Listen while you work:
negotiating power and meaning in post-concrete music.

by

Matthew Herbert

Canterbury Christ Church University

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Contents

With thanks to Matt Wright, Andy Birtwistle, Dan Pollard, John Wraight, Judith James, Neil Badmington, Clare Birchall, Hugh Jones, Karen Sutton, Mike Gillespie, Wendy Cunningham, Pete Stollery, Dominic Murcott, Sheila Wright, Simon Platz, Tony Ageh, Lenka Clayton and all those who have commissioned work, collaborated or played around with sound with me these last few years.

Index to portfolio

1. **20 Pianos** (Herbert, M 2014) *For historical piano samples and keyboard.* For The piece uses 20 phrases as the basis for improvisation and a very basic score of those are included. Instructions for the original performer along with the audio extract played at the start of every performance and a recording of a version of the piece performed by Sam Beste are also included.
2. **A Nude** (Herbert, M 2016) *For one or more naked bodies and fixed electronics.* A copy of the album is included but this is a commercially available album.
3. **A Week in the Life of a Tree** (Herbert, M 2019) *For Black Pine tree and forest.* An extract is included as an audio file here but the full audio is available to stream on Apple music.
4. **Chorus** (Herbert, M 2016) (excerpt). *For singing audience and fixed electronics.* An audio file of an excerpt of the installation.
5. **More, More, More** (Herbert, M 2018) *For rubbish, soprano trombone, percussionist and looping electronics.* A score is included and a recording of a rehearsal for the debut performance.
6. **ONE PIG** (Herbert, M 2011 except *December* Matthew Herbert 85% Mica Levi 15%) *For farmed pig, farm, butcher, chef, meat-eater, percussionist, guitar, keyboard and fixed electronics.* A copy of the album is included but this is a commercially available album.
7. **ONE ROOM** (Herbert, M 2013) *For recital hall, percussionist, keyboard and electronics.* An audio file recording of the complete concert.
8. **Recomposed: Mahler's 10th Symphony** (Herbert, M 2010) *For Symphony orchestra, cabin, hearse, crematorium, solo viola and electronics.* A copy of the album is included but this is a commercially available album.
9. **Requiem** (Herbert, M 2016) *For string quartet, destroyed string instruments and electronics.* An audio file recording of the complete piece as broadcast on BBC Radio 3.
10. **Speaker** (Herbert, M 2019) *For Alcantara workers and fixed electronics.* An audio file of the installation.
11. **The End of Silence** (Herbert 62.5%, Seznec 12.5%, Skinner 12.5%, Beste 12.5% 2013) *For bomb, percussionist, keyboard and electronics.* A copy of the album is included but this is a commercially available album.
12. **The Machines Our Buildings Used to Hear** (Herbert, M 2017) *For 19th Century industrial warehouse, steam engines and fixed electronics.* An audio file of the installation.
13. **The Music*** (Herbert, M 2018) *For reader.* A pdf of the published book.

14. **The Recording** (Herbert, M 2014) *For audience, Berlin, dogs, tattoos, cars, fountains, eggs, strippers, euros, singers, chef, opera house, keyboard, percussion and electronics.* A complete copy of the album is included. Some of the tracks are available to stream commercially,
15. **The Unheard** (Herbert, M 2016) *For voice*. The individual audio files from the installation are included. In the original installation, a different file was triggered at random when someone sat on the chair, so it is not imagined one needs to listen to every file in this folder to understand the effect.

*All pieces published by Soundslike Music except *published by Unbound.*

Abstract

Following the radical affordances of the then-recent technologies the microphone and tape, Musique Concrète proposed that all sound could now become music. In that moment, new boundaries in music were crossed, not just in the way theorists and composers acknowledged at the time as a flattening of sonic hierarchies, but also in the explicit revelations of meaning and power embedded in this newly recorded sound world.

In arranging music from what I call s-sound for shorthand throughout (pronounced suh-sound), sound made not by musical instruments and voices but from traditionally regarded non-musical material sources or events, we are activating new ways and forms of both composing and hearing such that both the newly audible subject and the listener are implicated directly in the work, a recontextualising of what Barthes calls in his 1985 book *The Responsibility of Forms:* 'recognising oneself in the space'. The listener can no longer be unheard, they have become a collaborator essential to both mining the strata of meaning within, and the procedural functions of the work. Along with the capacity to hear or tell stories through sound, comes an ethical dimension. Who gets to tell whose story? If composers are aware of how audiences are listening to, or missing these meanings, then it follows that this awareness and accompanying power not only interacts with the fabric of the work, but can be a tool for composition itself.

What follows is a contextualising of 25 years of practical research that culminated in a book called *The Music*. A PhD by publication, this thesis accompanies the following works: *20 Pianos, A Nude, A Week in The Life of a Tree, Chorus, More More More, ONE PIG, ONE ROOM, Recomposed - Mahler's 10th Symphony, Requiem, Speaker, The End of Silence, The Machines Our Buildings Used to Hear, The Music, The Recording, The Unheard*. This thesis is not intended to be a detailed analysis or exposition of my compositional techniques, or of technologies used. I shall look instead at how I have tried to amplify, construct and examine meaning in my music by using precise s-sound recordings to tell or retell specific stories and negotiate the correspondingly inferred power with musicians, collaborators and audiences. The end point of a music made this way, might well be the "birth of the listener" following the Barthesian death of the composer, and in *Chorus* (2016), the final work in the thesis, the listener, as part of a temporary community finally becomes the composer.

The accompanying portfolio is located here: https://bit.ly/2YBV4GA and on a USB drive located at Canterbury Christchurch University.

A shift in materials

Whereas Pierre Schaeffer (1966, quoted in Chion, 1994a, p.124) was interested in what he termed 'reduced listening' where the train-ness of the sound of a train was removed completely until it was heard 'independent of its cause and of its meaning' as Michel Chion (1994a) says, and nearly 80 years later and after 4'33" by John Cage (1952) directed us to hear any sound as music, we can no longer pretend that the train behind the sound doesn't exist. We have heard not just Schaeffer's music but also the academic texts, radio broadcasts or teachers telling us about its place in musical history. Instead of abstracting 'the musical values they were potentially containing' the train has instead been roundly heard as a train. (Ironically, Schaeffer plundered existing contemporary recordings of trains from a sound library since his recordings weren't train-like enough.) I would argue that it sounds even more like a train now than it did at the time, repeatedly contextualised alongside more traditionally orchestrated music of the late 1940s. Rather than reducing our listening to a distillation of the soundwaves on their material terms, his work has precisely drawn all attention towards the train. If all these years later we hear it only as sound free of meaning, whilst it would have worked on the stated terms, in many ways it would have failed to alert us to the much broader possibilities of the material. This is an irony of Musique Concrète: it is asking us to listen in abstracted ways whilst committing itself to a concrete materialism (but not everything else that goes along with that). It asks us to liberate ourselves whilst remaining fully connected to contemporaneous traditions. I am interested less in the 'plasticity' of texture in sound as Schaeffer (1966 cited in Dack, 2001, p.10) calls it but more in the underlying, if unstable, scaffolding of meanings supporting and constructing the sound. This is what I mean by post-concrete - music where the context hasn't been consciously stripped out as is often the case in Musique Concrète and its companion - acousmatic music. Albeit in the context of radio, Arnheim (1936) talks about 'the reunification of music, noise (and language) in order to obtain a unity of material'. Only by accepting the train, the recording medium, the broadcast format, along with the driver and passengers, the tracks, the fields and towns it passes through, the form of the work, the location of the project, the listener and so on can we get closer to a liberated musical language - draining sonic material through the colander of all our individual experiences via carefully or carelessly made holes to leave a residual pool of knowledge that demonstrates both what is left and what is missing. After all, you may not know from the sound alone that it is a Parisian train from 1948, but someone else does. This understanding of, or knowledge about specific sounds, can of course be unstable itself. For example, in my own studio next to a railway line, the trains' regular horn blasts warning of danger at a nearby level crossing inadvertently (but with my blessing) found its way on to several finished records of mine. When a

few years later, people I knew died on that crossing, the meaning and context of these recordings shifted sharply.

