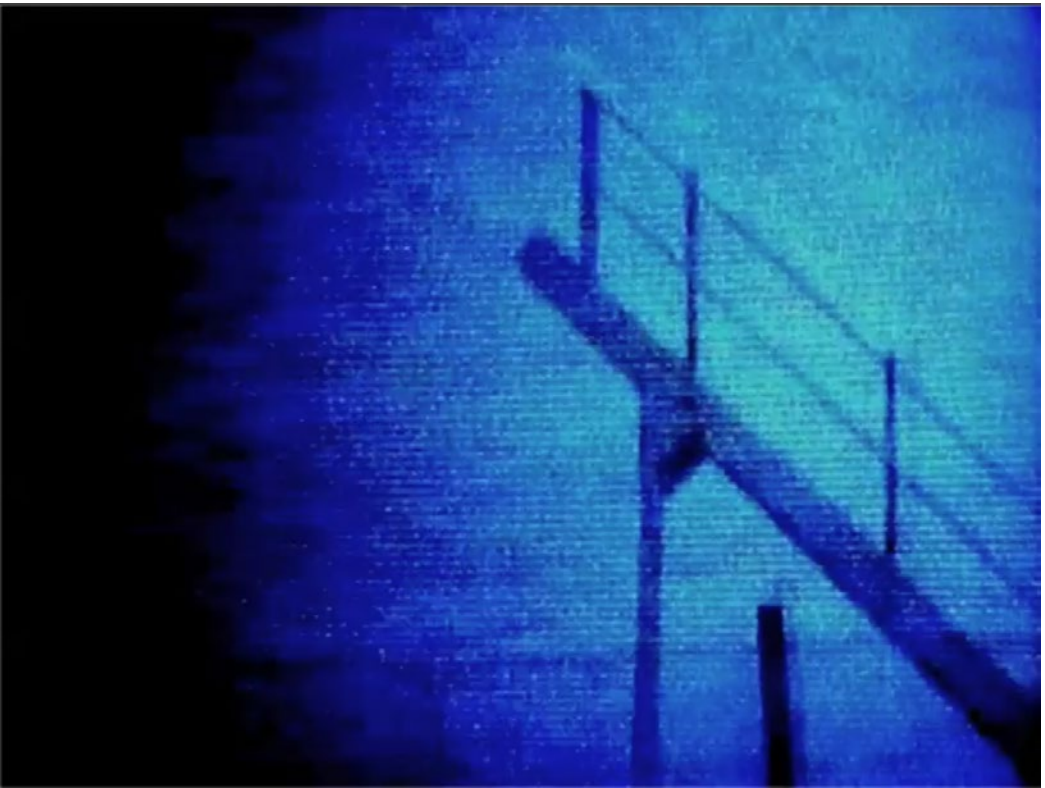
Still from 'Songlines' (1994)

that multimedia should centre on narrative (and to be clear, I'm using that term in a reductionist way – 'storytelling' might be more accurate), albeit here in a somewhat abstracted fashion. Nonetheless, there are moments where we achieved the kind of audiovisual synthesis I would later strive for.

It's worth mentioning access to technology – or rather lack of it – here. Today we take it for granted that anyone can make a video and upload it to YouTube, but this is a very recent phenomenon. Up until 1994 I simply had no access to video/visual technology, and even then it was only through a particular set of circumstances. I received a commission from ISEA, in collaboration with Silicon

Graphics Ltd. (a manufacturer of high-end graphics workstations). In connection with this, Silicon Graphics lent me a computer that was worth more than my house (and of course, was less powerful than my laptop today). And my collaborators, based at Central Saint Martins and Middlesex University, brought expensive video cameras and Betamax editing suites to the table – equipment which I would never have had access to otherwise. It wasn't until the late 90s that video technology started to become affordable. In a way that mirrored what happened to sound technology a little earlier, this was largely through cheap(er) digital technologies – DV cameras which opened up a new 'prosumer' category, and computer based editing solutions on domestic PCs and Macs.

Still from 'Zoetrope' (1998)



This shift made it possible for me to make an audiovisual piece in 1998, this time entirely on my own. This was right at the tipping point of the transition mentioned above – actually, I didn't get my hands on a DV camera until the following year. And the video editing system I used was a Media 100 – a kind of 'poor man's Avid'. This did require hardware, but the software side was an early version of Adobe Premiere. I mention this for a reason: my first thought on seeing Premiere was 'this looks like Pro Tools'. I'd never felt competent to use a traditional video edit suite, but with the System 100 I felt a sense of familiarity. The similarity of the timeline-based interface to DAW software also prompted me to explore whether I could find some way of working with video in the same way as I was working with sound. I took this idea quite literally, and attempted to develop a process very much akin to that I was used to in (DAW-era) electroacoustic music. I stuck to concrete (camera) sourced material, processed using a variety of techniques then combined in a compositional manner.

This piece was called *Zoetrope*[2], and it really set me on a new path, one that I feel I'm still following today. At the time, I didn't see it as connected to anything other than the electroacoustic milieu within which I was working. However, on seeing it a number of people drew parallels to the work of artists I wasn't aware of – a particular memory is of Francois Bayle suggesting I get to know the work of animator Norman McLaren. By following these leads I discovered

2 see https://vimeo.com/1664479

the whole field of Visual Music,[3] which felt like a huge discovery, and a homecoming of sorts. Here was a tradition of artists of all kinds, dating back to (at least) the 18th century, making multimedia work (in many forms) that was very different to the kind I had previously encountered in film and television. Not only was music given a more important role, it was the driving force, and many of these artists, far from employing the kind of narrative-driven 'emotional shorthand' mentioned above, were actually looking to achieve a level of abstraction in their work precisely by appropriating musical ideas, models and structures.

Question 2. What are the main ingredients for you, in terms of process?

It's this attempt to explore music/sonic material or ideas through the visual domain that I see as defining this area of practice. This still leaves things very broad of course, which is why I'm inclined to define it as an idea rather than a form. Attempts to define Visual Music as a form tend to be rather long (Keefer and Ox, 2006–8)[4], or incomplete (arguably, Evans, 2005).

Interestingly, Visual Music need not contain music – as we traditionally think of it – or sound at all. In fact one might argue that visual (- only) art might represent the purest manifestation of the idea outlined in my definition above (and that semantically, or perhaps pedantically, work that contains visual and sonic elements ought to be characterised as 'audiovisual music'). The term is often associated with the work of Wassily Kandinsky, who used ideas around synaesthesia, and a vision of music as a kind of transcendental ideal, to push his drive towards artistic abstraction. It can also be found in the work of many of his painter contemporaries – mostly associated with early abstract art – such as Klee, Mondriaan, Kupka and Cirlionis.

Later on one can find similar ideas (within an audiovisual framework) driving early abstract cinema in the 20s and 30s, through the work of Ruttman, Fischinger, Richter and Eggeling. Still later, it resurfaces in the early days of computer animation in the 50s (in the work of the Whitney brothers), and in the expanded cinema and the psychedelic movement in the 60s. And again, one can find it in the digital art revolution of the 80s and 90s.

What's interesting to me is that the idea(l) of Visual Music seems to surface at crucial moments in artistic and/or cultural change, and indeed to be a catalyst for them. There's nothing coincidental about this I think – arguably, Kandinsky wouldn't have achieved artistic abstraction in his painting without it, Ruttman needed this inspiration to make the first abstract film in his *Opus 1*, and so on.

