SONIC, INFRASONIC, AND ULTRASONIC FREQUENCIES:

The Utilisation of Waveforms as Weapons, Apparatus for Psychological Manipulation, and as Instruments of Physiological Influence by Industrial, Entertainment, and Military Organisations.

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ABSTRACT

This study is a trans-disciplinary and trans-historical investigation into civilian and battlefield contexts in which speaker systems have been utilised by the military-industrial and military-entertainment complexes to apply pressure to mass social groupings and the individuated body. Drawing on authors such as historian/sociologist Michel Foucault, economist Jacques Attali, philosopher Michel Serres, political geographer/urban planner Edward Soja, musician/sonic theorist Steve Goodman, and cultural theorist/urbanist Paul Virilio, this study engages a wide range of texts to orchestrate its arguments. Conducting new strains of viral theory that resonate with architectural, neurological, and political significance, this research provides new and original analysis about the composition of waveformed geography. Ultimately, this study listens to the ways in which the past and current utilisation of sonic, infrasonic, and ultrasonic frequencies as weapons, apparatus for psychological manipulation, and instruments of physiological influence, by industrial, civilian, entertainment, and military organisations, predict future techniques of socio-spatialised organisation.

In chapter one it is argued that since the inception of wired radio speaker systems into U.S. industrial factories in 1922, the development of sonic strategies based primarily on the scoring of architectonic spatiality, cycles of repetition, and the enveloping dynamics of surround sound can be traced to the sonic torture occurring in Guantánamo Bay during the first decade of the twenty-first century. Exploring the use of surround sound speaker techniques by the FBI during the Waco Siege in Texas, this argument is developed in chapter two. In chapter three it is further contended that the acoustic techniques utilised in the Guantánamo torture cells represent the final modality and the logical conclusion of these strategies that have evolved between civilian and military contexts over the past 80 years. In chapter four, the speaker system instrumentality of the HSS ultrasonic beam - occurring post Guantánamo - comes to symbolise an épistémic shift in the application of waveformed pressure; the dynamics of directional ultrasound technology signalling the orchestration of a new set of frequency-based relations between the transmitter and the receiver, the speaker system and architectural context, and the civilian and war torn environment.

The concluding proposition of the study submits that a waveformed cartography - mapping the soundscape's territorialisation by the military-entertainment complex - needs to be composed and arranged so that forms of recording, amplification, and resistance can be made coherent. Given the new set of non-sound politics announced by the HSS, this philosophy of frequency-based mapping will have to re-evaluate the taxonomy and indexical nature of spatial relations. This discipline will be a waveformed psycho-geography; a frequency-based modality that heuristically charts the spatial concerns of the neural environment as well as the environs of the material and the built. As a field of research it will have a wide-ranging remit to explore the spatial, psychological, physiological, social, economic, and sexual effects that waveforms have upon our subjectivity. Its methodology - as suggested through the structuring of this study - will be multi-disciplined and multi-channelled. It will create new forms of knowledge about LRADs, iPods, Mosquitos, Intonarumori, loudhailers, and Sequential Arc Discharge Acoustic Generators - the meta-network of speaker systems through which rhythms and cadences of power are transmitted, connected, and modulated.

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INTRODUCTION

This study commences its investigation into the orchestration and territorialisation of architectural soundscapes by the military-industrial complex when wired radio was introduced into U.S. factories in 1922 to improve worker's rates of productivity. The research subsequently traces a lineage of speaker system deployments throughout the twentieth-century in which waveformed strategies have been brought to bear on decreasing numbers of bodies in spatially reductive circumstances – from the factory to the compound to the detainment cell. The rupture in this frequency-based trajectory of sound effects, occurs after the sonic torture of detainees in Guantánamo Bay. After Guantánamo, there is no architectural space smaller than a cell for a speaker system to be utilised within and no greater violence for music to be channelled towards than the psychological and physical breakdown of a targeted body, as illustrated below in diagram 1. The twenty-first century shift instigated by the military-entertainment complex effectively displaces the sonic speaker from its position surrounding the body by replacing it with an ultrasonic speaker that is projected into the body, or into the skull to be more specific.
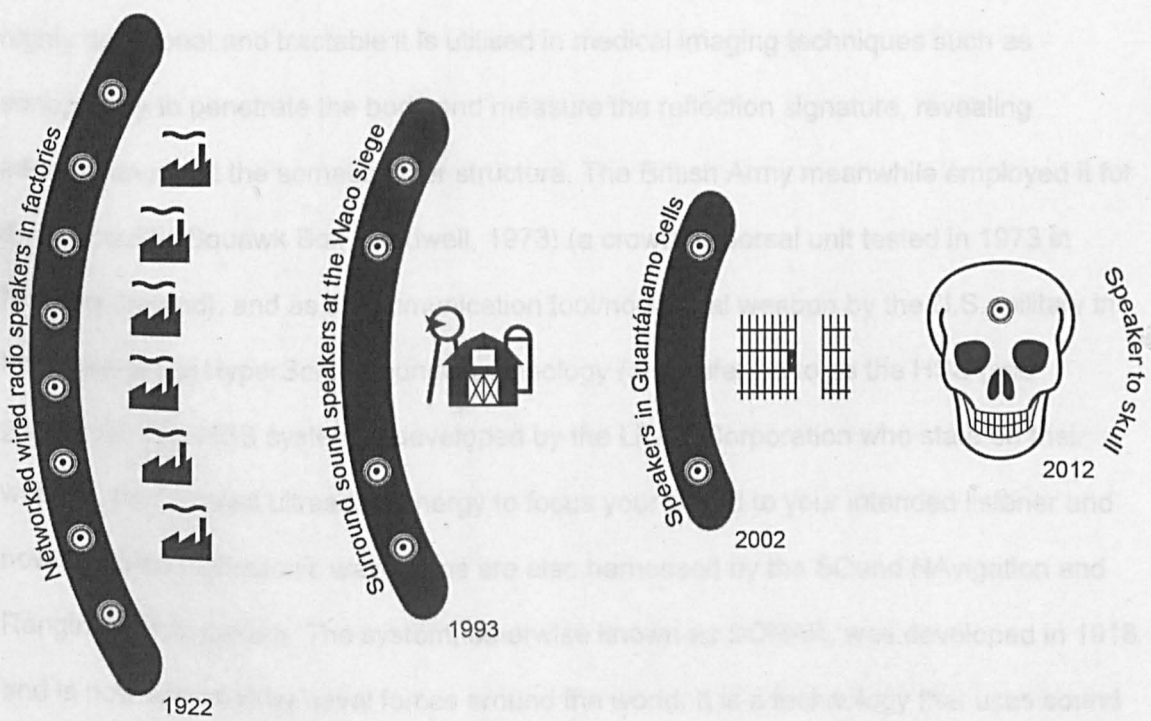
Diagram 1

Sound, Infrasound, and Ultrasound

It is widely accepted that everything in the known world has a resonant frequency. Frequencies that form our perception of sound, those between 20 Hz and 20,000 Hz constitute only a small bandwidth of the full waveform spectrum that we exist within. There are three ranges of frequencies, one range either side of the sonic range. Those frequencies that fall below 20 Hz and beneath the lower limit of human hearing are named infrasound. As more supine waveforms that reside close to the ground they are distinguished by their capacity to travel long distances, through, and around objects with minimal dissipation. Naturally occurring phenomena such as earthquakes, tornadoes, waterfalls, and volcanoes generate infrasound, whilst animals such as alligators, elephants, and whales are understood to perceive and utilise it to communicate over hundreds of miles.

The range of waveforms that reside above 20,000 Hz is referred to as ultrasound. Being highly directional and tractable it is utilised in medical imaging techniques such as sonography to penetrate the body and measure the reflection signature, revealing information about the somatic inner structure. The British Army meanwhile employed it for their 'Acoustic Squawk Box' (Rodwell, 1973) (a crowd dispersal unit tested in 1973 in Northern Ireland), and as a communication tool/non-lethal weapon by the U.S. military in the guise of the HyperSonic Sound® technology (also referred to as the HSS (see glossary)). The HSS system is developed by the LRAD Corporation who state on their website, that it "uses ultrasonic energy to focus your sound to your intended listener and nowhere else". Ultrasonic waveforms are also harnessed by the SOund NAvigation and Ranging active system. The system, otherwise known as SONAR, was developed in 1918 and is now operated by naval forces around the world. It is a technology that uses sound

propagation (mostly ultrasonic frequencies) for underwater navigation and communication, or for detecting external vessels.

These ranges of infrasound and ultrasound - the waveforms that we cannot hear - alluded to as *non-sound* or as *unsound* are perceived via the entire physiology of the body, but not as perceptible information via the hearing capability of the ear, meaning that we are literally touched by these types of frequencies. The notion of non-sound is differentiated from unsound by its echoing of the geographical notion of non-place. Therefore it pertains to a sonic spatiality that is composed by transitory behaviours and a negation of emotional associations. The notion of unsound can be understood as a vibrational cosmology of affect and pre-emptive embodiment at the margins of perception (further discussed by Steve Goodman in his text *Sonic Warfare: Sound, Affect And The Ecology Of Fear* (2009)). Excessive or focused amplification of either range of waveforms in relation to the body can cause overwhelming nausea, loosening of the bodily organs, and ultimately death. Research into the effects that these three bandwidths of frequencies have on humans was only institutionalised, in any sense of the word, at the beginning of the twentieth-century. The first known acknowledgements that infrasound even existed occurred in 1883 during the aftermath of the Krakatoa volcanic eruption, making it evident how recent this field of study is.

Whilst exploring the perceived realm of sound, this study also researches ultrasonic and infrasonic phenomena, which is not consciously perceived by our ears, in order to detect the ways that waveforms (a term connoting all the frequencies within the infrasonic, sonic, and ultrasonic ranges) have been harnessed as tools and weapons to demarcate physiological, spatial, and psychological territories. This investigation questions widespread Western cultural beliefs about imperceptible phenomena and states of being

and by extension articulates the importance of comprehending the marginal, liminal, and peripheral. By assuming such a position, phenomenological questions must be asked about the effects that frequencies have on the somatic. By furthering this mode of inquiry, it will assist us in scrutinising the military, industrial, and civilian organisations that conduct frequency-based strategies (see glossary) - spatial techniques that re-modulate our comprehension of the soundscape as being audible. This study proposes that it is new technologies such as the HSS – operating on the thresholds of the perceptible - that need publicly amplifying and made overt, so that our waveformed bodies can articulate their purpose, direction, and socio-spatial agendas.

The Perception and Phenomenology of the Waveformed Body

The phenomenological terrain of the study is presented here to locate arguments, questions, and theories pertaining to the sensory perception of waveforms. This is summarised in order to ascertain how, when, and where we situate ourselves in frequency-based environments and to comprehend the ways in which strategies orchestrated by the military-industrial and military-entertainment complexes have been, (and will be), employed to manipulate conscious hearing, somatic cognisance, and spatial orientation. From a phenomenological stance, humans understand themselves, their orientation, and their interactions within the world, as well as the world itself, via perceptions garnered from a number of physiological sensory organs and systems. Perceiving, transmitting, and processing information available from the matrix of phenomena and stimuli that humans are enveloped in on a daily basis, the senses most historically researched, documented, and tested are those of sight, sound, touch, taste, and smell. This traditional index of the sensorial array can be traced back to the Greek

philosopher Aristotle, who in his trilogy of books named *On the Soul* meditated upon the

nature of living things and theories of the five senses (Rorty and Nussbaum, 1992). Whilst

it is judicious to claim that this interactive assembly of perception-based systems supplies

us with the prevalent information we require to formulate a sense of agency, it is the

information provided by our sense of sight that is privileged and dominates the

construction of our understanding of the world. Jonathan Sterne iterates this very

proposition when he writes, "...sight is in some ways the privileged sense in European

philosophical discourse since the Enlightenment" (2002: 3).

Historically under recognised, at times marginalised, and often misunderstood, the other

perceptive systems, including the more recently scrutinised and classified senses of;

equilibrioception (balance), proprioception and kinesthesia (joint motion and acceleration),

time, nociception (pain), magnetoception (direction), and thermoception (temperature

differences) have not been chronicled in the same manner as sight. Nor have they

received the attention they deserve when one considers their importance in forming our

notion of *being* in the world. As a result of our cultural adherence to explaining the known

world via vision, the occident has by enlarge annexed a cartography, history, and

sociology of sonic percipience, experience, and interpretation as noted by German

sociologist Georg Simmel in the early part of the twentieth-century (Frisby and

Featherstone, 1997: 109-120). Currently, discourses that define waveform spatiality and

compose acoustic psycho-geographies (see glossary) are still quietly eclipsed from our

collective lexicon and individuated praxis. This study engages in discourses that attempt

to help redress a sensorial balance within the philosophy of Western culture; to question,

assay, and refute the disproportionate import afforded to the rationale of the ocular, in

favour of establishing the senses of sound and to a lesser degree touch as the critical

phenomenological indicators of personal agency, urban spatiality, cultural chronology, collective psychological orientation, and social relations.

Accordingly, this study's introduction is based upon the assertion that a lost body of sonic, ultrasonic, and infrasonic knowledge needs to be initially located and amplified before a waveformed discourse can be fleshed out in the following chapters. Investigating this missing waveformed body of knowledge, that is at once empowered, alienated, and networked by frequencies, requires we sonically sketch out its characteristics so that we know what we are listening for and understand the nature of the body that will be operating within our further explorations of the soundscape. Michel Foucault's conception of the 'oscillating subject' provides us with a waveformed likeness of our missing body of frequency-based knowledge. Proposing that the individual does not merely act as a passive receiver but also as an active proponent - or transmitter - in a network of power relations, Foucault states:

> Power is employed and exercised through a netlike organisation. And not only do individuals circulate between its threads; they are always in the position of simultaneously undergoing and exercising this power. They are not only its inert or consenting target they are always the elements of its articulation (1980: 98).

Existing in a web of power relations, this vacillating subjectivity transmits, mutates, and receives information according to the micro-sound politics, noise, and collective harmonies emitted from the network of surrounding embodied speakers that it finds itself within. It is in this distributed system of social influence that we are able to monitor the ongoing spatial negotiations, methods of psychological alienation, and strategies of physiological manipulation that simultaneously locates and displaces our missing

waveformed body of knowledge. Now that we have heard about the capacity of our muted subjectivity and its possible whereabouts, we can say that this is the body that will be investigated, spatialised, historicised and ultimately fleshed out through the study. We can also name it. It is the *antenna body.*

The antenna body speaks to us about being-in-the-world-of-waveforms. It is imbued with an agency that is absent from contemporary mediated bodies. Subjects such as those theorised by McKenzie Wark, whom living in virtual geographies "no longer have roots" (because) "they have aerials" (1994: xiv), thus constituting themselves as somatic models that can only receive signals, communications, and information. Conversely the body as antenna is a useful subjectivity to the study, as it articulates the embodiment of two states of being at once, those of reception and transmission and in doing so issues a statement about the inherent third agency of being both, neither, and more than the two capacities that in part construct its identity. Rather than being statically positioned, it contends that we exist between Manichaean (see glossary) dualistic formations of good and evil, sound and silence, place and space; thus constantly between stations and always changing channels. It is the modulating, transformative, and propagating nature of the antenna body that offers us new ways of perceiving the social in waveformed space. And it is its past movements, spatialities, and mutations that form the missing body of knowledge that we need to investigate to assess whether it has previously been perceived or witnessed. A broader interrogation of Western thought - in the form of a frequency-based identity parade - over the past two hundred years will help with such an investigation and will create a frequency-based épistémè (see glossary) in the process.

The line-up of five thinkers whom will provide us with clues about the identity of the missing body of knowledge has been selected for a number of reasons. Schopenhauer,

Nietzsche, and Adorno have all been selected for their reverence to sound in the form of music and to those who have the capacity to channel it. All of these thinkers write about the mysteriously powerful affect that music has on those who listen to it, endowing those who are able to compose and control such waveformed elements with special or genius status. All three thinkers present their own scenarios through which the supposedly banal regime of everyday living is transcended by the high art, the metaphysical power, and the cathartic potential of organised sound.

This study is interested in how these philosophies denote waveforms with power, but rather than extending the notion that waveforms are cause for revelation and celebration, traces the ways in which the entire range of frequencies are used to organise, influence, and torture humans subjects in quotidian circumstances as well as in those considered to be exceptional. Jacques Attali is subsequently selected because he breaks with this lineage of venerational thought and instead identifies music as being capitalism's defining mechanism of everyday organisation. Whilst Attali's sono-economic theory is not the trajectory this study travels along, its rupture with centuries of previous thinking about the specialised placement of music both in and out of the social body (along with its inferred capacity to deliver society to a more utopian realisation of itself) is important to this text's inquiry into the whereabouts of the antenna body.

The nineteenth-century German philosopher Arthur Schopenhauer's subject, who "thought that music was the only art that did not merely copy ideas, but actually embodied the will itself" (Albright, 2004: 253), is the first waveformed body to present itself then, in our modern historical line-up of frequency-based bodies of thought. Schopenhauer considered will to be the ultimate folly of a humanity whose spastic expression of desires only leads to confusion. He purported that living a life of detached observation and ideas, was the only way to enlighten and empower oneself over the seductive powers of

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emotional, physical, and sexual desires; passions he thought, that could never ultimately be actualised anyway. The fact that Schopenhauer's tuned body does not engage so much with external spatial concerns as it does with metaphysical preoccupations - those that circumvent the will of the conscious mind, rendering the somatic a conduit of pure expression - means that it cannot be the receptive and transmitting body of knowledge we are searching for. Schopenhauer's body is presented as an instrument that channels the essences of humanity, and as such, it produces too pure a signal to be our misplaced body that is as much identified, territorialised, and shaped by dissonance, feedback, and distortion as it is by harmony, melody and tonality.

The next possible witness/subject is Friedrich Nietzsche's body of the unspeakable. As an ardent admirer of German composer and conductor Richard Wagner, this is a corporeality that is initially replete with musical adoration (Nietzsche, 1967). Wagner "has increased music's language-capacity into the immeasurable", wrote an impassioned Nietzsche (1966: 919). Whilst this body of thought might help us with articulating the ontological capacity of the unutterable or the unspeakable, it is muted when questioned about our spatial search; such writings are unable to locate our body in a place, space, or in an environment that has been witness to martially, civically, or industrially induced strategies in the soundscape. Nietzsche's reverence eventually transmutes into disdain and embarrassment at its own devotion however and so proceeds to distance itself from the Wagnerian subject of its waveformed desires.

Whilst the two bodies accounted for so far have provided aesthetic hints, they have given us few socio-political or spatial grounds to work upon. The following three theorised phenomenological bodies that Maurice Merleau-Ponty provides us with throughout the course of his career are more pertinent to our search. His bodies of thought provide us

with perceptive clues as to the roles that the senses play when re-embracing the body back into critical thinking, comprising as they do, of the 'lived body', the 'habitual body', and 'the flesh'. The 'lived body' expresses ideas about the role that perception plays in interpreting being-in-the-world and refers to how the nature of the body affects perception in a 'real' world of intricately entwined realities. The 'habitual body' is Merleau Ponty's somatic conceptualisation that receives information and acts upon it according to previous memories of same or similar activities, in relation to external stimuli. In this way, previous modes of experience sediment themselves into the behaviouralisms of the habitual body. Late in his career, Merleau-Ponty ontologically conceptualised the body as 'the flesh' in order to further investigate the influence of perception on the understanding of existence. The flesh is therefore a materialism of the body that equates the constituents of the somatic with the physical composition of the external world.

These three conceptualisations ground our waveformed body, open it up to scrutiny and make it clear that the somatic exists in a continual state of negotiation between being subject and object. How we relate to ourselves and our perceived world (through a state of constant transition) is indeed useful, but ultimately, it is not in Merleau-Ponty's ocular centric metaphors, studies, or theories about *The Visible and the Invisible* (1968) that we will locate our waveformed body. Whilst pointing us to possible sightings of the body we are listening for, the nature of the perception - the sighting - of the somatic is precisely the problem here, for as we know, our investigation is searching for phenomena that is heard and felt, not that which is registered by its visual observation.

Frankfurt school theorist Theodor Adorno's musically boxed body symbolises the wound up and disenchanted witness to the twentieth-century's birthing of mass culture. As mass consumerism expanded so did Adorno's distaste for frequencies that were organised into

standard musical patterns - popular compositions that he felt negated the potential complexity, experimentation, and critical analyses offered by high art. As with many thinkers influenced by Marxism, Adorno's highly cultured witness locates a utopian eschatology by establishing socio-historical trajectories in the waveformed environment rather than by perceiving its psycho-geographic topologies. Once again spatiality is at the behest of a temporal discourse that leaves our body turning in disappointed revolutions, failing to keep time with a musical promise of emancipation from its mechanical workings.

The critical consciousness of Adorno's body - an individuated embodiment of choreographed needs - turns apprehensively in its box, disquieted by its arrangement in a production line of acoustic identities. Yet it is telling nonetheless, and details of the waveformed bodies first heard movements in wider socio-economic, psychological, and political terrains begin to reverberate. Adorno's musically boxed body tells us about the ways in which frequencies are mechanised to make societies move in repetitious cycles. It tells us about strategic musical engineering of the civic populace's collective psychology, orientation, and physiology; and about the creation of desires which can only be fulfilled by a capitalist system that mutes those who it cannot assimilate into potential markets. In this state of popularised culture, music is utilised as a socio-economic instrument that soothes and pacifies those in financial stress by allowing them to consume and identify with its communally commodified expression. Covert and insidious, popular music's real intent is made imperceptible according to Adorno, camouflaged as it is by "the manipulation of taste and the official culture's pretence of individualism" (1978: 280).

Manipulated and influenced through music, the mass social body spoken about by Adorno is telling us about the capacity of frequencies - in the form of music – to organise spatiality and our movements within it. We are now able to perceive and monitor the repetitive

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movements enacted by our missing waveformed body, yet we are apprehended from listening to a more complex analysis because Adorno's musically oriented performer can only move to the binary rhythms that define either high culture or low culture. The divisive aesthetics of this body are seductive, echoing as they do our concerns about waveformed manipulation, the cultivation of psychological needs, and industrially motivated strategies of pseudo-individualisation; but ultimately the somatic form of the musically-boxed body rings hollow as it does not allow us to spatialise its presence. It centres the body in the perceivable, negating the plausible dynamics of affect via the liminal, the marginal, and the undisclosed. We cannot locate it as having agency, influence, or orientation but can rather only listen to it via the logic of the totality of the locked groove from which it can never escape. Caught in repetitious cycles of being, either wound up or wound down, Adorno's musical body of thought articulates an oversimplified rendition of cause and effect as his subject is either lulled into Stravinsky's deep sleep or awakened by 'Schoenberg's revolutionary alarm call' (see glossary).

The three chronologically orchestrated witnesses of French economist Jacques Attali signal the final figures of our line-up. The sacrificial body, symbolic of the originating body of music is "presented as originating in ritual murder, of which it is a simulacrum, a minor form of sacrifice heralding change. We will see that in that capacity it was an attribute of religions and political power, that it signified order, but also that it prefigured subversion" (Attali, 1985: 4); the representational body - which, "after entering into commodity exchange,... participated in the growth and creation of capital and the spectacle" (Attali, 1985: 4): and the repetitive body which has witnessed music being "fetishized as a commodity" (Attali, 1985: 4); its consumption generalised to a point, at which, it ultimately becomes an object that "is stockpiled until it loses its meaning" (Attali, 1985: 4).

Whilst each body of thought is attired in the characteristics of a different historical period, all three are conjointly tailored to propose that music is the most socially revelatory and significant form of cultural expression as it "is *prophetic*. It has always been in its essence a herald of times to come" (Attali, 1985: 4). Attali suggests that all cultural modes of creating, perceiving, and disseminating music are implicitly related to - and more than that, symbolically pre-emptive of - wider social practices of production, storage, and distribution. Each body therefore signifies a model of musical co-ordination that informs the culture from which it comes, of future modes of social organisation. Attali's three models of musical and social organisation finally gesture towards a newer model that he glimpsed in 1985; a body of thought without socio-economic theorisation that was named (the) 'compositional' (body). Its list of analytical characteristics reads similarly to the frequency-based subjectivity we have been searching for. It is after all, a body of thought that articulates the sonic in terms of; the logistics of social organisation, the restructuring of economic networks, the paradigm shifts it creates in socio-political registers, and the speculative potential of waveforms.

Ultimately, Attali composes a socio-economic reading of the musical construction of the body and its capacity to be ordered, conducted, and tracked via the requirements of the labour market. Faint murmurs from our misplaced body are beginning to echo in Attali's (1985:4) announcement that it was his intention to not only:

> theorize *about* music, but to theorize *through* music (and more pertinently that)...
> Music is more than an object of study: it is a way of perceiving the world. A tool of
> understanding. Today, no theorizing accomplished through language or
> mathematics can suffice any longer; it is incapable of accounting for what is
> essential in time – the qualitative and the fluid, threats and violence.

Such statements acknowledge the existence of the missing waveformed body and our collective need to articulate its capacities, movements, and potentialities. Whilst our dislocated subject shares some of the characteristics of Attali's compositional body it is still not what we are listening for. Exigent questions have still not been asked about the compositional body's acoustic capability to spatially organise – in the theatre of operations that is the battlefield, in the workplace, or on the street. The waveforms that are imperceptible are not considered at all by Attali and subsequently render his fourth model a one-dimensional body of thought that lacks the other dimensions offered by ultrasound and infrasound. Most significant, is that whilst detailing the socio-economic effects of music, Attali's missing fourth model neglects to make any coherent statements about the body itself and the affect of waveforms upon it.

Our line-up of previous somatic modalities of waveformed thought has told us much about *where* we need to search for our missing waveformed body of knowledge in order to perceive, spatialise, and socio-politically register it. We now need to explore new philosophical terrains and parameters in order to flesh out the movements of the antenna body and the martial, industrial and civic networks it exists within. A new set of questions need to be forwarded in order to locate its agency, potential, and socio-political register; enquiries that engender asking – Who develops frequency-based technologies in order to capture, index, and harness imperceptible frequencies and how are they utilised to shape social, temporary, and private space? How do we define the behaviours of, the fleshy interface of, and the extension of the body in a vibrational field of relations? How do we name, record, and traverse the thresholds between sound and silence, between presence and absence? Only when we have answered these questions will we able to say that we have started mapping the sensorial topologies of the antenna body; a cartography of

influence, manipulation, and torture that will enable us to better articulate its movements and transgressions and our own sense of space and orientation in relation to it.

Waveformed Language and Listening

We cannot hear the act of hearing. We can gaze on another's act of looking and form an opinion about the ways in which they gaze, but we cannot do the same with sound. As such, the act of listening is a muted interaction, as one can never perceive the other perceiving via the sensorial register of the auditory. Hearing is therefore a sense offering refuge to the covert, the liminal, and the auricular; creating a contradictory sensorial spatial dynamic that is hidden and unutterable, but with boundaries that are porous and malleable. Accordingly, other types of discourse are allowed to enter the same analytical space that physics, phenomenology, and neurology occupy when trying to describe the characteristics of hearing. The territorial borders of waveformed space's perception cannot therefore be effectively sealed by facts, observation, or recording. The intrinsic and constant negotiations of the unutterable and unspeakable by the inhabitants of such environments, means that the boundaries are constantly recomposed and never rigid. It is precisely this fluctuating dynamic that permits unofficial, unscientific, and unrecognised languages to translate waveforms into exchangeable knowledge; narratives that tear and dislocate the definitions of those translations at the same time. Subsequently, it is in such circumstances - where the oscillatory and transient nature of meaning is made apparent - that conspiracy theories, religious conjecture, and science-fantasy attempt to explain the liminal states of frequencies. These discourses reside with, rub up against and chafe official bodies of knowledge, irritating their rhythmical methods of erudition, forms of rationalisation, and epistemological suppositions concerning the soundscape.

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It is contended throughout this study, that we have not yet fully developed a wider socially accepted language that explains the topological characteristics, psychological orientation, and physiological violence of waveforms. Not having words to explain phenomena, whether they are frequency, object, or action-based, has the corollary effect of said phenomena being ascribed with meaning that is embedded in the anxiety ridden utterances of the otherworldly, the hallucinatory, and the conspiratorial. These displaced and misunderstood interpretations are often not translatable into the existing waveformed language available to supposedly gauge them. As a result, narrative and interpretative discourses explaining frequency-based phenomena become marginalised and annexed into the nervous dispositions of culture. Not being able to name a thing, an experience, or a vibration dislocates us as the rational centred subject of the world we live in. Our enveloped position, as one who has the ability to sense, judge, and implement ideas upon our environment, based on the understanding that we are able to know and to name is threatened by not being able to articulate that which we perceive. It is the unspeakable that we castigate to our subconscious, the unspeakable that we actively try to forget, for that which we cannot remember to speak of, is that which is half-dead to us. It is here, between the transfer of the signal and the monotone of the flat line that waveformed memories operate - as conduits between the articulated and the unutterable - in the living-dead networks of perception.

There is a power in being located on the periphery of the living and the dead. The power of frequencies partly resides in their disorienting capacity to displace language, description, and perception of both states of being. In spatial terms, Foucault names the cemetery as the site "connected with all the sites of the city, state or society or village" (1967: 233). It is in this transitional locale that he recognises a shift occurring, a transmutation of the understanding, cartography, and distinction of the living and the

deceased, because "from the moment when people are no longer sure that they have a soul or that the body will regain life, it is perhaps necessary to give much more attention to the dead body, which is ultimately the only trace of our existence in the world and in language" (Foucault, 1967: 233). It is this sense of uncertainty that also drives us to characterise the soundscape as a refuge of the tenebrous, an ambiguous spatiality harbouring phenomena and interactions that we are unable to rationalise; whether it be sounds at night that cannot be explained (interpreted as being movements of the dead) or the inner voices that we ascribe to the mentally ill to help us understand the noisy multi-channel nature of schizophrenia (see glossary). If we send this narrative - that ordains the sonic within the otherworldly - to its nefarious conclusion and listen to its musical composition, we can track down the example par excellence that bespeaks our cultural anxiety and disquiet concerning the purgatorial power of frequencies.

Allegations (often made by organisations affiliated to the Christian religion) of backward recorded messages on vinyl records - also known as backmasking - reveal the full extent of our moral, social, and bestial fears about music's capacity to channel information from perdition. Numerous popular recording artists have been accused of utilising backmasking techniques on recordings, including Britney Spears, ELO, and Eminem amongst a long list. The most infamous incident of a defendant alleging that backward masking on a record had inspired their actions occurred during the trial of Charles Manson, for the Tate/LaBianca murders in 1969. During judicial proceedings it was proposed that Manson believed an apocalyptic race war would engulf the country and that the Beatles - through songs such as *Helter Skelter* - had embedded hidden messages foretelling such violence. Manson's delusional response (to these perceived messages) was to record his own prophetic music and to murder Leno and Rosemary LaBiance and actress Sharon Tate (amongst others) in order to trigger the supposed conflict. In 1985 Vokey and Read

conducted psychological tests to ascertain whether subliminal messages in music affected behaviour. Their results concluded that their was no evidence to support such an idea and that the perception of such messages in music tells us more about a subject's will to fabricate than it does about the actual existence of implied content (Vokey and Read, 1985: 1231-1239).