In *Different Trains* by Steve Reich (1988), the sound of trains are used for a powerful combination of both musical and political effect, and constructed in such a way (lyrics include 'one of the fastest trains') that make it impossible to hear 'complete abstraction'. The train recordings in this work are library recordings from roughly the period in history the piece refers to. Reich specifically describes the role of the sound of the trains conveying memory and meaning and not merely as Chion (2015) describes 'an object to be observed'. In programme notes, Reich himself acknowledges what a profound shift this is in materials "the piece .... presents both a documentary and a musical reality and begins a new musical direction." This new musical direction, materials-led, draws us inevitably towards the same difficult ethical and artistic terrain that documentary filmmakers, critics and audiences have wrestled with over many years. If the sounds used in a composition are no longer violins but trains, then no longer trains but people being shot in Palestine's West Bank *(Nonsound* from *There's Me and There's You,* 2008*),* then the profound shift in materials must require an equally radical shift in how we make and think about music. Representation means something completely different, and music now has important additional purposes than Nietszche's proposed principal task of leading our thoughts "to higher things, to elevate" (1858, quoted in Young, 2010, p.37).

A common thread of criticism of my work from journalists, for example Simon Reynolds of The Guardian (2018), has been to think that a listener needs to know everything of how the music was put together to be able to appreciate every decision, purpose or meaning of the music. However, I can never commit to the idea of a single response in the same way as we should never commit to the principle of a single, idealised listener. Augoyard and Torgue (2005) argue that "no sound event, musical or otherwise, can be isolated from the spatial and temporal conditions of its physical propagation". Later they go on to say that "there is no universal approach to listening". Whether one listener, imaginary or otherwise, can instantly determine if someone had been killed or not just by listening to the sound in singular isolation does not make the sound less representative of the moment. Furthermore it doesn't diminish its power, it just delays the moment at which the information is revealed and thus shuffles knowledge, understanding, hearing, effect, emotion, time and process into a different order. When many music critics I've encountered think of a listener (other than themselves obviously) this listener tends to always be hearing a piece of music for the first time. They do not have a specific place in society or class and are of unknown gender or race. Christopher Small (1998) says people think that music "is simply there, floating through history untouched by time and change, waiting for the ideal perceiver to draw it out." This imaginary

listener will of course likely be in the same image as the critic, but once one begins to consider who this listener might be in detail - for example, something as simple as age - this imaginary listener dissolves before us. Is our listener three weeks old or are they in their nineties? Who is actually listening? In measuring our work against these blank others, and the proposed effect on them, we are utterly lost. The listener can only ever be in as much a state of flux as everything else in the process. That isn't to say that music is just air meeting matter, but instead that each piece of music made with what I refer to throughout in shorthand as s-sound (pronounced suh-sound) - sound made not by musical instruments and voices but from traditionally regarded non-musical material sources or events - is built upon a fundamental assumption that upon every listen, each listener, the composer and the material between them, constructs a unique set of temporary bridges between each other, over which multiple meanings can cross or withdraw. Maya Angelou (2015) referring to more conventional pieces of music said that she "could crawl into the space between the notes"to seek refuge in music, but when working with s-sound there is no space between. Politically, the ability to hear what is in the gaps feels like an exciting and promising endeavour for documentary composers. When working with such sound as a material then, we should maybe aim to move away from primarily editing at transient points, always looking or listening for the sudden change in the waveform that indicates drama and instead allow all the different types of information to come at us as equally as we can allow. Christopher Cox (2011, quoted in Schulze, 2018), proposes that "if we proceed from sound.....we might begin to treat artistic productions not as complexes or representations but complexes of forces materially inflected by other forces and force-complexes".

For centuries of Western music though, the tyranny of the tonic has always dragged composers and performers back towards resolution. Cadences resolve, recordings finish neatly, conductors bow and audiences clap at the end. Attali (1985) says that the "theorists of totalitarianism..have all explained, indistinctly, that it is necessary to ban subversive noise because it betokens demands for cultural autonomy, support for differences or marginality: a concern for maintaining tonalism, the primacy of melody, a distrust of new languages, codes, or instruments, a refusal of the abnormal—these characteristics are common to all regimes of that nature". The tonic has always been central to Western composition, and even when Serialism, amongst other forms, attempts to consciously move music away from this, it often ends up acknowledging the tonic, by having an implicit awareness of the root, the base or a fixed position to deviate from. In Serialism's case it is the 12 note scale. Even in Cage's experiments in indeterminacy, he is placing himself in the hands of a more 'natural' order as he sets about "imitating nature ('s) in the manner of operation" (Coomaraswamy, 1934). S-sound goes some way to freeing us from this. It doesn't adhere to a precise or agreed-upon tuning. We are free from having to be in or out of tune and key - the sounds exist on their own terms.

When working with s-sound in real time, the noise-object tends to be unpredictable compared to say an oboe or a synthesizer. The meaning of these noise-objects is obviously unmoored too: the sound of a low-flying jet-engined aeroplane would mean something different to a Syrian doctor under siege in East Ghouta than a British sugar farmer in Suffolk for example. Many modern societies are underpinned by this need to recognise or understand immediately, to be instantly territorially safe - a tyranny of the tonic: the perfect infinite repetition of a can of Coke, the fixed squares of Instagram, the neat resolutions of Disney narratives, the institutionally racist narratives and structures of the British state, heteronormativity, the inherited privilege of the aristocracy and so on. In embracing the fluidity of sound, both in meaning/context/form and in timbre/pitch/rhythm we are freeing ourselves from the coercion of resolution and adherence to the status quo. We are materially committing to the idea that music is a process and not a fixed product. This tension is much harder to resolve in practice as we try and decouple ourselves from the magnetic pull towards neatness and safety, and I invariably fail, but only in surrendering to sound, hearing how it appears in its complexity, a form of *elevated* listening, rather than trying to reduce it or separate it like clarifying butter into its constituent parts, can we begin a process of liberated exploration. Whilst Nattiez, Truax, Schaeffer, Schafer, Gaver and others have tried to formalise the separation of sound into these layers or listening into modes, the critical constructions of the boundaries of these descriptions merely postpone the inevitable surrender we must make to sound's limitless spread. Ultra Red (2013) in one of their listening protocols talk about 'privileging the ear that hears' and in many of the musical examples included here, the hearing of the music is not only to admire 'noise's lawlessness' as John Cage (1961) put it, but to also leap into its waves of meaning.

Music, narrative and documentary.

Barthes (1985) says that "*listen to me* means *touch me, know that I exist*" and music made with s-sound explicitly acknowledges the existence of the other. In the act of listening to other objects, other people, other materials, other stories, what Attali (1985) helpfully calls 'existence', we are broadening the simultaneous functions of the composer to include documentarist, engineer, editor, assembler, montagist, narrator, re-arranger, diarist, broadcaster and so on - a significantly expanded set of roles and responsibilities when taken as a whole. This breaks wide open the capacity for storytelling within music. What is that sound? Where does it come from? Why am I hearing it? Each of these questions, request a story in response, demand some kind of accountability.

An impressionistic but nonetheless programmatic piece about rural life (we can hear imitations of cuckoos, and nightingales), Beethoven's *Pastoral Symphony* (1808) opens with the movement entitled *Awakening of Happy Feelings on Arrival in the Country* and occupies an entirely different sonic and political space to *ONE PIG* (2011) - an album that tells the story of a pig farmed for meat from birth through to consumption on a plate. In the latter work, the reality of a brutal, truncated, semi-industrialised life of an animal in the countryside is impossible not to hear. The sounds of the pig, from first grunts to the later sawing apart of its rib cage, bear witness not just to the various actions themselves but to the circumstances under which those sounds were captured and disseminated. Assessment of the work then extends from the traditional questions of stylistic flourishes, or to see whether it ignites what Oliver Sacks (2007) calls music's innate ability to be both 'abstract and profoundly emotional' outwards into a vastly wider range of enquiries about origin, ethics, the role of the composer and listener and the purpose of listening itself. Furthermore, it effortlessly and usefully (from this composer's perspective) includes all the wider implications about food industry structures and systems. In this example, the composer/music suddenly finds itself needing to engage with issues such as the shift in the politics of rural small-scale pig production in relation to aggressive American agribusiness, or the practice of removing piglet's teeth in industrial farms. The music requests it be understood as part of a much broader hearing of surrounding noise and is written with an awareness of multiple different listeners - in this instance including farmers, policy makers, vegetarians and so on. I tentatively call this *music entendu* - music made with s-sound that is awake to the possibilities of everything, everyone and every story embedded in the process of its creation, along with the circumstances of its production, distribution and broadcast.