3 Visual Music can be somewhat hard to define. There are fuller definitions by, in particular, Brian Evans and Cindy Keefer/ Jack Ox. I have developed my own rather simple definition, which really describes Visual Music as an idea rather than an art form: Visual music involves the artistic expression or representation of musical ideas or material through ocular media. (Hyde, J. (2012). 'Musique Concrète Thinking in Visual Music Practice: Audiovisual silence and noise, reduced listening and visual suspension' in *Organised Sound* 17, pp 170–178)

4 see http://www.centerforvisualmusic.org/Ox_Keefer_VM.htm

I wouldn't claim that there's anything revolutionary in my own work, but I do think rather in these terms, of the combination of sound and image in a visual music context as something catalytic, transformative. Actually, in writing about *Zoetrope* back in the 90s I described the combining of sound and image as a kind of alchemy. That's how it felt when I first experienced it, a kind of magic. I see this in my students now, an excitement at discovering what avenues the audiovisual can open up for their work, and how exhilarating it can be. And I still feel it myself.

Question 3. How do sound and vision more generally link up for you, experientially and conceptually?

Actually, the more I work in the intersection of sound and image, or perhaps I should say seeing and hearing, the more I think that these two senses have more differences than similarities. Some of these are quite profound I think – tied up with, for instance, time and space, and the way we perceive both. Sound is an inherently spatial phenomenon – as we inhabit air, and sound is vibrations in air, when we perceive a sound it is generally all around us, touching the whole of our body and not just the part(s) specialising in detecting these particular currents (ie our ears. Headphones are obviously an exception to this, but that way of listening is a special case). I think this is significant, because we do perceive sound – at least certain sounds, in certain instances – with our bodies and not just our ears. Also, we can be immersed in sound in an incredibly rich way – regardless of the number of speakers in a PA or sound diffusion system, what is created will be a complex interplay of vibrations and space as the sound is reflected and absorbed by its surroundings and indeed ourselves.

Light, however, behaves differently. In purely physical terms, one can find differences in its behaviour, light being 'packaged' into photons where sound exists only through a medium (ie air. It's worth noting that until the 20th century it was believed that light also travelled through a medium, that of *aether*. I think this in fact strongly influenced some of the early ideas at work around Visual Music, but don't have space to discuss that here). The more significant differences are, however, perceptual, and are tied up with the way we see, and by extension, the way we make art (to be seen). If I am watching (and hearing) a Visual Music piece in a concert setting, I often find myself struck by the fact that I am watching a two dimensional image 'over there' (on the screen) whilst being immersed ('here') in the sound. Whilst the two prevalent media found in Visual Music – painting and film, are generally two dimensional, this isn't an insurmountable limitation, and image and light can be used immersively through sculpture, light art, installation. However, I believe there is a fundamental difference between the way we see and hear, in spatial terms. Without getting into an extended discussion of the various Schaefferian modes of listening, in common (English) parlance we 'look at' something (active) while we 'hear' it (passive). We see by means of our gaze, which is incredibly focused and narrow, while sound floods into us from all directions.

The ways in which we see and hear are also different in terms of time – this difference also being strongly tied up in consideration of the gaze. At a base level, visual art can be time-based (eg cinema) or non time-based (eg painting). Music, however, can only be time-based, since without time there can be no sound. In reality the difference is more subtle I think – whilst a painting might exist out of time, we can only perceive it IN time (ie we will spend a certain amount of time looking at it). However, the way in which we might use our gaze to navigate through a painting is different to the way we might listen to a symphony – in the latter instance I think there is still a form of 'navigation' at work – we can choose where to focus our listening. However, this is more fluid and subtle than the visual gaze, since it is something that takes place entirely within the mind while to look at something requires the physical act of focusing one's eyes on it.

Despite these fundamental differences between the two, attempts to find some kind of equivalence between them can be an artistically fertile endeavour. Perhaps the most prevalent of these is one that I see as a major current within Visual Music, what one might denote Colour Music. This is the idea that one might work with colour in the same way as one works with musical pitch, since both represent a range or scale of frequencies. This idea dates back to the ancient Greeks but gained considerable momentum through the work of Sir Isaac Newton, who built it into the core of the theory outlined in 1704's *Opticks*, which forms the foundation of our modern understanding of colour. His ideas – or variations or oppositions to them – form the basis of the many 'colour organs' and other instruments developed subsequently, starting with Louis Bertrand *Castel's Clavicin Pour Les Yeux* of 1725.

This idea is quite persuasive, but flawed (in my opinion). Space doesn't permit a deep discussion here, but for me this is tied up with the perceptual differences outlined above. It's also based on a reductionist view of note-based music – if one thinks of sound on a spectral level (ie a middle C played on a piano not as one frequency but many) then it's hard to see how one might extend this way of thinking (or indeed listening) to the visual domain, although it's something I've toyed with as a kind of thought experiment.

I've also attempted to find areas of congruence and equivalence between the sight and sound (seeing/hearing). The one I've used most can broadly be defined as 'noisiness' – I won't go into this here, but I discuss it (and why I think it's useful/important) in my *Organised Sound* article (details given in footnote 1).

Primarily though I think it's more interesting to look beyond sight and sound themselves and explore more abstract concepts through both. A good example is counterpoint, which is a term used in connection with the relationship between sound and image by a number of contemporary visual artists, such as Bret Battey and Jaroslaw Kapuscinsky.

An example of 'noisy' visual material from 'Vanishing Point' (2010)

Question 4. With regard to Fischinger, one of Cage's inspirations, how has he influenced your work?

To some extent Fischinger is no greater an influence on my own work than a number of other Visual Music artists – McLaren, as previously mentioned, but also Len Lye, the Whitney brothers, Stan Brakhage and numerous more recent and contemporary artists.

However, he does hold a special position I think, and I would perhaps consider him the pre-eminent Visual Music film-maker of the early abstract cinema era. This is partly simply a matter of quantity. Fischinger made over 50 films, the majority of which could be called Visual Music. Most of the other 'big names' produced a fraction of this amount (Whitney brothers, Walther Ruttman), or were equally or even more prolific, but with large proportions of their output sitting outside this area of practice (Brakhage).

In my opinion, quantity is matched by quality, and Fischinger's films represent a remarkable body of work. There's a real consistency of ideas and aesthetic at play – it's pretty easy to identify one of his films within seconds of watching, and whilst he has been much imitated, no-one has really succeeded in replicating what makes his films special. Almost all the films are entirely abstract, and for me they represent a particularly highly-evolved attempt to forge a strongly individual and highly developed audiovisual language. Fishinger was more interested in form than colour, more influenced by Klee than (as is often written) Kandinsky. Like Klee, his work doesn't represent any attempt to find synaesthetic equivalencies between sound and image, but is rather a more sophisticated attempt to explore abstract forms and concepts through both, in the manner discussed above.

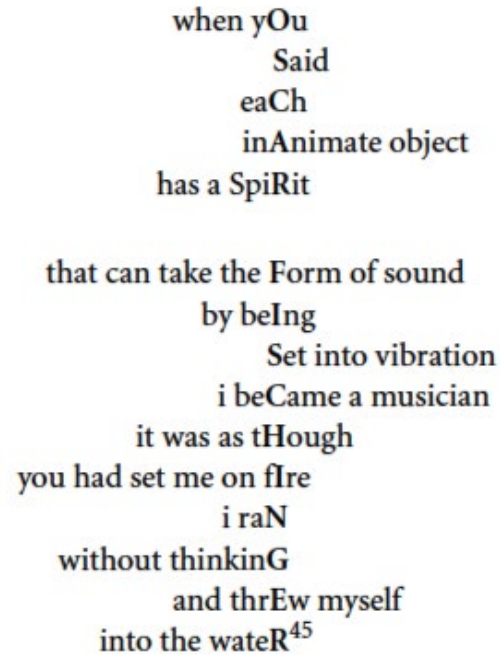
Although Fischinger used existing pieces of music for his films, they show a strong understanding of the 'inner workings' of the music used. As mentioned in William Moritz's biography (Moritz, 2004), his first choice of career was actually in music, and he evidently had highly developed musical skills and knowledge which he brought to bear in his work.