The fears of organised sound's power are only fully sated when subliminal messages (see glossary) are afforded the influential capacity to propel mentally unstable subjects such as American serial killer Richard Ramirez to perform gruesome acts of violence. This anxious disposition subsequently attributes music - and by extension frequencies – with the potential to manufacture evil deeds, and more than that, with the power to transfer the somatic and the spiritual to the environs of the underworld itself. In this context, music can be perceived as a phenomena operating in the conduit between psychological torment and its physical expression; between the scientifically monitored condition and the unthinkable act; as a force that transgresses the material world of things yet deeply affects and orients actions within it. Thus it is music's contradictory symbolic index – as religious celebratory expression and as transmission of the devil's will - that renders waveforms as phenomena to be both feared and revered.

Anxieties relating to the manner in which frequencies move us, and where they transfer us to, are still inhered within Western culture. As previously intoned, this can in part be explained by the absence of language in our ontological and epistemological lexicon that communicates and encourages feedback about the bleeding, noisy, and embodied nature of waveforms. If this is so, then it is incumbent on the writer who theorises the spatiality of frequencies to comprehend the need for such a language; to amplify previously composed concepts; and to create new syntax, vocabularies, and registers for constructing

discourses about frequencies. In relation to the creation of words, terms, and ideas about waveforms and their organisation, a number of thinkers have had an impact on the writing of this study.

R. Murray Schafer (1977) coined several foundational terms, or neologisms that are used regularly throughout the thesis such as 'soundscape' - a term that can be paraphrased as meaning the totally enveloping world of acoustic phenomena, including each and every environment we might find ourselves within (except a vacuum); 'schizophonia' - a sonic version of the mental illness schizophrenia, which Schafer refers to as "the split between an original sound and its electroacoustical transmission or reproduction" (1977: 90), and, 'earwitness' – an expression meaning "one who testifies or can testify to what he or she has heard" (1977: 272). French composer, writer, and engineer Pierre Schaeffer meanwhile, coined the term 'sound object' which was later interpreted by Michael Chion (1983) to mean any sonic happening that could be interpreted as a coherent sum, irrelevant of the production of the sound, or the interpretation of it.

Glossaries of waveformed terms such as *Sonic Experience: A Guide to Everyday* Sounds (2005) by Jean-Francois Augoyard and Henri Torgue already exist. The recent publishing of such books - that explicate auditory effects – articulate a wider desire for indexes that endeavour to rehabilitate our sonic cognisance by acoustically mapping the everyday soundtrack of urban space. Previous to these new cultural expressions of interest in the sonic, Attali had iterated a need to develop new forms of language that explicate our mutating state of being-in-the-world-of-waveforms. He proposed that visually based languages have become unresponsive through excessive use, over-burdened by an expectation to explain phenomena outside of their remit. For Attali this means, "it is thus necessary to imagine radically new theoretical forms, in order to speak to new

realities…[music] constitutes the audible waveband of the vibrations and signs that make up society. *An instrument of understanding, it prompts us to decipher a sound form of knowledge*" (1985: 4). As we have come to understand, this sound form of knowledge is still needed, but there are two other ranges of understanding that are not spoken about here, those of ultrasonic and infrasonic comprehension. Thus the new form of knowledge transmitted through this thesis is a thirded knowledge comprised as it is of all three ranges of waveformed perception; and it is the socio-spatialisation of waveformed perception that is explored via the deployment of newly constructed terms such as 'thirdsound' which refers to a sonic spatiality that questions our dualistic understanding of waveforms as being heard/unheard, as real/imagined, or as creating feelings of pain/joy.

The study is indebted to a number of writer's theoretical developments of 'thirding' as a methodologically and analytically formatted tool that can be used to dislocate dualistic thinking. Of particular note here is Michel Serres' proposition that noise is the inevitable 'third man' between two connecting parties. He proposes that within an exchange of sonic information, noise is located in an ambiguous position, being both a peripheral and central founding presence in the formatting of communication. Serres accordingly writes that "…we are surrounded by noise. We are in the noises of the world, and we cannot close our door to their reception. In the beginning is noise" (1982: 126). Also useful is the thirding dynamic employed by Hélène Cixous in her fictional book *The Third Body* (1970). She introduces it (in the text's first page) in order to define the somatic relationship between two lovers, rupturing the dualistic understanding of agency and sublimation as the two bodies, at once the same and other, ultimately construct a third identity. For Homi K. Bhabha (1994), thirdspace represents a hybrid spatiality of antagonism, constant tension, and pregnant chaos. He argues that from such a location, one can destabilise the binary oppositions that construct the First and Third World, including those of

centre/margin, civilised/savage, and capital/labour. Through this theoretical act of associative dislocation, he suggests, that by employing thirding techniques it would be possible to reconstruct discursive political discourses, which would help disempower systems of colonisation.

The Viracoustic Channel

The viracoustic channel within this study is a formalised instrument of inquiry into how viral dynamics can be mapped onto the soundscape to provide new methods for navigating its mutating, marginal, and miasmatic territories. Since the modality of the virus within somatic, computer, and capitalist networks has become generally accepted as being the most effective vehicle of propagation it is useful to explore how this infectious paradigm functions in the organising of frequencies. Utilising the conceptual apparatus of viral modulation to analyse waveformed phenomena through allows us to comprehend the perpetual changes that occur in the ways that human perceive the world. Documenting the transient and ceaselessly modifying nature of the soundscape also amplifies problems that are inherent in virology, especially those pertaining to prediction, detection, and protection. The complex and difficult questions that are brought to bear by trying to classify the diffusion and promulgation of viruses can therefore be understood as being analogous to those that arise when probing the evanescent nature of frequencies. Ultimately it is the dilemmas and paradoxes implicit with the deployment of such a viral approach as the viracoustic channel that define its relevance to this waveformed study as much as the more obvious metaphors that can be drawn from such analysis.

The term 'viracoustic' is a portmanteau of the words viral and acoustic. It is a conceptual methodology employed in the study that conducts information throughout the four chapters. Conceptually, the word viracoustic proposes that the itinerant nature of frequencies empowers them with the amplitude to mutate, modify, and reconstruct systems of thought that give voice to space and its territorialisation. The new discourses, derived from listening to the viral nature of space, aim to reveal the networks of transmission orchestrated by the military-entertainment complex to infect the social body with its psychological, socio-economic, and physiological agendas. By deploying the viracoustic channel we are infecting ourselves with a viral discourse that affords us a critical agency - a capacity to comprehend how volumes of dissonance, amplitudes of violence, and levels of behaviour are modulated by those organisations interested in demarcating the soundscape. The transitory, transmitting, and dislocating spatiality of the second part of the term - channel – is based on an inversion of Paul Virilio's conception of the vector. The study proposes that the dromological non-place of the vector no longer speaks to us about our socio-spatial environment or about our being-in-the-world-of-waveforms. Our embodied world of frequencies is one that is spatialised by the discursive and digressive nature of the viral; and the absolute significance of speed (arrogated by the projectile) has been displaced by the systematic breakdown of linearity - via capitalism's globally transmitted techniques of deception, contagion, and productive modification.

As a trans-chapter device the viracoustic channel connects the third sub-section of each chapter. It links disparate chronologies, spatialities, and events, and is the transitory hub of the thesis through which conceptualisations, arguments, and speculative suppositions are transmitted. It speaks to us about the unrealised potential of waveforms to construct viral spatiality's; communicable waveformed networks that could help resist those who would shut down the transmitting capacity of the antenna body. The study argues that we

will better comprehend the organisation of social space through a viracoustic channel rather than by reflecting upon the temporal modality of the vector (see glossary) so ardently championed by Virilio. Attali's proposition that critical analyses and philosophical disposition created from waveformed thought is important, as "it is a way of perceiving the world... (and significantly, it) makes mutations audible" (1985: 4) is particularly telling. It is the testimonial disposition of Attali's 'audible mutation' that is of interest here as it suggests that change can only be made communicable through the composition of new ways of perceiving. Within the viracoustic channel there are three leitmotifs that shape, modify, and transform the content fed into it. As critical codes of conduct, the three spatial concepts explicate the topology (see glossary) of waveforms and their potential to shape space, networks, and bodies. The three leitmotifs are Michel Foucault's conceptualisation of 'heterotopia', Marc Auge's conceptualisation of 'non-place,' and Edward Soja's conceptualisation of 'thirdspace'.

Foucault's original conceptualisation of heterotopia was of a space that exists between 'real' space' and 'utopian' space. As such it is an 'other' space, functioning beyond hegemonic ordering - a space that is at once real and imaginary, mental and material, here and there. Examples include the mirror; the asylum - where deviant bodies are placed; and the ship. In his short paper *Of Other Spaces: Utopias and Heterotopias* (1967) (published after his death), Michel Foucault drew up blueprints for what we now call 'Heterology' – the study of the other. It has subsequently been used as a tool of critical analyses by a range of scholars and practitioners involved in cinema, poetry, urban studies, contemporary art, and cartography. Architects such as George Teyssot (1977) articulate the heterotopia's potential for communicating the socio-political dynamics of the built environment and in doing so discloses the notion's subversive spatial critique. The notion of the heterotopia is useful for this study as it suggests that the identity, socio-

political construct, and power relations of any waveformed space are in a state of constant mutation and renegotiation.

The term 'non-place' was first coined by French anthropologist Marc Augé in his 1995 text *Non Places – Introduction to an Anthropology of Supermodernity*. He conceives of non-place as a spatiality of transience; those social spaces that are not emotionally invested in nor are they made culturally significant and therefore neither constitute the understanding of being a place or space. In Augé's words, "if place can be defined as relational, historical and concerned with identity, then a space which can not be defined as relational, or historical, or concerned with identity will be a non-place" (1995: 77). He cites motorways, airports, and hotel rooms as prime examples of non-places, which he notes are becoming ever more symptomatic of Supermodernism - an epoch beyond modernism that (from Auge's perspective) is intensely committed to technology, travel networks, and the transferral of information.

Edward Soja's conceptualises 'thirdspace' as a tenet of his post-modern geography. The term refers to spaces that are at the same time both imagined and real. He defines it as such:

> Thirdspace is a purposefully tentative and flexible term that attempts to capture what is actually a constantly shifting and changing milieu of ideas, events, appearances and meanings... there is a growing awareness of the simultaneity and interwoven complexity of the social, the historical, and the spatial, their inseparability and interdependence... The challenge being raised in *Thirdspace* is therefore transdisciplinary in scope. It cuts across all modes of thought" (1996: 2-3).

These three meditations upon lived, imagined, and traversed space act as conceptual carriers in the viracoustic channel. They stimulate questions such as, do 'audiotopias' (a waveformed version of Foucault's heterotopia, in which a sonic spatiality comes to represent other frequency-based sites within a culture, but is itself purposefully displaced in temporal or/and spatial terms) exist and if so how do they conceptually operate? How do we perceive a non-sound in a non-place? Where do we critically locate the socio-political register of thirdsound? Such inquiries propose that the soundscape needs to be textually remapped and the audible and inaudible mutations recorded so that new forms of language can be delivered. Accordingly the messenger of this study is never static, disciplined, or amenable to being given directions. It is a corrupted carrier of perception which mutates that which it comes into contact with, hybridising existing terminologies, notions, and formulations from a range of fields of study in order to form its own dynamic, complex, and abstract character. The study's messenger can then, be analysed and diagnosed as the viral waveform; a contingent phenomena that moves and modifies in order to compose a space for its frequency-based discourses to culturally reproduce.

The Viral Waveform

Numerous terms are used to describe the multitudinous carriers of viral culture - worms, malwares, and Trojans within information systems; bacteriophages, microorganisms, and pathogens within the corporeal matrix of fluid and air borne exchange; and earworms, influencers, and sneezers within the social networks targeted by viral marketing strategists (see glossary) (who search for individuals with the most Social Networking Potential (SNP) so that they can be persuaded to transmit the popularity of demographically relevant products). Such a taxonomy of the liminal, of the barely sensed, could also be

attributed to the oscillating thresholds, which denote sound; those margins, which fade into the non-sound spectrums of ultrasound and infrasound, especially when, utilised on unsuspecting targets by those in the employment of the military-entertainment complex.

The notion of the barely sensed also alludes to the thresholds intersecting the living, the living dead, and the dead and the culturally held conviction that the viral and the waveform can open conduits between these states of being. Viruses like waveforms are difficult to control, map, and direct. As such, both have the capacity to move imperceptibly, to infiltrate and unlock, and to enter without permission, creating networks of affect and unidentifiable bodies of evidence. Analogously we can think of the virus as it furtively penetrates computers systems; renegotiates and rewrites network protocol on the fly; and creates cultures of fear and paranoia simply by the mentioning of its name. As for waveforms, we can equivalently ruminate on; - the long-range waveforms of infrasound and their propensity to travel thousands of miles unnoticed by humans; the capacity of ultrasound to scan and render visible that which cannot be perceived by the naked eye; and the anxious culture of fear and suspicion that envelopes the waveformed body and its vulnerability to the power of frequencies. Thus it can be said, both waveforms and viruses have the capacity to propagate behaviours of a transgressive nature. That these behaviours are orchestrated in networks where it is difficult to perceive where the agency of the living ends and the powers of the dead begin marks them as being eligible for further investigation throughout the thesis.

Eugene Thacker (2004: lines 43-47) analyses the mediated links between living and dead communication networks when he writes:

The horror of contemporary 'living dead' is not just the fear of being reduced to nothing but body, but, in the 'network society,' perhaps the horror of the 'living dead' is the fear being reduced to nothing but information – *or not being able to distinguish between contagion and transmission.* In this sense the paradox of the living dead is also the paradox of 'vital statistics,' a sort of living dead network that exceeds and even supercedes the 'bare life' of the organism.

If we take this meditation upon the disappearance of the body into data and the associated fear of losing the capacity to perceive the somatic threshold of presence, and then transfer it to the ultrasonic, infrasonic, and sonic networks of the soundscape, it gives us more useful pointers as to the liminal nature of frequencies and their connection to the viral. We predominantly perceive hauntings through the vibratory ability of an entity to discreetly penetrate the network of living things through voice and object manipulation. Our fear is fed by the threat of contact and infection from liminal presences, of ourselves being transmuted into waveforms. It is the difficulty we encounter when trying to contain, control, and map the ephemeral nature of the viral and the waveform that renders them such anxious phenomena, reminding us as it does of our existence lived in the oscillating thresholds between the sonic and the silent, the transitory and the static, the living and the dead.

Ultimately, the viral is speculatively formatted as a mode of communication within this thesis; a discourse that mutates and propagates meaning between technological, somatic, and social networks; the enfant terrible of a capitalist system that reproduces itself via channels of ultimate transience, sublimely articulating the breathless motion and inevitable crisis of stasis within systems of exchange. It is at once the perfect model of a socio-economic system conducting its business through flexible organs of distributed agency

and the destroyer of it. In a similar way, "music's the medicine of the mind" (Storr, 1992: non-numbered opening page) and the killer of the mind at the same time. It has a similar capacity in this respect to be the ultimate celebration of sonic transmission as well as the ultimate agent of silent torment. By conjoining these seemingly oppositional phenomena that symbolise at once creation and destruction, a critical modality of discursive reasoning is formed in the study. A modality that is named the viral waveform and which constantly modifies its manoeuvres, transforming as it needs to; making obvious the channels that this power resides in, all in (dis)order to render the changes in the environment in finds itself in - communicable.

LITERATURE REVIEW

The literature review reflects the trans-disciplinary nature of the thesis as it assesses texts by the historian/sociologist Michel Foucault, economist Jacques Attali, philosopher Michel Serres, political geographer/urban planner Edward Soja, musician/sonic theorist Steve Goodman, and cultural theorist/urbanist Paul Virilio.

Michel Foucault's 1975 text *Discipline and Punish: The Birth of the Prison* will be the first book to be reviewed as its methodology and subject matter were essential to the overall construction of the thesis. The archaeological style methodology that he employs to examine knowledge formation is employed in order to trace back the beginnings of speaker system technologies and their utilisation in conjunction with electronic amplification. Whilst Foucault's investigation into the French penal system has a more tightly defined focus than this study, his systematic analysis of the ways in which articulations of power allow certain changes to occur and others to be stymied was a useful technique to employ in terms of revealing the ways in which speaker systems strategies and technologies have been developed and transformed over the past century. Of particular methodological assistance was Foucault's technique of mapping the relations of power within a continuum of thought and then explicating the épistémic shift that mutates the expression of that power.

The structuring of the thesis is predicated primarily upon this type of dynamic as it traces the utilisation of speaker systems transmitting sonic waveforms in the factory, around the compound, and in the cell and then examines the shift that occurs in the final chapter when a new speaker system harnessing ultrasonic frequencies is introduced into the military and civilian fields of conflict relations. Whilst *Discipline and Punish* examines the ways in which the body is subjugated and transformed into an object of knowledge that is at the behest of an array of techniques, it offers few pointers as to how such strategies

can be counteracted or détourned. Whilst this thesis is not a manual of waveformed resistance, it takes issue with Foucault's lack of engagement with resistance tactics by suggesting how waveformed power might be utilised to question, map, and defy the hegemonic cartography of the soundscape that is currently being orchestrated by the military-entertainment complex.

Jacques Attali's seminal 1977 text *Noise: The Political Economy of Music* is also important to this thesis for structural reasons. Attali constructs his study by defining three distinct periods of waveformed history – 'sacrificing', 'representing', and 'repeating' epochs - and then suggests that a fourth yet to be defined era – referred to as a 'post-repeating' or 'compositional' period - will eventuate. Accordingly this study takes a trans-historical approach by identifying three important epochs of speaker system deployment in the examples of the Fordist factory, the Waco siege, and the Guantánamo Bay torture cell and subsequently pre-empts and theorises a new period of waveformed transmission and politics instigated by directional ultrasonic beam technology. Whereas Attali ties the formatting of music to revolutions in the modes of capitalist production, this study links the strategic deployment of waveforms and the technologies that transmit them with the symbiotic and mutating relationships that have occurred between military and civilian organisations.

Attali's maxim that music is prophetic and predicts future forms of social organisation is significant to this thesis as it renders the study of waveforms as a discipline that can expose and create knowledge concerning the past, present, and future. This was useful when relaying the ways in which rhythms of waveformed strategies employed by the military-industrial complex mutated when the military-entertainment complex became the capitalist model for marrying martial and civilian contexts; the future rhythms being

discussed in chapter four. The most valuable lesson learnt from Attali's book and developed through this thesis is that in order to comprehend the world we live in, it is no longer possible to depend on the eye to accrue essential forms of knowledge, as ocular information has been theorised into incomprehensible and excessive abstraction. This task, he suggests, is to be carried out by the ear and the act of listening, for we need a new philosophy that is open to hearing the changes that musical production foretell. A problem with Attali's philosophy in Noise (that this study takes issue with) is his reticence to discuss the role that waveforms not perceivable by the ear, play in our understanding of future, present, and past worlds. Attali's philosophy is based on sonic theory rather than the inclusive waveformed theory proposed by this study; a philosophy that is dependent upon understanding the roles that sound and non-sound have on our perception of being in the world.

Michel Serres' The Parasite (1982) influenced the overall transdisciplinary approach taken in this thesis. Serres theorises the relationships between the parasite and the host through a wide range of disciplines such as theology, information theory, political economy, anthropology, and philosophy and through works of literature such as La Fontaine's fables and Molière's Tartuffe. This study employs an analogously wide range of fields of study (including the disciplines of philosophy, sociology, psychology, musicology, physics, theology, and geography) through which to investigate the relations between waveforms, spatiality, and human presence. Serres employs such a diverse array of knowledges in order to trace out convergences between the natural and human sciences. Philosophically however, the most important argument proposed throughout his text is that the relationships between parasite and host are not to be taken for granted given that the dynamics usually attributed to each position can be easily inverted. As such, individuals and groups perceived to be disenfranchised and disempowered (which are represented

by the pest for Serres) can also become important voices in wider public discourses as they signify essential diverse perspectives and ontologies. In terms of the study, this discursive model of social inclusion and empowerment of those parts of the social body that have previously been conceived of as being passive and dependent is important in the composition of the antenna body; a subjectivity oscillated by exterior phenomena but which also retains an agency to orchestrate movements and rhythms of activity within whatever network of relations it finds itself within.

The antenna body - the protagonist of the study - is a model of waveformed agency as it receives and transmits information, presence, and affect within the soundscape. In this way the antenna body is analogous to Serres' pest as both subjects embody the capacity to resist, divert, and assimilate the subjugating technologies and political pressures that writers such as Foucault identify as controlling the somatic. Serres' notion of parasitic noise as a third man within all communicative acts is a crucial proposition for this study in terms of the discourse initiated between the potential convergences of waveformed and viral theory. The relationships formatted between music and the mass social body in the first two chapters of the thesis refer to Serres' relational compositions of noise as being an inevitable thirded presence, but by chapter four, the HSS technology refutes such suppositions as noise/the third man is theorised as being the third voice that is channelled into the subject. Thus rather than being exteriorised in acts of communication, the noisy thirded viral subjectivity is theorised as constituting a psychological munition that is transmitted into the interiority of communications within a subjects skull.

Methodologically, Edward Soja's 1996 text *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places* is central to the way in which this study is constructed. In *Thirdspace,* a trialectical approach based on Henri Lefebvre's (1991) notion of the spatial

triad is employed by Soja in order to insert spatiality back into the lexicon of Western philosophical thought. By explicating his thirding as othering methodological stance, Soja proposes to dislocate dualistic modalities of thinking that have previously rendered spatial theory as a footnote to the time-based readings of the world and of human presence and movement within it. This study accepts Soja's hypothesis that space is a crucial and implicit constituent in the way that all living things structure their lives and applies this spatial rationale to analysing the geography of the soundscape. Accordingly, this study extends Soja's ideas into the realm of sound studies by proposing that it is essential that a waveformed geography be composed so that we can explore, map, and resist the territorialisation of the soundscape being carried out by organisations and individuals committed to the agenda's of the military-entertainment complex. It is proposed in the study that such a cartographic index would facilitate our comprehension of waveforms, which are too often posited in binary relations of being heard/unheard, noisy/silent, or of causing joy/sorrow.

Implementing Soja's methodological thirding technique is crucial to the study's generation of original knowledge as it employs a discursive geographic instrumentality as an analytical tool by which to unearth newly occurring relations between the periphery and the centre. Since this study explores those waveformed phenomena that are both central to our comprehension of the world – the sonic - and those that exist at the edge of our perception – the ultrasonic and infrasonic - it is essential that a cartography, enveloping the hinterlands of waveformed phenomena, be composed. Soja, drawing on theorists such as Bell Hooks recognises that the periphery or the margins are spatialities in which modes of resistance can be formatted and arranged. Soja's exploration of phenomena that oscillate at the fringes of the social body is an important line of inquiry that runs throughout this study as we ascertain how boundaries of agency are vacillated, inverted,

and commanded by waveformed techniques. The post-modern fragmented body that Soja suggests exists within such marginal spatialities is criticised in this study however, for being an inadequate model of transmission and reception in the contemporary soundscape. The thesis proposes that this fragmentary index has been assimilated by a U.S. military determined to rupture the psychological structure of Guantánamo detainees. In this study, it is the model of the antenna body that transmits and receives the complex arrangements of the soundscape, and the synthesised body that will in the future reveal the peripheral and central concerns of a waveformed ecology that is awaiting composition.

As well as theorising historical and present-day forms of waveformed affect, organisation, and violence, this study speculates upon the future of frequency-based ideologies and technologies. For these reasons Attali's writings were important to the construction of a pre-emptive sonic discourse within the thesis, but it is Steve Goodman's *Sonic Warfare: Sound, Affect, and the Ecology of Fear* (2009) that first provides a futuristic waveformed theory (or a vibrational ontology to paraphrase Goodman) that is based on both unsound and sound. Tracing out the ways in which the logistics of perception have been, are, and will be modulated by the military-entertainment complex, Goodman draws on a range of thinkers such as Kittler, Whitehead, Bergson, and Eshun; and in doing so offers a segmented history that uncovers the violent organisation of the soundscape whilst investigating the attendant rhythmical orchestrations of fear that accompany such manoeuvres. The trans-historical approach taken by Goodman is influential in the conception of this study's viracoustic channel – a meta-chapter device that functions as a textual patch bay through which any event or phenomena in time or space can connect to the waveformed ideas being transmitted through it.

Whilst Goodman utilises a fragmentary historical model in which each module can be read separately and in no particular order, such a post-modern approach fails to narrate the inevitable sequencing and connection of sonic strategies developed in the name of warfare by the military-industrial and military-entertainment complexes. Ultimately this neglect of narrative arrangement means that Goodman does not place the emphasis that he should on the strategies of sonic torture utilised in Iraq and Guantánamo Bay, where many of the sonic trajectories of control, fear, and violence occurring during the preceding century find their logical conclusions. This study subsequently orchestrates a thirded methodology through which the evolution (and connection) of speaker system techniques and waveformed ideologies - that influence, manipulate, and torture the social and individuated body - are traced. The overall use of Goodman's text in the construction of this thesis resides in his realisation that a new language and a new set of concepts such as his notions of 'unsound', 'vibrational force', and 'audio virology' must be conceived of in order to compose a waveformed philosophy that relates to us the dreading, violent, and pressuring potentiality of frequencies.

Given that this study focuses on speaker system technologies that have been developed and utilised by the military-industrial and military-entertainment complexes since the implementation of Wired radio systems into U.S. factories in 1922, Paul Virilio's text *Speed and Politics* published in 1977 is a predictably significant text. Virilio's reputation, as a philosopher of technology, is on par with any other post war thinker and as such his proposition that the history of progress, modes of perception, and information relates directly to the velocity of weapons systems development is an cogent starting point for the study's investigation into the strategic relationships conducted by military, industrial, and entertainment organisations. His statements concerning the city's status as being in a constant state of preparation for battle is seen by some as engaging in a technological

determinism. For this study it is proposed that such a statement does not go far enough as it is suggested that the state of preparation is more akin to a fully-fledged ambient violence that manifests its waveformed intent at every level of civilian life. *Speed and Politics* is highly significant for this study in terms of its engagements with the notions of pure and total war, the velocity of the war machine, and the logistics of perception but many of Virilio's suppositions are also challenged throughout the thesis.

Virilio's hypothesis that, in times of conflict and urban preparation, the importance of spatial concerns has been usurped by the significance of vectoral trajectories and their associated speeds is obviously problematic for a study proposing the composition of a newly waveformed cartography. This text therefore argues from a frequency-based perspective echoing the point made by Edward Said in *Culture and Imperialism* (1993), that we are never entirely outside of the concerns of geography. As the peripheral terrains of ultrasonic and infrasonic vibration are modulated by the military-entertainment complex, the study proposes that it is imperative we compose an embodied spatial index of waveformed pressure, cadence, violence, and movement. Virilio's over dependence on visual tropes in *Speed and Politics* (most notably developed in later texts such as *The Vision Machine* (1994) and *The Aesthetics of Disappearance* (1991)) abrogates the vital roles that waveforms play in the composition of conflict (both in the city and the battlefield), the perceptions of war (on the Internet, TV, and in film) and the potential of both sound and non-sound to map future arena's of violent engagement. This study therefore takes issue with many of Virilio's tenets about the ways in which conflict is produced, maintained, and modulated and develops a waveformed theory to explain the rationale and future of the war machine.

In terms of texts that were influential (in a negative manner) to the writing of this thesis, Jonathan Pieslak's *Sound Targets: American Soldiers and Music in the Iraq War* (2009) should be mentioned. This text reinforced the notion that deploying a musicological/sociological methodology for interpreting the utilisation of music in Iraq and Guantánamo Bay is inadequate in terms of deciphering such complex phenomena. Pieslak's lack of theoretical analysis concerning the sonic torture methods used on detainees and the absence of any meaningful documentation from those who had endured the torture ultimately renders the book an over-simplified and biased account (from the perspective of U.S. soldiers who perpetrated the torture) of sonic abuse. For this thesis *Sound Targets* was useful in as much as it provided a contemporary example of the academic pitfalls that a sonic study can fall into. As such, the failings of the book further supported the idea that a trans-disciplinary approach offers the most coherent modality of investigation through which original knowledge about the organisation of the soundscape can be created.

In contrast to *Sound Targets* Suzanne Cusick's 2006 essay *Music as torture / Music as weapon* is a highly engaging and articulate account of sonic torture in Guantánamo Bay and Abu Ghraib. It is a concise overview of martially applied sonic pressure written from socio-political, psychological, and gender studies perspectives, that stands out as one of the first academic papers to be written about the U.S. military's harnessing of music as a weapon in their 'fight against terror'. Whilst positing a plethora of questions about waveformed affect within torture practices, the essays succinctness means it leaves itself short of analysing the cultural significance of the ways in which music along with other forms of culture have recently been assimilated by the military. Chapter three of this study takes those questions asked by Cusick in 2006 and extends their scope to more

comprehensively investigate the cultural, psychological, and physiological contexts of applied waveformed violence and the military's co-option of culture.

The final words of the literature review go to Julian Henriques' essay from *The Auditory Culture Reader* (2003) entitled *Sonic Dominance and the Reggae Sound System Session.* By emphasising - the disembodying and embodying potential of waveforms; the role music has in mutating the ratio of the rational; the notion that music is an essentially transgressive phenomena in all social, somatic, and spatial contexts, Henriques' essay stands out as a conceptually influential text. Most pertinently, the essays creation and analysis of the 'sonic body' (2003: 471) - through which the systems of pressure at work when attending a reggae session in Jamaica are examined - had considerable import upon this study's composition of the historically indexed waveformed body, the presently active antenna body and the futuristically mutated synthesised body. For Henriques the sonic body is literally "the body touched by sound. This is a whole resonating, specific, shared, social, immediate and fleshy body. The term 'sonic body' implies either and both the body of the sound and the sound of the body. The corporeality of the sonic body expresses itself in sound and performs through sound" (2003: 471). By extending the historical, geographical, and conceptual scope of Henriques' sonic body the new multi-disciplined body of knowledge composed in this study amplifies the silent, oscillating, and noisy ways in which the spatialities of the soundscape have been, are being, and will be staked out in the future.

By orchestrating the viral theory, post-modern geography, and sono-economic philosophy mentioned above into an inter-disciplinary research apparatus, the soundscape and its territorialisation are investigated to reveal waveformed trajectories that have informed the deployment of speaker systems since their introduction into industrial workplaces in the

early part of the twentieth-century. Since the constituents of the waveformed cartography being devised throughout the study are informed, oscillated, and altered by a wide range of pressures, the methodology deployed is necessarily composed from such diverse systems of knowledge. The new and original knowledge that is accrued by using this methodology provides us with information pertaining to the way we comprehend and traverse frequencies that are considered local - but more crucially – it amplifies the concerns brought to bear by those waveforms that are perceived to be peripheral and liminal. As such, this study constructs new theories of the soundscape that forward the discipline of sound studies by staking out new grounds for ways in which we can think about waveformed spatiality and the presences and pressures that shape it.