In *The Unheard* (2017) an installation in Milan at Palazzo Reale, I built a chair that when you sit on it, tells you how it was made in the words and voices of the employees who made it. Here the narrative aspect of the music draws you away from observing the object, and by encouraging you to sit, thus looking away from the object, instead forces you to listen to its history. It reclaims the aural from the visual, and at the same time, makes it impossible not to hear the voices/words of the hidden manufacturers of the materials of the chair. The power given to the composer as a commission is shared with the workers. In a similar vein, in *Speaker* (2019), an installation for Eufonia festival, a disembodied voice is heard from the speaker pretending to be the voice of the speaker box itself, and talks about the barely knowable, barely reachable Chinese workers with their westernised names (Jessica, Timmy and Michael) who actually built the unit in the first place. In these two examples, I am asking the audience to explicitly hear more of others and less of me. Daphne Oram (1972) said "the signal reaching your consciousness is as much *you* as it is the *music* - it is the sum and difference of you and the music". When the music is made from others and their history, it adds an explicit and poignant political dimension to Oram's assertion. Voegelin (2020) says "that is not you or me, but what we sound together"

Working with documentary audio or s-sound, by necessity draws the composer in to a much more collaborative position, relying on the subject to cooperate, on the listener to lean forward, and on the narrative traditions of other disciplines such as storytelling to make sense of, and organise, sound respectfully and coherently to convey either existing meaning or new meanings from collage and juxtaposition. In the same way that soviet montage theory helps the visual arts describe the shift from painting as a singular vision to film as a collaboration of experiences and perspectives (films that focused on individuals rather than masses were deemed counterrevolutionary) a way through is needed to help us manage the shifting role of the composer from organising predominantly abstracted, or impressionistic gestures to (ethical) montage documentarist. With the ethical stakes potentially much higher in the raw materials, attention to detail and a rigorous process become increasingly important. In terms of narrative, this detailed process can be usefully literal in film or theatre writing where sounds can actively take part in the storytelling. In *Gomorrah,* the 2008 film from Matteo Garrone, I created a detailed log of every sound that occurred in every scene by each character to create a library of sound associated uniquely with them and their story. For example chair creaks, footsteps, non-verbal vocal tics etc. When writing thematic material a sound associated with the character that may appear much earlier or much later in the film could be called in service of the story at another point. The musical score in fact simply rearranges extracts from the film's existing soundworld to help reinforce the wider storytelling. As it turned out, the artifice of non-diegetic music, regardless of the materials lent a consciously authorial tone to the film that

Matteo felt undercut the quasi-documentary feel he wanted and the film ended up without a composed score.

For the PRS foundation's New Music Biennial, I created a piece called *20 Pianos* (2014). Based around a single keyboard instrument, I sampled 20 pianos with 20 very different stories including the most expensive piano in the world (John Lennon's piano, which, kept as a museum piece rather than as an instrument turned out to be broken and unplayable as a normal piano), a prison piano, my grandfather's piano and the Queen Mother's piano. Whilst playing, a performer was able to switch between the different pianos with a footswitch. The finale was a stacking of all the piano sounds together so the audience heard these 20 different pianos played at the same time. The exciting aspect of storytelling here is hearing the abrupt sonic variations rapidly bumping into each other as our previously stable understanding of a familiar and democratic instrument (an instrument associated more with living/social rooms than concert halls) the piano - is privy to sudden wild variations. We hear the sound not just of the piano notes change from instrument to instrument, but their different states of upkeep, the rooms they were recorded in and so on, a jagged and once-removed version of what Pauline Oliveros (2015) talks about being an 'ambient audience...being in the space and exploring it while listening to the players'. The language of this dialogue between materials, storytelling and listener (my grandfather's piano is likely to be more evocative to members of my family than it is to my milkman) is a compelling new dialect for composers. In pieces like *20 Pianos*, we get to ask performers to play rooms and stories as much as notes and rests.

Whilst exploring the narrative potential of sound within music, and in an effort to build a "democracy of the senses" as Berendt (1985) calls it, I created a pair of concerts called *One Day,* commissioned by The London Sinfonietta (2010) and The Elbe Jazz Festival in Hamburg (2013) respectively. In each concert I used a single issue of a newspaper as a score (we also turned the newspaper into a programme by having the paper print hidden concert programme info several months ahead of schedule). The idea was to bring the paper to life through sound, smell, music and performance. For example, one piece called *Nightdrive* had a chef on stage recreate the chocolate mousse recipe listed near the back of the paper that someone's late mother used to make for her, whilst at the same time we heard a song using lyrics from a poem an author had written about driving to see her dying mother, whilst we projected the footage from a luxury car advert referenced in the paper on a screen behind. The audience each had a copy of the newspaper and could follow along to the recipe, the poem or the various stories about mothers elsewhere referenced in the paper. Or they could of course just watch and listen. The layers of meaning and context all fold into each other in such a way that there are multiple points of entry for the audience, and where no one story could

exist independently of the other. Here the sound is not only within and part of the music, but also supports and reinforces the other activities surrounding it.

Remixing context

Access to representations of power and meaning of course aren't just in the materials but also in the formal arrangement of tools and techniques. For example, a microphone placed next to someone being shot conveys a very different story from the same microphone placed 20 metres away next to the shooter. Assuming a microphone is our amplifier and guide, then we can use the process of remixing to examine further the role of s-sound manipulation to re-inflate the volumes of narrative Schaeffer consciously flattened and unimagined.

From Jamaican producers and Djs, who, "at the end of the 1960s gave birth to the idea of the modern remix culture" (Vito Campanelli, 2014), to Lawrence Lessig's (2008) proposal on the effect of the internet on expanded opportunities to reimagine and interact with popular culture, the remix has been a key musical form of the recent era. In *Remix Theory*, Eduardo Navas (2012) claims that the act of remixing "allows for history to be suspended" but when working with s-sound the exact opposite is true. What follows are some examples of practical research where history is actively listened to as part of the work, and where in engaging with a wider critical analysis, new types of relationships with an audience and the material are possible. Examples include remixing a concert hall, a nightclub with people in it, a symphonic recording and a live recording of a string quartet.

In *Recomposed*, *Mahler's 10th Symphony Adagio* (2010), a project for *Deutsche Grammophon*, the work was reconsidered using microphones and recording (two technologies Mahler himself didn't use in his work), along with biographical and geographical details embedded in sound to try and place the work in both a contemporary and historical setting. Acutely aware of the curse of the 10th symphony where no Romantic composer had completed one; beset by heart problems; having recently learned of his wife's infidelities; and beset with grief after the loss of his young daughter, Mahler appears a figure anxious about death. He even scribbles exclamations on the score itself: 'madness, seize me, the accursed". As he died before completion of his own 10th symphony, my intention was to fill the unfinished work with ghosts. The opening melody was recorded with a single viola player from the Vienna Philharmonic Orchestra at Mahler's grave at Grinzing. Elsewhere the piece can be heard played out of speakers in a crematorium; from a passing hearse; from a coffin fitted with a car stereo (to take music in to the afterlife) and so on. Whereas Deryk Cooke and others painstakingly sought to finish Mahler's incomplete musical notation on Mahler's own terms, it seemed to me that a less fraught and claustrophobic framing could allow a new way in to the material, to simultaneously break it open with new sound whilst also leaving the soundworld of Mahler's orchestral writing intact. In keeping the unfinished (but recorded) work untouched, the

remix here is not the notation, melody or harmony but the stories, context and sounds around the work. Brian Kane (2014) describes Schaeffer's work in relation to Barthes as exchanging "history for myth" but here the process is attempting to do the reverse. In 2012 as part of the Transart festival in Bolzano, we took speakers to the hut and its immediate surroundings in Toblach where the piece was composed and played my remixed version through them. The audience were in the woods next to the hut, listening to the music bleed out into a forest, much of which was standing when Mahler was writing the music. We found ourselves listening to each other, listening to a remix of a recording (made a few decades previously) of an interpretation of Mahler's music, alongside cows (and their bells), birdsong, traffic, trees and so on. Each of these layers brought more information, enriching the listening process and allowing multiple perspectives and meanings to unfold simultaneously.