My specific interest in his work from a research perspective is really focused on the musical (partly because there has already been a lot of research from a cinematic perspective), and centres on two, interconnected, elements of his practice. The first is a large body of scores, currently in the archives of the Center for Visual Music in Los Angeles, which he made as part of the process of making his films. This collection includes everything from piano reduction scores covered in scribbled pencil annotations to large cut-up collages and fascinating graphic representations of both musical and visual ideas. As such, they represent a fascinating insight into his process, particularly for a musician.

The other is his interest in 'synthetic sound', the term generally used in cinema studies for the practice of directly drawing/printing on or in another way manipulating the (optical) soundtrack of film to produce synthetic timbres. This area of practice is very interesting to me, since it predates the more widely-known history of sound synthesis in many ways – early attempts were made in the 20s. Fischinger was a fairly early proponent in his *Ornament Sound* experiments of the early 30s, but what I've been researching in particular is a return to these ideas in the 40s. Not much survives of these later experiments, but the 'machine' used to produce them survives, again in the Center for Visual Music archive. In reality this is a fairly simple apparatus, but it represents – I believe – a particularly clever method for synthesising complex pitch structures which is technically superior to that employed in more well-known contemporary work in the same area by Norman McLaren and others. Of particular interest to me are a number of scores made for use with the device. Most of these are transcriptions of existing music, but a number of them are more abstract. They raise the tantalising possibility that Fischinger was developing original synthetic sounds using these techniques, something I would like to investigate further (Hyde, 2013).

It was these synthetic sound experiments (actually, *Ornament Sound* in particular) that seized the imagination of John Cage. In reality, the association between the two men was very brief, involving a young Cage working as Fishinger's assistant for a short period during the making of *Optical Poem*. However, it seems that Fischinger's influence on Cage at a rather crucial juncture in the latter's career was quite profound. Although the later synthetic sound experiments mentioned above are more interesting from a technical perspective, the earlier *Ornament Sound* work has some fascinating ideas associated with it. In particular, Fischinger spoke about all objects having a sonic potential locked within them which only needs some way in which to manifest itself (this work being about 'sounding' ornaments or patterns rather than a literal attempt at sound synthesis). One can imagine these ideas being appealing – and indeed influential – to a young Cage, and this influence was one he acknowledged. A slightly humorous example can be found in a mesostic written for Elfriede Fischinger, where Cage combines this idea with a (possibly apocryphal) story of Fischinger inadvertently almost starting a fire at the studio with his cigar (and Cage putting it out with a bucket of water).

There are other areas of influence that can be speculated on. It is documented that Fischinger used percussion music in his astonishing early work *Raumlichtkunst* – when this was made in 1927 this would have been a bold choice (unfortunately no evidence as to exactly what music was used survives). Cage's adoption of percussion as a major part of his compositional vocabulary coincides almost exactly with the time he worked with Fischinger. This may well be coincidence, but as Richard H Brown has observed (Brown, 2012), the scores for some of these early percussion works (a good example being 1937's *Quartet for Percussion*) bear a striking similarity to some of Fischinger's process scores, particularly those associated with *Optical Poem*.



when yOu
Said
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has a SpiRit

that can take the Form of sound
by beIng
Set into vibration
i beCame a musician
it was as tHough
you had set me on fIre
i raN
without thinkinG
and thrEw myself
into the wateR[45]

John Cage, 'Mesostic for Elfriede Fischinger,' 8 May 1980

The story of Fischinger and Cage pretty much ends there, apart from one tantalising 'might have been'. There is documentary evidence that the Guggenheim Foundation planned a joint commission from Fischinger and Cage in the early 40s. Unfortunately, this was one of several projects shelved when Fischinger and the foundation parted ways following a falling out between Fishinger and the terrifying-sounding Baroness Hillary von Rebay shortly thereafter.

Question 5. How does visual music compare to working with sound in other interdisciplinary contexts, for example working with dance?

There are similarities and differences I think, although both are quite personal to me. The similarity is perhaps one of motivation. In the same way as I found visual music after a flirtation with more mainstream film and TV music, I only started working with dance after working in other forms of theatre – I wrote an opera whilst at university (as an undergraduate), and one of the first things I did after graduating was to score a full-length play. Whilst I greatly enjoyed both experiences, I again found there to be a kind of conflict between the needs of the narrative and what I found

danceroom Spectroscopy – Hidden Fields performance at the Passenger Shed, Bristol 2013. Photo image by Paul Blakemore

musically satisfying. I don't want to give the impression that I find anything intrinsically 'wrong' with the combination of music and narrative (again, I really mean 'storytelling'). But I think I have learnt that – in my own practice at least – I relish the power of music as an abstract phenomenon, an end in itself (I think it's precisely my interest in Visual Music that has cemented this position).

Dance can, of course, be highly narrative, even in the reductionist terms I'm using here. But the choreographers I've worked with, within a broad range of contemporary dance practice, have tended towards a model of 'absolute dance' where literal storytelling is generally avoided. More crucially, they generally haven't expected

the music to 'communicate' anything, or indeed to follow or support the dance in any literal sense moment to moment. Whilst I've never come close to the Cage/Cunningham model of complete independence, I'm generally allowed the freedom to make music that, broadly speaking, makes sense on its own (abstract) terms.

The primary difference between my visual music work and my work in dance is one of authorship. Put simply, in my visual music work I generally make the sound and he image myself – this, I hope, gives a certain consistency to the work and allows me to attempt a truly 'blended' model where sound and image cannot really be separated but work together as a single artistic entity.

My dance work, however, is entirely collaborative. As I am neither a dancer nor a collaborator, this is a matter of necessity. Whilst I relish the control and single-mindedness I can bring to my visual music works, I'm also a very keen collaborator, and my work with dance allows me to refresh my practice by working with others. Precisely because I have no background or expertise in their field, I'm happy to leave the dance side of things to the experts (although some of the projects I've been involved in have involved me making visual as well as sonic material, and recent work, such as the danceroom *Spectroscopy*[5] project, has involved me using movement sensors of various kinds to make media interact with movement).

5 see https://vimeo.com/81906628

Another thing I enjoy working in dance is a certain freedom from stylistic constraints. I think this might be something less troubling to younger practitioners, who seem much more adept at navigating between genres (or indeed, ignoring them entirely), but I have, at least in the past, found myself inhibited by the need for my work to be 'contemporary' (instrumental), 'electroacoustic' or 'acousmatic' (electronic), and that this has somehow barred me from certain types of material (tonal, straightforwardly rhythmic). My dance work, being in a different context and generally destined for a different audience, has helped to liberate me from these concerns to an extent.

Question 6. How did your process extend from making visual music to organising the Seeing Sound symposium?

Seeing Sound[6] was really a rather straightforward case of me wishing into existence something I wanted to go to which didn't seem to exist. The field of Visual Music is historically quite US-centric I think (any careful consideration of this statement will find it lacking – many of the key artists associated historically with this area of practice were European, and examples can be found globally. However, under this specific name and in the late 20th and early 21st Century it at least partially holds true). They key organisations working in the field – such as the Center for Visual Music mentioned above – are US based, and the field and terminology have more currency in US academia than they do in Europe.