METHODOLOGY

Composition

This study is a trans-disciplinary and trans-historical investigation into civilian and battlefield contexts in which speakers systems have been utilised by the military-industrial and military-entertainment complexes to apply pressure to the mass social and individuated body. The thesis posits the question: how do past and current deployments of sonic, infrasonic, and ultrasonic frequencies as instruments of torture, apparatus for psychological manipulation, and mechanisms of physiological influence predict future techniques of socio-spatialised organisation? It is argued that since the inception of wired radio speaker systems (see glossary) into U.S. industrial factories in 1922, the development of sonic strategies based primarily on the scoring of architectonic spatiality, cycles of repetition, and the enveloping dynamics of surround sound can be traced to the sonic torture occurring in Guantánamo Bay during the first decade of the twenty-first century. It is further contended that the acoustic techniques utilised in these torture cells represent the final modality and the logical conclusion of these strategies that have evolved between civilian and military contexts over the past 80 years. The speaker system instrumentality that subsequently occurs post Guantánamo therefore comes to symbolise an épistémic shift in the application of waveformed pressure; the dynamics of directional ultrasound technology signalling the orchestration of a new set of frequency-based relations between the transmitter and the receiver, the speaker system and architectural context, the civilian and war torn environment.

The methodological approach deployed throughout the thesis reflects the trans-disciplinary nature of the study as it is composed from three different academic perspectives. The first perspective is an épistémic approach based on Michel Foucault's research practices, which document the changes and differences that occur over time in

any given system; transformations occurring within a specific context that allows some mutations to happen whilst impeding others. Thus Foucault's methodological approach is a historical one, albeit a radicalised version that uncovers the way truth is conceived and how circumstances are engineered to authenticate and propagate certain discourses, techniques, and ultimately truths. The second perspective is a political-geographic approach based on Edward Soja's conception of a trialectical efficacy. The study employs a model of trialectics that is based on Soja's reinterpretation of Lefebvre's concept of the spatial triad. In Soja's trialectic system, there are three forces influencing each other, negating the fixed nexus of sublation located by German philosopher Georg Hegel in his dialectical model (in a Hegelian framework conflict between thesis and antithesis is resolved by the synthesis). In Soja's words:

the starting-point for this strategic re-opening and rethinking of new possibilities is the provocative shift back from epistemology to ontology and specifically to the ontological trialectic of Spatiality-Historicality-Sociality. This ontological rebalancing act induces a radical scepticism toward all established epistemologies. All traditional ways of confidently obtaining knowledge of the world (1996: 81).

Thus, a trialectic model of analysis is engaged in this thesis to initiate new approaches to interpreting waveformed spatiality and sociality. The third perspective is a viral approach that refers to Michel Serres' transgressive reading of the oscillating power relations existing between the host and the parasite (1982).

This multi-channelled methodology has been selected because the scope of the study is extremely wide in terms of its waveformed, temporal, technological, geographic, political, and somatic focus. In order to explore the relationships between the spatial, physiological,

viral, and psychological effects of speaker technology deployment in the U.S.'s past, the present day of Cuba, and within the future globalised world, the only academic rationale with the capacity to tackle such a breadth of research is a multi-disciplined system of investigation. Accordingly, it is by deploying a cogent multi-channelled methodology that the sprawling networks of information under investigation will be made perceptible and then analysed; the points of waveformed connection, transformation, and breakdown occurring within them coherently amplified so that new and original knowledge concerning the organisation and territorialisation of the soundscape may be composed and transmitted.

The employment of this multi-channelled methodology negates the possibility of the study simply becoming a historical cultural survey of waveforms. Whilst the study explores past convergences that legitimated the evolution of speaker systems strategies from the industrialised factory to the globalised torture cell, it also speculates upon how the HSS's ultrasonic break from sonic technologies and their ideologies of inflicted pressure will mutate our perception of frequencies, presence, and sanity. In this sense the investigations being carried out are trans-historical as they are focused on the future as much as they are on the present day and the past. This temporal channel of the study is mixed with a spatial channel that connects divergent geographic contexts and boundaries. The spatial approach to the study, like the temporal one has its taxonomic criteria for investigation mutated within the épistémic break between chapters three and four. Thus the mode of waveformed geography that charts the surround sound speaker systems of the first three chapters has to be transformed into a neural mapping of the skull (in chapter four) to afford it the capacity to analyse an ultrasonic technology that rewrites the rules of distance, connection, and spatial transgression.

So far it has been submitted that both temporal and spatial channels of investigation constitute the methodology of the thesis. The viral channel is the third and final mode of inquiry that completes the structural formatting of the text. It is rendered to assist in transmitting original knowledge about the co-development, propagation, and mutation of waveformed ideologies and technologies between civilian and military contexts; subtle and awe inspiring movements that have negated our capacity to differentiate clearly between the two spheres. In order that the arguments forwarded throughout the study do not become dualistic discussions between the temporal and/or spatial nature of waveforms, the viral channel is a thirding analytical device that assists in circumventing binary thinking about the soundscape. Avoiding such structural lapses is crucial to developing a contingent discourse that is sensitive and aware of its own capacity to be transformed when investigating the oscillating, malleable, and motile nature of the soundscape.

The triple channelled methodology formats the study so that the first section of each chapter establishes the manner in which the physiology of the mass social body and the individuated body has been influenced, manipulated, and tortured via speaker system techniques. Theoretically (not literally), the next section in each chapter is the third section (referred to as the viracoustic channel) which bridges and blurs distinctions of mind and body by propagating a spatial discourse that challenges their binary constructions as differentiated elements. The third sub-section is conceptually placed between sub-section one and its examination of waveformed physiological affect and sub-section two, which explores the psychological transformations occurring within those subjected to frequency-based strategies. Just as the sonic range of frequencies is located between the vacillating thresholds of infrasound and ultrasound, so analogously, this sub-section disseminates its conceptual load by articulating the synthesis and dislocations occurring with the sub-

sections either side of it. Thus the viracoustic channel re-evaluates divisive Manichean axioms used to explicate the soundscape such as - the heard/unheard, internal voice/external command, and music as torture/music as pleasure.

Arguments

As noted, the core argument of this study submits that an épistémic break in speaker system ideology occurs between the deployment of sonic torture in Guantánamo Bay (chapter three) and the direction of the HSS's ultrasonic pressure in the future (chapter four). It is posited that the torture techniques deployed in Guantánamo Bay, signify the dénouement of repetitive strategies that have themselves - ever since sound could be recorded and played back via the phonograph in the 1870s - become significant waveformed tropes within Western culture. On the radio we hear repetitively played songs on 'heavy rotation' (see glossary) - a sales technique deployed by record companies. The study argues that this civil technique of repetition has been co-opted by the military and taken to its logical extreme; increasing rotations, cutting silences or chat between music transmissions thus transforms an infectious sales technique into a torture weapon for infecting the rational system of the mind.

Considering repetition to be the most conspicuous organising principle of twentieth-century production, storage, distribution, and social control, Attali writes, "the emplacement of general replication transforms the conditions of political control. It is no longer a question of making people believe, as it was in representation. Rather, it is a question of Silencing – through direct, channelled control, through imposed silence instead of persuasion" (1985: 121). The repetitive playing of Western music genres - such

as heavy metal, disco, and country - over days and nights aimed to deprive detainees of sleep, disorient them, and to ultimately make them lose control of their minds, comes finally to perfectly embody in torture practices the sentiments expressed by Attali three decades earlier. An important aim of this thesis is to monitor, record, and analyse such assimilatory behaviours between military and civilian networks in order to understand how waveformed strategies and techniques are programmed and transmitted between these coding bodies.

This notion of cultural co-option brings us to the second important argument composed within the study. It is submitted that the assimilation of popular music as a torture weapon in Guantánamo Bay is emblematic of a more generalised absorption of cultural practices, products, and tactics into the *modus operandi* of military organisations. The installation art techniques utilised in military training camps in the U.S. and Canada (Heys and Hennlich, 2010) and the harnessing of the philosophy of writers such as Paul Virilio and Deleuze and Guattari by the Israeli Defence Forces (Weizman, 2006), come to represent an organised movement of cultural ideology into martial practice. The study argues, that this radical shifting - implemented by the military-entertainment complex - of the way that culture (its products, ideas, and behaviours) functions, means that it can no longer be assumed to be obliged to resistance, anti-hegemonic, and left wing ideology as it has traditionally been associated. Put simply, it is contended that post Guantánamo Bay, we can never think about music (and by extension culture) in the same way again.

The study's third significant argument proposes that from 1922, a network of waveformed techniques and strategies (that speak of wider associated cultural practices) have been embedded within capitalism - via the efficacy of the military-industrial and military-entertainment complexes - to separate, isolate, and alienate the subject from the social

body it is a part of. From chapter one's example of the industrial factory and its workforce, to chapter two's compound and the extended family of the sect, it is shown that waveforms are deployed to manipulate the behaviours of smaller numbers of subjects in ever decreasing spatial scales until we reach the conclusion of this strategy in chapter three's example of the torture cell and the isolated detainee. Unable to reduce the space and number of the targeted subject, new waveformed techniques and technologies – symbolised by the HSS - are composed to move beyond overt surround sound environs into the covert cranial spatiality of the subject's skull. Whilst the single subject has remained the target of martial waveformed instrumentality, the external spatiality that he was affected within has been inverted. The ultrasonic beam therefore foreshadows the alienatory environment that its target will inhabit – an internalised future geography of neural flows and transmissions.

In lieu of these arguments, the crucial proposition submitted in the study is that a waveformed cartography - mapping the soundscape's territorialisation by the military-entertainment complex - needs to be composed and arranged so that forms of recording, amplification, and resistance can be made coherent. Given the new set of waveformed politics announced by the HSS, this philosophy of frequency-based mapping will have to re-evaluate the taxonomy and indexical nature of spatial relations. This discipline must therefore be a waveformed psycho-geography; a frequency-based modality that heuristically charts the spatial concerns of the neural environment as well as the environs of the material and the built. As a field of research it will have a wide-ranging remit to explore the spatial, psychological, physiological, social, economic, and sexual effects that waveforms have upon our subjectivity. Its methodology - as suggested through the structuring of this study - will be multi-disciplined and multi-channelled. It will create new forms of knowledge about LRADs (see glossary), iPods, Mosquitos (see glossary),

Intonarumori (see glossary), loudhailers, and Sequential Arc Discharge Acoustic Generators (see glossary) - the meta-network of speaker systems through which rhythms and cadences of power are transmitted, connected, and modulated.

Location

This study is methodologically situated in similar oscillating terrains to the future waveformed psycho-geography explicated above, most significantly, at the nexus of sonic, spatial, psychological, physiological, and viral disciplines. It is an inter disciplinary approach that draws on all these fields of knowledge but is not indebted to any of them in terms of deferring to pre-determined sets of principles or expectations. Before this research, Steve Goodman's 2009 text *Sonic Warfare: Sound, Affect and the Ecology of Fear* engaged related investigative modalities that crucially, were deployed from a radically different methodological standpoint to this study, resulting in divergent forms of knowledge being created. Whereas Goodman chose to present fragmentary post-modern style modules through which to conduct his ideas, this study articulates its original knowledge by tracing the waveformed trajectories that led to the sonic torture techniques deployed in Guantánamo Bay. In this sense this study's methodology presents a meta-narrative of waveformed pressure that locates its beginnings in the industrialised factory, its present state of conflict in the (crucial) épistémic break-down of the torture cell, and its future in the ultrasonic haecceity of ventriloquistic transmissions.

Whilst creating a viracoustic channel that functions as a non-linear and ideologically mutative trans-chapter device, the overall structuring of the study is sequential precisely because the wide-ranging nature of the research threatens to divert its narrative focus; a

concentration which finds its fullest expression in the shift between sonic and ultrasonic efficacy. The study's three core arguments (cited above) are dependent on ideological, spatial, technological, and political trajectories being traced out, their developments between military and civilian spheres made apparent, and the subsequent shifts in waveformed techniques that occur when former strategies have reached the apex of their utility, amplified. The study's methodological imperative - driving the research and the will to create original knowledge about the soundscape – explores the complex synthesis of phenomena, interactions, perceptions, and indexes that are constituted in any waveformed event, from listening to music on the radio to having ultrasonically camouflaged information directed into the skull.

For these reasons a traditional meditative philosophical methodology used by writers such as Anthony Storr in his book *Notes for Music and the Mind* (1992) is not used in this study because it does not have the multi-disciplinary capacity to explore the convergences, mutations, and ruptures that constitute the organisation of the soundscape (and the whole range of frequencies rather than just the sonic). These are only made perceivable when listened to from a wide range of investigative perspectives. A new methodology such as the one presented in this study is required in order to comprehend the infectious, disembodying, and transformational nature of not only music, but also of those waveforms at the edges of perception. For similar reasons, a straight-forward musicological/sociological methodology used by academics such as Jonathan Pieslak in *Sound Targets: American Soldiers and Music in the Iraq War* (2009) is also not utilised as the results of such an approach are the presentation of statistical models of behaviours that are backed up by over-simplified analysis of waveformed cause and effect. The creation of original knowledge and detailed theorisations of waveforms necessary to better comprehend the ephemeral and transformative nature of soundscape spatiality cannot be

registered through numerical diagrams and anachronistic modes of musical analysis; especially musicological approaches that do not engage with the multifarious somatic index of frequency-based pressure.

A waveformed philosophy bound to the methodological dictates of socio-economic theory was considered but rejected because it was not considered to have the requisite qualities to investigate the spatial and viral composition of the soundscape. Whilst the temporal structuring of theories proposed by Jacques Attali in *Noise: The Political Economy of Music* (1985) is important to the methodology of this text, the arguments he presents concerning the functionality of music are overly determined. Attali's suppositions result in a compositional fait accompli that renders sonic (only) instrumentality as being too clean and linear in terms of the fiscal relations that he purports occur between musical forms of production and distribution and the rhythms of social organisation they predict. Waveforms bleed and spill, that is their nature. As such the philosophy that expresses their full potential will be able to transmit their messy and chaotic tendencies as well as their capacity to be controlled and directed.

The approach taken throughout the conduct of this research is imbued with a capacity to discern the spatially transgressive disposition of frequencies and the strategies, which harness them. This is because the methodology employed - whilst multi-disciplinary - is strongly indebted to the investigative modalities forwarded by geographers such Henri Lefebvre in texts such as *The Production of Space* (1974), Edward Soja in *Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places* (1996) and by Michel Foucault in his essay *Of Other Spaces: Utopias and Heterotopias* (1967). Along with thinkers such Foucault, Soja, and David Harvey (2001), Lefebvre offered philosophical whisperings of how a methodology for a waveformed psycho-geography might sound,

when he articulated his theory of 'rhythmanalysis' (see glossary) and proposed that space, in the first instance, is perceived by the ear (1974: 200). It is precisely because waveforms have to move through space – in order to be named waveforms - that they, more than any other phenomena, best articulate the essential transitory nature of spatiality and the inherent violence of transgressing boundaries.

Pressure, and force expressed through waveforms always seek to extend the interests, presence, and agency of those who transmit them in analogous fashion to the ways in which territory and space are conflicted and contested. The methodology engaged in this study explores the assertion that frequency-based violence is inextricably linked to the notion of extension and by association geography; for waveformed pressure is always pushing into and on space and that which inhabits it, whether it is static or transient. If we speak of waveformed pressure then we inevitably talk about the dynamics of spatial conflict, whether that space is construed as being psychological, geographic, social, sexual, or economic. This study proposes that associations between sonic warfare, waveformed pressure, and frequency-based violence have not been connected before to the dynamics of geographic theory, at such an essential level. This is why a multi-disciplined methodology with a master channel of spatial analysis is the chosen investigative modality through which to amplify and conduct original knowledge about the soundscape and its organisation. Post-modern geography and critical thinking concerning spatial analysis lacks in-depth investigations into how space, territory, and place are denoted by waveforms. This research into how architectural space has been, is, and will be amplified, broken down, and modulated by frequencies offers unprecedented ideas concerning waveformed spatiality that forward the disciplines of geographical, architectural, and sonic studies.

The Operations of the Antenna Body

It is the discipline of sound studies that is understood to predominantly chart the realms of the soundscape. Given that sonic, infrasonic, and ultrasonic territories are constituted by physical, conceptual, ephemeral, political, and geographic attributes, such an area of research is necessarily interdisciplinary. This study creates new knowledge in the realm of sound studies by amplifying this diversity of investigative channels and forwarding new theoretical directions within it. A somatic vehicle named as the 'antenna body' is used to explore these newly evolving trajectories and is subsequently operated on throughout the text; its conceptual anatomy reformatted and its resonant parts transplanted, so that it echoes and reveals the synthesis of elements constituting waveformed environments. Whereas the skeletal features of this investigative body's political anatomy are retained, its sensorium, limbs, desires, and nervous system are removed and transplanted with a collection of amputated philosophies of the somatic.

The conceptual surgery carried out through the study render the proposed body a waveformed mutant of sorts - a theoretical Frankenstein constructed from parts of a divergent range of writer's thoughts about the somatic in relation to frequencies. It is essential that the body spatialised by waveforms be grafted into the wider body of Western philosophy (just as it was recognised that the 'body of space' needed inserting into the tradition of occidental thought at the beginning of the last century). Our mutant form will be the nemesis of the post-modern pin-up – the fragmented body - as it will take a plethora of waveformed parts and orchestrate them into a coherent voice. In doing so it will help form a waveformed ecology that will be neither anxious nor precious about mixing perceptions, pressures, and arguments from all fields of research - from neurology to geography, from sociology to legal studies, and from musicology to thermodynamics.

This conceptual surgery begins with the thinker who not only connects the spatialised body with the synthesised body but who has also been instrumental in the endeavours to introduce their presences into the continuum of critical thought. So, it is from Henri Lefebvre that we transplant our first body part, after his instruction that space "does not consist in the projection of an intellectual representation, does not arise from the visible-readable realm, but it is first of all *heard* (listened to) and enacted (through physical gestures and movements)" (1991: 200). In the first instance then, space for Lefebvre is heard rather than seen, and it is this essential assertion that augments the efficacy of the synthesised body as a significant waveformed cartographer and ecologist of waveformed environments. In a spatiality in which listening provides the predominant mode of cognitive association, it is the ear of Lefebvre's somatic modality that will be grafted onto our carnal framework.

The next procedure concerns the replacement of the eyes and so it is to Michel De Certeau that we must turn, for the ocular system of the cornea, iris, and pupil will not be the dominant form of sensory apparatus that informs our body. Through his acute vision of our sensorial behaviours, the hierarchising of perceptual apparatus requires a radical overhaul, given that for De Certeau, "our society is characterized by a cancerous growth of vision, measuring everything by its ability to show or be shown and transmuting communication into a visual journey. It is a sort of epic of the eye and the impulse to read" (1984: xxi). The new system of measurement that is proposed by this synthesised body is of a vibrational nature and is concerned with both that which we can perceive and that which we cannot register by our sensory organs. De Certeau is explicit about the necessity for an alternative set of relations to be composed by which we can comprehend and speculate on our surroundings and our movements through them. Since our mutated subject anticipates new modes of perceiving spatiality, the self, and the unfolding set of

relations borne of presence, the antenna body offers a communicable and affective channel through which to re-imagine the practices of everyday living.

In order that our investigative body is fully aware of its potential to be transformed again, its cognitive facility will be supplied by British anthropologist Gregory Bateson who advocated that the "mental world – the mind – the world of information processing – is not limited by the skin" (1973: 429). For Bateson, the notions of perception and activity are not solely orchestrated from inside the head and delegated to the fleshy machinery of the body. They are also contingent upon the modulating and oscillating presence of the subject within an environment, and the relations that are orchestrated by such a form of embodiment. Our synthesised antenna body will never be limited by its dermic interface. It will be constantly listening for connections, confluences, and echoes given that its nervous system is to be intricately layered by fiction writer Thomas Pynchon. The modes of instrumental neurosis that will subsequently occur will resonate sympathetically, with the overall constitution of the body; which supplied by Michel Serres' modality of the parasite, will be essential for the subjects transmittable disposition, as all the newly grafted parts are dependent upon their relations with the new host body as well as with each other. Thus the flows of the body will be viral, as they connect the new surgically mixed waveformed parts together; any notion of a prosthetic anatomy negated, as the antenna body's viral plasma evolves it into a coherent form, without borders and without augmentation. It is not a stitched together body as much as it is a positively infectious body - a subjectivity full of viral association, mutation, and thirded extremities.

The essential instincts of our body will be replaced by Spinoza's appetites, "a body's conatus, or striving to persist in its power to affect and be affected, its potential. Whereas instinct usually denotes a closed, pre-programmed system with no room for change,

appetite is future facing and always in conjunction with the body's relation to a shifting ecology, its openended relationality" (Goodman, 2009: 70). If our mutating subject is to transmit information back to us about the diverse range of modulating factors within the new waveformed ecology, it will require such a system of innate sensibilities. For we need to provide our body with an unflinching ability to connect and mutate in relation to its environment and to the pressures inflicted upon it, so that "the focus shifts from what a body is, even in its technologically extended sense, to its powers – what it can do" (Goodman, 2009: 36). So that our antenna body can also question *where it can be*, it needs a curiosity – an intense desire to understand the hinterlands of the soundscape and all those phenomena that vacillate at the edges of perception. To donate to us, our final body part and thus conclude our first theoretical operation, we turn to radio wave researcher Heinrich Hertz (see glossary) who "spoke of the 'narrow borderland of the senses' between consciousness and the 'world of actual things'. He declared that for a 'proper understanding of ourselves and of the world it is of the highest importance that this borderland should be thoroughly explored" (Johnson and Cloonan, 2009: 13).

As stated, the antenna body will need transforming further, so that it might amplify, record, and modulate the waveformed ecology. The operations undertaken will not, however, deliver the somatic from its fleshy and intense relations with the world it finds itself in. For what we are proposing is a frequency-fiction of the carnal that steers clear of the fetishistic 'transhuman' (see glossary) predictions of writers such as Hans Moravec (2000), who eulogise the eschatology from the body (and its difficulties) via a human upgrade - carried out by scientific and technological means. We are instead, composing a body that listens for the ways in which political technologies of the somatic are implemented, as it is these augmentations and strictures of the subject that threaten to "invest it, mark it, train it, torture it, force it to carry out tasks, to perform ceremonies, to emit signs" (Foucault, 1975:

25). When the protagonist of our frequency-fiction can detect such perceptible and imperceptible external pressures; when it can hear the unhearable, touch the untouchable, and its viral engineering can predict future forms of socio-spatialised organisation, then it will have heeded the signal of the waveformed wild - a clarion call, not only to arms, but also to ears, skin, hair, bone, neurons, muscle, and nerves, to mutate - "an imperative to grow new organs, to expand our sensorium and our body to some new, as yet unimaginable, perhaps ultimately impossible, dimensions" (Jameson, 1991: 80).

CHAPTER 1

A Convergence of Electricity, Networked Amplification, and Music: The Influence of Muzak in the Fordist Factory

Section 1: *The First Movements of the Muzakal Body*

In the early part of the twentieth-century, after the onset of the Second Industrial Revolution (see glossary), a boom in the mechanisation of European factories occurs, largely due to the demands exerted upon the rhythms of agricultural, economic, and labour production by the advent of the First World War in 1914. The Mexican philosopher, Manuel De Landa alludes to the national requirement for technologically fluid manufacturing systems in such times of conflict when he writes, "as the last two great wars have shown, victory goes to the nation most capable of mobilising its industrial might" (1991: 34). As war compounded industrialisation's requirement to organise mass numbers of bodies in the shape of a workforce, the cultural and political will to maintain a steady production of goods and techniques to improve industrial efficiency became of paramount importance. The social science's meanwhile were harnessed in this effort to organise and systematise the most economic ways that the single body and mass social body could carry out tasks in the workplace. Methods by which to situate, order, and discipline the body en masse - what Michel Foucault called the *body politic* - had already been institutionalised within the prison system and would subsequently be transplanted into industrial environments. Foucault defines this somatic ordering as "a set of material elements and techniques that serve as weapons, relays, communication routes and supports for the power and knowledge relations that invest human bodies and subjugate them by turning them into objects of knowledge" (1975: 28). Nowhere is the desire to inscribe the industrialised body as a knowable and controllable asset more apparent than in the monograph published by the American mechanical engineer, Frederick Winslow Taylor in 1911 named *The Principles of Scientific Management*; the most influential technique (which would become known as *Taylorism*) that helped shape twentieth-century capitalism.

Influenced by military forms of command structures and the inventions and writings, of Charles Babbage (1835) - especially his championing of the benefits of the 'division of labour' (see glossary) - Taylorism was dedicated to the organisation of bodies and the maximisation of their labour potential. This much is made clear by De Landa who states that, "the methods the military developed to shorten the chain of command were later exported, through people like Frederick Taylor, to the civilian sector" (1991: 229). In the USA, it was the industrialist Henry Ford who would employ techniques that had been determined by Taylor's time and motion studies (see glossary). By the time Ford had been exposed to Taylor's research he had already initiated and developed the construction of moving assembly belts into his automobile factories, yielding a substantial escalation in production and sales. By 1914 he was responsible for introducing a revolutionary systematic wage re-evaluation, which saw the qualifying worker double his salary. It took another 8 years, until 1922 for the reduced workweek to come into effect, fuelling Henry Ford's observations that the figures of labour turnover in his manufacturing plants had become so small that they were not worth evaluating (Ford and Crowther, 1922). As Taylor's monograph became the industrial handbook of scientific rationalism, helping shape what was to become known as Fordist capitalism or *Fordism*, so it also pre-empted the utilisation of media in the form of music within the factory to assist in attaining the manufacturing goals and practices set by management. Whilst it is accepted that Fordism's transformative succession of organising principles became Capitalism's dominant model for the practice and comprehension of mass production and consumption in the USA between the 1940s and the 1960s, it could be said that for the workers, it started earlier. The significant rise in the weekly wage – doubling pay to $5 a day - and the radical reduction of the cost of the automobile was aimed at providing the factory worker with enough money to be able to buy his own automobile, thus stimulating the potential scope and growth of the automobile market. Aligned with this focal improvement

in the workers condition was the strategic restructuring of the workweek (shortened to between 48 – 40 hours a week), and the stability of employment via the promise of a job for life. By 1922 all three of these anxieties (concerning) – money, time, and the future - had been resolved and the resulting employment practices developed into dominant working tenets within the Fordist manufacturing plant.

Even with such advances in the working conditions for unskilled labourers, many critics proceeded to articulate the problematic working dynamics within the Taylorist influenced Fordist factory, none more incisive than the Italian communist and political theorist Antonio Gramsci who famously quoted that industrialisation had succeeded "in making the whole life of the nation revolve around production. Hegemony here is born in the factory" (1999: 285). In one of his many perceptive analyses of the plight of the worker in their new mechanically oriented and degrading roles, Gramsci eruditely deconstructed the ways in which important psychological aspects of the labour process were suppressed and subjugated to the singular capacity of the body to carry out repetitive monotonous actions in relation to the new life-draining technical regime of the conveyor belt and its attendant mechanisms. In this following summary Gramsci (1999: 302) makes it clear that he regarded the process of constructing impersonal and standardised mechanistic bodies - that in many ways reflects the status of the objects being produced - as one that began with industrialisation. He argued:

> Taylor is in fact expressing with brutal cynicism the purpose of American society – developing in the worker to the highest degree automatic and mechanical attitudes, breaking up the old psycho-physical nexus of qualified professional work, which demands a certain active participation of intelligence, fantasy and initiative on the part of the worker, and reducing productive operations exclusively to the

mechanical, physical aspect. But these things, in reality, are not original or novel: they represent simply the most recent phase of a long process which began with industrialism itself.

Womack, Jones, and Roos sum up the historical and ongoing importance of Ford's industrial methodologies when they surmise that, "twice in this century (the auto industry) has changed our most fundamental ideas about how we make things. And how we make things dictates not only how we work but what we buy, how we think, and the way we live" (1990: 11). Most pertinent to this thesis are the ways in which the early factories of the auto industry, amongst others, shaped and composed; the industrial workspace, its rhythms of labour, the psychological rupture of alienated labour, the workforce's collective and individuated movements in regards to automated processes, and ultimately, the workers relationship with the sonic landscape inside the factory. All of the relational dynamics that configure these criteria were irrevocably changed when the introduction of the electrically powered moving assembly line was heralded as the automated conductor of workers rhythms, techniques, and agency. Since the soundscape of the worker had changed from a natural one to a machine driven one, the ongoing flow of the conveyor belt became a sonic signifier of this change. Never allowing for silence or interruption, the industrialised soundscape had become repetitiously noisy, never without sound, always marking out the territory of the factory and bleeding outwards onto the street and beyond.

In 1922, the same year that Fordism's doctrine of functional specialisation and the division of labour flourished, a time when the workforce had gained some ground and satisfaction with regards to their working conditions, Wired radio is made available for the industrial spatiality of the automated plant. Created by U.S. Major General George Owen Squier, this technology allowed radio programming to be piped by wires into factories,

restaurants, small businesses, and to individual subscribers. Overcoming the signal loss problems that were all too regular with broadcasts over radio waves, Wired radio supplied an endless program of music over electrical lines, with no commercials or interruptions, both of which Squier had a known contempt for. He also had little patience for the waves of privatisation that had slowed up development of the early telephone industry. Thus he patented his invention in the name of the American public so that the technology was legally available for anyone to nationally research and develop in the hope that improved versions would be produced.

The radio is commonly lauded for its pioneering endeavour to produce a coherent mediated social body through its simultaneous delivery of sonic communications to many, over long distances. This desire to collapse space and time through technological means has long been prioritised within the continuum of human ambition (such pursuit of spatio-temporal dislocation being exemplified by the U.S. military's public development of the Internet over the past three decades). The invention of Wired radio would go some way towards sonically shaping and moulding this coherent social body in the form of the workforce in its industrial setting. Renaming his broadcast technology to the more widely recognised name of Muzak (see glossary), Squier did not live long enough to witness its first successful transmission into commercial outlets in New York City in 1936. Shortly after it had been sold to Warner Brothers and then on again to William Benton, the Second World War began and the potential of Muzak to help orchestrate and conduct work rhythms in factories became apparent as it became the naturalised environmental soundtrack of the manufacturing complex.

The electrically powered wired arteries that carried the music to all parts of the workplace become the sonic equivalent of the electrically powered assembly line that utilised and

demarcated each space of the factory. The whole spatiality of the building was composed around the productive sequencing of the assembly line. There is no industrial manufacturing space left untouched or unmarked by the assembly line logic of movement, rhythm, and repetition. Thus the factory space with its open planning deconstructs the cellular rationale of spatial organisation, the assembly line requiring free range access to mark and touch every space, every subjectivity, its call being to assemble all present around its modal logic of distributed transience. The repetition enacted upon that flow engages the body into a direct relationship with movement, the music scoring the body into an extended symphony of staccato manoeuvres.