In *ONE ROOM* (2013) I was commissioned by Melbourne Recital Centre to create a live performance inspired by the room itself, notable for its unique timber surfaces and construction. My proposal was that we should remix the history of the other live performances that had previously been performed in the space. To that end, the institution provided us with recordings of hundreds of concerts that had happened over previous years. For one piece we grouped all the piano concerts together, and then took excerpts of various lengths from these numerous performances and then distributed these samples across different electronic instruments. The concert finished with a piece made from all the applause from all the previous concerts. This was a remix not just of musical material but of experience and history, of audiences and their memories. It was also a remix of what the building had heard. It felt like redecorating a block of apartments but with everyone still inside. This sonic history was not ours, but permission was granted by the institution for us to use the materials. Despite this licence, divorced from their original context the manipulation of the recordings of these live events could be seen as a non-consensual re-ordering or re-imagining of other people's experiences and there is certainly validity to that point. However the musical dialogue was not intended to be between their material, their evening, their applause and our treatment of it, but instead between how the original material was heard, within the architecture and time of this particular space, and a rearranged version of that same history. This is not acousmatic music, abstracting the musical values contained within or erecting borders around the soundworld; it is more fluid than that, shuffling audible memories and remixing stories.

In *Requiem* (2016), a piece commissioned by BBC Radio 3 and Festival d'Aix en Provence, I took the last string quartet by Beethoven op 135 (1826) and used it to denote a clear mark in the passage from acoustic to electronic music. Working with the GMEM institute of Marseille, we recorded the destruction of a set of second-hand string instruments for a quartet, including setting them on fire.

Back in the UK, the recordings were edited so that, for example, all the broken cello sounds were kept together in one sample instrument. Having previously recorded the Tippett Quartet, playing the final Beethoven quartet in its entirety, as per the original score, we translated all the audio information of the quartet into corresponding midi data. That is a Bflat played on the violin triggered a B Flat on the computer holding the sampled recordings of the destroyed instruments. The final piece was arranged to reveal the shift, in real time, from purely acoustic sound, albeit transmitted via radio, to electronically/digitally captured sound. The first movement was purely the original score played more or less as Beethoven may have intended. In the second movement, broken sounds start to appear alongside the acoustic sounds. In the third movement, the acoustic sounds are nearly absent, dying out underneath the incoming sounds of a string quartet behind destroyed. For the final movement, the acoustic sounds vanish completely, despite the players still performing the original score, note for note. Instead, their playing triggers only the sounds of the destruction of their own instruments. The final sounds we hear are their instruments on fire. The principle of a remix in this work, has mutated to allow for an intertextual clash of both sound and aesthetic worlds. Beethoven is reputed to have said of his now iconic late string quartets that they are, "for a later age" yet they have simply been stuck on a loop since being composed, performed for the most part as written. The later age though has little left to play with to coax radically new sounds from two violins, a viola and a cello.

In *One Club (2010)* a functioning nightclub - Robert Johnson in Frankfurt - is turned into a recording studio by filling it with microphones, and together with its occupants is recorded producing a variety of sounds that later became music for people to dance to in the same venue. In effect, we were remixing the building, its contents and occupiers. From a list of instructions we asked people to do things like shake the money in their pockets once for every €10,000 they made in annual salary, or whistle a single tone depending on their sexuality. In doing so we built up a sonic almanac of the evening and the participants. Each piece on the record was named after someone there that night, from the security guard to a stranger on the dancefloor. The artwork contained a photo of everyone who was present overlaid on top of each other. As with many of my previous projects, I asked the people present to shout their name into our microphone as the final recording of the evening, a kind of sonic timestamp. In working with sounds I was rearranging material in which the audience were co-creators, not just in the sonic dimension but in the political dimension. The materials, the composer, the audience and the nightclub, including the queer origins of the form are in a kind of conscious dialogue at all times - literally dancing to their own beat. It could be argued that the people here, whilst able to express some forms of power are not where the real power lies in the project. The composer here is still making many of the decisions and occupying the same

privileged position as before, a white male reorganising experiences that are not his own for some measure of personal gain. In this instance however, we went to great lengths to seek consent from every participant, and as an invited audience, the exchange was a willing one. What I hope to show however is that as research, it ultimately leads to a piece like *Chorus* (2016) where I address the issue of shared power directly.

In *Machines Our Buildings Used to Hear* (2017), an installation I made for the Manchester International Festival, sounds were recorded of large industrial steam engines in a museum, then edited into a musical shape and played back via speakers inside a different warehouse building from the Industrial period that would have housed similar-sounding machines. It was an attempt to re-animate the space, and activate history through sound. Foucault (1969) describes history as trying to 'memorise the past by transforming it into documents' and with recorded sound as our new material for composing music, we can work backwards by agitating air in the way things used to sound to hear and thus live history. Since Jacques Attali (1985) maintains that "nothing essential happens without noise" then we probably have to accept that for composers and musicians, our materials are now made up of nothing less than everything essential and how everything interacts with everything else. This thought would not be surprising to the medieval Indian musicologist and Ayurvedic physician Sarangadeva whose proposal Saam Trivedi (2019) summarises as sound being the '*one* fundamental thing in the cosmos' and with 'Sound as identical with the Absolute (*Nada-Brahma-Vada*). When suddenly everything is sound/music, we must pay particular attention to the associated ethical issues.

Ethics

In *The End of Silence* (2013), we hear an album made entirely from the deconstructing of a five -second recording of a bomb exploding in Libya. The phenomenal act of violence demands again and again to be heard, to be unforgotten, to be listened to. This demand can't be attributed to amplitude alone, since as a recording it is many decibels quieter than the original event. One of the intrusions you hear is that of a new subject, a new experience, a new perspective ripping through the speakers. Immediately it is heard, then questions arise: when and where was this? Is that a bomb? If it is, who dropped the bomb? Who were they bombing? What were the consequences of this bomb? Why am I hearing this bomb now? Were people killed in this explosion? Who were they? If people were killed, is it appropriate to turn the moment of harm or death into music? Was consent given by next of kin? Is this propaganda? Is it faked? Who was recording this and why? And so on and so on. The ethical and moral dimension of the choices made by the composer/s - in the case of *The End of Silence* it was made in collaboration with Tom Skinner, Sam Beste and Yann Seznec - are simultaneously foregrounded and also rendered mute. Regardless of the fact that the piece of music is likely to be listened to, or created from a position of considerable distance and safety, the music as we hear it is still a matter of life and death. Of course, we shouldn't underestimate or diminish the importance of the death because it is geographically remote from us, or the victims and perpetrators unknown. Instead, acknowledgement of, and responses to these questions, should be built into our decision making processes as the work is constructed. Listening whilst working.

Unlike Russolo's mechanical representations of violence, this is as vivid a recording as you are likely to hear as audio, and also from the point of view of the victim. In this conflict between subject and composer, the subject's tangible presence demands agency and accountability. The composer is no longer, like Mahler, a silent person in a rustic hut in the woods near Toblach, working with pen, ink and paper but an organiser of materials with profound consequences. It demands that one 'hears' other evidence, listens to the context. Levinas (1987) says that "responsibility towards the Other, precedes any objective searching after truth". It also places the listener in a sonic situation comparable with that of the real life victims of the explosion - the microphone being placed not at a safe distance recording towards, and not from the perspective of the perpetrator of the violence from up in the plane pointing down, but from near the ground listening up. In the case of *The End of Silence*, a record in part about the distance between composer and subject, (and between an act of violence and the consequences) the composer/s, distant and removed from the recorded event itself, is in the same position as the listener, together observing this act of horror from a position of safety (it