6 see http://www.seeingsound.co.uk

Bath Spa University's Behaviour ensemble performing with Jon Pigott at Seeing Sound 2013

At the time I first became interested in Visual Music I felt I'd slightly missed the boat – there seemed to have been a surge in interest in the field around a large-scale exhibition at the Hirschorn in 2005 (Brougher et al, 2005), and this seemed to have left a bit of a vacuum. I also thought the moment might be right for an event in Europe (the UK, specifically), so in 2009 I went ahead with the first event, at Bath Spa University where I work.

With the benefit of hindsight, and as is often the case, what we did was only part of a bigger picture. I think since the late 2000s there has been a real resurgence of interest in Visual Music. Whilst it continues to tick along nicely in the US, I think this resurgence has

been specifically in Europe. In fact, as it turns out, the first *Seeing Sound* almost exactly coincided with a large gallery-based event in Linz, Austria, and this also had a very similar name – '*See This Sound*' (Rainer et al, 2009). This wasn't entirely coincidental – both events featured the work of Mary Ellen Bute, who coined the phrase in conjunction with her Visual Music films. And we tried to make what might have been slightly embarrassing into a feature, forging links between the two events – Sandra Naumann, who was one of the people running the event in Linz, came over as our keynote speaker.

Since then a number of other events have sprung up across Europe, most recently the large-scale Reykjavik Visual Music Festival (and the opening of the Reykjavik Centre for Visual Music)[7]. I see the 'New European' Visual Music (I'm not really proposing that as a good name for it) as slightly different to the original US version – firstly, whilst Visual Music in the US depends to be largely based on animation, in Europe I see more work emerging using video footage, and/or using new paradigms of live audiovisual performance, live coding etc. Secondly, in Europe I see more people emerging from music or audio backgrounds than those based in animation or other visual disciplines – in the UK I have been particularly interested to see a subcurrent of interest from composers working within an acousmatic/electroacoustic tradition, and bringing elements of Schafferian thinking to their audiovisual practice. I see myself as somewhat part of this.

7 see http://www.rcvm.is

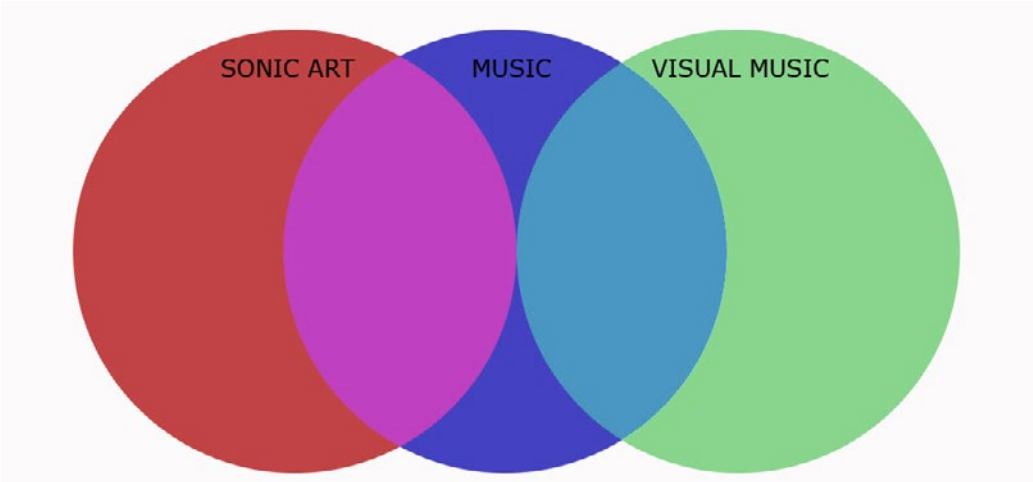
Question 7. How has all this changed or confirmed your ideas of music?

What my interest in Visual Music has done is encourage me to think of music as an abstract concept, not necessarily linked with sound – a set of ideas, a formal schema, a series of patterns. I think it's possible to think of music perhaps as organised time rather than organised sound (sound itself being essentially a factor of time anyway). But I think it's also – by taking away the 'requirement' for sound – possible to represent music outside of time, as a painting perhaps. Of course, this isn't such an unfamiliar concept really – one might argue that in a score we see music 'frozen' out of time in this way. But I find the idea that music might exist as a kind of platonic ideal, which we just happen to usually represent through the medium of sound, very interesting.

In this way I think it really has changed my ideas about music; expanded my comprehension of what music might be. I like to see this as a mirror to what I was exploring in the context of electroacoustic music in the early 90s. At that time I tended to use Trevor Wishart's term 'Sonic Art' to describe my work. What attracted me to that term was that it sidesteps the endlessly tedious 'yes, but is it music?' question. Sonic Art spoke to me of sound freed from the constraints of music. Whilst in principle I applaud Cage's assertion that anything we denote as music can be music, I'm not sure this is necessary any more. As we get increasingly accustomed to artforms such as sound design (film, tv,

gaming), sound installation art, sound walks, sonification/audification, audio product design etc. I think it's becoming commonly accepted that sonic practices that do not fulfil the traditional function of music can still be skilled, worthwhile, beautiful.

In the same way I see Visual Music as a kind of mirror to this: while Sonic Art frees sound from the constraints of music, Visual Music frees music from the constraints of sound. Put another way, I think sound as an area of arts practice is bigger than music, and – conversely – music in turn is bigger than sound. I like to represent this with the venn diagram below, which is slightly trite but kind of works.



One of the most interesting ideas I find in the Visual Music history was proposed by Thomas Wilfred, in connection with his Clavilux devices, produced in the 1920s and 30s (there are a few of these still in existence in various states of disrepair. You can see one at LACMA in LA). The Clavilux itself I see as the culmination of the history of Colour Music outlined above, a particularly refined colour instrument capable of beautiful and variegated colours and textures. But what fascinates me is Wilfred's ambitions for his instrument – he proposed an entire new art form – 'Lumia' – which he describes (I'm paraphrasing and simplifying) being to light what music is to sound, ie a formalised and abstract time based (but of course also spatial) art form.

If one considers the timeframe, I suppose it is evident that Wilfred's idea was essentially overtaken by the explosion of cinema between the 20s and 40s (arguably brought about by the birth of cinema sound). However, I find Wilfred's ideas fascinating, and rather close to my own ambitions for Visual Music. I love that Wilfred saw his medium as light rather than image, which seems close to my own (sonic art inspired) ideas about music. Although the smaller Clavilux instruments, such as that at LACMA, feature something rather like a screen, the larger instruments were something closer to a sophisticated light show, and could be seen as a precursor to the expanded cinema of the 50s and 60s. I see a new form of expanded cinema (perhaps even Lumia) as being the most exciting area of practice in Visual Music right now, audiovisual artists moving beyond the constraints of fixed media single-screen work to incorporate live performance and interactivity, multiple screens and visual media,

projection mapping, computer controlled lights and lasers and even prototypical holographic technology. In this context, the spatial and temporal differences between light and sound, seeing and hearing might be – if not broken down – reconsidered, opening up new possibilities for audiovisual synthesis.