In the new musical soundscape, the rhythms, spaces, and workers were connected by a new cellular melodic structuring of time as the workday was sonically re-organised and categorised via Muzak's harmonious formulas and by the (musical) 'silences' (the word silence is used with the caveat that there would never be silence in a factory unless there was a mechanical seizure) between musical programming. Thus the architectural form of the cell, which is so important in Foucault's analysis of the history of the prison in *Discipline and Punish* (leading him to declare that "the disciplinary space is always, basically, cellular" (1975: 143)), is redeployed in comparable waveformed fashion in Muzak's temporal ordering of the factory's soundscape. Accordingly, the cellular programming of silence became a way of producing temporal, physiological, and psychological meaning within the factory and a way of classifying the rationale of the sound that preceded or followed it.

Analogous to the spatial networking capacity of the conveyor belt, the wires of the speaker system construct and rationalise the architecture of the industrial soundscape with a new trans-cellular order. The speakers at the end of each set of wires became the aural portals

through which workers both entered and exited the overlapping soundscapes of the naturally occurring sounds of the machinery and the amplified camouflage of the parasitic musical programming. Viral in nature, the épistémic modality of the piped soundscape required the systemic architecture of capital's spatial logic to operate as a carrier. Functioning as such, the factory finds itself strewn with a new nervous system, a network of wires able to propagate and redistribute its sonic load. The first nervous architecture of the industrial workplace was now able to respond to those within its walls. This nascent sensory apparatus forthwith has the effective capacity to recompose the factory's sonic spatiality from one that is embodied with the fractious and chaotic aural by-products of the machinery to one that is made subservient and predictable. Just as Ford was one of the first to utilise an electric motor to drive the assembly line, Squier's Muzak was the first industrially functional music to utilise electricity in order to allow it to be amplified and spread throughout the work environment. In this way electricity radically re-spatialised the flow of manufacturing in the Fordist workplace, and for the first time, allowed a single piece of music to flow simultaneously into each and every space of its architecture. As such, the spatial code of the industrial sonic landscape was re-imagined by Squier as the relationships between the factory's peripheral latitudes and centralised concerns were recomposed by Muzak's radio controlled pathogens.

The Rhythmical Ordering of Audioanalgesia

The rationalisation of time and space via the logic of capital had located its soundtrack in the form of Muzak. For writers such as Joseph Lanza however, Muzak in the factory was more predicated on healing workers than it was organising them, as made obvious by his assertion that "music was not entertainment but an 'audioanalgesia' to kill the pain of

urban din" (2004: 11-12). In this analysis Muzak in the workplace is posited as a harmoniously based gesture of empathy from the management, a waveformed method of pacifying the body in its new inhuman relation with machinery. There are many problems with this assertion, none more telling than the pain alluded to by Lanza was not so much caused by the body being subjected to a new mechanical soundscape but more that this new noisy territory composed of staccato rhythms had to be adhered to, rendering the body as a numbed note in the overall symphony of the production line. Muzak would ultimately become the lullaby of the automaton, the dystopia of random noise being blanketed by the capitalist utopia of repetitive melody. The factories and mills were accordingly the places in which these incongruous modalities of sonic spatiality would fuse for the first time to produce bodies that were disciplined against their own naturally occurring bio-rhythms; hence it was the forced industrial choreography of the workday that required musicality in the soundscape to shape the body's new mechanised rhythms and movements. It is the territory of the soundscape that is adroitly comprehended by French politician and economist Léon Faucher (and quoted by Foucault (1975: 244)) as being the spatiality where the disjunctive power relation of the machine over the body could be most easily perceived when he suggests that we:

> Go into a cotton-mill; listen to the conversations of the workers and the whistling of the machines. Is there any contrast in the world more afflicting than the regularity and predictability of these mechanical movements, compared with the disorder of ideas and morals, produced by the contact of so many men, women, and children.

The predictability of mechanical movements became the kinaesthetic cornerstone of industrialisation's relation to the body, structuring and training its operations from the minute that employees entered the workplace to the minute they left. According to De

Landa (1991: 138) this process of making the organic unpredictability of the human body subservient to the logic and rationale of the machine started much earlier within military practices. He states that:

> The military process of transforming soldiers into machines, as well as related campaigns to organize the management of human bodies (in military hospitals, for instance) generated much knowledge about the body's internal mechanisms. The "great book of Man-the-machine" was both the blueprint of the human body created by doctors and philosophers, and the operating manual for obedient individuals produced by the great Protestant military commanders – among them, Maurice of Nassau, Gustavus Adolphus and Frederick the Great.

De Landa maintains that the military-industrial complex had been materialising over centuries of dialogue, practice, and logistical exchange between the civilian economy and its martial apparatus (its army). As economic and military organisations transformed and mutated according to the exchanges between the two, it became clear that martial inventions such as Muzak could also aid in the industrial organisation of the mass body of labour to directly support war efforts. The ultimate goal was to mass produce objects that had interchangeable parts, with a labour force that was itself dispensable and - via music - standardised; a set of precursory techniques that point to the contemporary obsolescence inherent in the production and distribution of music, architecture, and objects in general.

Muzak's standardisation of music signalled the first time in history that an attempt had been made to quantify, categorise, and classify waveforms via their functional disposition in an industrial environment. This ordering of frequencies also pertained to the movement of the workers bodies at specific times in the day (and night) and as such finds its

'scientific' rationale at the nexus of industrialised temporality, somatic engineering, and architectural routines. When elucidating the founding principles of the prison system, Foucault (1975: 138) also registers the strategies and disciplinary techniques that would be subsequently transferred into the industrial realm of the workplace. In the following quote he makes it clear as to how the body was to be subjugated to political, social, and economic methods of utility:

> The human body was entering a machinery of power that explores it, breaks it down and rearranges it. A 'political anatomy', which was also a 'mechanics of power', was being born; it defined how one may have a hold over others' bodies, not only so that they may do what one wishes, but so that they may operate as one wishes, with the techniques, the speed and the efficiency that one determines. Thus discipline produces subjected and practised bodies, 'docile' bodies.

Upon thinking further about the 'docile body', it is useful to refer back to Lanza's conception of audioanalgesia and to explore the composition of the numbed body. Lanza inadvertently hits upon the notion of the sedated body here – the body that wishes to kill the pain by having its industrial organs soothed by music. The body is laid bare, vulnerable in its newly composed state, awaiting sonic operations.

What is interesting here is that the process Ford applied to mass production and consumption, namely his system of standardisation – of manufacturing techniques and components – was also applied to the soundscape to achieve a registered spatiality of interchangeability and repetition. Serial numbers on the parts of objects such as guns and cars were inscribed so that they could be classified and easily changed or repaired if the need arose. In the production of the waveformed Muzakal object, the 15-minute parts of

the overall day were also serialised and categorised in much the same way so that they could be broken down, replaced, or repaired if they were deemed to be dysfunctional in any way (because they stimulated the workers too much or too little for example). As the conveyor belt repetitively delivers the object so that it can be worked on, one task at a time, so Muzak conveyed sonic parts, one track after another, to complete a full 15-minute sonic object that worked on the employee. The process is almost an inverse mirror of the conveyor belt, an early waveformed heterotopia where all the parts of the Muzak scientific rationale can be understood in any single song, each one propagating a functionality in relation to all the other songs played in that segment, hour, or day. Simultaneously at the fringes and the nexus of music, industry, and social sciences, Muzak becomes an audiotopia - the sonic equivalent of Foucault's ultimate example of a heterotopia in the form of the contradictory mirror. Muzak reflected music's power to unite, to motivate, to shape patterns of economic and social behaviour, and to compose somatic rhythms, yet it did not have socially imbued meaning outside of the workplace. This rendered it an unreal waveformed spatiality at the same time, as its contradictory identity between expressing employee unity and an industrial work rationale meant that Muzak was both the utopian painkiller as well as the dystopian agent of embodied discipline.

By attempting to quantify, temporalise, and rationalise what was before considered to be the most unscientific of spaces - the soundscape, Muzak aimed to make waveformed territories knowable, controllable, perceivable, and available for purposes of indexing and stimulating human actions within their emotive boundaries. The body becomes the object of scrutiny, of affect, and ultimately of control within these newly defined test sites that constitute the industrial workplace. Foucault had already written about this body when he proposed that, "in becoming the target for new mechanisms of power, the body is offered up to new forms of knowledge. It is the body of exercise, rather than of speculative

physics; a body manipulated by authority, rather than imbued with animal spirits; a body of useful training and not of rational mechanics..." (1975: 155). The useful body of the worker, who, alienated from the objects he produces and who in the words of Georg Lukács is "a mechanical part incorporated into a mechanical system" (2002: 89) finds himself situated in a newly composed sonic environment of new collective rhythms and co-ordinated movements. Such somatic organisation echoes the production line's agenda, a context that György Lukács describes as "already pre-existing and self-sufficient, it functions independently of him and he has to conform to its laws whether he likes it or not" (2002: 89). With Muzak ensuring that these new laws, charts, and maps are sonically entered into the libraries of knowledge that aim to perceive, predict, and ultimately *know* the body's behaviours, the somatic is re-composed into hitherto unknown swells of industrial movements. Through a Muzakal filter, music was arranged to lure and forge the body into relationships with disciplinary methods that would further rupture the industrial subject's capacity to act independently within the workplace.

Transnational Harmonies

As Muzak's 'multiplexing' technology (see glossary) developed over time into cable - one of the ubiquitous communications technologies that led to the notion of the global village (see glossary) - so the Fordist techniques of standardisation became modern practices that led to what we currently call economic globalisation within capitalism. As Squier dreamt of being able to amplify music into workplaces and homes all over the USA and further, so Ford helped usher in a set of economic principles that defined an era of transnational exchange. It is through the implementation of information systems such as cable and the industrial process's of mass production (beginning with Fordism) that spatial

notions of what constituted a nation, a territory, and a community changed irrevocably. Iterating a similar line of thought American sociologist Saskia Sassen (1998: XXVIII), points out that:

> Globalization – as illustrated by the space economy of advanced information industries – denationalises national territory. This denationalization, which to a large extent materializes in large cities, has become legitimate for capital and has indeed been imbued with positive value by many government elites and their economic advisers.

By redefining the spatial dynamics of the soundscape and the landscape, industrialisation and its concomitant information-based and production-based technologies abstracted our relationship with the body and it's place amongst waveforms forever. For the first time, sound - with a covert intent of organising workers rhythms in space - was amplified on a mass scale, predicting in the soundscape, the ways in which bodies would be shifted en masse via later globalist inspired treaties such as the North American Free Trade Agreement (NAFTA) (see glossary).

Karl Marx and Friedrich Engels (1848: 18) were the first writers and philosophers to realise that capitalism would, in the long-term, be transformed into a global expansionist system when they insightfully anticipated that:

> All fixed, fast-frozen relations, with their train of ancient and venerable prejudices and opinions, are swept away, all new-formed ones become antiquated before they ossify... The need of a constantly expanding market for its products chases the

bourgeoisie over the whole surface of the globe. It must nestle everywhere, settle

everywhere, establish connexions everywhere.

Especially pertinent to this study is the final sentence of this quote, which could be

speaking directly about Muzak and it's creator's wish to correlate a mass populous to the

programming of a scientifically manufactured soundscape. The range of musical programs

on offer from Muzak – engineered soundscapes for the workplace, for the home, for

leisure time – required constant connection and validation from those who listened, in

order for it to expand and proliferate. Similar endorsements of Globalisation were hardly

necessary though, according to Marx, who envisioned an unravelling of history in which

Western technological development would advance at exponential rates. The ensuing

rapid expansion would cause a replication of process's and a subsequent decline in

manufacturing and selling costs, which in turn would decrease rates of profits. Through his

prescient economic analysis Marx predicted that the entrepreneurial response to such a

conundrum would be to manufacture goods in less technologically developed countries, in

areas that had cheaper labour, land, and resources available, ensuring larger profit ratios;

creating economic systems based upon global rationales of geographic appropriation in

the process. Transforming the less developed cultures it came into contact with, the

globalisation process would inevitably replicate the social and economic dynamics of the

more technologically advanced Western states from which they were spawned. This in

Marx's mind would lead all nations to be solvent within a progressive global matrix before

the inevitable transmutation into a globally communist system.

For globalisation theorists such as Sassen, "Globalization is a process that generates

contradictory spaces, characterized by contestation, internal differentiation, continuous

border crossings" (1998: XXXIV). This notion of connected spaces that are contradictory

in nature harks back to the Muzakal soundscape of the factory - the working blueprint of the industrially globalised world – and the attempt to suppress noise and dissonance through melody and harmony. Muzak proposed to negate the random, chaotic, and disturbing nature of the industrial soundscape, advocating instead, military-based technologies that could deliver new malleable soundscapes; frequency-based formulas that could be arranged to work in any geographical context and orchestrated to bring ordered collective reasoning and attuned compatibility to any social, leisure, or working situation. The context of the Muzakal soundscape is thus one that produces new contradictory compositions based on what were previously understood to be oppositional dynamics, those of noise (from the machinery) and melody (from the Muzak). For the first time, via electricity, the juxtaposing aesthetics that we so readily accept today - those of harmoniously organised sound (signifying the connected) and randomly discordant cacophonies (signifying the alienated) - were forged into each others spatial score in the factory, with the worker's body becoming the anatomical mixer through which all frequencies were channelled and amplified.

Section 2: *The Industrialised Logic of 'It is all in the Mind'*

In the late nineteenth-century, it was in cathedrals and churches that the mass social body would congregate in. Within such architectures, religious practice, instruction, and communal ties were expressed and validated by groups of spiritual believers who celebrated the visible signifiers of belief – the cross, paintings, scripture – and maybe more importantly the frequency-based signifiers - collective singing, organ recitals, and spoken word oration; the affect of the bass notes issued by the organ causing very low rolling infrasonic frequencies, creating senses of awe and trepidation in many of the

religious believers. When industrialisation occurs and mills and factories offer new architectural locations for the mass social body to collect within, the waveformed techniques employed to organise large numbers of people are transferred from the place of worship to the place of work. Understanding that methods utilised by religion, to spatialise and territorialise the soundscape were being assimilated by industry, Joseph Lanza states that, "modern capitalism instigated an ecclesiastical rift. If background music was good enough to orchestrate the houses of God, why not the houses of commerce?" (2004: 11-12)

Another way of thinking about this rhetorical question would be to reword it so that it reads - as ecclesiastical values were relocated into the background of everyday life by modern capitalism, how did music help orchestrate the psychological requirements of the houses of commerce over the needs of the houses of God? As a space of waveformed dissemination, the church - previously socially sanctioned to be the most significant producer of sound in any city, town, or village – lost its domination of the architectural soundscape to industry. Suddenly the frequency-based blueprints that had been composed by religion were now being orchestrated by the socio-economic dictates of capital. Of particular interest here are those waveformed techniques aimed at psychologically influencing and manipulating the mass social body; practices meant to unite the individual into a collective composition of belief, whilst also alienating it by negating the sonic space necessary for individuated expression. As workers were contracted into new relationships with machines they found themselves moving to the rhythms of automation instead of those produced by nature. This meant that they had to react to the demands of a factory boss or foreman (who wished no interaction, simply submission) rather than the cues, which had promoted them to collectively sing in the field or reiterate the words of a priest. It is at this point that the industrial worker starts

questioning the previously constructed rural and religious belief patterns that once defined the architectures of his existence and his relationships with the old waveformed constructions of perception accordingly, start decaying as well.

In the factory a whole new world of spatialities, temporal modalities, soundscapes, and social relations came into being. These were in part, developed from previous repetitive arrangements of the workday developed by religious systems, a point made by Foucault who writes that "the *time-table* is an old inheritance. The strict model was no doubt suggested by the monastic communities. It soon spread. Its three great methods – establish rhythms, impose particular occupations, regulate the cycles of repetition – were soon to be found in schools, workshops and hospitals" (1975: 149). He continues. "For centuries, the religious orders had been masters of discipline: they were the specialists of time, the great technicians of rhythm and regular activities" (1975: 150). As the new dictator of social and labour-based rhythms, Fordist capitalism started to compete with religious organisations for life long affiliation; from a church and set of beliefs for life to a factory and job for life; from righteous assemblies bringing the community together, unions instead brought employees together to empower them against unfair forms of oppression. From the preacher to the foreman, and most pertinently for this research, from the promised omnipresent voice of God that came from above to the omnipresent music that analogously encompassed all space at all times, emanating as it did from the factories network of risen wired speakers. The spatial construct of mounting speakers above head height thus comes to mimic the religious longitudinal ordering of waveforms in which the 'voice of God' comes from 'Heaven on high' - a pre-ordained construct that finds its frequency-based expression in Psalm 18:13 of the Bible, when "the LORD thundered from heaven; the voice of the Most High resounded".

It is no coincidence that the frequency-based power relations enacted between the church and its attendant subjects – the enormous pipes of the organ composing psychologies of awe and fear amongst the congregation - should be repeated in the factory. Just as the architecture of the cathedral functions in part to organise its members into collective patterns of associated behaviours by producing a sense of threat through the sheer size of the building in which these commands are transmitted, so too does the factory. Foucault, in part, recognises this when he states that, "the factory was explicitly compared with the monastery, the fortress, a walled town" (1975: 142). The obvious problem with such a statement, however, is its patent disregard for the divergent sonic architectures of both structures. The factory at this point in time was possibly the noisiest man-made environment outside of war's turbulent cacophony and was in no way comparable to the hushed soundscape of the monastery. The cathedral engaged in radically different sonic politics than did the monastery, dynamics that were to be echoed by industrialists who filled the vast overhead spaces in the factories with amplified waveforms of authority. The presence of a greater power than the collectively alienated singularity of a human body was thus signified by the music, which existed in the space that would have previously been reserved for the voice of God.

The spatial sanctity of the cathedral and more particularly of the area above head height was and still is reserved for surveillance and sonic expression from a ubiquitous intelligence. At the start of the twentieth-century, this dynamic was strategically deployed in the churches of capitalism – the factories. Transmitting supposed psychological messages of 'solace' to the workers as they toiled amongst machinery, the networked speakers also subtly reminded each employee that a greater power than themselves possessed the power to amplify their presence in each and every square inch of the factory; from wall to wall, from ceiling to floorboards. In this set of architectural relations

the presence of an unseen intelligence is announced. A waveformed phenomena that can extend itself to all places at all times and which can choose to provide an audible sanctuary or sonic battleground at its own discretion. It is precisely this composition of frequency-based presence that creates a sense of self-surveillance in the industrial subject as he is constantly made aware of his passive position – of his capacity to be recorded and for his agency to be drowned out - within the factory's envelope of speaker-driven power relations.

An important point to make here is that with the first networked speaker systems that appeared in the factories of the early twentieth-century came the ability to control the sonic architecture of any given space and thus, for those empowered, the capacity to influence, direct, and manipulate its inhabitants physiology and psychology. Equally as important as the quantitative and qualitative assertions of the ways in which the wired radio speaker systems influenced workers via their musical content is the observation that such a technology functioned covertly. By its very nature, the wired aural arteries of the transmission network allowed one to do what was once deemed to be otherworldly, namely demonstrate the ability to extend one's presence into multiple spaces at the same point in time. The orchestration of this de-centralised and mediated spatiality posited the architecture of the factory as a dynamic theatre of industrialisation, one in which the owner sonorously augments the casting of the worker as an individuated and alienated actor on a crowded stage. This worker represents contradictory roles as he performs on an oxymoronic set that advocates the pleasure of speech yet inhibits it by covering silence with a camouflaged soundtrack. By extending the metaphor chronologically and technologically, the notion of the factory as a theatre of industrial operations could be inverted so that it becomes a silent film. One where the worker/actor, directed from above, - with spoken lines replaced by assembly lines - finds himself performing an atomised set

of actions and activities that has no discernible meaning in the final production and a (hidden) consuming audience that he has no perceptive relationship with.

Top of the Charts - The Worker's Emotional Terrain

In the great production houses of industry, the ever-shifting terrain of the workers emotional and psychological status became objectified as a valid subject of phenomenological study. Research and testing was undertaken into the cognitive dynamics and behavioural patterns of the worker as he undertook repetitive tasks, and taxonomies of interpersonal relationships were formatted to help systematise harmonious functionality. In short, the psychological landscape of the worker was identified as a locatable source of natural energy that needed to be catalogued and understood so that factory owners might best profit from its newly engineered status and potential. Thus, the emotional reserves of the employees came to be regarded as a somatic variety of factory fuel that was to be mined and redistributed according to the rhythms and efficiency dictates of the production line and it was through the piping of Muzak that this resource was channelled.

In the 1920's factory we can hear one of the first attempts to link up a mass neural network of productivity through the influencing strategies of Muzak; each mind becoming a functioning point of reference for ultimate industrial efficiency. As each worker is simultaneously subjected to the same sonic influence for the same duration, so the soundscape attains its status as a systematic field of relations applicable to all who exist within it. In the acoustic laboratory of the Fordist factory, epistemological strategies to locate, chart, and manipulate a mass psychology, stake out the first sonic colonising

markers of a somatic industrial rhythm. As a distributed system, Muzak was formatted to rationalise activities and presences, capturing and influencing the minds and bodies of those who were forced to listen. Squier's networked creation had produced a recordable and observable soundscape in the factory in which the topography of the worker's mind was the territory under surveillance. It was through this newly knowable psychological spatiality that the sequencing of somatic tempo could be programmed and the cadence of productivity ratio's mastered.

As previously mooted, with the advent of industrialisation, the emotional and psychological behaviours of the twentieth-century body during periods of pressure, duress, and calm became objects of scientific study. A myriad of laws, theories, and tests were advanced under the moniker of industrial psychology in order to prove that the human mind could be influenced and manipulated within the workplace and that the resulting efficiency rates of the body could be 'improved'. The notion of employing music as a stimulus within the workplace had been proposed before many of these theories were drafted and by 1915 the American inventor Thomas Edison had developed a number of ideas about the power of music upon the individual as well as upon the mass body. He carried out experiments to qualify whether or not piped in music could cover or negate specific frequency ratios produced by the heavy industrial machinery of the factory and to ascertain whether the workers moral and work-drives were positively or negatively affected by it. Buoyed by his early findings, Edison recognised the potential of music to affect listener's dispositions and he became deeply interested in its capacity to direct emotions and actions within the workplace.

Carrying out investigations into the ways in which formatted programs of music (played on phonographs) could be used in industrial settings, the criteria for the tests undertaken by

Edison included a directive to produce *sonic camouflage* for the factory, which would cover the drones and mechanical mutterings of its machinery. The trials carried out in the newly compartmentalised workspaces of the factory were not successful due to signal strength inadequacies of the emergent transmission and loudspeaker technologies. It is, however, in this industrial setting that we can locate the initial amplified notes and compositions of psychological manipulation of a distributed workforce via a networked system of electrically powered speakers. Never before had it been possible to think about simultaneously emitting music in a plethora of diverse spaces. Thus for first time, this nascent speaker technology allowed engineers to think about constructing soundscapes in multiple spatialities with identical or differing content over orchestrated durations. Edison's initial investigations into the controlled psychological manipulation of the mass body and its repetitious routines were the first of their kind and provided the cursory 'acousticprints' (see glossary) of the functional use of sound within an industrial architecture.

Two years before George Owen Squier's speaker technology became commercially viable in 1922, Edison and his National Phonographic Company had been busy researching the heuristic application of music. As an aside, Edison motivated his employees and co-workers to finesse the utmost functionality and utilitarian application out of any of his inventions. In light of his desire to market the multifaceted affect of music to a range of industrial, social, and cultural groupings he employed Walter Van Dyke Bingham, an assistant professor of applied psychology at the Carnegie Institute of Technology (who would later go to become an industrial psychologist). Pertaining to the company's burgeoning archive of phonographic recordings the young psychologist's contract entailed him to study and quantify the effects of music, defined by the three key criteria of song-selection research, mood-change research, and the influences of music on muscular

activity. Bingham's earlier related psychological and philosophical research hinged on the problematic of working out why certain tonal arrangements constituted melodic unity? His secondary mode of questioning inquired into how such melodic stimuli subsequently influenced a human's motor movements? This convergence of interests into industrial and somatic motor functionality between 1910 and 1920 is of no little significance to writers such as Eleanor Selfridge-Field who documents the efforts to rationalise movement in the industrial workspace. Through her research she traces out the ways in which Bingham harnessed the potential of the motor and reconfigured the incoherent tracts of industrial process into a fluid spatiality of perpetual monophonic flow. Selfridge-Field (1997: 293) subsequently makes clear how these movements are analogously mapped onto the nervous system of the human body when she cites Bingham's conclusion that the:

> ... motor theory of melody makes possible an unambiguous statement of the nature of melodic "relationship." Two or more tones are felt to be "related" when there is (a) community of organized response... The origin of... feelings of "relationship" (may be attributed to) two main forces... The first of these, the phenomenon of consonance, is native... But although the basis for consonance inheres in the inborn structure of the nervous system and the acoustical properties of vibrating bodies, nevertheless it is a commonplace of musical history and observation that these same native tendencies are subject to tremendous modification in the course of experience...

The discursive locus inferred here is the distributed sensorium of the resonating body. Historically influenced via external stimuli, Bingham positions the body at the vinculum of scientific, phenomenological, musical, and industrial discourses. The mood tests he employed consisted of collated and accumulated charts and documents of how his

subject's moods altered as they listened to music via a program of Edison's recordings. In a progress report to Edison dated February 1st, 1921, Bingham iterates his hope that his research would produce "new information about the power of music over men's minds and moods" (Selfridge-Field, 1997: 297). On October 13th, 1920 Bingham announced that a prize would be awarded to any researcher who undertook 'meritorious' investigation into one of the following 'appropriate subjects' –

1. Classification of musical selections according to their psychological effects.

2. Individual differences in musical sensitivity.

3. Types of listeners.

4. Validity of introspection in studying affective responses to music.

5. Modification of moods by music.

6. Effects of familiarity and repetition: emotional durability of various types of selections.

7. Effects of contrasting types of music on muscular activity.

8. An experimental study of music as an aid in synchronizing routine factory operations.

Not satisfied with the way that Bingham's research was heading (the fact that the results of the subjects responses in the tests could not be directly attributed to helping distribute specific recordings in the Edison catalogue), a company vice president by the name of William Maxwell took it upon himself in 1921, to create a Mood Change Chart to remedy this apparent utilitarian deficit. The single paged chart asks seven simple questions of the subject such, including, "As a result of the test, what were your most noticeable mood changes) (Serious to gay, gay to serious, worried to carefree, nervous to composed, etc) and "Please comment on manner in which mood changes occurred" (Maxwell, 1921). The

Maxwell "Mood tests" were taken seriously enough at the time to find themselves being conducted at Yale University, albeit the analysis of the sonic investigations was reported somewhat fancifully by the New York Sun, which Eleanor Selfridge-Field (1997: 300) quotes as predicting that:

> Music may become useful in treating human maladies… The day may come, it is predicted at Yale, when pneumonia will be treated not only with open windows and malted milk but by a few disks of dreamy waltz music. If a man breaks his arm and is restless, a battle march or possibly a line of comic opera may be fed out to him after each meal." A further piece on the Yale experiment, which appear (sic) in the *Journal Courier* on the 22nd, elaborated on this idea by stating that "the principal effort of the tests was to determine what kinds of music may be applied in treating neurotic patients".

In the 1920s, the drive to comprehend, classify, and navigate the psychology of the worker had found a firm foothold in socially scientific research. No longer were the presence, movements, and rhythms of the physical body the only characteristics of the worker that management cared to address and order. From a psychological perspective, the directive that explicated a managerial desire to alter the mood of a worker is analogous to the way in which a supervisor might speed up or slow down a conveyor belt or a phonograph. This desire to accentuate the levels of psychological leverage that a company might have over its workforce was enveloped in the seemingly innocuous linguistic goal of 'boosting morale'; effectively positing phenomena such as music as a collective experiential stimulant that would shape and improve ones comportment with the underlying promise of emotional amelioration, as if the act of listening was to the workers advantage more than it was to the companies.

Redefining the temporality and spatiality of the factory, Muzak can be perceived - through the findings of the 'Hawthorn studies' (see glossary) and by extension through the 'Human Relations Movement' (see glossary) - as being symbolic of the extension of managements presence (everywhere, all the time) and their capacity to divine time via sound. In this sense, Muzak becomes the industrialised inversion of Jeremy Bentham's panopticon (see glossary). The networked speakers are dispersed, amplifying, and inhabiting all spaces. They propose a peripheral ideology at work rather than the centralised arrangement of the panopticon within the prison that observes the surrounding cellular spatiality. The resulting behaviours that occur from being subjected to these systems - if read through the conclusions of the Hawthorn studies – is similar however. It is the act of redefining the psychological spatiality of the prison in the case of the panopticon and the factory in the case of Muzak that is most important here. The principle factor that one owns the technology to extend their presence and influence into another spatiality at any given time is what redefines the power relationships between the prisoner and the worker. In the prison it is the panopticon that threatens to extend the vision of the voyeur into a direct relationship with the activities of the prisoner, whilst in the factory it is the speaker system that extends the sound of the empowered into the spatiality of the workplace and into the emotional terrain of the workers mind.

Investigations that attempted to rationalise and predict the physiological and psychological cartography of the worker had been undertaken before Muzak was invented. The 'James and Lange Theory' (see glossary), for example, proposed that emotions are triggered by physiological changes in the body manifested via experiences in the world, whilst the 'Cannon-Bard Theory of Emotion' (see glossary) reversed such ideas. Within the multitude of theories of the late nineteenth-century and twentieth-century that attempted to comprehend, systematise, and organise the behaviours of the mind, the psychological

activities of humanity was to rid men and women of their chaotic mindsets, irregular habits, and disobedient social behaviours in order to choreograph and entrain each person with a set of socio-scientifically implemented motivations. Making all minds think, and bodies move, in unison, was and still is a dream dreamt by those who wish to persuade, produce, and distribute the mass body that is bound to capital and martial concerns. In the factories of the twentieth-century we can hear how the industrial elite standardised the irregular (every)body into a repeating and replicable production cell. We can listen to how they harnessed cultural production in order to influence economic outcomes. Orchestrated by the rhythms, tempo's, and spatial timbres set by their mechanical partners and accompanied by the soundtrack of Muzak, the mass industrialised working body was re-scored into newly composed psychological roles within the Fordist chorus of the conveyor belt.

The attempt to create mass psychological conditions via sound was not only heard in the factory or from the Stuka strewn skies, but also via radio propaganda that was issued by the British and German governments on a regular basis to try and deceive each other and to try and increase levels of national belief and camaraderie. Touching on the capacity of frequencies to induce co-operation and to facilitate in the compression of multi-channelled activities into a singular rhythm, De Landa (1991: 64) posits that:

> Almost any population whose individual members oscillate or pulsate is capable of reaching a singularity and thus to begin oscillating in a synchronized way. When this singularity is actualized and the rhythms of the whole population "entrain," its constituent individuals acquire a natural esprit de corps. This "team spirit" allows them to behave as if they were a single organism.