is not imagined that listeners of this record will be Libyans during a bombing raid). Michael Bull (2019) writes how "those in the west are largely separated from the wars they are involved in, experiencing it in terms of news, film, newspaper records and video games" and is an excellent guide to "the complex issues that arise from the relationship between sonic veracity, mediation, and imagination". It is for another thesis to talk about truthfulness in sound, but it is worth noting that throughout I have assumed that the reader believes me when I have described a particular sound on a particular project, in part because I have provided the audio evidence. However, it would be remiss of me as a composer to ignore the possibilities in deception and subversion afforded by s-sound. In some of my own work and large scale projects there may be moments where the sound is not necessarily the thing you think it is and there is a political charge in these noises too. The tricky and uneven moral terrain of how and why such an atrocity should or could be music plays out almost in real time with the audience bearing witness to the choices made by the composer and performers - whether to mute or to extend, whether to distort or render accurately and so on. This is a step into the unknown together where we are fully aware of both the political art and the political 'container' as Pablo Helguera (2016) describes it. The artwork for the record sleeve by Lenka Clayton was made from packaging used to physically post a copy of the finished music to Libya and back. Morag Josephine Grant says: "all sound, by its physical nature, necessarily disturbs the medium through which it moves" and here the physical CDs themselves and the materials of the finished recorded object also ripple out from the composer/s, disturbing the peace. We shouldn't ignore the ethics of the listener's reception too, in their perceptions and interactions with the work, not just in listening but also in streaming the audio or buying a ticket to a live show etc. Whilst audiences are used to journeying in parallel with musicians in improvised music, exploring and understanding the choices together, with music built on such political s-sound there are other powerful dimensions, alongside meaning, that appear between listener, composer, performer and subject around consent. Levinas argues "there is no model of transcendence outside ethics" (Levinas 2000, 194). With music long considered a transcendental form, the appearance of other perspectives and experiences so directly into our compositions, makes it extremely hard to argue that Levinas's words shouldn't hold true for music too. Ultra Red (2013) as part of their code of conduct for composition call it the 'terms of accountability. In a war zone, though, it is hard to acquire consent from victims and on the *End of Silence*, Sebastian Meyer, the recordist and photographer present at the moment of explosion spoke of the difficulties in finding a coherent moral position around the event from which to begin to work out what even a code of consent might look like. Some of the dead were likely to have links to Al Qaeda for example. The work was intended, in part, to be about the (tragically ironic) ephemeral nature of the recording itself. The sound came from a significant distance beyond what Salter and Blesser (2009) would call my "acoustic horizon". I had, after all, received this sound via email, via a

relative stranger, who'd been sent it by Sebastian who had accidentally recorded it whilst out taking photographs. I was in the UK, the event was in Africa. Much of my knowledge about the circumstances of the sound recording came much later. The process of making the record then, in collaboration with other musicians, was about exploring the minutiae of this extremely short recording to see what we could learn, understand or excavate from it. What soon became apparent was that despite the brief and ferocious violence of the explosion, human shouts and whistled warnings can be heard immediately preceding it. In part one of the album, these whistles and shouts become the basis of all the melodic passages, a prioritisation of life over the mechanics of death if nothing else. It is important therefore to accept that, to paraphrase Bill Nichols (1992) in *Representing Reality*, we are also *constructing* a social reality at the same time. We aren't merely activated listeners or observers, we are rendering or re-rendering a single event audible that would otherwise have never been heard (or certainly been forgotten), by the vast majority of British citizens (including me) who funded a military intervention there. In the world of television, Pierre Bourdieu (1998) describes this trap as something "which claims to record reality, creates it instead". This, however, is not far from Trotsky's (1925) assertion that art is "not a mirror but a hammer: it does not reflect it shapes". As an acknowledgement of both privilege and distance, I rigged microphones to the outside of the barn we recorded the album in. Throughout the record, it is possible to hear the sounds of birdsong, dogs barking, and nearby rural life in Herefordshire recorded in parallel and in real time whilst we were recording takes. If it isn't/wasn't possible for us to know or be clear about those present, the victims, and their relationship to this explosion and its likely fatal consequences, we can at least be clear and honest about our privileges, our circumstances, our position. I am not claiming that the victims here have more power as a result of the work, but that they are heard, through the distortions, as opposed to remaining silent. Annegret Fauser (2020) writes about how much of music about war relies "on pathos to overlay any sonic traces that might remain from actual acts of violence" but here the moment of violence is heard in not just once but hundreds if not thousands of times. This record would be a kind of semi-belliphonic sound, with *belliphonic* being what Daughtry (2015) calls "the imagined total of sounds that would not have occurred had the conflict not taken place". This makes it an interesting point in musical history at which the ethical complications of documentary collide with the freedoms of art and with such radical, vital materials to play with, composers/listeners, working with these new materials, are no longer just reshaping air, but spinning connections, like webs, across time, space, meaning. We can therefore abandon another of Bourdieu's (1984) contentions that music "says nothing and has nothing to say."

The provenance and ethics of working with intimate, overtly political and violent material like this, is a debate of course had in photography and documentary film-making for many decades. For example

Susan Sontag's (2003) writings regarding the pain of others. But rarely in music are these issues discussed. Many people were deeply uncomfortable with the idea of me using sounds I recorded whilst in Manhattan on 9/11 to make a piece of music out of, yet when I asked them why this was different to editing video, (footage that they themselves had seen again and again on TV news), nobody had an answer. That's not to say there isn't an answer, just that, as composers, we've not had to think about these kinds of questions before in the same way. If one of the sounds used is one of the Twin Towers collapsing, temporarily setting aside both the aesthetics and ethics of the art, how can consent be sought from hundreds if not thousands of people's families? Is the artist only able to construct work with materials over which consent can be given or withheld?

In 2010, animal rights organisation PETA argued with some anger and righteousness that a record made out of a pig's life must be exploitative since music can only be a form of 'entertainment' - a word they used repeatedly in their criticisms. It was clear from this reaction that the accompanying mutations in form that follow the shift in materials have not yet percolated through to the mainstream. There is however some validity to PETA's anxiety about the treatment of raw sonic material and its metamorphosis into music. Playing a jaunty rhythm on a piano is a very different thing from playing a jaunty rhythm with the sound of the severed head of a pig falling off a table we've heard being born shortly before. Composer's need to be fully engaged with our new responsibilities. Whilst animal parts have been used in music from the very start: from bone flutes, to skin drums and later to intestines for strings and ivory for pianos, very rarely does the music made with these instruments reflect the stories or origins of the materials themselves. That is to say, there are few pieces (sadly) for violin about animal intestines. In *ONE PIG* (2011), the hearing of the animal alive as well as dead and in its component parts (we made a drum from its skin and Henry Dagg made a glass organ to generate pitch from the blood), asserts a further undeniable ethical dimension. In working with recordings too, rather than instruments, composers have to learn first to be quiet, and this is a revolution as profound as the shift in materials. In Toblach in Italy, Mahler had local farmers remove the bells of their cows whilst he was composing and asked passing schoolchildren to remain silent when coming home from school. 118 years later, the situation is the other way round - to not hear is to pretend the other doesn't exist. Instead of listening to the sound/music inside our heads in order to externalise it to paper, today's composer can today be submerged in sound, on a farm, for many hours, in a pigsty, listening - via a recording device to a pig in labour waiting for the first 'notes' of the work to occur. This process where music/sound comes into rather than out of the composer's body radically cracks open the artform. Barthes (1985) says "pollution damages the senses from which the living being, from animal to man, recognizes its territory, its habitat: sight, smell, hearing". He goes on to say that listening "is a mode of defence

against surprise". To my mind, this amplification of the surprise, or challenge to the territory, is where music's richest new territory lies.

Hearing each other

Serres (2008) says, “we hear through our skin and our feet”. He goes on to say “our body-box sprung tight, is covered head to toe with tympanum”. In his book *The Sight of Sound*, Richard Leppert (1995) states that ‘whatever music is about, it is inevitably about the body’. And yet, leaving aside the deluge of air and noise to come from our mouths, and to a lesser extent our hands as we clap them together, in the literal sense, the sounds of the physical body itself are rarely heard on recordings. On the 2016 album *A Nude, the Perfect Body*, we can hear sounds exclusively from at least one anonymous body. In hearing the most familiar and intimate of someone else’s noises - urination, skin, sleep, washing, masturbation - the materials are grasping at the listener as if to say ‘let us listen to each other’ or a version of what Gertrude Stein (2012) would say ‘let me listen to me’. Since I’m proposing that music (entendu) should be heard as a contextual whole, sharing the listening with others and as a series of to-be discovered meanings, here the materials are consciously designed to both enlighten and exclude us. On the one hand many of these noises are extremely familiar to us - on the other, their source is both anonymous and disconcertingly out of reach. In the triangular relationship between listener, composer and materials, the music on *A Nude* pushes the materials much closer towards the listener. There is a further possibility of course that the body whose noises the work is based on are that of the composer’s and in this way, the relationship between listener and composer is narrowed considerably. At the same time, this narrowness, like Schaeffer’s train-not-train, ends up highlighting the distance. On *The End of Silence* we can experience a similar effect - we are conscious of being separate or removed from the source but able to bear witness to the sonic events shaping that source time after time. This effect is amplified by the musical repetitions, looping the sounds again and again.