References

Brougher, K. et al. (2005). *Visual music: synaesthesia in art and music since 1900*. Catalogue: Thames and Hudson

Brown, R. H. Jr. (2012). 'The Spirit inside Each Object: John Cage, Oskar Fischinger, and 'The Future of Music'. In: *Journal of the Society for American Music* Volume 6, Number 1, pp 83–113

Evans, B. (2005). 'Foundations of a Visual Music'. In: *Computer Music Journal* 29(4): 11-24

Hyde, J (2013) 'Oskar Fischinger's Synthetic Sound Machine' and 'Fischinger's Scores' In: *Oskar Fischinger 1900-1967: Experiments in Cinematic Abstraction*. EYE Filmmuseum, Amsterdam, pp. 145-151

Moritz, W (2004). *Optical Poetry: The Life and Work of Oskar Fischinger.* John Libby Publishing

Ox, J and Keefer, C. (2006-8). 'On Curating Recent Digital Abstract Visual Music'. Abailable from http://www.centerforvisualmusic.org/Ox_Keefer_VM.htm [accessed 22/12/2012]

Rainer, C et al. (2009). *See This Sound: Promises in Sound and Vision*. Lentos Kunstmuseum Linz. Catalogue: Walther König

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Still from 'Songlines' (1994)

A Concert for Artificial and Human Voices

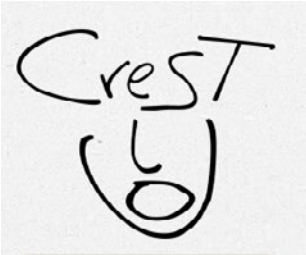
by Robert MacKay

Abstract

This article describes the world's first concert for artificial and human voices, performed at Woodend, Scarborough in January 2013, as part of the work of the Creative Speech Technology (CreST) Network.

It brings together insights from an interdisciplinary mix of scientists and artists. Participant's biographies can be found at the end of the article.

CresST members.
Christopher Newell,
Maria Bovino,
Paul Barker,
Rob Mackay,
James Balentine,
Bruce Balentine,
Lisa Ja Coates,
David M Howard,
John Wedgwood Clarke,
Kevin Jones.
Image by Dan Doughty



CreST Performances in Scarborough:
http://crestnetwork.org.uk/page/scarborough-concert

CreST on sound cloud (produced by Hannah Rolfe):
https://soundcloud.com/crestnetwork

Introduction

The Creative Speech Technology (CreST) Network was established in 2011 with funding from the Engineering and Physical Sciences Research Council (EPSRC). Its objective was to bring together a wide range of participants with interests in the technology. It was an explicit aim that they should not only be engineers and scientists, but also artists, singers, writers, speech therapists and users of the technology. The success in attaining a mix of participants was confirmed by additional funding from the Arts Council England (ACE) for the *Articulate Roadshow* which toured in 2012–2013 to four venues in the north of England. The concert for human and artificial voices was the final event of the CreST Network.

There were four objectives for the network:

- Support for the emergence of common languages and understandings that facilitate better communication between speech scientists and speech practitioners in the arts. Encouraging the emergence of an interdisciplinary ontology for computer speech production
- To encourage the development of partnerships and networks between speech scientists and speech practitioners in the arts that will lead to creative collaborations and further research proposals
- To provide a platform for the development of modestly scaled prototypes and artefacts by network members.
- To provide heightened public engagement with computer speech research through a touring show demonstrating works developed within the network, special activities for the public throughout the life of the network and an interactive website.[1]

These objectives were met in a lively, practice-based environment in which the emphasis was on making something, even if the

1 Edwards A, Newell C. The CreST Network. 2013; Available at: http://crestnetwork.org.uk/. Accessed 3/9/2014, 2012

something was imperfect. For many of the fifty-two network members used to an academic scientific methodology, this process was something of an anathema. Being asked to present your work to a non-specialist audience while it is still evolving is frightening.

The membership rose to this challenge and twelve new exhibits were built and displayed for the roadshow, all of them utilising bespoke technology and newly created artistic content. A number of new partnerships and projects have also emerged that include; three new research proposals, a film project, additional performances of compositions in New York, a presentation at an artificial intelligence conference, contributions to *World Voice Day*, a special edition of a journal and a paper on the process of extreme interdisciplinary collaboration. Many more new projects have yet to be collated.

Network collaborators included two people with disabilities that prevented them from speaking without the use of voice output communication aids (VOCA's). For many members this was their first opportunity to work alongside people who depended on the technology which lay at the heart of the project. This proved to be a significant stimulus to a number of the roadshow exhibits and we were particularly pleased to note that this encouraged a significant number of disabled people to come to the roadshow and give their feedback.

The concert for human and artificial voices came about by chance. As the membership of the CreST Network evolved, it became apparent that quite a number of composers were to contribute. The contrast between the expressivity of the human voice compared to the emotional poverty of the non-human voice was a frequent subject of conversation among them. Perhaps one of the most powerful manifestations of vocal expression is singing and at first it seemed likely that singing based projects would feature strongly in the *'Articulate' Roadshow*. However the focus of the CreST Network was on speech and in the end only one singing example was built. Meanwhile all sorts of serendipitous events occurred: a willing host venue at Woodend in was found, funding was generously donated by the ICP Cluster (University of Hull) and the HCI Group (University of York), members, or friends of members, who could sing, act, play the piano and write libretti showed enthusiasm for a concert to celebrate in style the conclusion of the *CReST Network Roadshow*. The concert took place on January 26th 2013 in very snowy weather. In all, six works were performed by composers from the UK and the USA.

The computer generated voice as a creative tool, as a performer or as an instrument is relatively new territory. We believe this concert was the first of its kind – ever – in the world, but perhaps surprisingly it also had a historic constituent. The work by Joseph Olive was first performed in the 1970s when an artist utilising speech technology was an extreme rarity. The speech synthesiser used in Barker's work was built in 1983 and is the size and weight of a desktop PC. The computer-generated voices heard may or may not have been derived from a human original. Years ago, some

anonymous 'voice talent' may have been required to record tens or hundreds of hours of speech in order that 'new' words can be said or sung. That said, most of the music performed was brand new; much of the technology was cutting edge; unpublished new voices, some cloned from CreST members were created; and new poetry and stories for artificial speakers was written.

The power of the 'artificial voice' may very well lie in its inability to be expressive (in the way a human voice so readily can). Stephen Hawking refuses to change his voice for a more up-to-date model – it is his brand, his identity, his persona. As an expressive tool, the computer generated voice cannot be treated like its human equivalent; instead, it needs a unique compositional talent to tease-out a winning persona that may employ wit, pathos, sentiment, irony, tuning, rhythm, dissonance or chance to make its effect. The following accounts of the compositions presented for the concert will examine this process in more detail.

About the pieces

A video of the entire concert can be accessed[2] as well as a radio documentary[3] and a news feature on Russia's 1TV.[4] A description of each piece and the process behind its creation is listed below, written by each of the creators. For reference, timings of each piece in the online video is included with the description.

2 http://crestnetwork.org.uk/page/scarborough-concert
3 https://soundcloud.com/crestnetwork (produced by Hannah Rolfe)
4 http://www.1tv.ru/news/other/225843

Vocal Vision 1 – David M Howard [0'06" – 4'18"] *Performers: Maria Bovino (soprano); Lisa J Coates (mezzo-soprano); David M Howard (laptop)*

The synthesis of vocal sounds is one that has fascinated researchers since von Kempelin's speaking machine was unveiled in 1793 (Dudley and Tarnaczy, 1950). Modern fascinations in this area turn to the computer where there are many opportunities for the control of voice synthesis. In *Vocal Visions 1* for computer synthesised four-part choral vocalise (vowels only) and two live sopranos, the four-part vocalise texture underpins the work, playing throughout to provide the sopranos with the underlying musical pulse throughout. The four parts are routed to separate loudspeakers to give them individuality in space. The piece allows particular differences between the synthesised and live outputs to be placed in stark contrast as a vocal vision of the technological 'now' in 2013. The synthesised voices can hold all aspects of a note, such as pitch, tuning, volume and vowel quality, exactly and for as long as is desired; this is not the case for a human sung output where there are constant small-scale variations as well as a need to breathe! The synthesised voices stretch diphthongs over many bars; the sopranos are asked to do this and it is somewhat alien to how we use diphthongs in communication. Conversely the listener might note the total absence of consonants, something the synthetic choir cannot easily achieve as a natural output; by their absence they are appreciated all the more.