Whilst it is understood that De Landa is analysing the capacity of military groups to move rhythmically and to believe as a unit, such research makes it easier to understand where industrial modalities of orchestrating *esprit de corps* originated. It is in the soundscape that we can hear such strategies and techniques bleed noisily between military and industrial bodies of thought. Over the course of the study it is such transmissions from the military-industrial complex that we are interested in amplifying and recording as they find new expression and efficacy in the military-entertainment complexes organisation of space, bodies, and time.

Section 3: *Disconnecting the Global Village*

A narrative is initiated throughout the thesis purporting that since 1922, frequency-based strategies have been used to disconnect and alienate individuals, families, and groups from belonging or relating to their social networks, architectural contexts, and socio-cultural affiliations. The auricular frequencies of music have for thousands of years been understood to have the capacity to bring people together to dance, sing, and work. Given that we commonly register the capacity of music to unite humans in an array of cultural endeavours, it is logical to conceive that such an effective and influential instrumentality could be utilised to perform operations of a less convivial nature. The Muzak piped into modernism's industrial factories could be interpreted as belonging to the former example, thus as a source of camaraderie or consolation, but this would be a surface reading and would neglect the crucial (un)social elements of Muzak which introduced a further silencing of the workforce so that there was less communication between workers. Previously in the agricultural workplace of the field, the songs which told of pain and emancipation through religion and death were commonplace, but in the factory these

types of worker led soundscapes - along with any songs that could possibly incite revolt or collective disharmony - were disallowed. The new machines were more important to the factory owners than were the welfare and health of their operators. More often than not, any forms of music created by employees were viewed as diversionary interferences in the work process. In this sense, the frequencies pumped into the factories could be discerned as the initial melodies of alienation. In this way, Muzak came to displace the previously composed sonic space that was once redolent with storytelling, complaints, laughter, collective dissonance, and idle chatter; the audible components of relationship building and social cohesion that are commonplace between groups undertaking long repetitive tasks.

As a viral soundscape (which is composed and transmitted to supplement, cover, or mutate another set of frequencies occurring in an urban or naturalistic context) Muzak also disassociated workers from their architectural surroundings and from the internal and exteriorised sonic markers that composed a sense of movement throughout the duration of the day or night. By alienating employees from all other sonic reference points that would be otherwise encountered on a daily basis, Muzak helped compose a disconnected and autonomous set of working conditions, the success of which relied solely on the engaged relationship between the worker and their associated machinery. As employees could no longer directly relate to the sounds made by the workplace apparatus, by people as they traversed stairs and workspaces, or from exterior sounds outside the factory, they were instead, each individually cocooned by the Muzak which attempted to suppress all of those factors that would aid in adapting the worker to a sense of place and time. Lanza recognises this attempt to estrange the worker from their everyday existence outside of the workplace when he writes, "if Taylorism could monitor the time-lag between clerks

reaching for pencils and their marking papers, sound engineers could likewise manufacture their version of the optimum work womb" (2004: 27).

With the external or internal sonic markers of temporality being drowned out, came a new dependency on the factory owners, to orchestrate the conditions that signalled break, lunch, or leaving time. With this new waveformed reliance on management came a further loss of independence for the employee. Without a firm conception of one's relationship to the spatiality or temporality one engages with, it is more difficult to establish a sense of agency, especially if it is one that is predicated on the resistance against or questioning of, those whom construct and enforce the rules of said working environment. Given that the moving machinery reaffirmed the employee's sense of disorientation by forcing him to move in an automated fashion, the worker was subjected to keeping time with its unthinking synchronicity. The capacity of the machine to not only work but to also entrain the somatic workforce, meant that the mechanical robot became the phantasm of the industrial factory's production line. Muzak meanwhile, became the sonic fantasy via which the robots danced with capital, albeit still with workers as chaperones at this point in history; third wheels whom did not wish to take part, but who had little choice as their hands were forced by the choreography of progress.

As the newly mechanised factories hummed in manufactured satisfaction, the Muzak technology that would help bring about the collective notion of the global village was actively applied in order to alienate employees from their fellow workers and importantly for this study from their architectural sense of space and place. Muzak's duality of capacities, of purposes, is the first instance of an electrically powered soundscape being generated to function between the intent of mass communication and the discontent of estrangement. As noted in the introduction, music had in the past, always contained such

volte-faced potential, but never had it previously harboured such infectious promise as it aimed to simultaneously affect mass groupings of people in divergent geographical locations. That these newly piped in musical soundscapes were previously unknown and unheard of by workers was also an important factor, as initial reactions must have been ensconced within waves of disorientation and surprise. When such a technology is implemented there is always an initial period of adjustment and learning for those who come into contact with it and in the case of the inexperienced waveformed bodies that were coming into being in the factories, a time of cultural and somatic metamorphosis. Emily Thompson (2004: 2) remarks upon this intrinsic modulating and transitioning characteristic of the industrial soundscape when she writes:

> A soundscape, like a landscape, ultimately has more to do with civilization than with nature, and such, it is constantly under construction and always under going change. The American soundscape underwent a particularly dramatic transformation in the years after 1900. By 1933, both the nature of sound and the culture of listening were unlike anything that had come before.

The introduction of Muzak, into the citadel of spatially controlled repetitive labour processes - the factory - was endorsed and ratified at a time in history when the sonic territory of the workplace was relatively unexplored, uncharted, and politically innocent. In 1922 there were few directives, regulations, or laws that addressed the sonic landscape and what it meant psychologically, physiologically, politically, or legally for the body to exist within in. Within Squier's 'Tayloresque' strategy of connecting each worker in the sonic landscape via the omnipresence of musical cycles, subsisted a meta-objective to compose an overall schemata of repetitive actions, productions, and payments within the factory that would subsequently extend into a global context as the repetitious ideology

informed the ways in which distribution and marketing were carried out. Such a viral co-ordination and classification of time and space, from the factory to worldwide networks of expanding industrial capitalism is the embodiment of Foucault's notion of how micro-politics of the local are transplanted and etched onto the logic board of global capitalism.

Partly dependent on the sonically-politically innocent nature of the workforce, the early Muzak networks were not interested in the exchanges of micro-politics, but were rather interested in defining the mass subject and manipulating it as a single body. The Muzak headquarters - from where the networks stemmed and ran - were secreted away from the workers grasp, beyond their power of access. When listening to music over the speakers the factory employees could not change the sound of the music, slow it down, manipulate, or destroy it because for the first time they did not even know from where the music was transmitted. Just as the machinery in the factory alienated the workers from their labour, so the networked music analogously separated the body from its architectural surroundings by estranging the workers from the covert and unreachable control 'hub of transmission' (see glossary). Within this dystopian schemata, the Muzakal bunkers of avarice spawned transmission networks that directed information and influenced patterns of behaviour - cementing the perception of geographical and psychological control that amplified the ideological dominance of the factory owner. It was precisely the detachment – to be made aware that one existed on the other side of the network's interface - that rendered the worker as a passive subject and located the 'mass industrial body' (see glossary) at the disadvantageous position of having no agency within the composition, distribution, or destruction of (waveformed) information.

The Fleshy Cadence of the Antenna Body

To paraphrase Schafer (1970), the universal symphony that is the soundscape is a ceaseless waveformed performance that simultaneously casts us as audience, performer, and composer. Within the newly composed soundscapes of industrialisation, it is useful for us to locate the emergence of the antenna body into an industrial context. Energised by electricity, the antenna body alternated between the promise of future systems of information exchange and the utility of (the then) current strategies to seduce workers into the embrace of the machine. Employees of the industrial factories can then, be established as the first bodies that engender such antithetical and divergent waveformed ontologies; both receiving the programming that would create silence between them whilst concurrently transmitting a prescient signal of technologies prowess to collapse space and time through the envelope of human relations. The early effects of the wired public speaker address system – its resonating development of the antenna body into a fleshy industrial operator who was dependent on the sonic as much as the visual - echoes far and wide. The electrical amplification of sound in private, public, and interstitial spaces has important resonating effects on the twentieth-century. Ultimately, as we shall see through the development of the text, the ideological, technological, and psychological routes of speaker systems will detour us through a waveformed network that includes Waco, Texas, Guantánamo Bay in Cuba, and the ultrasonic spatiality of the HSS. By connecting these points of reference through the soundscape, we will come to learn how the capacity of the antenna body offers alternative readings of global events and predicts future models of social organisation.

Back in the factory, the antenna body finds itself in a socio-political interstice between the promise of technological emancipation from the confines of geography and temporality,

and the reality of being bound in a rhythmical attrition of industrialised production targets. Being spatially displaced and mechanically re-situated within Muzak's categorised 15-minute segments, this body is disciplined through, and by, electrically propagated waveforms for the first time. It is observed, documented, and analysed within the newly scientifically conceived factory, which joins the laboratory as a modern site for examining the physiological and psychological activities of the body. Whilst learning a new sonically spatialised discourse that is arranged through the vocabulary of timbre, rhythm, and instrumentation, the antenna body is urged to perceive of its new role as one that is as transposable as it is dependent. Foucault (1975: 145) expresses the factory workers oscillating position in the factory when he speaks about the composition of the unit in conjunction with the organising principles of instruction:

> In discipline, the elements are interchangeable, since each is defined by the place it occupies in a series, and by the gap that separates it from the others. The unit is, therefore, neither the territory (unit of domination), nor the place unit of residence), but the *rank*: the place one occupies in a classification, the point at which a line and a column intersect, the interval in a series of intervals that may traverse one after the other. Discipline is an art of rank, a technique for the transformation of arrangements. It individualises bodies by a location that does not give them a fixed position, but distributes them and circulates them in a network of relations.

It is the negation of the static location that scores the body into a nebulous relationship with its newly mechanised surroundings. Connected to everyone and everywhere via the conveyor belt, the worker becomes, however, a replaceable singularity in this industrial composition of space, redefined as it is by the new sonic discipline orchestrated by Muzak.

Occupying the areas between silence and mechanically occurring sound, Muzak functioned by synthesising the loss of verbal language with the creation of a definitive waveformed cartography and in the process rendered an alternative reading of sonic spatiality; an unconscious topography of frequencies that can be defined as 'thirdsound'. In the instance of Muzak, we can hear a soundscape that is designed to amplify and exist between the waveformed spatialities of noise and non-sound. There was a fear of silence in the formative years of the industrialised workplace because no-noise signified stasis, an unwanted interlude in the industrial symphony of constant mechanised movements. Silence meant a disruption on the line and thus a seizure in production. As a progeny of the military and entertainment industries Muzak came to life by adopting the rhythmical nature of the production lines needs. It grew by channelling workers and shoppers eschatological desires and left us equating silence to death. Lanza iterates this industrial fear of non-sound when he remarks that, "as the industrial Revolution introduced the internal combustion engine's roar and the drone of generators, ventilation systems, riveting pistons, and low-frequency electrical lighting, silence became an unwelcome anomaly when it existed at all" (2004: 11). Muzak opened up the dualistic presumptions about industrially occurring sound and silence by offering new ways of thinking about how spatialities, psychologies, and presences within the workplace could be orchestrated by waveforms. As silence gives meaning to the sonic, so Muzak gave impetus to the notion of thirdsound and in the process it asked us to renegotiate our embodied relationship with both.

After the prophetic hymns of future cultural survival that were field hollers, came new symphony's of entrainment in the industrial environment. This spatial re-organisation within the soundscape tells us about the shift from the field and the agrarian to the industrial and the factory and it informs us that we need to find new ways of mapping the psychology and physiology of the workplace as well as rethinking our relationship with waveforms. So how do we go about exploring, mapping, and analysing thirdsound? How do we design a frequency-based cartography that articulates the displacement and mobilisation of waveforms when society finishes its predominantly agrarian phase and becomes industrialised and later leisure-based? Turning to the Muzak company's website proves to be informative here as they refer to the mapping of space in terms of constructed material metaphors and through speculative sonic psychologies when they market their 'Audio Architecture' product (see glossary).

The Muzak Company announce their intentions for the functional use of music in contemporary society clearly and leave little to the imagination when composing Audio Architectures. They speak about circumnavigating the conscious and of targeting the lesser-known realms of the subconscious and the emotions. The sonic mapping system that was proposed by Muzak in the industrial factories has now transgressed the workplace and spread its acoustic roots into places of leisure, shopping malls, and into hospitals. For this study, the most pertinent intention of the Muzak Company's industrial beginnings was its attempts to map the soundscape so that it was knowable and manageable, within a prescribed field of recording and observation. It was thought that when such criteria had been achieved – when sound could be rationalised - that the visual and material realms within the factory would acquiesce more easily to the logic of

production line flow (a form of reasoning that also transgressed its workplace inception). As the first electrically powered mapping system of waveforms, Muzak initiated new ways of thinking about space, time, function, and presence with regards to the waveformed body. It compiled topographic strategies that would trace and orient the subject rather than exploring or liberating it as thirdsound proposed to do.

To flesh out a mapping system that can explore the abstract territory of thirdsound, we must listen to other theoretical systems of orientation. Amplified to bestow agency upon the subject, Fredric Jameson's notion of cognitive mapping encourages the waveformed body to rearticulate it's presence in a network of global relations, eschewing the traditional subservient role that Muzak had placed it within nearly a century ago. Colin MacCabe explains the concept of cognitive mapping in the preface of Fredric Jameson's book *The Geopolitical Aesthetic. Cinema and Space in the World System*, as being:

> the missing psychology of the political unconscious, the political edge of the historical analysis of post-modernism [...] The term is taken from the geographer Kevin Lynch's *The Image of the City* (MIT Press, 1960) and is used by him to describe the phenomenon by which people make sense of their urban surroundings. Effectively, it works as an intersection of the personal and the social, which enables people to function in the urban spaces through which they move. For Jameson, cognitive mapping is a way of understanding how the individual's representation of his or her social world can escape the traditional critique of representation because the mapping is intimately related to practice – to the individual's successful negotiation of urban space. Cognitive mapping in this sense is the metaphor for the processes of the political unconscious. It is also, however, the model for how we might begin to articulate the local and the global. It provides a way of linking the

most intimately local – our particular path through the world – and the most global – the crucial features of our political planet (Jameson, 1995: xiv).

Cognitive mapping goes further in terms of reifying vibratory politics by transforming our waveformed body into a socially and politically aware subjectivity that has an implicit perception of its place and time, and of the pressures that are brought to bare upon it by those wishing to blunt such tools of urban comprehension. It is within the schisms of this transformative process, from being subjugated by frequencies to comprehending our position in the mix of the social score that our waveformed subjectivity becomes coherent. By being plugged into the independently connected realm of the active speaker instead of waiting to be connected - as is the want of its dependent passive twin - the antenna body signals its willingness to communicate and diffuse, to transmit as well as to receive.

If the idea of employing cognitive mapping to distinguish thirdsound seems at first listen, to be too visual a sensibility by which to discern the echoes of an abstract waveformed theory, then it is to Wegner's analysis (2006: 267) of Jameson ideas that we turn in order to dispel such reservations:

> Jameson himself warns in his original discussion of this practice that "since everyone knows what a map is, it would have been necessary to add that cognitive mapping cannot (at least in our time) involve anything so easy as a map; indeed, once you knew what 'cognitive mapping' was driving at, you were to dismiss all figures of maps and mapping from your mind and try to imagine something else." To slip into the language of the map is then, Jameson argues, to give into the hegemony of the image and the visual (marked too by a resurgence of traditional aesthetics and ethics) that is such a central dimension of postmodern ideology.

This reference to the over reliance on predominantly visual tropes warns us against making the same mistake with the notion of cognitive mapping and is why this idea lends itself to theorising the soundscape and exploring more definitively the practical parameters of thirdsound. Thirdsound demands that we comprehend, negotiate, and listen to the historical, the present and the future soundscape in new ways that have not been iterated yet. As Wegner again, usefully (2006: xiv - xv) expounds:

> ... the point is to make sure that the information (which will always be limited) is nonetheless sufficient to produce a map which will overlap at certain crucial points with other grids of interpretation and which will produce the terms for further political and economic analysis. Theoretically speaking, cognitive mapping needs more than mere development – it is fundamentally a metaphor which needs to be unpacked into a series of concepts which would link the psychic and the social.

To render an exhaustive understanding of thirdsound, the 'other grids of interpretation' would surely include sexual, aesthetic, somatic, historiographical, emotional, and spatial lattices of discourse. Only when we are interpreting through such a layered network of perceptions (the range of interpretative facilities that we utilise everyday to understand the visible and material world) can we, 1). Comprehend the historical significance of Muzak and its role in helping shape the parameters of sonic cartography; 2). Renegotiate the intimate affiliations we have with the soundscape that we exist within everyday; and 3). Anticipate how our engagement with thirdsound can be mobilised in order to resist those who are pioneering this waveformed spatiality in order to control absences and presences within it.

CHAPTER 2

Surrounded by Sound:

The Use of Speaker Systems at the Waco Siege

Section 1: *Compounding the Body of Noise with the Body in Noise*

This chapter focuses on the Federal Bureau of Investigation's (FBI) and the Bureau of Alcohol, Tobacco, Firearms and Explosives's (BATF) employment of sonic strategies and loud speaker surround sound systems to try and force members of the Branch Davidian sect out of their Mount Carmel (referred to as Mt. Carmel) compound in Waco, Texas. The role of the soundscape in the stand-off and the attempts by those parties involved in the conflict, to amplify, territorialise, and subvert it during the fifty-one day siege that began on February 28th, 1993 and ended tragically in the deaths of all 80 of the religious group's members on April 19th is further investigated. During November 1992, BATF agents attempted to secure warrants to search the compound grounds of a religious sect known as the Branch Davidians at Mt. Carmel based primarily on the testimonies of deprogrammed and disgruntled former members of the Branch Davidians. They were initially turned down for having insufficient evidence. The first complaints to be made against this small fluctuating group of approximately 80 men, women, and children were concerned with the abuse of children within the community. The allegations were investigated and later dismissed by the Child Protective Services of Texas on the grounds of a lack of supporting evidence (which did not stop Attorney General Janet Reno repeatedly citing the complaints as justification for the initial BATF raid on the compound).

Writing on the legal implications of the Waco siege, law professor Edward Gaffney Jr. (1995: 326) asserts that:

> The second major difficulty for the community, which ultimately led to its destruction, concerned the amassing of weapons at the compound. In May 1992 Daniel Weyenberg of the McLennan County Sheriff's department informed the BATF office

in Austin that a United Parcel Service (UPS) agent had informed him that members of the Branch Davidian community had received shipments of firearms worth more than $10,000, inert grenade casings, and a substantial quantity of an explosive known as black powder. On June 9, a neighbour reported to the sheriff's office that he heard a noise that sounded like machine-gun fire at the Mt. Carmel compound. The sheriff also notified the BATF of this report.

He carries on to relate how one of the most active of these apostates named David Block, accused the leader of the sect, David Koresh (who had changed his name from Vernon Wayne Howell) of amassing and manufacturing a substantial number of illegal weapons and firearms within the Davidian compound. According to Gaffney Jr., (1995: 326) Block alleged that:

> Two members of the community were using a metal milling machine and a metal lathe to produce weapons, that Koresh was amassing an arsenal of weapons, including fifteen AR-15s, twenty-five AK-47s, and three "streetsweepers" (12-gauge shotguns which rotate the magazine to position the next shot for firing), and that Koresh posted armed guards at the compound every night (U.S. Department of Treasury 1993, 27-33).

It is arguably this spoken word testimony by Block that started a process, which led to the BATF initially storming the Davidian complex. For the purposes of this text, the waveformed elements in the lead up to the raid are of interest here as they set a tone that runs throughout the fifty-one days after the first attack. As Virginia Madsen noted in her article concerning the use of light and sound as weapons at Waco "In many respects, the Waco narrative unfolded as a series of uniquely audio events" (2009: 90). The spoken

word in testimonial, negotiation, radio broadcast, and spiritual form; the ambiguous noises that (in the case of the complaint noted above by Gaffney), sounded like machine-gun fire; and the silence that occurs when communications between the two parties were cut, impeded, or misconstrued, together set up a sonic trialectic between the voice, noise, and silence that ran throughout the Waco incident, This trialectic became then, the foundation of the waveformed spatiality that was being fought over and territorialised by both the government and the sect and it is the trope that forms the basis of the arguments forwarded in section three of this chapter.

On January 11th, 1993, an undercover house was secured close to the compound so that the BATF could carry out ocular and sonic surveillance on the Davidians. BATF agents, presenting themselves as students interested in purchasing equipment from the community were subsequently invited to join a Bible class, leading to a neighbourly relationship being established. After seven weeks of interaction with Koresh and his followers the BATF obtained two warrants on February 25th, 1993; one for Koresh's arrest, the other for carrying out a search on the compound for illegal weapons. Three days later on the morning of February 28th, the BATF sent out a convoy - stretching over a mile - of heavily armed agents to execute the two warrants via 'dynamic entry'. In an ironic twist full of bathos, the U.S. government had tipped off a television station about the impending strike against the Davidians. They did this in order to advertise their intention of bringing law and order to the outskirts of civilisation; transmitting to the wider public that the legal, sexual, and sonic wilderness of the religious compound was about to be controlled, organised, and recomposed via the legal mechanisms of the state.

Losing his way, the television cameraman sent to film the martial proceedings unknowingly asked directions from a sect member who was running an errand. The

element of surprise so important to the BATF was lost when the reason for wanting to find the compound was accidentally revealed. Understanding that Koresh was cognisant of the plan to storm his ramshackle dominion, one of the undercover agents who happened to be inside the compound at the time, phoned BATF headquarters and communicated to them that the element of surprise had been compromised and that he was not sure if he could get out in time. This information should have put a stop to the planned onslaught (the knowledge of this information was consistently denied by the BATF in subsequent hearings and enquiries), but the decision to carry on was given. Finally adhering to a cease-fire after one and a half hours of gunfire exchange, both sides counted their losses – six Davidians had lost their lives along with four members of the BATF. In the midst of the battle, Davidian Wayne Martin phoned the emergency number 911 and pleaded that the BATF be stopped because children were in the firing line. This phone call had no effect in terms of stemming violence, but it was the first voice-to-voice communication between the religious sect and government agencies that essentially set up a waveformed territorial dynamic between the Davidian community and the rest of the world.

Come the evening of February 28th, governmental positions had switched, meaning that the FBI had been handed control of the situation. Their immediate reaction was to negotiate with Koresh and the Davidians in a standoff operation. A small number of children and adults were persuaded to cross the compound's boundary and transgress the sects territorial markings; the majority - resisting any urges to be pacified by the voices of reason - chose instead to defend the religiously convened voice from above – that of God – which Koresh was later to cite as being the reason for not only the Davidian's behaviour, but the actions of everyone else as well. After a number of days (having proved only marginally successful), the strategy of exchanging discourses began to frustrate the FBI as they sort to end a situation that had caught the attention of local,

national, and international press. According to Gaffney Jr. (1995: 328), in order to expedite affairs the FBI:

> ...switched roles, from that of a "conciliatory, trust-building negotiator to that of a "more demanding and intimidating negotiator" (Stone 1993, 41), and began concentrating on tactical pressure, by using "all-out psychological warfare intended to stress and intimidate the Branch Davidians... and by 'tightening the noose' with a circle of armoured vehicles.

This analogy of the 'noose' is useful inasmuch as it sets up the image of the stage on which death would claim its victims. However, for the frequency-based spatial analyses carried out in this text, the notion of the sonic ring or boundary marker between the civilised and the wilderness is of more use here and more pointedly the inversion of this concept that bears a fuller interrogation. By surrounding Mt. Carmel with military vehicles the U.S. government reinforced the distinction held by the Davidian's, namely that the compound boundaries demarcated for their bodies and souls, the division of being inside or outside of salvation. For Koresh and his followers, all those who existed outside of their small community and its grounds were doomed to damnation, so when the initial attack by the BATF occurred, it signalled the beginning of the final stages of the apocalypse that they believed was about to engulf the earth. As Bromley and Silver (1995: 61) surmise when commenting on the group's beliefs before the siege:

> The group conceived of itself as literally scripting and living in the end time, a process that intensified dramatically once the confrontation with federal authorities commenced. As Koresh began to prepare for an apocalypse that he increasingly thought might occur in America rather than Israel, the group began adopting

survivalist tactics such as stockpiling large amounts of dried food and MREs (meals ready to eat) used by the military, weapons and ammunition, and a large storage of propane gas.

With the media unable to conduct interviews or gain documentation of what was going on from the perspective of those inside the compound, the Davidian's found themselves silenced and unable to relate their version of events that had taken place in the preceding weeks as noted by Shupe and Hadden (1995: 165):

When enterprising reporters did seek to get closer than the three-mile limit, they were treated harshly. A number of photographers, tired of the "lens wars" that had developed as media outlets sent stronger and stronger lenses to Mt. Carmel, violated distance limitations imposed by the FBI. (Wilson 1993; Freedom of Information Foundation Conference 1993, 20) They were summarily arrested, thrown to the ground, handcuffed, and taken away to jail.

Isolated and alienated from day one, David Koresh had been forced to amplify his voice by telephone as he spoke over a live connection to the KRLD radio station in Dallas and via CNN cable television. "Koresh began, in those initial gripping interviews, the first of hundreds of hours of explanations, based on his understandings of the biblical apocalyptic significance of the situation in which he found himself" (Tabor, 1995: 263-264).

After this set of interviews on the initial day of the raid, negotiations between the Davidians and the FBI continued over the telephone and it became evident that the most important form of communication relay between all concerned would be sonic; taking the form of telephone calls, audiotapes, radio programmes, and loudspeaker barrages of

music. "According to FBI records, during the fifty-one day period negotiators spoke with fifty-four individuals inside Mt. Carmel for a total of 215 hours. There were 459 conversations with Steve Schneider, which consumed ninety-six hours. Koresh spoke with authorities 117 times – a total of sixty hours" (Tabor, 1995: 265). As the ongoing sense of alienation deepened, Koresh requested that tapes containing his spoken word monologues be aired over the radio so that his understandings of the Bible could be iterated to those outside of the FBI, whom he believed had little comprehension of his religious beliefs. In turn, "the FBI requested that some of Koresh's 'ramblings' be played on a radio station, as Koresh had asked, in order to try to gain his surrender. FBI officials became upset when Koresh called CNN directly at one point, and stopped the activity immediately by cutting all phone lines except the one they wanted kept open" (Richardson, 1995: 165). Accessing, expanding, and controlling the channels of sonic latitude became increasingly important and fractious as the siege went on; the sonic longitude that Koresh perceived himself to be at the somatic end of – the channel that he proposed let him hear the voice of his God – fell on deaf ears with regards to the FBI, who gave little time or space to entertain the notion that such a communication could occur.

At this point the communicative amplitude of those within the compound (Koresh as he spoke with the media) became a tangible physical and psychological construct, after the FBI realised that the antenna body had the capacity to extend beyond the physicality of the boundary they were patrolling with armoured vehicles. As a result of their lack of perception regarding this underheard dynamic, the FBI effectively remapped the aural latitude of the stand-off by severing the phone lines and opening up a new one way sonic latitude that was amplified by surround sound speakers. From a position of negotiation and exchange, the waveformed landscape had been radically altered so that the sonic body within the compound was one that was obliged to continually listen, without

opportunity for recourse. The bodies of noise (The FBI) - that religiously guarded and amplified this new mode of territorialisation - invested their somatic presence in the mastering of volume, repetition, and duration; hoping to render passive their targeted waveformed targets who were deemed to be threatening and lethal. Shupe and Haden (1995: 189) remark that:

> From the federal agents' perspective, the early days of the siege confirmed their understanding of David Koresh as devious, manipulative, unreliable, and extremely dangerous. In the course of the fifty-one day siege, agents pursued an unusual number of psychological warfare measures. The FBI tactics included the use of loudspeakers to bombard the Davidians with propaganda and harassment. Presumably the agents held out some hope that they would overcome the grip that Koresh held over his followers. At all hours of the night and day, the loudspeakers belched forth such curious content as audiotapes of rabbits being killed, chanting Tibetan monks, and Nancy Sinatra singing *These boots Were Made for Walking*.

Disorienting, silencing, and depriving the Branch Davidians of sleep, this strategy of sonic attack only stopped when the Dalai Lama intervened and demanded that the employment of sacred Buddhist music for martial purposes cease. One of the most intriguing and pertinent lines of inquiry about the use of such a strategy in this ideological conflict begins with the seemingly perverse question, who DJ'd Waco? Upon first reading, this apparently glib query assumes a deeper level of resonance when we ask whether there was any functioning strategy being exercised by a government agency that proposed to be legally, morally, and fundamentally rational in the face of the perceived irrationality of the 'religious fundamentalists' they were faced with. Whichever think tank or individual constructed the play list for the sonic content played at Waco made choices that veered between the

camp, the profane, and the bizarre. As a result, the stand-off set list reads more like an art students sound installation than it does a military strategy, but then maybe the two are not as separate as we might like to think.

Stoking the Fires of Cultural Assimilation

In an article titled, *The Art of 'Conservative Détournement'* (2010) myself and art historian Andrew Hennlich put forward this very hypothesis. Forcefully arguing that cultural forms of expression are increasingly being utilised for military purposes we asserted that:

> The Operational Theory Research Institute, an Israeli Defence Force 'think tank' directed by Shimon Naveh turned to the philosophy of Guy Debord, Gilles Deleuze and Félix Guattari, the architectural work of John Forester, Bernard Tschumi and Clifford Geertz, and the 'Anarchitectural' site-specific urban interventions of Gordon Matta-Clark to facilitate the re-spatialization of contemporary military theory and strategy. Upon further inspection, we are able to map a wider system of cultural and ideological assimilation through a range of military organisations that employ theories and works from the traditionally perceived humanitarian disciplines of music, architecture, art and philosophy. Examples include the U.S. military's use of music for battlefield preparation as well as for torture in Guantánamo Bay and Abu Ghraib; and Canadian military training centres such as 'Pretendahar' in Toronto which prepare soldiers for combat in the Middle East, referencing 1990's installation art practices. These examples give adage to the notion that this is not military business as usual, but rather the martialing of the business of culture.

In the case of Waco, the FBI's playlist incontrovertibly refers to the non-linear context from which it came - a culture ensconced in the throws of postmodernism. A global phenomena that Fredric Jameson explained as being "the internal and superstructural expression of a whole new wave of American military and economic domination throughout the world: in this sense, as throughout class history, the underside of culture is blood, torture, death and horror" (1991: 57). As a strategy however, the playlist harkened back to an event that took place four years earlier in December 1989 when the U.S. Military had surrounded the papal *Nunciatura -The* Vatican diplomatic mission in Panama City – with speakers, because General Noriega had been granted refuge there in the face of a manhunt with a one million dollar reward for his capture. They played rock n' roll tracks by artists such as Van Halen and Judas Priest at high volume, day and night, because he was known to hate this type of music, until he eventually gave himself up on January 3rd, 1990. Whilst the U.S. military's surround sound strategy of psychological harassment and torture happened much earlier, it was deployed in an exteriorised international context. The Waco siege represented the first time that such a strategy had been employed by the U.S. military against its own citizens on home soil.