The musical intention on *A Nude* was to try and create a similar effect to a pose of an artist’s model. To this end, each of the tracks is designed as a kind of shimmering or hovering, as if alive but suspended in time. Despite being an impossibility I wanted to pause time whilst still listening, to stretch or expand time to listen to these un/familiar sounds again and again, never deviating too far from the first time we encounter them. This is in contrast to *The End of Silence* which seeks to almost stop time altogether and to climb inside the five-second recording on which the album is based and wander around exploring the sound on a granular level, looking for clues or new ways to understand the information. This is what these new materials mean to the musician - an opportunity to take part, like Keats’s (1817) sparrow, in the existence of things. We get to mess with the fabric of time, of memory, of experience, all the time conscious of the bonds which reach through the format, the

speaker, headphones to keep re-attaching themselves to our own scaffolding - signs that encourage our inner voice to say to us 'bomb, bomb, bomb, bomb, or 'someone's breath, someone's breath, someone's breath'. Susan Sontag (1979), says of photography that "to take a photograph is to participate in another person's (or thing's) mortality, vulnerability, mutability. Precisely by slicing out this moment and freezing it, all photographs testify to time's relentless melt." Here the fragments of audio recordings act like twitching photographs, keeping the body on a kind of life support machine. The body is immortal, held in a state of postponement. If it ever falls silent, the only thing we need to bring the body back to life is electricity to play back the audio recordings. We all have a body of course, so the sounds on *A Nude* should be familiar, and yet unmoored from their visible references we are forced to listen again and, due to the open nature of its broadcast, listen together. In the act of making the sounds public, the recordings implicate the listener in an intimate exchange. On track one the body is asleep for an hour yet there is nothing we can do to wake them. At one stage, we hear the sound of a text message and the story is further complicated. Still the sound is disembodied, amplified, reframed. The digital recording here serves almost precisely or literally what Burroughs (1962) called an 'externalised section of the human nervous system'. Here the way of hearing is both of us and out of us, an aural version of both voyeur and divine. In making it public, though, and being sold in an album format or streamed on mainstream platforms, there is an issue of consent on the part of the sleeping subject - are they aware they are being recorded? Might it be possible to recognise the sounds one makes whilst asleep and identify oneself as the subject? Without this consent, the listener/collaborator suddenly is in uneven ethical terrain again. If music and its meanings within, is structured this way, it is effectively built together and so in the act of listening we are complicit in the deception or the revelation. The ethics of reception again.This then of course reveals our own prejudices when we come to describe the work - one very male critic describing me as a misogynist for using a female body yet based on the sounds offered no proof of how he came to the conclusion that the body was a) female b) singular. In his mind he had created an archetypal sexualised naked female form yet the body(s) was only rendered in air. It is a kind of audio Rorschach test, a sonic mirror illuminating the listener's state of mind. One listener told me they thought it was a metaphor for Capitalism in its mechanistic repetitions, another told me it was about the fragility of human existence, another told me it was like a love letter. The exciting thing for me is the capacity for the form to accept these different interpretations as part of its own meaning. Listening itself is not fixed, so how can the responses or meanings be fixed? For example, were you to knowingly meet the person/s who we hear defecating near the end, your relationship with the musical material would be completely different. One of the most extraordinary moments in my DJ career was playing *Is Shitting* in nightclubs and seeing people's ecstatic reactions to such intimate sounds projected loudly into the space. Making music out of someone defecating feels profoundly transgressive. It is almost the polar

opposite of what Delius (quoted in Shapiro,1978, p. 11) meant when he described music as an "outburst of the soul". This can't just be because of the subject matter because, unless deaf, we have after all heard defecation at least once a day (hopefully) for many years; it must also be because the materials of music have changed profoundly. Post Schaeffer, we know that it is theoretically possible to listen to the sound purely on its own terms, as the movement of air, as sonorous as an opera singer, as a sound 'free of judgement' (1961) as Cage says, however technology has allowed us to record billions of sounds since then and as the novelty of only observing texture has faded, to deny the shitness of the sound is to consciously close oneself to the means of production, and the materiality of our own bodies.

New ways of hearing

Despite being invisible, music doesn't just render itself present in the ether. It reveals itself via recordings on particular record labels, with titles and artwork that someone has paid for, or someone else has pressed play on nearby; it's handed to you by a friend, or bought in a shop. It is downloaded or streamed and heard via a mobile phone, radio or computer. It is broadcast from radio stations, or loudspeakers in public spaces and is performed live on street corners and from concert halls. You may be hearing it in a war zone or on holiday. According to Gordon, M.S. et al. (2019) in their article '*Individual Differences in the Acoustic Properties of Human Skulls'* for The Journal of the Acoustical Society of America, due to the variation in skull sizes it even sounds biologically different to you than to others. The context of listening and format of broadcast is as much a part of the unity of material as the notes themselves. This is not a new thought - with the advent of wax cylinders, early recording engineers were amazed, and shocked to hear the materials of recording and the room tone as much as the music itself. For many people though, music's value is still in its separateness. For a review in pitchfork of *Plat du Jour* (2005) Mark Richardson (whose writing I usually enjoy) consciously and almost painfully tries to listen to the music purely as reduced listening, as emotional maths, of textures, rhythms, timbres etc as if watching a film just as movement of light. Whilst it is an interesting experiment in trying to turn parts of your brain off, it feels like the last gasp of a dying form - music criticism clinging on to a 20th-century idea that an album, regardless of content, makes most sense when heard in isolation, presumably through a glorious hifi system, the listener sitting, fully focussed on the movement of air and in silence. This an updated version, according to Nicholas Spice (2019), of what Adorno considered "the ideal way to listen to music ... silently, in the head and he criticised Debussy for his 'fetishisation of the material' - ie. sound". In the mid nineteenth century Eduard Hanslick (1986, quoted in Cox, 2018, p. 18) said of music that it is "self-contained and in no need of content outside of itself". What this approach inadvertently reveals, however, is the profound political power in the act of transformation on a listener of music made with s-sound, when meanings leak out, new layers uncovered, like an archaeological dig. Once you discover that the first noise on *Moving Like a Train* (2006) is a coffin lid being closed recorded from the inside, or that the drip in a Eurovision postcard introductory film (2009) about Israel is of Palestinian water, or that the footsteps you hear on *Recomposed* are those inside the room where Mahler wrote the 10th symphony, your relationship with the audio shifts, sometimes radically depending on the context and provenance of the sound. This shift is a powerful political moment - the moment of transformation in a listener when new information imprints itself back into the audio in such a way as to make it difficult to hear in the same way again. The exploitation of this moment has been an important part

of what it means to me to be a composer and as such is another new way of listening for a potential audience.

The Music (2018*)* is a novel-length description of 12 pieces of music that, were they to be formally rendered, make up an hour-long work (nominally an album). It is based, in part, on the idealised principle of hearing all sound, and in some cases simultaneously, both filtered - listening according to certain ordering schemes, and unfiltered - listening in a state of surrender. During a period of dramatic global climate change, the assessment of systemic and structural failure rather than individual behaviours, a sonic equivalent of Marx's internationalism maybe, should be prioritised - a collective response to a collective problem. Within the book, there are no musical instruments played or synthesizers or drum machines. We are some considerable distance from elektronische musik and the now-claustrophobic landscapes of oscillators and synthesizers - systems closed to the disturbances of the world outside the closed-loop, the music studio. The methods of composition in the book attempt to consciously and precisely glue the context to the sound to the point where to separate the sound from its roots is to not-hear the sound at all. For an example from the text, the sound (and the meaning of the sound) of a woman on a bus reading a magazine article about David Oluwale would have to be different to the sound of a woman on a bus reading a magazine article about Geri Halliwell. In many ways, this is a direct answer to John Cage's (1961) question 'Which is more musical, a truck passing by a factory or a truck passing by a music school?' Whilst Musique Concrète consciously decoupled sound from its present or historical context in what Pierre Schaeffer (1966, cited in Chion, 1994b, p. 11) calls an acousmatic gesture, or whether it is consciously or unconsciously decoupled by what Murray Schafer (1969) later termed 'schizophonia', it is now urgent that for music to participate in the wider conversations about the political economy it exists in, the hearing both of the sound *and* the story simultaneously, concurrently or even subsequently is essential.