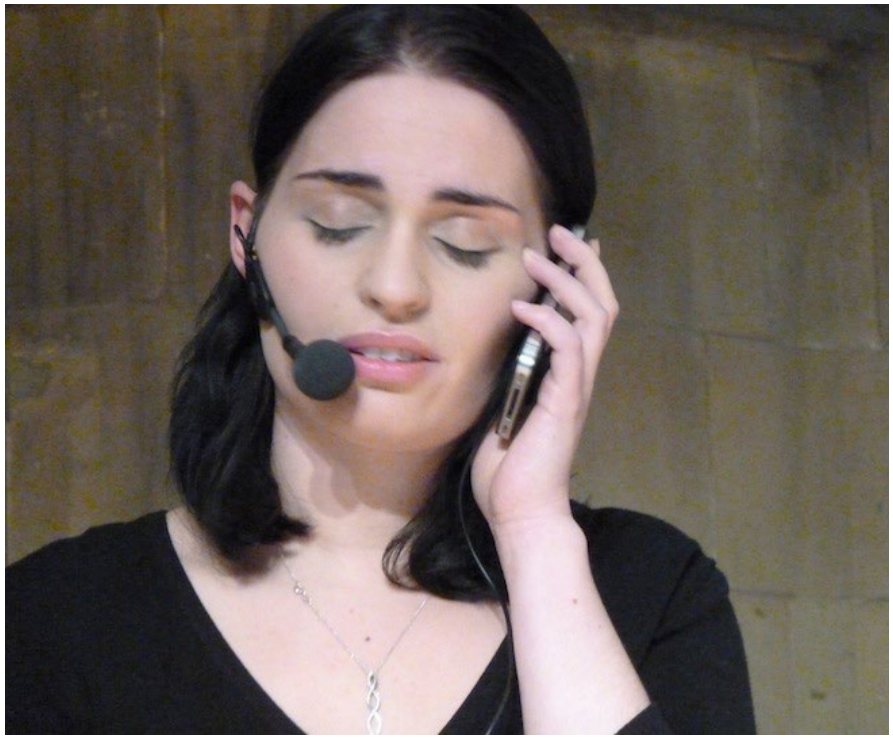
In performance, aspects of the four-part vocalise synthesis are controlled live using some form of gestural interface. The piece was inspired by the objectives of the CreST network to demonstrate to the public live the limitations and opportunities offered by today's speech technology. Public engagement in this way is an increasingly important aspect of today's research (Howard, 2012). For this we implemented a four-part choral synthesiser based on formant synthesis using Pure Data (Howard, Daffern, Brereton, 2013) to illustrate aspects of the singing voice that have to be controlled in choral singing. Via an Xbox controller, users controlled pitch, volume, vowel, vibrato depth and vibrato rate of one of the voices, either alone, as a note in a chord with the other three voices or in karaoke mode. It was the experience of hearing what listeners achieved in a short time with this system that inspired *Vocal Vision 1* as a way of contrasting whilst juxtaposing the synthetic with the human singing voice.

My New Voice – James Scott Balentine (music), Bruce Balentine (libretto) [4'30" – 13'06"] *Performers: Lisa J Coates (mezzo-soprano); Paul Barker (piano); Bruce Balentine (laptop)*

My New Voice, for soprano, piano and synthesized voice, is an excerpt from an opera (in progress) of the same name by James Scott Balentine, music, and Bruce Balentine, libretto. The synthesized voice is an active, visual and musical part of the piece, performed live by an actor on stage for both dramatic effect and coordination of musical entrances as an equal member of the ensemble. The plot of the story is a dialogue between Trevor, a disabled artist and inventor who can speak only through a synthesized voice with its inherent limitation of emotions, and Elizabeth, his caregiver and friend. Their interaction reveals Trevor's longing for the ability to communicate his deepest emotions to others and to Elizabeth in particular, ultimately wishing for not only the technology to speak, but the ability to 'sing'; that is, to communicate thoughts and feelings in ways beyond just the words.

Setting text to music must always consider the many attributes of speech – prosody, stress, phrasing, voice quality and range – as well as their implied relationship to the musical elements of pitch in both melody and harmony, rhythm and meter, dynamics, texture and timbre. For most traditional vocal music, the linguistic features play an important but secondary role to the musical ideas of the composer; that is, melody, harmony and rhythm are primary during the composition of the music, and designed to enhance and imbue the text with emotional meaning, thereby determining the prosodic elements within the context of the music.

Synthetic speech in music offers an opportunity and a challenge to the balance between music and language in the compositional process, and depends in large part on the voice or voices chosen to synthesize the speech to be used in the music. That is, rather than allowing the music to determine the prosodic and emotional elements of the voice, it is possible with current technology to use the voice synthesis parameters to approximate emotional



Lisa J Coatets in 'If Then + Really (as if)'. Image by Dan Doughty

contours, then write the music to underscore the musical character of the voice in much the same way a composer may re-harmonize an existing folk melody within a broader musical context. For *My New Voice*, the librettist chose several voices by Cereproc[5],

5 http://www.cereproc.com/

whose voices allow some control of prosodic elements (e.g., pitch, rhythm, and dynamic stress) to enhance the emotional content in some specific way. The synthesized speech for *My New Voice* was created first, and the composer then transcribed the musical elements of pitch and rhythm from the speech, which then helped to generate melodic and harmonic direction and structure for the piece. The musical ideas sung by the soprano and played by the piano then all sprang from, and in response to, the musical ideas generated by the synthesized speech.

The underlying concept that emerged from the writing and performance of this piece is that there is really very little difference between speaking and singing. When speech is treated primarily as 'song', as it was in this work, it tends to be perceived musically, and the listener tends to perceive emotional content in it that would be absent without the musical frame into which it has been placed. For the composer, expressing the emotional meaning of the text in vocal music with both live and synthesized voices necessitated a fresh perspective on the very close relationship between singing and speaking, and an effort to understand and minimize the differences between them.

If/Then+Really(as if) – Kevin Jones [13'34" – 24'22"] *Performers: Lisa J Coates (mezzo-soprano); Kevin Jones (laptop)*

That we are increasingly plugged into and reliant upon technology has become a common refrain; so much so that we barely notice

each new device and application further extending our bodies, our selves beyond the physical. Among these, interactive speech systems raise particularly interesting issues concerning the intersection of humans and technology, one of which is that of naturalness.

People in the speech technology industry often talk about 'natural' sounding synthetic voices, meaning how much they sound like humans. But they're not human. They're synthetic and have qualities that are distinctive and that separate them from the human voice. Synthetic voices are easily and infinitely duplicated. They are capable of feats of vocal virtuosity impossible for a human, without ever needing to take a breath.