This act of turning on one's own, of using strategies that had previously been executed against those who were considered to be culturally and politically externalised enemies reveals much about the ways in which techniques that are tried and tested abroad by the military are subsequently relayed and modified for utilisation by internal policing agencies against their own citizens. Virilio (2006: 124-125) traces this blurring of the boundaries between civilian and militarised psychologies and spatialities back to:

> The new "secret police," which Balzac considers the most important social revolution of his time – the moment when, after the long period of ostensible and bloody

repression exerted against the civilian populations by the Revolution's "army of the interior," military violence stops being necessarily visible only from afar, by the soldier's uniform, and comes to rest on refined systems of surveillance and denunciation. These first attempts at penetration, clandestine "invasion" of the social corpus, had, as we saw, a specific aim: exploitation by the armed forces of the nation's potential (its industrial, economic, demographic, cultural, scientific, political and moral capabilities). Since then, social penetration has been linked to the dizzying evolution of military penetration techniques; each vehicular advance erases a distinction between the army and civilization.

In the case of the Waco siege (as well as in more generalised terms with regards to a military's actions against citizens of the same nationality) the boundaries of sonic conflict had been inverted, both in terms of the identity of the targets and the industrial and cultural anatomy of the weaponry used against them. It could also be surmised that by using music as a territorial and psychological weapon at Waco, the government were infact waging two indigenous conflicts in order to assimilate and regulate those societal elements – in this case religious fundamentalists and musical cultures - deemed to have the capacity to threaten and provoke constitutional authority.

This argument about the pacifying of cultural constituents believed to be potentially troublesome is corroborated in the conclusion of *The Art of 'Conservative Détournement'* essay when it is pointed out that "that this is not the first time art; architecture, music, and philosophy have been utilized by the military" (Heys and Hennlich, 2010: 65). This narrative has infact, a history that can be traced back to at least the early part of the twentieth-century, as noted by Heys and Hennlich (2010: 65) when they state that:

Slavoj Zizek notes for instance that architectural practices informed by Surrealism were used by the Franco regime to construct a *series of secret cells and torture centers built in Barcelona in 1938* (2006: 3). This early precursor is an important precedent, but it does not signify the systematic implementation of military strategies based on assimilated cultural ideologies and practices that the use of music as torture, installation art practices for training centres and the use of philosophy for martial manoeuvres do. We are currently observing the inversion of enemy territory, as the military travels inside and mines its own civilian network in order to negate threat, draw up a new cartography of culture, and camouflage the landscape of resistance.

After their sonic and light attacks failed to dislodge the entrenched Davidians from their grounds, the FBI professed to have tried to 'move heaven and earth' in order to resolve the stand-off. "That they held out against psychological warfare tactics "demonstrated" that the Davidians were dogmatic, determined, and unrelentingly devoted to their leader. For their own safety and well-being, they had to be rousted out by any means necessary" (Shupe and Hadden, 1995: 189). As noted by Madsen (2009: 98), the Davidian's determination was matched by the 'bad vibes' amplified by those surrounding the compound, including the global audience that witnessed the drama unfolding:

> For fifty-one days the eyes of millions of spectators were upon Waco. This was a site subject to negative development before the media's 'absent' eye. For fifty-one days, the international news media waited. For the TV cameras – hungry for lights, action, exposure – there was little to develop, little to be seen on the outside except the boarded-up white building on a treeless Texas plain... Images, sounds and stories could repeat themselves, creating feedback loops, and dangerous

sympathetic vibrations. As the days dragged on, tensions built, not only were the officers growing weary, so too were audiences and media. In their paranoia, the Branch Davidians were not to know how time could catch up with them – that 'the End', their Apocalypse, could come at such speed, and so soon. They had dug in for the long duration, as if duration still counted.

As history tells us, duration stopped being an issue for the Davidians on April 19th, 1993 when the government ordered tanks to breach the walls of the compound and disperse canisters of CS gas throughout the buildings in an effort to force the desperate inhabitants out. Even at this point, when the conflict was face-to-face, sonic strategies came to the fore as the FBI covertly placed small powerful microphones into the wounds of the punctured building; eavesdropping on the Davidians as they prepared for a death that they could not have imagined, yet somehow had to believe in due to their apocalyptically induced conception of their own dénouement. The ensuing violence that was to happen to them and the ways in which it has been culturally memorialised was aptly pre-empted by Attali (1985: 7) when he declared that:

> Eavesdropping, censorship, recording, and surveillance are weapons of power. The technology of listening in on, ordering, transmitting, and recording noise is at the heart of this apparatus. The symbolism of the Frozen Words, of the Tables of the Law, of recorded noise and eavesdropping – these are the dreams of political scientists and the fantasies of men in power: to listen to, to memorize – this is the ability to interpret and control history, to manipulate the culture of a people, to channel its violence and hopes.

The blistering noise caused by the all-consuming fire that would break out and kill the majority of the inhabitants of Mt. Carmel became the final aural statement of the siege. It effectively destroyed any vestiges of thought about the standoff as an event constructed of visually based actions, processes, and outcomes. All the material and ocular evidence of lives once lived in the compound were converted into searing frequencies, the waveforms of the flames becoming the ultimate sonic signature of a catastrophe that had been essentially orchestrated, recorded, and played back within the realm of the soundscape.

Section 2: *A Psychological Symphony of Disaster*

The Waco siege presents us with a high-profile event where sound in the forms of music and noise was infamously employed to psychologically manipulate targeted Branch Davidian member's behaviours in order to regain command of a situation deemed 'out of control'. Whereas the controlled social laboratory of the Fordist factory focused on in chapter one presented psychologists, sociologists, and phenomenologists with an ordered test-site to experiment and record within, the Waco siege presents us with the sociological antithesis of the workplace in the form of a fortified compound caught in the grips of confusion and conflict. As a test site, the compound had a set of legal, architectural, and humanitarian parameters, which differed in almost everyway to the workplace, the only ostensible link between the two being the utilisation of music to try and augur command of a targeted social grouping's psychological and physiological actions. In order to more easily induce what were considered favourable behaviours from the Davidian's (passive, anxious, and compliant dispositions that would have resulted in surrender) the FBI treated

the architecture of the compound as a magnified 'Operant Conditioning Chamber' or 'Skinner Box' (see glossary).

In the early exchanges between the FBI and David Koresh, the system of rewarding and reinforcement was exerted when the FBI agreed to have Koresh's taped monologues aired on the radio in lieu of the sect's imagined capitulation to the U.S. Government's demands. When Koresh reneged on the spoken word agreement that was struck between the parties, the Government quickly changed their psychological and territorial position within the soundscape and instead of offering rewards to lure the Davidians out, they attempted to force behavioural dynamics upon the sect which amounted to sonic punishment. Upon this strategic change, an audible schism opened up in relation to the way the FBI employed Skinner's theory. This meant that instead of stimulus being presented in small amounts so that responses could be reinforced or shaped, sonic information was constantly amplified in repetitive sequences over an extended period of time. Such an overt shift in the psychological dynamics of the siege, from one of measured reinforcement to one of repetitive punishment re-orchestrated the accessibility of the soundscape for the remainder of the stand-off; an explicit and audible re-organisation of the sonic parameters of the siege; an intolerant re-composition of the interactions that came to symbolise musical notes in an ensuing symphony of disaster.

From the boxes carried by conveyor belts in chapter one to Skinners box; from the social grouping of the workforce to that of the sect; and from the architectural context of the factory to that of the compound, chapter two advances the trajectory of the text by listening to a waveformed event that comprises a smaller and more closely knit social body living existing in an extended notion of the home. The sect functioned on a daily basis on more physically, psychologically, and emotionally intimate levels than did the

members of the workforce in the factory. In the example of Waco, the frequency-based techniques and strategies used against the Davdian sect can be perceived as being more intense, enveloping, and they are amplified to a greater degree than in the factory, in order to try and successfully influence and manipulate the dynamics of individual and group-based behaviours. David Koresh, the leader of the Davidian community understood the power music had to influence and entrain people only too well and – as noted previously - invested heavily in his persona as an outlaw Christian rock figure to channel his charisma. This character he portrayed, of a rebellious Christian rock star whom had little time or space for the laws and norms of mainstream society enabled him to further psychologically influence those that had already been seduced into the Branch Davidian community as well as captivate and allure those whom he met outside of the compound.

The 51-Day Diary of a Failed Rock Star

After he had travelled to Hollywood in a failed attempt to become a famous musical performer, Koresh joined the Branch Davidians and upon gaining leadership of the group - in analogous fashion to the legend of the Pied Piper of Hamelin (see glossary) - induced men, women, and children from their families, jobs, and homes (to which the majority would never return) into the Davidian compound. Supplanting the legendary pipe for a guitar, Koresh was to lead those who followed him into a fiery apocalypse and ultimately to death. The figure of the Pied Piper, seducing people away from the safety of their homes and loved ones via music is often referenced in contemporary Western culture when discussing controversial figures whom are perceived to rail against mainstream values; from famous convicted criminals such as Charles Manson and schlock horror rock stars such as Marilyn Manson to more obscure serial killers such as Charles Schmid who

was known as the 'Pied Piper of Tucson' (documented by John Gilmore (1995)). The agency that music is heralded as beholding allows us to believe that there are inexplicable powers driving people to carry out unspeakable acts and that when such powers are harnessed, they can be utilised to persuade others to cooperate. Such beliefs effectively help us rationalise extreme forms of violence that we consider to be inhuman and give us a language that allows us to speak of the ineffable.

As Koresh increasingly came into conflict with North American mainstream value systems - by practicing polygamy and taking wives as young as 12 years old (with the consent of their parents) - the sect became further estranged and alienated from the more conventional and dominant society from which its members had come. Identified as being a cult by those fearful and suspicious of the ethical independence they were staking out for themselves (and of the rumours suggesting cases of rape and child abuse were routinely occurring within the compound), the Davidians were pushed over mainstream society's 'civilised' periphery. Conspicuously, the sect simultaneously sort to be outside of the legal, moral, and earthly mores of those inside this socially semi-permeable boundary marker that denotes civilisation. Even so, castigating a group as a cult regularly has severe repercussions for its members. The branding of the Davidians as such being pivotal to the ways in which the Waco standoff was mediatised, perceived, and reacted to. Shupe and Hadden (1995: 189) affirm such an assertion when they state that:

> This image of cults is firmly anchored in American history, but has been recently reinforced by the plethora of new religions over the past two decades. Virtually everyone knows about the mass suicide of hundreds of followers of Jim Jones in Guyana. But many other groups, such as the Unification Church (Moonies), Hare Krishnas, the Children of God, and Scientology, have been the subjects of high

profile and highly negative publicity. Hence, the mere labelling of a group as a cult conjures up the most scandalous of images.

"Anticult usage identifies "cults" as subversive both of families and individuals and of the core values of society as a whole", writes John Hall (1995: 209). Given that their value system was elementally distanced from such a social core, the apocalyptic sect concluded that they needed to transgress the bonds that initially tied them to mainstream society in order for their 'micronation' (see glossary) style self autonomy to occur. John Hall helps define the dynamics of apocalyptic sects' beliefs and their connection to a wider social body when he writes that:

much depends on any given sect's response to their construction of the apocalypse. At one extreme, a group may retreat to an "other-worldly" heaven-on-earth, discontented from the evil society in its last days. Alternatively, it may seek out the battle of Armageddon – that last and decisive struggle between the forces of good and manifest evil (Hall 1978). Moreover, these two contradictory tendencies sometimes remain in volatile play within the same group. Thus, no conclusions can be drawn in advance about the trajectory of an apocalyptic sect. For groups that have not stabilized a heaven-on-earth, the play of events is especially contingent upon the interaction of the group with the wider social world (1995: 207).

When groups such as the Davidians realise that their behavioural codes, sexual practices, familial formations, and shared economic practices will not be tolerated or deemed acceptable by mainstream culture, there is a greater incentive to work outside of it. Being marginalised allows a group to formulate new ways of relating to the entire social spectrum of actions, exchanges, and contracts, as well as redefining the inevitable

divisions, hierarchies, and ways of forming leadership that are endemic to any group. When majority culture identify such a transgression and cement it by labelling the group as being 'outside' of their systems of socialisation, justice, and economics, a sublime (see glossary) social contract is psychologically engineered.

The socio-political agreement that occurs between the mainstream and the 'outsiders' happens at the point of rupture, where those who have been outcast not only accept their position and context but also audibly and visibly celebrate their deviation and separation from mainstream value systems. For academic James Lewis "deviants come to symbolise or personify changes, threats to the status quo, when 'the community is confronted by a significant relocation of (moral) boundaries (Erikson 1966, 68)'" (1995: 102). For society at large, when those who have become 'outsiders' or 'deviants' can be identified as such, they can then latterly be labelled as 'enemies' in the final stage of a social diagnosis that creates and formats 'opponents'. Lewis (1995: 102) pinpoints the dynamics of this phenomenon when he declares that:

> One of the more widely accepted dictums of sociology is that societies need enemies, particularly societies that are going through a disturbing period of change. External threats provide motivation for people to overcome internal divisiveness in order to work together as a unit. Conversely, "the unity of the group is often lost when it has no longer any opponent" (Simmel 1955, 97). Having an enemy one can portray as evil and perverse may provide social solidarity and support for the normative values and institutions of one's society" (Durkheim 1960; Erikson 1966).

Mainstream culture requires social peripheries that function by delineating, enforcing, and reifying its own social bonds of morality, sexuality, and friendship. By pushing individuals

and groups outside of this inclusive boundary, it creates otherness and 'outsiderness' as concurred by Rhys Williams (1995: 301):

> In his important book *Religious Outsiders and the Making of Americans*, Laurence Moore (1986) argues that "outsiderness" is more than just a common feature of religious minorities in United States history. Rather, he maintains that outsiderness has been a necessary aspect of the struggle to establish new religions in this country. Moore argues that outsiderness has often been promoted by the groups themselves, eager to maintain a distinct identity even as they try to find a niche in American society. Moreover, this "self-stigmatization" has been so common that it is part of what it means to be an American; the often uneasy balance between group distinctiveness and social accommodation defines American religion.

Further delineating the aspects and developments of an alienated sect's identity that are perceived to be threatening to mainstream culture, Dean M. Kelley (1995: 363) affirms that:

> ... the communal group may develop distinctive modes of dress, a coded in-house language, unconventional domestic arrangements, and other peculiar traits, and the result between them and others can be mutual dislike, suspicion, fear, and stereotyping. This growing antipathy serves to increase the religious group's alienation and distrust to a degree approaching paranoia.

The group psychology of the Davidians - as being outsiders - plays an important role in the siege. By constructing their own living quarters, their own value systems, and their own waveformed environment, social bonds were strengthened to degrees that

governmental agencies considered 'unnatural' and unlawful and in need of armed and frequency-based attention.

With all channels of communication to the outside world cut off (other than those opened by the FBI) the psychological dynamic between the compound's inhabitants became increasingly important to the authorities as they attempted to convey Koresh as losing control over his followers. To further this aim, the excessive physical force employed against the Davidians in the militarised landscape was transferred to the soundscape via the speaker systems placed around them. Waveformed excess is nominally replete with the decadence of the signal, the dissipation of linear articulation, and the subsequent transmutation into feedback. Any semblance of feedback of the linguistic variety was cut-off at Waco; gated at the boundary where all utterances, vibrations, and signals were monitored by the Government's mastering operatives with their surround sound systems, microphones, and technical expertise. Invoking the ideas of Marc Galanter, Thomas Robbins and Dick Anthony (1995: 249-250) examine the functions of various types of (social) feedback in the following quote, specifically feedback that occurs in an isolated social group where the psychological demarcation of boundaries oscillate dramatically when excessively questioned:

> A cult or charismatic group operates as a social system. It has a primary task or basic transformation function, which entails transforming input from the environment into a form that meets system needs, that is, converting and socialising recruits. A monitoring function monitors, regulates, and coordinates the action of component parts of the system. A feedback function enables the system to obtain information on how effectively it is carrying out its primary task. Negative feedback is vital to long-term self-regulation of the system but also poses a short-term threat to the

system by undermining participants' moral and sometimes challenging group beliefs. The suppression of negative feedback is a constant temptation, which, however, may ultimately impair the system. Finally, charismatic social systems have a dimension of boundary control, protecting the systems from external threats. Most outbreaks of violence associated with religious movements entail escalating boundary tension.

Virasonic Attack

Intending to compound the levels of anxiety in the Davidians environment, the FBI programmed their intrusive 'virasonic' (the audible waveformed strategy by which to compose a viral soundscape) attack from the compound's boundary. They aimed to break down the psychological bonds that were enforced through the soundscape by collective singing, prayer, and music making, as well as through those (micro)sounds generated from the member's daily communal activities. The governmental walls of sound produced at Waco amplified mainstream society's desire to estrange themselves from the frequencies emanating from the compound. Referring to the psychological shift that has recently occurred in occidental culture's amplification of sound, Schafer's statement about music's capacity to alienate, hits the nail on the head (with the reverberation of the statement carrying far beyond the context Schafer was originally alluding to) when he writes, "Walls used to exist to isolate sounds. Today sound walls exist to isolate. In the same way the intense amplification of popular music does not stimulate sociability so much as it expresses the desire to experience individuation... aloneness... disengagement" (1993, 96). The play between naturally occurring noise and musically constructed sound would have serviced the community by spatially and temporally

anchoring them, reaffirming their identity through ritualistic practices such as the regular prayer meetings that were held upto three or four times a day. Inducing sonic chaos into this religiously timetabled existence served to separate not only the members from each other, but also to further psychologically separate the group from the rest of society, severing the aural umbilical chords that attached the members to the waveformed melodies of their environment.

The psychological games played by both the American Governmental forces and the castigated Davidian sect during the standoff played out like grotesque theatre, albeit with a networked audience of millions. The stage was set up as a contemporised Western shoot out with the two identifiable foes facing each other, both on the verge of extreme violence; the anti-apollonian soundtrack and extremely harsh lighting provided by the FBI; the press (as live audience) clamouring for exclusive footage. Sociologist James Richardson (1995: 164) furthers this analysis of the seeming inevitability both of the outcome and of the mediatised evolution of events when he declares that:

> The evening news had all the elements to guarantee high ratings – religion, sex, guns, child abuse, and other violence, in tandem with the intrigue and complex plotting by both sides. The drama seemed to imitate a Greek tragedy, moving inexorably toward its predictable climax, and we know that Greek tragedies always involve predetermined sacrifices. That tragic sense of the "meaning" of the Waco tragedy was borne out on April 19 when authorities did what Koresh had been predicting all along to his followers (Richardson 1994b).

When thinking and commenting about the ways in which music was used at Waco, the bearings of such ruminations are routinely predicated solely on the ways in which

frequencies were employed against the Davidian sect. There is also however, an issue about how the repetitive musical bombardments broadcast by the FBI psychologically affected those agents who patrolled the perimeter of the Mt. Carmel compound. As we know, frequencies of any kind are difficult to shield oneself from. As well as being interested in the volume levels (which would have been remedied by wearing ear protectors) we are also concerned with the repetition of the sonic content played and its corollary effect on the cognitive and emotional behaviours of those orchestrating the sonic payload of Nancy Sinatra and the dentist's drills. The analogy most useful to engage here refers to a term first adopted by the U.S. army for the accidental injuring of one's own personnel when intending to harm an enemy. Thus in the instance of Waco, rather than thinking about 'friendly fire', we should consider the consequences of what could be called 'friendly frequencies' (see glossary).

Radically remapping the siege soundscape, the mix of noise and music that was transmitted to cause anxiety amongst the Davidians would have created distance between the FBI agents, as communications must have become more difficult in the light of such volume. When camaraderie - composed through discourse in enduringly difficult circumstances - is replaced by repetition – conducted by noise – a perverse silence is produced in its wake. This seemingly contradictory sonic duality renders a new synthesised version of Virilio's (1994: 6) theatre of operations in which distance is also created internally between allies, forcing us to re-evaluate his contention that:

> The battlefield is the place where social intercourse breaks off, where political rapprochement fails, making way for the inculcation of terror. The panoply of acts of war thus always tend to be organised at a distance, or rather, to organise distances. Orders, in fact speech of any kind, are transmitted by long-range instruments which,

in any case, are often inaudible among combatants' screams, the clash of arms, and, later, the various explosions and detonations.

The only screams heard during the first fifty-days of the siege were those of dying rabbits as they were amplified repeatedly day and night. The question of whether such onerous transmissions had detrimental affects on FBI agents is one that has not been answered, but the fact that these agents held dominion over the sound systems would have plausibly made it easier to endure as they had control of volume, duration, repetition, and content throughout the operation. One of the key components of anxiety and fear based psychological strategies such as the FBI's sonic assault is the creation of apparent chaos. When a group's routines and sonic rituals are not only disrupted but also made implausible, then bonds, trust, and interaction have to be remodelled around other activities and non-verbal communications re-channelled in order to provide belief affirming activities for group members. Virginia Madsen appraises the capacity of the sonic pressure used at Waco to not only challenge group belief, but to also possibly cultivate alliances when she writes that, "from a physical and psychological 'point of listening'... the many unorthodox sound recordings used against the Branch Davidians could reveal a highly affective power, with the potential to induce disintegration or dangerous 'sympathetic vibration'" (2009, 93).

When the aural conditions for constructing socially bonding rituals and customs continuously oscillate between such contexts, the natural harmony and rhythm of a group's social life is understandably disrupted and made questionable. 'Knowing what is going to come next' makes is easier to prepare oneself and formulate courses of action ahead of time in any given situation. When one is forced to constantly react to newly modified sonic contexts produced by an array of speakers, a cognitive disarray is

psychologically (de)composed and a sonic entropy within the habitual system of *making sense* distorts perceptions of agency. It was such an ambient precipitation of the community's psychological bonds (achieved through ritual) that the FBI aimed to dissolve. That they were not successful in achieving their objectives is enlightening but the realisation that such strategies employed at this level of conflict are borne from civilian crossbreeding is more telling; for such sonic techniques and usages have quotidian doppelgangers that reside in our urban soundscapes. Leading stereo lives these aural tactics connect us to the mixing board of the everyday - from music in the shopping mall, to the jingles on the radio, and the sounds of our ipods; we are all simultaneously transmitting and receiving; we are all antenna bodies playing with the levels of waveformed agency, trying to keep our lives lived in the master channel of circumstance.

Section 3: *Inverting Wilderness*

This chapter provides us with an opportunity to listen to what happens when speaker systems are relocated from a building's interior (as they were in the factories studied in chapter one) to externally surrounding architectures for strategic purposes, as they were at the Waco siege. There is an obvious transmutation of affect when speaker systems are employed outside of a defended building, bestowing frequencies - and the hardware that amplify and deliver them - with the dubious honour of being labelled *weapons*; a perception of delivery systems, which does not occur in the Muzak filled speakers of the Fordist factories. Such external usage of waveforms questions the capacity of those defending a building, to keep essential features of the external world from breaching the physical, social, and psychological formulation of their fortified grounds. As frequencies do not abide by the parameters of movement set by material constructions, it makes their

utilisation perfect for psychologically displacing the solidity and safety of the physical, of the touchable, and of the defendable; yet at the same time it can be used to support all these states of being as well. Waveforms transgress the physical in this regard, yet they are absolutely connected to it at the same time. Schafer understands well the volatile nature of sounds power, evidenced by his suggestion that it is more a question of the capacity to channel it than it is of amplification. He writes, "The important thing to realize is this: to have the Sacred Noise is not merely to make the biggest noise; rather it is a matter of having the authority to make it without censure. Wherever Noise is granted immunity from human intervention, there will be found a seat of power" (1993, 76).

The seats of power at Mt. Carmel - administratively located in Washington, D.C. - introduced both light and sonic based strategies to the siege, rendering it metaphorically akin to an (un)social science experiment. Surrounded by sound systems, recording devices, and media technologies, the Branch Davidians were treated like insects that were to be sonically dissected; with macrosound instead of microscopes and with tweeters instead of tweezers, the FBI pinpointed their target like a scientist might a bug, but with sonic apparatus instead of the surgical steel associated with the laboratory. "One of the primary objects of discipline is to fix; it is an anti-nomadic technique" writes Foucault (1975: 218). Whist the sonic discipline of the waveformed compound/laboratory at Waco was certainly intended to fix the Davidians in a temporal and spatial nexus, of more interest was the FBI's endeavour to formulate a frequency-based wilderness inside the loop of speaker systems; a recorded and recordable sonic chaos that would serve the government by providing a visually unobservable space in which to experiment and document the sect within.

The hinterlands that lay beyond the periphery of Mt. Carmel would have symbolised, in varying degrees, a wilderness to the inhabitants of the compound. To some it would have been perceived as the boundary where the Davidians ceased to organise space and where nature subsequently took control – a basic geographic reading of the point at which 'civilised' human spatiality meets nature's amplitude in the form of the 'wild'. To others, the boundaries of the compound would have signified the circumference of the sect's economic, legal, sexual, and social law, conferring the role of the moral wilderness to the mainstream society that lay beyond. The wilderness we are most interested in here however is of the waveformed variety; the points at which the soundscape becomes unknowable, threatening, and alienating. By cutting off access to the quotidian sounds of the surrounding environment, of bird calls, animal sounds, traffic reverberations – so that the previous sonic co-ordinates responsible for guiding one's journey through time and space is replaced by pre-programmed abstract noises and music - the FBI inverted the Davidian's perception of wilderness. This was achieved by re-mapping the compound in the centre of a waveformed wasteland; a spatiality where the sounds that helped orient and connect those inside of it were silenced, and where new aural systems of isolation threatened to confuse and bewilder its inhabitants.

"It is Europe and North America which have, in recent centuries, masterminded various schemes designed to dominate other peoples and value systems, and subjugation by Noise has played no small part in these schemes" (Schafer, 1993: 77). By delineating new sonic territories via noise, music can be deployed to outline the voracity of one's power whilst also renegotiating the aural contract one has with their natural environment. For Attali, noise is naturally denoted within the realm of functionality and potential, as made clear by his assertion that "among birds a tool for marking territorial boundaries, noise is inscribed from the start within the panoply of power. Equivalent to the articulation of

space, it indicates the limits of a territory and the way to make oneself heard within it, how to survive by drawing one's sustenance from it" (1985: 6). Rather than articulating the will to survive, the marking of space via music and noise at Waco presaged the demise that was to occur if the Davidians could not find a way of negotiating the wilderness that had been imposed upon them; a swansong that was to be dismally serenaded by the sirens of fire trucks rather than by the trumpets of angels.

Demarcating the channel between wilderness and salvation the line of speakers around the compound also played on ancient techniques of mapping the environment via sonic cartography. Storr (1992: 19-20) iterates the attributes of one such venerable technique practiced in Australia by referencing a nomadic writer who had thoroughly researched such phenomena:

> Bruce Chatwin, in his fascinating book *The Songlines*, demonstrates how songs served to divide up the land, and constituted title-deeds to territory"... aboriginals used songs in the same way as birds to affirm territorial boundaries. Each individual inherited some verses of the Ancestor's song, which also determined the limits of a particular area. The contour of the melody of the song described the contour of the land with which it was associated. As Chatwin's informant told him: 'Music is a memory bank for finding one's way about the world'.

The contours of the FBI's melodies did not so much define the land and one's connection to it as much as they signified the end of its comprehension. Hoping to sever the chords that tied the Davidians to their environment, they enforced new disruptive and intimidating memories to be formulated, placing them in an ongoing state of dislocation.

This condition of displacement that we are examining here is important in Christian history and therefore cannot go unmentioned given the religious affiliations of the sect and their decision to place themselves in a lacuna between civilisation and wilderness. J.M. Coetzee (1988: 49) examines the conflicting meanings inherent within the latter term, helping us form a better understanding of why the FBI's decision to alienate the sect was not a prudent or effective strategy:

> The wilds, "the wilderness" are resonant words in the Judaeo Christian tradition. In one sense, the wilderness is a world where the law of nature reigns, a world over which the first act of culture, Adam's act of naming, has not been performed. The origins of this conception of the wilderness lie in pre-Israelite demonology, where the wilderness (including the ocean) was a realm over which God's sway did not extend. But a second sense of the wilderness grew up in Judaeo-Christian theology: the wilderness as a place of safe retreat into contemplation and purification, a place where the true ground of one's being could be rediscovered, even as a place as yet incorrupt in a fallen world (G.Williams, 5).

For the Davidians, the grounds of Mt. Carmel were a protected sanctuary from a world that they believed was about to fall into the throws of Armageddon. The Davidians, a sect that was structured around its own alienation from the rest of society - the fabric of the communal ties cut from the cloth of necessitated estrangement – had already imposed itself into a state of retreat to a position outside; a religiously denominated territory on the cusp of the wilderness, at the edge of the social, and on the periphery of the living.

In terms of the waveformed wilderness, it is helpful to further explicate what this might mean. Music from the outside or 'outsider' music as it sometimes referred to, is music that is conceived of as coming from the periphery of a culture that eventually (and inevitably) tires of what it knows. Occidental culture subsequently listens out for the echoes of those who live and work on the social margins, or beyond, to feed an ever-growing hunger to locate, assimilate, and take advantage of the most esoteric forms of sonic expression. To secular Westerners, religious music such as Christian rap and rock belongs firmly on the edges of culture, yet it is the Church that has a history of marginalising and demonising waveforms, especially when they are organised into musical compositions. In contemporary culture we have the controversy predominantly stoked by religious groups regarding backward masked messages in commercially released music. Historically, however, it is the tritone (see glossary) that initially elicited the wrath of the church.

The choral (and the chorus) is Christianity's sonic response to the tritone - those harmonious renderings in music that facilitate the bringing together of people, united in a feeling of collective adulation towards that which is understood to be a greater being. The church was after all, the first institution to recognise that "Music has the effect of intensifying or underlining the emotion which a particular event calls forth, by simultaneously co-ordinating the emotions of a group of people" (Storr, 1992: 24). Whether or not there are musical genres, movements, or tones that are linked with 'good' or 'evil' is not what is at stake here. Of more interest is the overall perception that music is the most vital factor in the process of marginalising an adversary. Identifying individuals or groups as other, as peripheral, or as outsiders has to be made manifest via signifying traits that can be openly perceived by others, so that alliances can be formed and joined,

and difference collectively scorned at any orchestrated moment. Musical affiliation and adoration marks, fractures, and reconstitutes social factions like no other cultural form of expression. The power in music to demarcate socio-political, economic, psychosexual, physiological, and geographic territory is therefore a considerable agency to behold. David Koresh knew this very well when employing a rock star persona and leading guitar fuelled Christian sing-a-longs to unite his followers. By enacting such strategies, not only did Koresh attempt to deliver his brethren further outside of the culture from which they had come, he also attempted to induce in them a contiguous sense of being outside of their bodies.