As stated above, a moment of acute political transformation comes not necessarily from an understanding in the same moment that one experiences the art, but in the later discovery of its process or means of production. It is accepting that in the same way that the world revolves under you, the meaning and characteristics of the music are as in flux as everything else. For example, you may not recognise the full range of sounds made by a pig until you retire to a rural farm aged 70, but that doesn't render your listening as an urban teenager to a work such as *ONE PIG* less valid, less valuable, less real.

For a composer, one of the most simultaneously empowering and disempowering aspects of working with s-sound is the capacity for it to carry substantially different meanings depending on the listener. The sound of a viola in an auditorium, falls somewhere relatively predictable on a long-established and familiar scale depending on typical factors such as age, nationality, household income etc. However, the sound of a bomb landing in Libya recorded by someone on the ground, near where it landed, immediately upends assumptions not just about how to listen but also critically *who* is listening, hence the term *music entendu*. We presumably understand the horror of it immediately, but clearly the violence for the person/s on the receiving end is substantially more critical than to the person dropping the bomb, or indeed the listener. We are then automatically divided into listeners for whom the sound is familiar or unfamiliar. Sebastian Meyer, the war photographer who unwittingly made the recording, couldn't bear to listen to the sound, but the record was made by and for others, to try and press pause, to understand this single act of colossal violence, to create a space for reflection and not simply let it pass by unheard by those of us removed but implicated in the war in Libya. The layers of experience, privilege and knowledge embedded in the listening of the sound then become inseparable from the sound itself. I would argue that it is not possible, as Pierre Schaeffer (1966, cited in Chion, 1994b, p. 11) said in reference to acousmatic music, to refer to it just "as a sound that one hears without seeing the causes behind it". Since music in this way is now a literal representation of life and death, the stakes have been raised substantially. When I released a song called *Nonsound* on an album called *There's Me and There's You* made up of sounds sent to me by Palestinians including the sounds of people being shot by the IDF at the border, some reviewers erroneously described it as silent or made up of 'lengthy stretches of audible quiet' as if the sounds of people being shot were simply absent. In the political context of the Palestinian struggle for statehood, this willingness to believe the sounds weren't there felt like a powerfully sinister metaphor.

In *The Music* then, substantial sections of the book are consciously made up of sounds that I as the author had never heard or will never hear. "Someone else is hurriedly stepping aboard the rear section of an articulated bus in Basel and their footsteps merge with, and then are interrupted by, a shrill, dense cacophony of 1,129 alarm clocks belonging to garment workers going off at once in Bangladesh. The alarms are recorded separately in their bedrooms but overlaid upon each other. The recordings are placed in a room-simulation reverb, mapped from inside Philip Green's most expensive car." In this way the composer's role is more akin to that of a conductor: describing someone else's noise for someone else to hear. It would also be impossible for a single reader to know or have heard every sound described. Therefore, in reading the book, together, we build up a collective listening experience, borrowing each other's ears to hear both Delhi and New York at the same time, in real time. It is in some ways, a temporary, imaginary and dispersed version of Barry

Truax's (1984) 'acoustic community'. This consciousness across vast distances is only possible by creating a score rather than an audio recording (it was always one of the conditions of the book that I would never record this album). It is only by harnessing this network of the imagination that one can truly render everyone's experiences as vivid in the same way that a forest relies on the mycelium network to connect and understand the scale of the group. In this model, music or sound is the cumulation of collective memory - a shared or communed version of Platonic knowledge. This breaks open not only the limited terms of the recorded format, but also the tyranny of two hands at a piano, two hands to conduct, two speakers for playback, two ears to hear and allows us to leave the body behind and locate listening instead in the combined human experience. It also instantly then renders the definitive version of a piece of music unable to exist. Even as a shared experience, the sound of *The Music* can only exist inside the limits of each reader's imaginary sonic landscape - a kind of autophonosphere. Beyond the score/text itself, in this shared, heard-world, together-made where nobody understands every other thing, and as knowledge shifts in the way postmodernism proposes, then so too does the hearing of the work. The act of composition has been transposed from the imagination of the composer to the imagination of the listener/reader. 'if you are lucky, even you leave' says John Cage (1961) referring to the role of the composer.

One further thrilling but destabilising force on the traditions of music performed by the principles of sampling or organising s-sound in projects such as *The Music* is the re-consideration needed given to the function of time and history. During live performances of *ONE PIG*, for example, the show opened with performers triggering sounds of the pig's birth, of its lungs taking their first breaths. Towards the end of the show, the same performers on the same instruments were triggering the sounds of the pig's lungs being beaten flat by a butcher following its death at an abattoir. The composer and performer have redistributed points in time along a different axis, condensing 6 months into one hour and stacking events on top of each other or playing them out of sequence. In *The Music* the sound events that take place occur during a one-hour period and as such, the reader/listener (and now composer) need to constantly imagine historical sound, with each reading, the sounds retreating further into the past. When Mahler began writing his 10th symphony, he was writing for future sound, setting down a score by which millions of people unknown to him would be able to decipher and approximate his intentions. ~~Indeed, the score with the ink not even dry would be presumed to be heard in the not so distant future, rendered into music by performers~~. S-sound recording though is a freezing of time and an implicit acknowledgement that that version of that sound no longer exists. As sampling captures the present, it immediately sends it into the past.

On a release entitled *A Week in The Life of a Tree* (2019), instead of placing the microphones pointing towards the tree, what would be described as listening to the tree, we fitted microphones near the crown of the tree facing outwards, hearing the world from the perspective of the tree. A veteran oak takes 300 years to grow, 300 years to die, and 300 years to decompose (Barkham 2009). Even though we recorded for 24 hours a day for 7 days, making it the longest album on Apple Music, a week from the perspective of a tree is a particularly short period of time when measured against its overall life. In our terms however, as a recording it is a long time to make sense of, something difficult to listen to in its entirety again and again to shape and tweak in the way one would do with a song or a cue for a film score. It would be physically impossible to listen to it with full attention all in one sitting. Since the act of listening is challenging in itself, I proposed that instead I would share the complete recordings in public, effectively asking others to hear it with me for the first time. We are sharing the act of understanding "a process, the beginning and end of which are irrelevant to its nature." An audience may have heard parts I never will in the same way that John Cage (1987) will never hear his 38-year organ piece in its entirety or nor Jem Finer (1999) hear his work entitled *Longplayer*. However, the difference is that I am alive and it is possible to hear it. Instead it is a collaborative process and experience, to the point that I, as the composer, have made it public before listening to it all the way through. We are sharing each other's ears, a globally distributed version of the principles behind Max Neuhaus's *Listen* (1966), pooling the knowledge to build up a collective audio image of this particular week. The logical next step from a record such as this is to write music for non-humans. For example, what kind of music would trees like to hear? Presumably not just birdsong and leaves rustling since they hear this all the time. As an addendum, the remaining parts of the tree will be cut up and used to make a temporary structure as part of *The Hearkening* - the inaugural event of a new listening-based religion I am starting in 2021.