Do these abilities render the synthetic voice somehow less natural? If so one must ask, less natural than what? The word 'natural' must be re-thought in this context. In some ways Walter Benjamin's 1936 essay, *The Work of Art in The Age of Mechanical Reproduction* (Benjamin, 1968) has never been more prescient. Benjamin refers to artworks as having an aura, that being those essential, unique qualities which risk being diminished by reproduction. For synthetic voices duplication is a quality inherent to their being. Their virtuosic abilities are neither more nor less than an innate property of the system in which they reside. Both are natural components of their aura. It is all too easy to allow our preconceived notions of the human voice to influence our way of working with synthetic voices.

The voice is a very alluring sound object. Whether in an artwork or in everyday life (e.g. automated telephone systems), they arrive in our ears bearing a heavy load of associative baggage. One cannot hear a synthetic voice without anthropomorphizing the sound to some degree. This makes working with synthetic voices in soundart all the more complex. Nicholas Tresilian, in *Semantic Reciprocity* (Tresilian, 2011), describes the classical artwork as having a dual organization, acting both as distributor and attractor of meaning. The observer applies their own sense of meaning to an artwork, which is mediated by the projected meaning contained within the work itself. In the case of synthetic voices, and particularly with interactive voice recognition/ synthesis applications, this meaning system is further complicated.

There is the experience of vocal interchange, with language presented in a quasi-natural manner. But there is also, simultaneously, the experience of interacting with a machine, an entity other than human with other than human qualities. Finally there is the overarching aesthetic quality of the artwork itself, which colours and is coloured by all of the other elements at work within the experience. Content and context are at odds. The synthetic voice is at once in and out of sync with the listener's expectations and must be read simultaneously in more than one way in order for the listener to find a route to meaning.

In my piece, *If/Then+Really(as if)*, made as a part of the CreST project, I attempt to explore the impact of human-machine interaction and the ways in which technology is an ever more

intimate, sometimes intrusive presence in our lives. In the course of making the piece I began to consider the issue of 'naturalness' as something of a double-edged sword that threatened to derail the entire process. Combining a live singing-speaking voice with synthesized voices, performing in a musical/dramatic counterpoint, the sense of 'naturalness' is in flux within the piece. What qualifies as natural and what as synthetic is suspended somewhere between the two. What, at first, seemed a troubling ambiguity became the issue at the core of the piece. It is somewhere within that space between the natural and the synthetic that we all now find ourselves, on a continuum which is itself in flux as the technology transforms. How we navigate that space is among the more compelling questions of our time.

The voice, being one of the most powerful components in defining our sense of self, seems particularly well suited as a vehicle for exploring the space between the natural and the synthetic. In working with synthetic voices one's first instinct is to pour all one knows about the human voice into working with the synthetic, trying to make it sound as human as possible (perhaps an attempt to recreate ourselves in the technology?). But there is a feed-back loop in this process. As we work with them the qualities that are natural to the synthetic voice insinuate themselves into our thinking and inevitably become one more element in our sound palette. The natural and the synthetic are not at odds in this scenario, they become members of an ensemble and our knowledge of each influences how we work with both.

Paul Barker and Maria Bovino in 'Mar-ri-ia-a'. Image by Dan Doughty.

Whether it be the infinite length of breath of a synthetic voice or the subtle variations of pitch and rhythm in human speech, human and synthetic voices present different problems and suggest different solutions. And in so doing they suggest that what constitutes a 'problem' is no longer so easily defined. The line dividing 'problem' and 'not problem' becomes blurred. Ambiguity sprouts anew. Searching for a strict definition of 'problem' perhaps attempts to

answer the wrong question as our conception of the vocal utterance is extended and enriched by working with synthetic voices. The unique qualities of both human and synthetic voices highlight each other and which is more natural, or which came first becomes rather irrelevant. There's always room on the palette for more.

For the artist, synthetic voices occupy a point on this continuum somewhere between the natural and the synthetic. They are not a substitute for the human voice, they are an altogether new instrument that contains elements which refer directly to a sound as old and familiar as our species – our own voice, while simultaneously pointing away from our bodies and our history as the technology continues to evolve. In working with synthetic voices 'natural' is a moving target, as it increasingly is in our daily lives.

Since the concert, the piece has been re-worked into an opera *Your Call…* Part 1 of which was presented as a part of the 2014 *Tête à Tête* Opera festival 6 & 7 August 2014, London[6].

My Voice and Me – Paul Barker (music), Christopher Newell + George Newell (script) [24'46" – 36'50"] *Performers: Paul Barker (piano); Maria Bovino (soprano)*

Oliver Curry was a famous operatic tenor, thirty years ago. Through a series of unfortunate incidents he developed acute aphasia and lost the use of his voice. He still communicates with a 1983 Dec Talk DTC 01 Speech Synthesiser. He has written a book about his experiences called *My Voice and Me*, which particularly refers to his role of Canio in *Leoncavallo's Pagliacci.* He is currently on a world-wide tour promoting his book. He speaks as best he can from a piano, aided by his wife, Maria.

Oliver Curry never existed. *My Voice and Me* was planned as a radio play disguised as a promotional programme. This fictional scenario was developed into a script by Christopher and George Newell. Although the monologue sounds strong in the voice of an actor, when spoken by the speech synthesizer most people would stop listening after the first minute. My role for this commission from The University of Hull was to attempt to create a musical score which would take the place of actorial decisions but maintain the attention on the text.

I aimed to highlight the emotional content, so painfully missing from the synthetic speech, especially in relation to Oliver's fictitious circumstance, through the model of melodrama; a form currently unfashionable, which nevertheless boasts a colourful and popular history, and is related to opera. Since the story hinges around Pagliacci, Canio's famous aria *Vesti La Giubba* became the musical thematic basis for the composition. The role of the music might best be compared to film-music, both to drive the narrative and underline the emotional content; however, there is no visual element in radio play. A certain familiarity with the romantic

6 www.yourcallopera.com

musical style allowed the musical gestures to be on a large scale without diverting the listener's attention from the text in the way that perhaps a contemporary language might not. However, I also deliberately chose to exceed the stylistic confines both harmonically and rhythmically.

The story evolves around a young inexperienced singer, Maria, whom he eventually married. Towards the end, her voice is heard, reflecting their close relationship. Other than speaking his name once, she sings wordlessly.

As the work developed we began to see the potential for live performance. The pianist acts as the mute singer, and the page-turner becomes his supportive wife, while his synthetic voice is played through a speaker in front of the piano. This performance we gave at the Crest Concert for artificial voices in Scarborough in February 2013.

As well as text, Oliver uses paralingual effects, notated such as 'Ha!'. This represents the singer's nervous habit of clearing his throat, nervously checking their voice is still there. Oliver continues these sorts of habits even when he no longer has a voice. The meta-paralingual effects of their use in the synthesiser become sonic gestures which further add to the musical structure. The work emphasised for me how timing remains a core component of both the actor's and the composer's art. I was able to work with Chris Newell and Dan Doughty in the recording, dealing with the

Lisa J Coates in 'Fizz to the Power of Fizz'. Image by Dan Doughty.

placing of words and music to a small fraction of a second, in order to secure the attention of the listener. Based on this evidence, the timing of sound and its control would appear to be the most crucial element which is missing from synthetic voice programmes.

My Voice and Me lasts twelve minutes. It is a substantial enough length to test how music can add meaning to text, in the sense of both character development and narrative structure.

Fizz^Fizz – Robert Mackay (music), John Wedgewood Clarke (words) [37'10" – 47'48"] *Performers: Lisa J Coates (mezzo-soprano); John Wedgwood Clarke (poet); Robert Mackay (laptop); Sam Eaton (laptop); Tariq Emam (laptop)*

This piece uses two poems written for the *Sea Swim*[7] project by John Wedgewood Clarke (2012). It combines field recordings with several vocal layers derived from the poems, including live spoken word, singing, manipulated recorded voice, and synthesised voice. All of the vocal layers (apart from the singer) have been derived from John Wedgewood Clarke's voice, including the synthesised voice.