It is music's capacity to take one outside of their somatic, social, and sexual normative context that is explored by Julian Henriques (2003: 469) when exploring Jamaican Dancehall sound-system culture, yet the following quote reads as though it might be explicating a religious sect's nightly ritual as they sonically embrace and celebrate the transgressive agency inherent to their position at the margins. He states:

> Sonic dominance transduces the crowd across several thresholds over the passage of the session through until dawn. It generates a very special type of environment and experience – a place between places and a time out of time. Anthropologist Victor Turner describes these as 'liminal' states or places. Outside normal society, these are thresholds where transition, transfigurations and rites of passage occur. In such liminal states communication often takes place at a sublime or heightened level...

As Koresh and the FBI were both interested in drawing the compounds inhabitants into a sonically generated liminality (for divergent outcomes) the soundscape became the

battleground where the devil's dissonance and Christian harmonies mixed into each others position on the periphery; an audiotopia that sonically locked all present into a state where refrains of good and evil were sublimated by the will to cast the other as *outsiders* (see glossary).

An Audiotopia of Sonic Waste

In conjunction with Williams premise that "the social history of religious movements in the United States demonstrates that the boundaries of the culturally legitimate may change, but at any one time they push minority groups firmly to the margins", (1995: 313) it can be posited that the Davidians came to signify socio-political excess for mainstream culture - that which is removed from the somatic and psychological context of the everyday – also referred to as *waste*. The first question brought to bear by this notion of excess concerns the soundscape and what constitutes 'waste' in terms of waveforms? For Schafer (1970) ever since industrialisation, man-made sound has become profligate, so much so that he terms it as being analogous to sewage and pollution. More specifically he is talking about the problems associated with noise - the excessive frequencies made by humanity that have in his words become an 'epidemic'; the rumble of cars and their stereo systems; the industrial machinery that repairs the roads and produces goods; digital technologies that blip, bleep, and grunt; mobile phones that shriek and roughly caress the ears of those who answer them. All of these sounds for Schaefer are sonic detritus; waste that needs to be placed outside of culture, beyond the periphery of the lived; resigned to the cemetery of frequencies that he suggests is always threatening to overwhelm our perception of the here and the now.

Before Schafer had developed his theories about noise, English science-fiction author J.G. Ballard had written *The Sound Sweep*. A short story based in an ultrasonic world where "noise, noise, noise... (is) the greatest single disease-vector of civilization" (1960, 52); a scourge that is collected (swept) in a fashion similar to the way we pick up and dispose of garbage today. Describing the violent cacophony created by noise, Ballard (1960: 52) describes the soundscape in which the refuse collector of noise operates (a world in which Schafer would do academically what the soundsweep does in pulp form):

> Occasionally, when super-saturation was reached after one of the summer holiday periods, the sonic pressure fields would split and discharge, venting back into the stockades a nightmarish cataract of noise, raining on to the sound-sweeps not only the howling of cats and dogs, but the multi-lunged tumult of cars, express trains, fairgrounds and aircraft, the cacophonic *musique concrète* of civilization.

Significantly, the offensive aural detritus that begets this list portends the FBI's set list at Waco, whilst also adroitly commenting on the hostile reverberation of a culture's waveformed output; put simply, it predicts the utilisation of noise and music as a weapon and pre-empts the fluid frequency dynamics that allow infrasonic, ultrasonic, and sonic content - emanating from the 'echobin' of the city - to be effortlessly channelled into militarised theatres of operations.

Jacques Attali considers noise and the notion of waste to have a very different relationship to human perception and existence. He states that, "our science has always desired to monitor, measure, abstract, and castrate meaning, forgetting that life is full of noise and death alone is silent: work noise, noise of man, and noise of beast. Noise bought, sold, or prohibited. Nothing essential happens in the absence of noise" (1985, 3). For Attali we are

intrinsically knee deep in, drowned in, and composed within the noises we create, the faeces we produce, the dead we become. We are covered in and embraced within our own decay, our excess, and our wilderness, which was certainly true at Mt. Carmel where "published reports and survivor testimony indicated that the Mt. Carmel facility lacked indoor plumbing", and that "Branch Davidians were required to haul buckets of human waste out of the residential area and to dump them elsewhere on the premises" (Ellison and Bartkowski, 1995: 113). This state of excessive decay at Waco, redolent within the landscape, the body, and the soundscape was imagined by the Davidians to be the introduction of the apocalypse, when infact it would have been more accurate to describe it as the composition of an *audiotopia*.

In the West we understand and measure civilisation by its capacity to engineer and maintain systems that constantly deliver that which we consider to be excess, waste, or dead, away from our everyday living situations. Such sites echo Foucault's theoretical constructions of the cemetery, which he refers to as a heterotopia – a site mirroring other spaces but removed from the heart of the city, so that the "cult of the dead" (Foucault, 1967: 233) and the reality of decay can be excluded from our cultural experience and lexicon. The refuse tip and sewage system likewise serve to deliver the obsolete, the redundant, and the excessive away from the spaces of civilisation. All that is waste - that which causes stasis and is considered a burden on the flow of capitalist bodies, information, and life - is driven out by elaborate structures of castigation. Delivered out to the edges of civilisation, encompassing the wastelands, and in excess of mainstream values, the Mt. Carmel ranch was replete with all the signifying traits of a heterotopia. It is precisely because the standoff primarily develops in, and is dependent on, the soundscape, that the term audiotopia becomes a more effective way of analysing and

describing the complex set of spatial, political, and socio-sonic relations that evolved during the siege.

As with Foucault's heterotopia, the audiotopia echoes (or occularly mirrors for Foucault) other sites in the city. When the FBI forced the Davidians to listen to noises from the dentists surgery, religious music from the church, and pop music from the nightclub, an apparently random set of domestic, scientific, and social spatialities were brought to bare on the wilderness of the compound. Mt. Carmel became analogous to the sonic dump frequented by Ballard's *Sound Sweep* into which noise and audible refuse is tipped after it has been collected from a long day's reverberation in the city and the suburbs. Accordingly, the "occult performance of the state of siege" (Virilio, 1977: 36) constructed an audiotopic spatiality; a conflictual and ambiguous sonic space on the edge of civilisation where symphonies of conflict were (out)cast, fired, and tempered by duelling protagonists who understood each other to represent the *living* (but soon to be) *dead*.

Loudhailers for the Living Dead

Sonically invoking the living dead in order to terrorise an adversary was not a new strategy for the U.S. Government to be employing. During the Vietnam War they had composed a ghostly sonic strategy named the 'Wandering Soul' (see glossary). Blasting frequencies ranging from 500 – 5000 Hz at an amplitude of 120dB from a helicopter mounted speaker system named the 'People Repeller' or the 'Curdler', the U.S. military amplified mournful ghostly voices during the dark hours of the war torn nights. This was not the technique of the quick kill, rather it was a technique requiring longevity as it slowly diminished resistance by infiltrating every psychological pore of the enemies willpower to

resist. As Virilio states (1977: 63), the purpose for employing such techniques is that they are not:

> driven to desperate combat, but to provoke a prolonged desperation in the enemy, to inflict permanent moral and material sufferings that diminish him and *melt him away:* this is the role of indirect strategy, which can make a population give up in despair without recourse to bloodshed. As the old saying goes, "Fear is the cruellest of assassins: it never kills, but keeps you from living".

The location of the speakers in Vietnam - on the sides of helicopters - differs greatly from the surround sound placement of speakers applied to the conflict at Waco. The more random transient nature of the amplified wailing sounds in Vietnam reiterated the idea of 'the restless' being trapped in an environment unsuitable to its non-corporeal status. Rather than scoring the sonic boundaries between states of wilderness and domination as at Waco, in Vietnam the stakes were raised both mortally and metaphorically. Whilst it is accurate to say that "when sound power is sufficient to create a large acoustic profile, we may speak of it, too, as imperialistic. For instance, a man with a loudspeaker is more imperialistic than one without because he can dominate more acoustic space" (Schafer, 1993: 77), it does not fully elucidate the impact of the content. In Vietnam, from on high, the sonic demarcation enacted was more of an audio erasure of the boundary between the living and the dead, rendering the absent as distressingly present. The proposed psychology of this tactic suggested slippage and existential echo. The sonic portals of disquietude at being mortally out of body, place, and time eliciting conceptions of the 'night of the living' and the 'day of the dead' to invert and co-exist in the same location. For the Viet Cong, the airborne sonic virus that was 'Wandering Soul' propagated anxiety and

restlessness as it made communicable the oscillating channel of purgatory. Quite literally, it was the sound of 'hell on earth'.

Linking up Vietnam and Texas through the patch bay of history, the concept of the waveformed virus delivers us back to the Davidian compound, allowing us to further ruminate upon the malevolent amplitude of the spoken word within conflict. In Vietnam, PsyOp employed the spoken word as a residual frequency of the living dead, whilst in Waco the voice played a more cryptic role as it was channelled through loudhailers, speakers, phones, and radio stations to infect its target audiences. As Koresh desperately tried to transmit to the FBI, the media, and the wider public, his interpretation of the Seven Seals, the FBI were synchronously attempting to implant doubt and scepticism into his followers. For Madsen (2009: 95):

> There is perhaps also something of William Burroughs' conception of the parasitic 'viral' voice in the authorities' recordings and verbal hailings via loudspeaker and telephone. I certainly reference this in my usage of the word 'possessed'. For Burroughs a concrete 'demon word' – literally and materially proliferating, invading and controlling bodies of all kinds via media – could constitute a very direct, although concealed, form of warfare. In his oral story-telling, Burroughs spoke of such sonic weaponry, imagining a new weapon of 'sympathetic vibration' in The Job – which 'magnified sound frequencies' to shift 'the battlefield to the internal arena of the body itself' (Lydenberg 1992: 416, 417). Is it possible that something like Burroughs' viral demon-like voices and parasitic words were in operation in this sonic assault?

Continuing this line of thought about the power of the viral voice to instigate a throwing down of arms, Madsen picks up on the unsound proclivity of ventriloquism and the throwing of voices to further her notion of the heard and the unheard. These camouflaged acoustic anchors cast in the drowning sounds of Waco were for her "noisy ghostly emissions… voices able to attach themselves parasitically to other bodies and organs, summoning, possessing, calling out through the voice of another" (2009, 92). Whilst suggestive of the charnel house that the compound was to become, this explanation of the Mt. Carmel soundscape alludes both to Vietnam's sonic purgatory and also reverberates with Ballard's description of the sound dump as "a place of strange echoes and festering silences, overhung by a gloomy miasma of a million compacted sounds, it remained remote and haunted, the graveyard of countless private babels" (1960: 61). The voice as intrinsic conductor between antenna bodies; signalling new movements, forging new connections, and repelling others, speaks loudly to us about the potential of the orator to mobilise the oscillating communication network from any point with exponential impact. However, when intensified over a long period (as was the case at Mt. Carmel), the voice becomes overburdened and damaged by distrust and overextension, evoking the hushed evolution of the ghostly in the form of the whisper; and as we know from Waco and beyond, word travels fast – especially if it concerns the alienated - when programmed with paranoia and spread by fear.

CHAPTER 3

The Inverted Eschatology of Black Ecstasy:

When Music Becomes Painful in Guantánamo Bay

Section 1: *The State's Capacity to Render Sonic Intensity*

Chapter three concerns the state sanctioned sonic torture techniques utilised on persons illegally captured and sequestered within the Guantánamo Bay detainment camp (see glossary) in Cuba, which since 2002 has been operated by the Joint Task Force of the United States Government. More particularly this chapter considers the waveformed dynamics of violence that have existed in the isolation/torture cells and the physiological, spatial, and psychological status of those persons tortured within them. As chapter two extended the theoretical trajectory of examples in which the military-industrial/entertainment complexes had isolated numerically smaller groups in progressively confined architectural circumstances - from the factory and its work force, to the compound and its extended family - chapter three marks the ideological end of this trajectory. Categorically disproving Foucault's maxim that "we are now far away from the country of tortures" (1975: 307), this chapter contemplates the situation of the isolated detainee who is sonically cemented and tortured within a cellular architecture.

In chapter one, the interwoven sonic and architectural techniques employed to influence industrial workers in the 1920s are psychologically, spatially, and physiologically intensified in the focus of chapter two - Waco - so that they might manipulate the activities of a trapped and 'compounded' sect. In chapter three these levels of intensification are pushed up again, meaning that we are investigating the ways in which sound functions as a tool with which the state persecutes targeted individuals. Guantánamo Bay has thus come to symbolise the political, material, and cerebral conclusion of an acoustically constructed terminal in which the architectural form of the cell cannot be reduced any further in size; the levels of intensely repetitive sonic violence cannot be pushed up any further, and the single detainee tortured in his isolated cell cannot be further alienated in

terms of legal, psychological, physical, spatial, or socio-cultural dictates. In this sense the torture cell represents the dénouement of this waveformed trajectory of techniques; a set of practices that can be more clearly defined as the state's capacity to render *sonic intensity*.

The practicing of torture techniques culminated in abnormally high levels of self-harm and suicide being recorded, as many detainees attempted to escape their 6.5ft x 8ft cells via the only route left open to them – that of death by their own hand. Examples of such self-inflicted violence came from reports made by Amnesty in 2003 when they disclosed that 350 separate incidents of self-harm had occurred, whilst in 2005, 110 incidents of self-harm/suicide were recorded and released in the *Guantánamo Fact Sheet*. In 2006, upon three detainees being found dead, camp commander Rear Admiral Harry Harris issued a bewildering statement, declaring that these collective deaths were not to be conceived of as an act of despair at conditions in the camps, but should instead be understood as "an act of asymmetric warfare waged against us" (BBC MMX, 2006). As a consequence of mounting national and international pressure, on December 15th, 2009, Barack Obama issued a Presidential Memorandum named the *Closure of Detention Facilities at the Guantánamo Bay Naval Base*, in which he outlined the Thomson Correctional Center in Illinois be readied for the transfer of the detainees still being held. Since it opened the Guantánamo detention camp has received 775 detainees, of which only three were formally charged with offences. According to a Times online report by Tim Reid (2009), whilst the majority of detainees have been 'moved', as of April 2010 there are still 180 left at the facility awaiting transfer.

Whilst there are numerous torture techniques and acts of inhumane cruelty to be taken into account when analysing the full-spectrum-spread of Guantánamo's organised

violence, we shall be focusing on "the use of this kind of audio-technique (that) is rather new in interrogation", (BBC MMX, 2003) according to vice president of the PsyOp Veterans Association, Rick Hoffman. The use of music as torture appears to have been widespread throughout all the camps within Guantánamo, the reports from ex-detainee's beings numerous and detailed. "Shafiq Rasul, one of the 'Tipton Three' – British Muslims detained in Guantánamo for over two years after being captured by the Northern Alliance in Afghanistan – tells of being short-shackled to the floor in a dark cell while Eminem's 'Kim' and pounding heavy metal played incessantly for hours, augmented by strobe lights" (Hultkrans, 2008). It is during Michael Winterbottom & Mat Whitecross's 2006 documentary drama *Road to Guantánamo* that re-enacted scenes of this recently developed sonic technique firmly entered public consciousness, amplifying the searing acoustic brutality of sensory overload into our collective imaginations.

In a Spiegel online interview with Rasul's detained friend Ruhal Ahmed, German writer Tobias Rapp (2010) leaves us in no doubt as to the serious psychological threat of this sonic practice that has become mediated as 'torture lite' (see glossary):

> You can't concentrate on anything. Before that, when I was beaten, I could use my imagination to forget the pain. But the music makes you completely disoriented. It takes over your brain. You lose control and start to hallucinate. You're pushed to a threshold, and you realize that insanity is lurking on the other side. And once you cross that line, there's no going back. I saw that threshold several times.

Whilst Ahmed goes on to iterate how he was short-shackled for days at a time and "left to urinate or defecate in his pants" (Rapp, 2010), in ice-cold rooms of sonic torment, it is his account of the volte-faced eschatological capacity of music to psychologically transport

one from their perceived situation that proves most revealing. "When you go to a concert or a club, you're looking for loud music and flashing lights. You want to be transported into ecstasy. We experienced exactly the same thing, except that it was turned on its head," says Ahmed. "You could call it black ecstasy" (Rapp, 2010).

Whereas Rapp's article (along with campaigns such as Zero dB (see glossary)) relates to circumstances in which the employment of popular music by artists such as Eminem and Metallica reveals the states choice of mainstream apparatus by which to apply force, Jon Ronson's interview with Jamal Udeen Al-Harith (another Briton held in extrajudicial detention as a suspected terrorist, and whilst never charged he was tortured, hence his involvement in the 'Rasul v. Rumsfeld' case (see glossary)) reveals a different aesthetic approach to sonic torture altogether. In conversation with Al-Harith about the types of music used to disorient and disturb him in Guantánamo, Jon Ronson (2004) cannot hide his surprise at learning that guards played atonal soundscapes that had no beats or rhythms; aural collages consisting of noise, industrial sounds, electric piano and synthesiser lines. Such descriptions suggest that we could loosely categorise such music as experimental electronic composition. Whilst we have become used to reading reports of current popular music genres such as Country, Heavy Metal, and Rap being employed by the military for their torture sessions, the revelation that sonic compositions plausibly equitable with 'Avant-Garde' cultural production is as bizarre as it is telling. Or is it?

Whilst musical genres such as Country and Rap enjoy huge market share and attention in the USA, they also have traditional structures at their core, which have long historical lineages and often share musical structures, narrative interests, and socio-political affiliations to musical genres from other countries. Thus for the Country genre we could think about the relations it shares with traditional storytelling songs such as European Sea

Shanties from the nineteenth-century, or Mariachi music from Mexico. Meanwhile, for the Rap genre we can think back to its West African traditional oratory roots in the songs and poems played by musicians known as 'Griots'; or laterally conceive of the associations and relations of resistance it holds as an art form with the Afro-Brazilian form of music, martial arts, and dance known as Capoeira, to realise that the lineages of these genres of music have long lasting and easily identifiable connections to global forms of musical organisation and politicisation.

Whilst Country and Rap are identifiable as American mainstream genres, Avant-Garde music can be plausibly considered as being more deeply entrenched in Occidental value systems than either of them. By employing Avant-Garde music to make coercive statements about its cultural, social, and martial ascendancy, the U.S. military-entertainment complex has resonantly performed its own sono-cultural coup d'état. For that which speaks most intimately about a culture and its particular distinguishing characteristics; those phenomena that set one culture apart from another (and thus serve to construct identity formation) are not the mainstream ones. Surely they are not those genres or movements of people, ideas, or practices that generate the amorphous and ambiguous models of globalised culture that speak about everywhere and tell us everything about nowhere. Attali constructs a similar argument when he concludes that, "mass music is thus a powerful factor in consumer integration, interclass levelling, cultural homogenization. It becomes a factor in centralization, cultural normalization, and the disappearance of distinctive cultures" (1985, 111).

Instead of thinking about mainstream and global cultures, we would do better to think about the grassroots activities, the micro movements, the modulations of DIY culture, the esoteric collectives, and locally occurring rhythms of dissent and play as being more

accurate and meaningful purveyors of that which constitutes a nation's identity. Musically speaking, it is just such newly emerging, experimental, and radical sonic gestures that better articulate site-specific locality, psychological associations, and socio-cultural relations. As a genre, we could say that the Avant-Garde is therefore idiosyncratically more definable as Western and by extension, American, than any of the other genres we generally think of as being sonically symbolic of the USA. Through such logic, Avant-Garde productions can be posited as the most effective signifiers of specific cultural identity, a proposition that the military-entertainment complex is evidently beginning to explore.

Eschewing the need for pre-recorded music of any specific genre by which to inflict damage upon detainees, British soldier Donald Payne orchestrated his own perfidious form of *Musique Concrète* (for which he was jailed) by conducting "what he called 'the choir', striking the prisoners in sequence, their groans or shrieks making up the 'music'" (Johnson and Cloonan, 2009: 157). As we have heard, the sonic dynamics of Guantánamo are extremely wide-ranging with radically different genres of music production represented - from Heavy Metal, Country, and Rap to Avant-Garde, Electronic, and Musique Concrète. One genre not discussed yet but which has figured heavily in academic analysis of U.S. torture practices in Iraq by American musicologist Suzanne Cusick and professor/author Moustafa Bayoumi, is that of Disco. In an article entitled *Disco Inferno,* Bayoumi provides examples of torture rooms in Mosul where detained "Haitham al-Mallah described being hooded, handcuffed and delivered to a location where soldiers boomed "extremely loud (and dirty) music" at him. Mallah confirmed that the site was "an unknown place which they call 'the disco'" (Bayoumi, 2005). In conclusion to his findings, Bayoumi insightfully surmises, "Torture threatens to decivilize us today not only

because its practices are being normalized within our national imagination but also because civil society is being enlisted to rationalize its demands" (2005).

This notion of dirty music and Disco, or rather Disco being *dirty music* (to be more precise) is not a new narrative in the West. As noted by Richard Dyer (1979), the genre of Disco has commonly been associated with its roots -1970s clubs that had a clientele consisting mainly of African American and homosexual communities whom supposedly practiced sexually deviant behaviours and embraced excessively hedonistic lifestyles (which often included the intake of drugs). Suzanne Cusick further examines the utilisation of music that has been labelled 'queer' or 'effeminate' by supporters of overtly masculine heterosexual culture. She proposes that such types of music are employed as a weapon because of their perceived commitment and association to excess and deviancy, which are in turn understood to be transmittable qualities that can infect the religiously pure body of the detained male Muslim. Whilst examining an Internet blogger's response to the notion of music as torture, Cusick touches upon this cultural paranoia about dirty types of music that are understood to soil 'clean' Occidental value systems. She comments that a number of the bloggers "use the idea of music as torture to displace onto Muslim detainees a rage rooted in their own fear that they are immersed in a culture that has become, in their words, 'nancy', 'pansy', and 'pussy'" (2006). For Cusick, musical genres such as Disco are being harnessed onto, around, and into the incarcerated bodies of Guantánamo, to disturb, contort, and distress them via sexual connotation and transferral; the heuristic nature of the cell's acoustic organisation (the disco music) taken for granted and its efficacy internally ratified precisely because it represents to the U.S. military officer, a strong sonic currency of carnal hostility. A safe bet in the conflict bound economies indebted to the violation and transgression of masculinity.

Endowed with an unheralded capacity to culturally offend en masse, Disco inadvertently gave rise to genre based musical warfare within popular culture in the 1970s - around the same time that sonic torture started to be utilised against prisoners in numerous countries. Torture expert Darius Rejali, informs us that in Rio in 1976, rather than using dirty music they locked prisoners such as José Camolez in small-soundproofed cells measuring 2 metres by 2 metres called *geladeiras*. They had speakers attached to the ceiling through which the guards used to "call him dirty names" (2007: 365). Upon the voices becoming silent they "were replaced by electronic noises so loud and so intense he could no longer hear his own voice" (2007: 365). Rejali (2007: 365) goes on to relate how the sound stopped and the walls of the room were battered:

> with great intensity for a long time with something like a hammer… Others mention that the *geladeira* was "very cold," had a "very strong light," and produced varying sounds from "the noise of an airplane turbine to a strident factory siren… An official DOPS record from the period states that the *geladeira's* objective was the "destructuring" of the captive's personality.

The all too familiar tone of this historical report sounds as though it could be the sensory deprivation/overload blueprint that founded the constructions of abuse occurring in Guantánamo Bay, but it is not. For this egregious soundmark to be traced back to its inception requires that we listen to accounts of the British Forces actions in Northern Ireland from the early 1970s; for it is there that we hear of the first pan-sensory approach to forcing the body, the legal system (via the third and fourth Geneva Conventions (see

glossary)), and the mind into submissive and irrational relations with its captors via the 'five techniques' (see glossary).

Echoing sonic techniques employed by military units in Guantánamo, Croatia, and Northern Ireland, programs of waveformed punishment have been filtering back into the global civilian fold over the past decade, amplifying once again the overt mix (development), compression (intensity), and mastering (control) of acoustic technologies and strategies between martial and civic contexts. In 2004, upon sentencing, a judge in Florida gave an ultimatum to the driver of a car who had been blasting Rap music from his car at 5am - either pay a fine of $500 or listen to two and half hours of opera music in the form of Verdi's *La Traviata*. The judges 'moral' lesson being one of "you impose your music on me, I'm going to impose my music on you" (Johnson and Cloonan, 2009: 176). This is not a loan case as documented by Matthew Staver (2009) who reports that Municipal Judge Paul Sacco from Colorado has been conducting his own symphony of sonic justice called 'music immersion' which works along similar lines. By effectively collapsing the acoustic walls between the military torture cell and the civilian courtroom, our culture expresses its desire and capacity to cross modulate between realms, the rationalisation, acceptance, and propagation of punishment techniques through institutionalised fear. If this is the case then it is only through deciphering levels of cultural compression (see glossary) that the nature of the enemy can be defined; the ever-flickering meters of intensity being the requisite techno-judicial apparatus measuring how much contextual distortion a system can take.

Within occidental civilian networks of waveformed relations, these systems of sonic targeting appear to clearly operate with high levels of legalised distortion and via capriciously self-legitimatised routings of feedback. As the faders of ambient social

violence are ineluctably pushed up, they incrementally amplify our willingness to accept that anyone and everyone can become an admissible target. If we study the wave of reports produced by academics and journalists, of instances in which sound has been used as a weapon in some capacity, we are able to demonstrably render a curve of social penetration that arcs (and consequently connects) the torture rooms of Guantánamo Bay to the teaching rooms in English schools. If upon first reading this appears to be farfetched, then consider the following examples of ways in which music has been utilised as a form of cultural artillery on groups of people who represent a sliding scale of threat - from those manifestly labelled as being external guilty enemies to those constituted as innocent domestic responsibilities.

We will begin this acoustic survey by marking the extreme end of the curve with a note from Moustafa Bayoumi which allows us to better understand how the initial penetration of sonic torture techniques from detainment camps transfer effortlessly into the civilian milieu via the organisational vehicles of bathos and humour. He states that music as a form of "torture lite slides right into mainstream American acceptance. It's a frat-house prank taken one baby-step further--as essentially harmless, and American, as an apple pie in the face" (2005). Bayoumi suggests here that the way in which the transferral of punishment-based *modus operandi* is negotiated - from the theatre of operation to the movie theatre - is essential to its chances of being able to infiltrate all levels of the social spectrum. When compliant accomplices such as Steve Benton (bass player from nu metal group Drowning Pool), assist in easing the acoustic cargo through the martial - social border with his easy listening statements, blithely informing us that he "can't imagine it's that bad... Listening to loud music for a few hours -- kids in the US pay money for that" (Rapp, 2010) the martial exporters could not be happier. For there is no more effective method of camouflaging the violent and insidious nature of a technique that is being

imported into new circumstances, than by wrapping it up in humour and light-hearted commentary; a dynamic that suits and works well for both the entertainment and military industries as they co-legitimate their presence in each others spatial, psychological, and economic territories.

After the transposition has been legitimised by mediated figures such as Benton or Bill O'Reilly (host of Fox News in the USA), who "claimed that if blaring music at someone is torture, the phrase has become meaningless and that to take such a view was 'just nuts'" (Johnson and Cloonan, 2009: 191), the sonic techniques have been prepared for civilian use. The uses of music as punishment in the judicial structuring of censure against those who violate the laws of the social system become especially relevant here. The next point on the curve represents the use of music against those deemed to be undesirable and outside of the mainstream such as the homeless and drug addicts - "Authorities at the main railway station in Hamburg have used piped-in classical music to drive away junkies from the plaza in front of the station" (Rapp, 2010); "Authorities in Copenhagen used Bach to drive drug addicts away from the city's main railway station" (Johnson and Cloonan, 2009: 184); "Stoke-On-Trent Council played Beethoven's Ninth Symphony continuously in car parks to deter rough sleepers. St, James Church in Carlisle used music by Bach and Handel to deter drinkers who had been gathering on its steps and vandalizing church property" (Johnson and Cloonan, 2009: 183-184). We can hear where this curve of thought is leading us but we still have a number of points to plot yet before we can declare that sonic techniques of manipulation and torture (lite) have become culturally normalised in the occident.

As documented by Dick Hebdige (1979), after the Second World War, working class youth from England and America started forming sub-cultures based around musical affiliations

and purposefully marginalised themselves from mainstream culture in the process. Ever since the formation of the first 'Teddy boy' gangs in London in the 1950s, the youth of the United Kingdom have been under suspicion and considered a threat to 'civilised' society. Befitting of such cultural paranoia about the loss of control over younger generations - particularly those that can be associated with musical affiliations decreed to be violent and anti-social - comes the next point of the curve: a report emanating from "Holywood (Northern Ireland), (where) local businesspeople encouraged the council to pipe classical music as a way of getting rid of youngsters who were spitting in the street and doing graffiti" (O'Niell, 2010). This is followed by a statement from Brenday O'Niell (2010), which almost apologetically reveals the entrenched neurotic tendencies held by many towards those whose only offence it seems, is to be young and therefore deserving of sonic harassment:

> Tyne and Wear in the north of England was one of the first parts of the UK to weaponize classical music. In the early 2000s, the local railway company decided to do something about the "problem" of "youths hanging around" its train stations. The young people were "not getting up to criminal activities," admitted Tyne and Wear Metro, but they were "swearing, smoking at stations and harassing passengers". So the railway company unleashed "blasts of Mozart and Vivaldi".

We come now to the teleological destination of this arc of acoustic violence that traces out the transgression of sonic warfare techniques from externalised military contexts to everyday urban reality. It is O'Niell (2010) once again who reveals the final example. He writes:

> In January it was revealed that West Park School, in Derby in the midlands of

England, was "subjecting" (its words) badly behaved children to Mozart and others. In "special detentions," the children are forced to endure two hours of classical music both as a relaxant (the headmaster claims it calms them down) and as a deterrent against future bad behaviour.

O'Neill points out that whilst the details of this report may not shock us, its final line resonates too closely with Stanley Kubrick's predictions made in *A Clockwork Orange* (see glossary) - of sensory overload and sonic entrainment as legitimised forms of scientific-cultural discipline – for us to feel as relaxed as the children apparently feel after a 'special detention'.

But then, maybe that production of fear or urban dread as Goodman (2009) calls it, about ensuing techniques of state power is the raison d'être of a military entertainment complex that aims to encompass us all in its paranoid, intimate embrace of pure war. For Virilio (1997) this is an omnipotent ecology that fosters constant neurosis and preparation. It works to immutably mesh together the civilian and martial matrix of cultural, economic, social, spatial, and technological networks so that they become evermore entangled, symbiotic, and indefinable from each others interests, ultimately creating a situation whereby "... it is impossible to tell where the civilian sector begins and where the military ends" (De Landa, 1991: 228). Within this collapsed logic of difference, new nebulous and malleable spatialities such as Guantánamo Bay are creased open, but the indigenous legal and ethical modalities that previously helped define occidental social systems are topologically paralyzed. Purposefully crippled they are coerced into a dysfunctional stasis meaning that "the Guantánamo detainees are located in the space "between the two deaths," occupying the position of *Homo sacer,* legally dead (deprived of an official legal status) while biologically still alive..." (Zizek, 2006: 371).