For a week in September 2014 at the Berlin Deutsche Oper, I undertook a project called The Recording in which I came to the building with nothing but a loose structure of making a track a day, and built an album from scratch in front of, and with the participation of the audience. Each day was arranged thematically, with a panel discussion about what the day's piece should be about followed by building it together with the audience. On the first day we paid for someone in the audience to travel to Romania by train to record whatever sounds they thought might be interesting to us. They were gone for several days, returning on the last day with the sounds of an underemployed nuclear physicist employed in the only job he could get sewing dog leashes. On another day we asked people to bring their dogs in to make noises (we made them some dog food as treats). We also listened to strippers, and paid for members of the audience to get tattoos - all of which we recorded. On day seven, we gave every member of the audience one euro and asked them to

go out into the city and bring back something they could make noise with. We asked that it wasn't something plastic and disposable, but other than that they were free to choose. On their return we simply asked them to make any kind of sound with their object for as long or as short as they wished. The musicians on stage did nothing but listen. We turned on the microphones and listened to music performed and composed by the audience with objects they had chosen. To my ears, it was the most interesting and engaging music we had heard all week. The separation between the roles of composer, listener and audience had substantially dissipated. There wasn't one person in the room who could justify how every decision was reached, nor could explain every noise and its story, nor be able to claim sole authorship of the work. In much the way Duchamp's readymades reclaimed art for vision, this process reclaims sound for music. Where he proposed the viewer makes the picture, here the listener makes the music. In a curation of what's already there rather than the creation of imaginary sound worlds from the ground up, from silence, it roots music firmly in the present, in the tangible. However, I'm cautiously going further than Duchamp in claiming that music made with s-sound and in dialogue with its audience is more a *together-made*. We borrow each other's ears to help make sense of the *sound flux* as Christopher Cox (2018) calls it. Unlike Mahler trying to silence nearby cowbells, we can't stop the planes overhead or the cars in the street. It is a reminder that we must surrender to the complexities and nuances of sound (not the same thing as acceptance I should add). As composers, once we have accepted that s-sound is not only ours to control, the freedoms that emerge are invigorating. Some years ago, on *Bodily Functions* (1999) I requested sounds from the public be recorded and posted to us for a track called *Foreign Bodies* and on an album called *Scale* (2006) there is a track called *Just Once* where we set up an answerphone for anonymous people to leave sounds without explanation. As a result, these pieces are made up of sounds where the wider audience has more knowledge of its contents than the composer. The sounds could be someone giving birth, or a crime being committed (or in the actual case of the track *Just Once* the implied threat of violence towards me).

In *More More More* (2018), two performers, following written instructions from a spreadsheet, create recorded loops of rubbish from bins from the venue, layering them on top of each other, turning the audience's waste into music. The composer has no idea what's in the bins, neither do the performers, but presumably a few of the audience have some knowledge if it's their waste. We largely discover everything together, complicit in the absence of a complete set of knowledge. The piece educates us all as it progresses. Music made with s-sound then helps us to admit that the composer is no longer separate or removed from either their materials or their audience and that as we make music together we have finally become conscious to every possibility, we can hear everything - all we need to do is share our ears.

For a forthcoming reimagining of Beethoven's Ninth symphony for Stargaze and the Barbican entitled *NEIN*, the third movement is performed by musicians spread out across the nearby city. On an otherwise empty stage, a conductor keeps time to nobody but himself. On a received cue, the distant, absent musicians start to play and gradually move towards the conductor. By the very end of the performance all of the performers should be on the stage. The audience is invited to begin the journey alongside a musician of their choice, choosing their journey through the piece and through the city. In this way, the piece is assembled in real time at the same time that the audience is assembled. The music draws us all together, but on the understanding that nobody gets to hear all the musicians playing at once, all the time, from start to finish. Instead there are only fragments possible as musicians pass and coincidences happen, or for some listeners, the chance to sit in an empty auditorium, watching a conductor conduct to an empty stage, waiting for the music to arrive, instrument by instrument. Again, the impetus for the work is for the audience to take an active role in hearing the work, in shaping the meaning together with the performers and to engage their imagination together to try to hear the missing instruments, harmony etc. In the context of music and listening, Kai Tuuri and Henna-Riika Peltola (2019) have written about "where the boundaries of imagination are, and how imagination might exist as something socially extended between ourselves", itself a version of the socially extended mind (Gallagher 2013). This performance can exist without technology, a purely acoustic rendition of the piece, albeit dispersed around and nearby a concert hall, but it has only been possible for me to imagine how it might work and the effect following extensive immersion in recordings built using computers. Anne Balsamo (2011) calls this "thinking with technology".

In *Chorus* (2015), an installation for the Wellcome Collection and the Royal Opera House, I created a recording booth at the end of an exhibition called *This is a Voice*. It captured visitors one by one in isolation, singing a single note, any note, for as long as possible. Using software designed by Dr Matthew Yee King of Goldsmiths and Dr Sam Britton of Coda to Coda and Ircam, the software within the installation automatically looped the sung note and added it to every other person's note recorded in the exhibition. By the end of the installation we had around 26,000 voices layered on top of each other. The effect was the largest recorded cluster of human voices, heard for the first time, and in unplanned harmony. Brahms (Avins 2001) believed that "composing cannot be turned out like spinning or sewing" but as we have come to rely on external hardware and software to organise, present and edit, it is clear that composition can indeed be like spinning, creating literal if invisible frames into which patterns can be described before adding the raw material. *Chorus* for example, was entirely silent at the start of the composition. As the installation starts to record, collect, and process

the voices of the public, it aligns them with a simple, yet predetermined set of principles. The software was programmed for example to ignore notes that were not of a relatively constant pitch or volume, and to not begin recording until a certain volume threshold was met. In this way, the composer's role was not dissimilar to Brahms in notating a set of rules to follow, or to a sewing machine as it binds material together to create something new, something other. It does diverge considerably from a Brahms piece, however, on the terms of performance since the audience not only constructs the music in performance, but has a demonstrably greater collective understanding of the work than the composer - the thousands of conscious musical strands bound together into a whole. Oram (1972) says that "could we hazard a guess that the composer may show us that, after all, the greatest music is composed when the composer has sufficient strength of character to control his forces by his own individuality". The ability of technology, not to free us from the instability and nuance of acoustic sound and its performances, but instead to capture the moment when the musical soundworld is collectively and creatively realised by a group of near-strangers is to my mind a more fertile route towards "the greatest music" than simply a "mastery of materials". Attali (1985) again "with music is born power and its opposite: subversion" and the tools of technology to reshape power, not as a closed loop of a singular vision as Oram describes (or as the perfect symphony from the mind of a western male composer), but instead as a collective expression of being present, of making noise, making decisions, taking part, existing, feels both powerful *and* subversive. In *Chorus* the composer has surrendered not only the content of the work but the ability to access all the thousands of performance decisions that go into the creation of it. In the end we are listening not to the composer's vision, but to the accumulation of 26,000 visions of what the piece is. As a together-made it exemplifies how listening has to change to accommodate the profound shift in materials and the role of the composer. To paraphrase Barthes, the death of the composer is complete. The solitary recording area was entirely silent, the composer absent, so only the single person present at the time of recording knew what occurred at the moment of pressing the red button to record their voice. As John Cage (1973) would say, the work does not seek to "bring order out of chaos", but instead to find new ways of listening to the soundscape where there is already order. After all, there must be at least 26,000 people singing a single note at any one moment at any point of the day, anywhere in the world, all we have to do is hear it. *Chorus* however is not a product, but a process. The work itself has existed online and has been rebuilt within a new setting, but using the same technologies, at the Powerhouse in Sydney, with more voices being added. A kind of singing spreadsheet, the online version allowed users to listen to the recorded voices filtered according to various subsets of metadata. For example, when the traffic was bad outside, the weather was warm, or what the FTSE 100 share index was doing at the time of the recording. The piece is imagined to continue to record and broadcast its sound, surpassing one million people singing within the next 10

years. There will be no definitive version that can be pointed to or heard that reveals all of itself, in the same way that there is no single idealised listener who embodies all the traits needed to receive the work.

This process of layering multiple sounds was an extension of a process I started as part of *Plat du Jour* (2005) a record made out of, and about the UK food industry. For this I recorded 3,500 people eating an apple at the same time. Whilst not intended as such, the effect of the recording process ended up transforming the ordinary into the extraordinary. As a composer, to hear a recorded sound that nobody else has previously heard felt revolutionary. It turned out that within the sound is an implied question: what if we could hear all apples being eaten at that moment anywhere in the world? At this point, both the composer's and listener's ears have left their bodies and are hovering, or moving freely in an imaginary, yet higher plane. I would argue that it goes some way to counter Beethoven's (1810) assertion that "music is the one incorporeal entrance into the higher world of knowledge which comprehends mankind but which mankind cannot comprehend". Music in this form brings us a different kind of listening, and therefore a different kind of understanding or knowledge. In hearing raw sound not just in a linear fashion, one event at a time, but stacked and layered vertically in large numbers we can begin to hear as if suspended above the earth, temporarily rendering us as the divine listener, whether God, aliens, surveillance capitalism, the state or some other omniscient presence that bears witness to life. In the gospel according to St Thomas, in a delicious irony only discovered in 1945 around the same time that Schaeffer and Henry were working, the repeated phrase appears "whoever has ears to hear, let him hear".

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