I created a Max/MSP patch which included a formant vocal synthesiser (converted from a Pd patch made by Prof Roger Moore (University of Sheffield); DSP effects for the synthesised and live voices; and a playback module for field recordings which allowed simple loop and speed controls.

Set-up for 'Fizz to the Power of Fizz'. Image by Rob Mackay.

The formant speech synthesiser was created by first taking an audio recording of the poet's voice and analysing it using Prof Moore's analysis software. This was converted into a string of control data for the formant synth which models the human voice.

7 *Sea Swim* is part of *imove: a Cultural Olympiad Programme in Yorkshire* – www.imoveand.com/seaswim

Paul Barker and Maria Bovino in 'Mar-ri-ia-a'. Image by Dan Doughty.

It consists of a virtual larynx using a phasor~ oscillator, a white noise generator for sibilance, and 5 resonant filters to model the voice formants. The speed and quality of the vocal synthesiser can be altered beyond the range of normal speech so that words are drawn out to the point that they are no longer recognisable. The larynx can be turned on and off (to simulate voiced speech or whispering). Sine wave speech can be created by making the width of the formant filters extremely narrow creating an effect akin to Alvin Lucier's *I am Sitting in a Room,* where certain frequencies are reinforced to the point that the speech is no longer recognisable, but the prosody is retained. All of these parameters can be manipulated in order to attempt to create a continuum between recognisable speech and music, thinking of the vocal synthesiser more like an instrument.

In the first 2 minutes of the piece, the synth creates a sonic texture which gradually condenses into recognisable speech. It is accompanied by slowed-down field recordings of the North Sea (combining soundfield and hydrophone recordings). As this section develops, the live voices enter, using extended vocal techniques which mimic the synth textures. Eventually, the synthesised voice drops out and the first poem is read over a bed of recognisable wave sounds. The next section sees the gradual build-up of a virtual storm, layering field recordings, drawn-out synth sounds, and extended vocal textures from the live voices (further enhanced by a shuffling delay effect). The storm then dies away, for the second poem to be read out. As the synthesised voice enters again, the mezzo-soprano sings three distinct pitches which are sampled and frozen in order to create a harmonic bed for the singer to extemporize over. This more lyrical 'sirens' section is accompanied by drawn-out sine-wave speech from the synths, and the manipulated sea recordings. Each layer is gradually faded out until the piece ends with just the sound of the sea.

Throughout the composition of this piece, the overarching idea was to create word-painting through a melting pot of the different elements: deconstructing the speech and creating a constantly flowing transition between live voice, synthesised voice and field recording, where each merges seamlessly into the other.

The title for the piece comes from an early draft of one of the Wedgwood Clarkes poems where he describes the sound of the rain falling on the sea: 'fizz to the power of fizz'.

Since the concert, the piece was subsequently performed at Harvestworks, New York, 4th April 2013.[8]

***Mar-ri-ia-a by Joseph Olive (music) and Joan Sugerman (Libretto** Performers: Maria Bovino (soprano); Paul Barker (piano) – Featuring Computer, Soprano and Chamber Orchestra (piano reduction) Composed with the help of a grant from the NEA (1974–1975)*

The segment presented is from the middle part of the opera. It was written at an early stage of my research career. I had devised a computer software that enabled manipulation of parameterized speech and used it to generate the computer sounds. The computer sounds are alterations of human speech. In addition the music was created on the Bell Labs real-time music synthesis program *GROOVE*. The entire opera was performed twice, but has not been performed since the late '70s.

A performer's perspective – Lisa J Coates

It was interesting to see how the various composers juxtaposed human and artificial voices in completely different ways. There may be the fear that using artificial voices could be limiting in terms of live performance. An artificial voice cannot interact in the way a human voice can. It cannot react to the audience or to its fellow performer. Can it even begin to convey the significance of the text? As a regular performer of contemporary music I have performed on many occasions with electronics, tapes, even backing tracks. For each one, the live performer has to bend themselves to the relentless drive of the pre-recorded. Yet it was intriguing to discover during the rehearsal process and the concert itself how the artificial voices in each piece gradually took on a life and a character of their own.

The familiarity of an artificial voice lent itself to the creation in my imagination of an actual person, and a history behind each voice, which I then attempted to bring across in my interpretations. Some, as in the case of Trevor (*My New Voice*), were more clearly defined; others such as Kevin Jones' creation were more blurred. In Jones' piece, the voices were supposed to represent an inner monologue, so it could be argued that the characters are all facets of my own.

However, I felt a true connection as if the voices were real. This connection was reflected in the audience's reaction that also clearly

8 http://www.harvestworks.org/apr-4-articulate-speech-technology-in-the-arts-and-science/

connected with the artificial voices in many of the pieces. Some pieces were more abstract, such as *Fizz^Fizz* where the human voices were captured, and thus removed from their source, and were then bent and shaped to form part of the texture along with the artificial. Perhaps the piece that I felt had the least interaction between human and artificial was David Howard's *Vocal Vision 1*, for two voices and synthesized SATB choir. It was the task in this work of the two live performers to work to the constraints imposed by the four-part voices, with the interaction taking place between myself and Maria. As the text was mostly composed of vowel sounds, a sense of character is almost impossible, and the piece therefore felt more disconnected from the performers and the audience. *My New Voice*, which told part of the relationship between Trevor and his carer Elizabeth, took a very different slant. Here, the part of Trevor was essentially played by another live performer; in this case, Bruce Balentine, who helped create part of the character of Trevor through body language and facial expression.

Originally the part of Trevor was to be played by CreST member Alan Martin, a performer with no recognisable speech of his own who sadly passed away shortly before the concert which would have given the character even more depth. The pieces presented for this concert helped showcase just how much life synthesized voices can have in song, but with the absence of a body (the case in most of the works presented here) that life depends on the natural inclination of the human mind to create it.

In summary

It is evident that artificial speech and the different ways in which it can be synthesised have been a strong catalyst for the creation of a number of pieces which have used quite different approaches. Some of the composers and performers have continued to develop their work in this area, with the recent Tête à Tête Opera festival performance being a good example. The concert for artificial and human voices and the Articulate roadshow were the culmination of two years of collaborations between scientists and artists in the network, investigating artificial speech, and it is hoped that new directions for development will continue to flourish in this area.

The concert, and this article, are dedicated to the memory of CreST member Alan Martin who sadly passed away in December 2012.

References

Benjamin, W. (1968). *Illuminations: Essays and Reflections*, 217–242, Hannah Arendt ed. Schocken.

Dudley, H., and Tarnaczy, T.H. (1950). The speaking machine of Wolfgang von Kempelen. In: *Journal of the Acoustical Society of America.*, 22, 151–166.

Howard, D.M. (2012). Raising public awareness of acoustic principles using voice and speech production. In: *Journal of the Acoustical Society of America* – Special Issue on Acoustics Education, 131, (3), 2405–2412.

Howard, D.M., Daffern, H., Brereton, J. (2013). *Four-part choral synthesis system for investigating intonation in a cappella choral singing, Logopedics Phoniatrics Vocology*.

Tresilian, N. (2011). *A Field Guide to a New Meta Field*, 309–331, Barbara Maria Stafford (ed). University of Chicago Press

Wedgwood Clarke, J. (2012). *Sea Swim*. Valley Press

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