Dancing to the Tunes of the Military-Entertainment Complex

As the naming of the 'military-entertainment complex' suggests, being between easily definable statuses is where its power to démarche resides; the spatialities, psychologies, and rhythms of leisure and conflict having become integrated and harmonised find their consummate expression of oscillating versatility in the soundscape. The previously verticalised divisions - the walls of sound - that used to separate the cultural from the martial, the city from the battlefield, the song from the torture weapon have been erased over time, rendering a *tabula rasa* of violence that has flattened the world back out into resonant latitudes of conflict. In this scenario it is not difficult to connect the paranoia which fuels the persecution of hoodied youths (see glossary) in the UK with the black hooded Muslims in Guantánamo Bay, even if the levels of sonic intensity used on the two groups are very different. Taking this form of connective analysis a step further, these two groups can also be associated through their increasing representation in films, video games, and music. This brings us to a new investigative trajectory – the entertainment industries persistent hunger for new violent subject matter that can be converted into digitally audible and visual formats – MP3's (MPEG-1 Audio Layer 3), AVI's (Audio Video Interleave), and CGI's (Computer-Generated Imagery), and sold for public consumption under the rubric of 'real life' (see glossary).

In the realms of the military-entertainment complex we can conceive of a mutually beneficial relationship occurring in which the two industries exchange and co-develop technologies and maybe more importantly, produce content to play through them. If this is the case then we must ask questions such as, does war need music as much as music needs war? This is a rhetorical question, but it is one that sets the tone when enquiring whether violence (through its capacity to become entertainment) has become a dominant

form of Western currency that is unremittingly exchangeable. In Guantánamo Bay the music used to torture detainees, to prepare area's for conflict, and to boost soldiers levels of aggression is invariably from the Metal or Rap genres which have strong affiliations with masculine narratives of alienation, violence, and retribution. That mediated representational violence in the form of music is necessary to breed more *real violence* on the ground, appears to support the notion that it is an implicit cognitive mechanism in the twenty-first century engineering of conflict and brutality. As Goodman notes, "When the most banal popular music is simultaneously mobilised as a weapon of torture, it is clear that sonic culture has reached a strange conjuncture within its deepening immersion into the environments of the military-entertainment complex" (2009: 190).

As the ambient tides of urban violence rise, so the mediatised representations of current conflicts intensify the sonic and graphic calibre of their echoes and reflections. As we become evermore immune to representational violence it subsequently takes more elaborate and extreme forms of mediated brutality, disorder, and cruelty to move us to press the 'add to shopping cart' button. The military-entertainment industries know this only too well and excel in developing and upgrading 1). Martial technologies that can cause novel and escalating forms of damage and pain. 2). Leisure technologies that can capture, augment, and digitally reconstruct these intensifying stratums of violence. 3). Economically viable distribution networks that form feedback loops between the technologies that cause, mediate, and represent violence, and those persons who operate either. One could go as far to say that whilst it has been suggested that the Iraq conflict was a war over the control of oil production, it could also be argued that it was a conflict born from the craving for new sonically and graphically violent content for the entertainment industries that sell us our music, films, and video games.

The proceeding assertion might appear contentious upon first reading until one starts thinking about the total grossing figures of the films (alone) that are based on the Iraqi war. A brief look at the online site Wikipedia informs us that there are currently 52 Iraq war documentaries and 30 Iraq War films listed and counting, with the 2010 Oscar winning phenomenon *The Hurt Locker* being the most obvious economically successful example. In relation to the music industry, there is a burgeoning musical production culture that has developed from soldiers writing, recording, and mastering their own albums whilst in Iraq or after a tour of duty. The lyrics are predictably graphic and according to quotes from the 'somethingawful' website, are purported to bring "the reality of life on the streets of Baghdad" to those who listen. With monikers and album titles such as Crimzon Zone - *Iraqi Gothic*, Gorriors of Ragnarok - *Rape Guts*, Peaches and Kim – *Escape,* and the imaginatively named 4th25's album *Live From Iraq*, there is no shortage of grassroots productions hidden unexposed beneath the surfeit of commercially released mainstream records commenting on the Iraqi war. Finally, in referencing computer games we can visit popular online gaming sites such as 'Kuma\War' with its headline banner 'Real War News, Real War Games', boasting "90+ Online War Games based on Reality". All of the above industries possess a massive array of productions alluding to the war in Iraq; the examples remarked upon merely serve as locating devices to help map the ubiquitous presence and profitability of violence in the conflicted topography of our martially entertained culture.

Upon further consideration of the gaming industry, ever since their inception back in 1812, (con sims), when the first rules were made for 'Kriegsspiel' (see glossary), war games have synchronously played important roles in our political and entertainment cultures and yet somehow the reality-based and interactive nature of such games seems more relevant now than ever. For the gaming industry, along with the music and film industries, only war

provides us with this constant feed (back) of horror, vengeance, and shock that will satiate a public with a voracious appetite for witnessing increasingly 'real' violence. The fact that soundtracks from the computer games - based on the conflict in Iraq - end up being utilised in torture cells in more intense and repetitious ways is no longer shocking to us nor is its obsidian irony particularly commented upon. This is not a case of simulation as much as it is a case of 'reciprocation', which means quite literally a motion that repeats over and over again, a phenomenon that can be mathematically approximated to simple harmonic motion. It is the martial desire to create disequilibrium, to displace the simple harmonic oscillation of the body and unbalance it that completes the feedback loop, from the shooting screaming (C)GI to the rhythmical mutiny of detainee's in the Guantánamo torture cells, and it is the movement, of, and into, the body, that we shall next consider.

Break it Up, Break it Up, Break it Up, Break Down

In attempting to oscillate and break the body and mind of the detainee, music is the most effective technique employed that falls under the insidious rubric of 'no touch torture' (see glossary). Analysing the relations of power within the use of sonic weapons Cusick asks "what better medium than music to bring into being (as a felicitous performative) the experience of the West's (the infidel's) ubiquitous, irresistible Power?" (2006: 8) Conducting research along similar lines to Cusick, Ramona Naddaff intones that, "music torture impels a rethinking of how musical listeners experience being touched by sounds that harm their inner senses and maim identity formation" (2009). Such a re-consideration would entail investigating the relationship of haptic spatiality with the socially constructed body and the waveforms that connect, modulate, and separate them. In Guantánamo, conducting this thirded analytical principle to its logical conclusion leads us to an

archetypal presence that is innately connected to itself and the other through the politics of oscillation; in its capacity to connect, to have impact, and to be impacted upon, the "body is rendered as multi fx-unit, as transducer of vibration as opposed to a detached listening subject isolated from its sonic objects" (Goodman, 2009: 46).

The sheer mass of sonic weight pressuring the body in Guantánamo is generated in order to conduct and possess the culturally compressed anatomy of the other. The alterity and solipsistic spatiality of the torture cell reverberating with echoes of the self, the 'enemy', and the architecture; the divisions between them collapsed by the ensuing waveforms that constitute sonic dominance. For Henriques "Sonic dominance is visceral, stuff and guts. Sound at this level cannot but touch you and connect you to your body" (2003: 452). Skin, hair, nails, sinews, and muscle, all pitch, ripple, and swell as the soundwaves pound upon, into, and through them, the 160dB (see glossary) vibrations being received via "bone conduction as well as through the acoustical properties of the air..." (Ihde, 2003: 66); and it is within this coercive ocean of sound that we find the antenna body, channelling all waveforms, even those that it is supposed to drown in.

Even in such submissive circumstances, where the dynamics of overloading the organs of perception predominate, the antenna body still transmits, albeit through noisy channels of interference; it tells us about the pain implicit within repetition and of the struggle for sentience within acoustic intensities; it reveals the "dark ecstasy" (Cusick, 2006: 8) that resides within the will to secure complete dominion and direction of waveforms in space; and it tells us that no matter how severe the techniques for silencing difference become, it will always communicate with us and reveal the structures, techniques, and strategies that try to hush it. With such evidence of its capacity to report back to us the intensities, dynamics, and constructions of military/civic power relations, the antenna body articulates

itself from the cell next to Henriques' 'sonic body'. In the cellular cacophony of Guantánamo there are scores of other types of waveformed bodies like these that require identification; patiently waiting for the opportunity to inform us of their pan and cross sensory characteristics, leading us to more nuanced conceptions of what it means physically, spatially, and psychologically for the somatic to bear intense sonic pressure.

As compelling as this narrative of intense relational sonic embodiment is, it also needs to be acknowledged that whilst the music in Guantánamo connects and transforms the body, the air, and the architecture of the cell, there is an inverse operation of 'waveformed disembodiment' being simultaneously carried out. (An example of the disembodying capacity of waveforms is evident in Alexander Bell's invention of the telephone - a technology, which he conceived would allow him to speak to his brothers when they passed away. Henriques' also notes, that "in his *Gramaphone, Film, Typewriter,* Frederick Kittler gives a fascinating account of how the first use for phonographic voice recording was to listen to the literally disembodied voices of the dead" (2003: 461)). Music in particular is especially effective at negotiating and performing this procedure because "…like touch, sound has this other opposite aspect that separates us from ourselves, each other and the world… Just as the tactile sense is pre-eminent in determining the organisms simultaneous connection with and separation from its environment the sonic sense plays a similar combining and separating role" (Henriques, 2003: 461). By understanding what this sonic operation of disembodiment entails exactly - what its routines and procedures are - we can better comprehend what it ultimately strives to achieve. As a consequence much will be revealed about those with acoustic remits to make manifest that which is named *hidden*, and of others who wish to transmute (the detainee's) silence into something knowable, recordable, and effable.

Commenting on the historically legalised nature of torture, Foucault surmises that its legitimisation as a practice resided in its capacity to render observable results, "because it revealed truth and showed the operation of power. It assured the articulation of the written on the oral, the secret on the public, the procedure of investigation on the operation of the confession; it made it possible to reproduce the crime on the visible body of the criminal..." (1975: 55). In Guantánamo, reproducing the crimes on the detainee's visible body is problematic not in the least because there are no proven crimes to metaphorically reciprocate the brutality with. The embodiment of the states desire to carve its abstracted logistical initials onto the anatomy of the detainee had to be inverted so that no traces would be left on that which could be observed. This new disembodied torture practice would require the means by which to invisibly score into the body rather than onto it, which is why music is so efficacious in such circumstances. Music does not leave marks because it is not interested in merely touching or representing its power on the somatic interface, it is instead committed to enveloping the anatomical surface, moving into and beyond it, questioning the rational of the perceivable and quantifiable. "In fact with sound it simply does not make sense to think of having an inside and an outside in the way that the visual sensory modality, with its preoccupation with surfaces, restricts us. Sound is both surface and depth at once" (Henriques, 2003: 459).

Excavation, Autopsy, and Exorcism of the Sonic Body

For all this analysis that deliberates upon the potential of waveforms to touch and transgress surfaces, the tone of the discourse impresses upon one, an inadequate depth when attempting to verbalise the concerns of a body that is simultaneously being sonically punctured and saturated. It is somehow a too polite and reserved diction when

endeavouring to explicate the sonic turbulence and tumult that is impacted and compressed upon, into, and through the hollowed figure in the torture cells. The linguistic timbre of the discourse thus needs fine-tuning so that it equivocates the pressure, rupture, and transgressive violence implicit within the body of the detainee. Rather than analysing how anatomies are touched we will intensify the lexical resonance to investigate how the body is breached, penetrated, and emptied. Ultimately this will reveal how the somatic is brutally operated upon by sound in order to locate discrete and fictionalised forms of knowledge allegedly concealed within it. To do this, we shall consider three disparate methods employed by divergent ontological and epistemological practices to search for hidden and esoteric phenomena - those techniques known as excavation, autopsy, and exorcism.

The first and possibly most abstract rationale for thinking about how the body is plotted, entered, and searched is that of excavation, yet it is useful when thinking about how the body is searched in relation to the organising spatiality of the architectural cell. In this situation the body exchanges place with the architectural walls of the cell as the material container that is understood to possibly contain secrets and useful information. Like a wall, the will is perceived to be something that can be reverse engineered and therefore broken. If it is correct so say, that "the process of embodiment can only take place through the sensory perceptions" (Henriques, 203: 466), then it is accurate to also say that when the organs that provide those sensory perceptions are over stimulated they become synonymous with entry points, (for the organs, as well as informing the self, can be made to betray it). It is through these junctures that sonic shafts are composed, and the disembodying processes of mining for information begins. This unearthing and tunnelling of the body exposes the state's urge to discover the essential articles of faith that speak of the 'unknowable' culture it is investigating; of exposing its organising principles and of

defining the (metaphorical) objects of desire, disgust, and sacrifice of that which it does not understand, in order to overcome its legacy.

As has been noted before, the Guantánamo detainees are already considered as being legally dead to those who confine them, so an acoustic autopsy of the living is the next logical step in such an irrationally mandated context. As the strobing lights flash down on the body, they highlight the pained reactions of the detainee as his anatomy and mind is torn into by repetitious sonic scores. Finding reasons for why the detainee has become (legally) dead is the motivation for such a procedure, for the detainee's have been sentenced of being guilty upon immediate capture, without legal or ethical recourse of any kind. The acoustic autopsy is both a naturally torturous and wilfully disturbing procedure and an unnaturally occurring phenomenon at the same time. The repetitious music is pumped into the cells, each song "listened to anesthetizes a part of the body" (Attali, 1985: 111) whilst the mind is numbed and emptied, sonic scalpels, slowly removing it neuron-by-neuron, note-by-note. Pain is an inevitable outcome when such a procedure is divulged upon the living, emptying the body of its contents so that the reasoning of death can be found; both the deaths he is presumed to have caused along with his own ensuing demise.

Torture and punishment routines are epitomised by their will to reveal knowledge considered beyond the physical and the social body. It is with this thought in mind that we shall consider the third technique for searching the body in the form of the aural exorcism. For centuries, knowledge labelled as being beyond both the collective and individuated corpus has changed according to the state's need to reveal or expose a hidden or threatening phenomena. In the case of the social body, the U.S. has a history of paranoia and neurosis concerning internally hidden threats. Such anxieties were made manifest

through the search for clandestine socialist sympathisers in the 1950s, for example, who were legally punished for their beliefs during the era of 'McCarthyism' (see glossary). In *Discipline and Punish,* Foucault (1975: 16) discusses a different type of existential search into and beyond the physical body of the individual, disclosing the judicial system's preoccupation with accessing the prisoner's essential and graspable seat of consciousness:

> If the penalty in its most severe forms no longer addresses itself to the body, on what does it lay hold? The answer of the theoreticians – those who, about 1760, opened up a new period that is not yet at and end – is simple, almost obvious. It seems to be contained in the question itself: since it is no longer the body, it must be the soul.

In Guantánamo, the rationale of sonic torture is not to connect with the prisoner's soul so that the state might try to train and realign its offending compulsions with the rhythms of its own value systems. Rather it is to expose what the state perceives to be the nexus of evil that resides within the very core of the detainee, which can only be communicated with by re-possessing the prisoner's bared-back articulation - the inner voice. In order to break the detainee and find this inner language of evil, it must be contacted and seduced from its quiescent interiority to speak and reveal its covert intentions. The interrogators who religiously carry out the torture have to believe that there is a fundamentally monstrous nature within these secured legally dead bodies; an unnatural power that manifests upon them the appearance of the living. By making such thoughts doxa, those who torture, not only rationalise their quest to reveal and speak to the source of the evil (the inner voice synonymous with the devil) they also legitimate their techniques employed to destroy the

will of this vital malevolence that they believe lurks within the orange suits of atrophied flesh, nerves, bone, and muscle.

In the torture cells there are no religious incantations being reiterated to aggravate and draw out the force of evil, for the speakers here are not priests, they are technologies of a different repetitious rhetoric – of music that has itself been accused of worshipping and summoning evil - Heavy Metal. In a darkly ironic turn, the occident has awoken and amplified the devil through music, and directed the resulting sonic terror at the detainee, bringing pressure to bear upon the resistors will to silence. As discussed earlier, the spectre of the devil has historically been conceived of as having particular affinity to waveforms. For example, "the early Christian church believed that pagan residues in music could be exploited by the Devil to produce depravity..." (Johnson and Cloonan, 2009: 32). Such a proposition suggesting that the darkly sketched form of the demon could only realise an embodied state - that could cause chaos, turmoil, and suffering - by coming into contact with alchemical frequencies. It is because music has such historically powerful associations with exposing and communing with the voice of the devil that the military harnesses it as an ancient language of somatic castigation. Believed to be possessed by the malignant 'evils' of Islamic fundamentalism, the demonised captives have rituals of sonic deliverance enacted upon them in order to break open their minds and bodies; military operations of acoustic exorcism that call upon the recorded musical violence of the underworld to infiltrate and cleanse the living dead bodies tied down in Guantánamo's Heavy Metal cells. The devil no longer has the best tunes; it has the state's tunes.

Section 2: *Approaching the Thresholds of Silence and Noise*

This section is concerned with the psychological effects, techniques, and spatialities produced through sonic frequencies in the forms of music and noise within the torture cells of Guantánamo Bay. We will be considering how the U.S. military employed repetitive musical amplification to induce a schizoid (see glossary) spatiality in the cells; a frequency-based vortex that replaces the stable constructs of architectural and mental rationality with intense repetitious rhythms aimed at creating a hallucinatory state in which the mind and body lose structural integrity. Exploring the creation of fear and pain through sonic force and investigating the relations of agency and networks of power will precede such analysis, enabling us to better comprehend how this schizo-spatiality is formatted. How the voice resonates and functions, in relation to establishing a sonic materiality and a psychologically passive subject is also important to this chapter, as is the act of listening - the forced kind and the subconscious kind. To begin the section, however, we will consider the deliquescent partitions between noise and music and ascertain, whether or not, silence has a place in the torture cell anymore.

So that we might ideologically comprehend where the cells of sonic violence emanated from, it is useful to consider how the soundscapes of judicial/military punishment and torture have radically changed over the past centuries. It is legitimate to propose that in the West, twenty-first century practices of sonic punishment have been made to diametrically oppose those of the eighteenth-century and nineteenth-century. In the latter epochs, delivery from sin - for the imprisoned captive - was conceived of as only being possible through redemption and atonement (both concepts being informed by Christian theology). These religious/state mandated psychological imperatives were subsequently instigated and enforced through rhythmically orchestrated periods of - what was

understood to be the most conducive waveformed context for such self-studying contemplation - silent reflection. Researching prisoners who were sent to solitary confinement as punishment for making noise in their cells in mid-nineteenth-century America, Mark Smith notes that "the control of inmates' minds and bodies via the 'silent system' was an important component of discipline in antebellum northern penitentiaries and on southern plantations (Thomas 1965)" (2003: 141).

Echoing this finding, Johnson and Cloonan state that "an account of the English prison system was published by reformer John Howard in 1777, and included a number of proposals for improving the institution: 'Solitude and silence are favourable to reflection, and may possibly lead to repentance'" (2009: 38). Arresting here, is the fact that whilst the technique of alienating prisoners from social, physical, and psychological relations continues to be practiced by the state (in the form of isolation chambers), the accompanying role of the soundscape has changed considerably. Whereas the psychological rationale of the eighteenth-century cell was constructed through the metaphysical reasoning of solitude coupled with silence, in Guantánamo the Heavy Metal cells are hapticly composed through shackled isolation and their (dis)order amplified by sonic force. The only quiet left in these contemporary offshore cells is that which is purposefully left between bouts of torture, conferring upon the detainee, time in which to foment feelings of fear and anxiety before the next session begins. Effectively it would seem that we have come full circle today, to a situation where a detainee's silence leads to incarcerated sonic confinement for days or weeks at a time.

The reasons for this shift in practices and this new orchestration of cubicled acoustic excess become more obvious when we consider them in comparison to the gestural logic proposed by English philanthropist and prison reformer John Howard. In eighteenth-

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century England "Howard's reflections herald a new phase in the philosophy of state incarceration, with silence becoming the signifier and the driver of civil obedience, and deference to the rule of law" (Johnson and Cloonan, 2009: 38). Since there is no international rule of law applicable or respected in the detainment camps of Guantánamo Bay, a new sonic logic of detention and torture has been fabricated by the U.S. military. This system has been constructed from a different set of dynamics altogether, whereby acoustic terror - resonant with chaos and disorder - becomes symbolic of and synonymous with, the states wilful neglect and disregard for internationally agreed upon treaties, protocols, and conventions. The intense sound of the cells thus represents the wider illegality of the detainment camp and its practices, which are as anarchic as they are excessive and as contingent as they are disturbing.

Implicit within the prison system of the eighteenth-century and nineteenth-century was the behavioural directive of "maintaining reflection by the rule of silence" (Foucault, 1975: 238), bringing us to our second reason as to why the torturous music of Guantánamo resounds with displaced rationality. In Guantánamo there is no state engagement with the concepts of expiation or redemption. As such, the soundtracks of torture that permeate the camps consist of musical genres – mainly Metal and Rap - that echo and narrate the behaviours of the guards. The reasons for abandoning silence and inverting acoustic techniques have an illicit logic to them; a viral rationale that shackles sonic doxa and forces it into positions that contort its once accepted sensibilities. Thus in considering the soundscapes of Guantánamo we would be somewhat foolish to think that, "because music represents the ultimate intoxication of life, it is carefully placed in a container of silence" (Schafer, 1993: 257). Instead we are obliged to speculate upon static containers of noise and their carefully placed speakers - sound systems that transmit ultimate sonic afflictions upon the psychology's of Guantanamo's 'living dead'.

When deliberating upon this intense sonic pressure, questions as to whether it should be named as noise or music inevitably arise. For arguments sake, if we can basically define music as constituting the organisation and ordering of sonic waveforms into cultural narratives, then we can claim that conversely "Noise takes sound *out of order. It's* chaos" (Henriques, 2003: 457). For detainees enduring sonic torture, the semantics of whether it is named noise or music is of little consequence when they are battling to retain the cognitive mechanisms that would render such a question meaningful to them in the first place. It is infact, more useful to think about what the military wish the sound to become perceived as. One thing is for certain; they do not want it to be comprehended as musical, for this would defeat the psychologically strategic purpose of transmitting it in the first place.

Played at unbearably loud levels the music distorts so that it loses track of its initial compositional structure through the displacing dynamics of overload. When this excessive waveformed velocity is materialised throughout the cell it places us in a trajectory, in which "sonic dominance takes us to the sound barrier – that is the edge of sound. Electronic amplification pushes the sonic to the limits. On one side is music, on the other noise. On one side is regulation, modulations and moderation, on the other is irregularity, unpredictability and excess" (Henriques, 2003: 457). Maintaining control, over how and where, sonic limits are positioned, and possessing the capacity to manipulate the transgression of them, is the key to harnessing waveforms as weapons. Without agency over the slippage of sound, it remains unmanageable. Helping conduct these rhythms of collapse, the repetitious nature of the torture is amplified in the hopes that the detainee will slowly begin to lose all semblances of perceptual structure as he tries to disengage from his sensory context. If such a loss of definition occurs and the mind only perceives chaos, then the military will have succeeded in turning music into noise. They will have

broken down those phenomena representing organisation and order, and replaced them with a reverberating system that perpetually echoes tones of disorientation.

This discourse that concerns itself with defining music from noise is as we can hear, a persistent one, and it is one that will never quieten, because the definitions are in a constant state of oscillation. As French musical semiotician Jean-Jacques Nattiez (1990: 48) tells us, "the border between music and noise is always culturally defined - which implies that, even within a single society, this border does not always pass through the same place; in short, there is rarely a consensus". The state use this malleability of meaning to their advantage when communicating with the media, because employing music as torture sounds less abusive and violent than employing 'noise'. We associate noise with the sonic by-products of industrial process; loud neighbours; physiological damage such as tinnitus, and with other acoustic phenomena that we dislike or detest. Thus the thresholds at which we come to culturally agree that music becomes noise or noise become music are virtually implausible divisions to pin down. As a concluding statement to this discussion, if we say that the meaning of sound is in constant oscillation between clear and distinct definitions and that a waveformed taxonomy is therefore ideologically dependent upon context, then we are able to say that, just as music can always become noise so noise can always become music.

Upon further investigation into notions of empowerment and of constructing space through sound we will find a number of thinkers who attempt to define the essential violence implicit within noise and the harnessing of it. We will start with Bull and Black who - whilst not naming noise directly - acknowledge the oscillating capacity of sound's meaning as it indefatigably operates between polar distinctions. They write that music "has both utopian and dystopian associations: It enables individuals to create intimate, manageable and

aestheticised spaces to inhabit but it can also become an unwanted and deafening roar threatening the body politic of the subject" (Bull and Back, 2003: 1). Attali makes further distinction of the latent violent potential of noise when he declares that, "In its biological reality, noise is a source of pain. Beyond a certain limit, it becomes an immaterial weapon of death" (1985: 27). Goodman subsequently develops Attali's notion of sonic disorder when he theorises the dissonant spatiality rendered in a post-noise condition as he declares, "noise, in fact, as it scrambles music's signal, destroys, for Attali, the coding regime, transforming the relationship between inside and outside and spawning a new musical order in the aftershock of its arrival" (2009: 51).

After their arrival in Guantánamo, the detainees are destined to exist within states of sonic chaos in the (United States) hopes that neurological noise (psychological disorder) will prevail. If this does occur then there are no new musical orders. Infact, there is no new music at all - just a continuing frisson of disconnected feedback to live through, a never ending series of aftershocks that constantly destroy the ordering capacity of the captives mind. It is Schafer who concurs with this assessment of the damaging potential imbued within the sonic when he comments that, "man has always tried to destroy his enemies with terrible noises" (1993: 28) and it is he again who concludes that noise's articulation of controlled violence is so dynamic and effective that it has been employed throughout recent history to strategically repress other cultures. By extension, Schafer is also implying, that by possessing the capacity to bring more intense levels of abstract sonic force to bear on another, waveforms function at abstract levels to psychologically empower. In its attempts to silence exacting comprehension and retaliation, abstraction acknowledges the calibre of the rational - in the form of language - to objectify and materialise power relations. It is to the violent psychological capacity of the voice that we shall next turn our attention.

Violence and the Voice

"A voice can kill. A voice can destroy. A voice can be engineered to burst from a riven but resilient body" (Fuller, 2005: 31). There is an interesting ambiguity to this statement from Matt Fuller. Is the voice bursting from the body with resistant intent or is it being made to burst out of the body by others wishing to expose and break it. Could it be that there is another voice at play here, a thirded articulation of presence that reserves its right to somatic interiority. It is proposed that in the Guantánamo cell there are three articulations that must be considered if we hope to learn more about how the voice is engineered to reveal, hide, and resist. The first voice to identify is that of the states, which is amplified through the military by their litany of commands, verbal abuse, and interrogative procedures; secondly we have the detainee's voice, which is personified by its silence as much as it is by its uttering of prayers, communications, and expressions of pain; thirdly we have what the state purport and project to be the enemy's hidden articulations, and it is this latter target that the military are searching to expose. It is the detainee's internalised or inner voice.

That the majority of detainee's have nothing to hide is of no concern to a military that is intent on venting the states violence upon those perceived to be the enemy (irrelevant of whether the laws and beliefs they defend have been transgressed or not). In her seminal text, *The Body in Pain*, Elaine Scarry (1985: 28-29) reinforces the supposition that state violence is rarely actuated in pursuit of a direct aim:

> ... so what masquerades as the motive for torture is a fiction. The idea that the need
>
> for information is the motive for the physical cruelty arises from the tone and form of
>
> the questioning rather than from its content: the questions, no matter how

contemptuously irrelevant their content, are announced, delivered, as *though* they motivated the cruelty, *as if* the answers to them were crucial.

In an intricate and detailed manner, she subsequently outlines the inexpressibility of pain whilst analysing the role of the interrogator's and the victim's voice within the dynamics of torture. In one telling passage Scarry (1985: 49) surmises that:

> Through his ability to project words and sounds out into his environment, a human being inhabits, humanizes, and makes his own a space much larger than that occupied by his body alone. This space, always contracted under repressive regimes, is in torture almost wholly eliminated. The "it" in "Get it out of him" refers not just to a piece of information but to the capacity for speech itself.

Spatially extending the self beyond its immediate concerns via the sonic channel of the voice is a rightfully important concept to Scarry. The soundscape facilitates such extension of the self, the other, and the body, along with their claims to agency. For the detainee to have his substantive instrumentality drowned out and walled in by sonic phenomena, subjects him to the torment of isolation and psychic despair. Shackled down in a cell, there is no access to such extension whilst crushing intensities of sonic pressure are directed his way. The channels that are regularly available to distribute oneself through are backtracked and introverted meaning that sonic trajectories start burrowing back, scrambling the coherence of reason into crushing feedback loops of interiority. Scarry neatly packages these ideas about spatial excess and suppressed articulation by stating that "ultimate domination requires that the prisoner's ground become increasingly physical and the torturer's increasingly verbal, that the prisoner become a colossal body with no voice and the torturer a colossal voice (a voice composed of two voices) with no

body" (1985: 57). The problem with such a Manichean turn of phrase is that it does not take into account the messy, distorted anatomy of the cell's sonic operation. Scarry's notion of the self-extending torturer does not go far enough in terms of explicating how he transgresses the intimate spatialities of the detainee. It fails to implicate the captor in the act of extension into the very being of the detainee and consequently her analysis stops short of describing the psychologically knotted and troubled search for the third voice.

Reading Guantánamo's sonic operations of torture through Scarry presents us with a number of problematic issues, of which the lack of acknowledgement of the third voice signifies the beginning. Scarry predicates her arguments and analysis on the binary constructions of the torturer and the victim, the voice and the body, and the extending and the silent, ignoring the inevitable thirded presence within the psychological structuring of torture. Hearing the third voice in the cell questions the dualistic equation of the detainee's voice against the interrogators voice, of one being silenced whilst another is amplified. This is because the voice being silenced is not the one that the state is interested in listening to anyway. The voice they want to hear is the detainee's internalised articulation that is perceived as holding and guarding valuable information. The verbal abuse, the mocking tones, and the questions of the interrogators are present both throughout the sonic torture sessions and the interrogations that follow them. In response the shouts, screams, and pleading voices of the detainees have reverberated from the cells, back to households around the world, through films, websites, recordings, and newspaper reports. The dynamic of the internalised voice – the third voice – is however, a different entity altogether because it so difficult to access and amplify, even when the subject has been broken. The voice of the broken is not the same voice as that of the rational. We have learnt to distinguish it as having difference. Just as a dead body is no longer the person it

once was, a broken internalised voice is no longer representative of the self that we once knew.

As proven by revelations from a number of those who have endured such techniques, conceiving of sonic torture in dualistic terms is not the only problem we face when trying to apply Scarry's theories to the captives psychological and sonic conditioning in Guantánamo. We need to rethink many of Scarry's assertions about the roles of the body, the voice, and psychic pain in the light of claims made by detainees: Reports that stipulated psychological damage caused by sonic torture is what they feared most, more than any physical damage inflicted upon them (Rapp, 2010). Scarry posits "the infliction of physical pain" (1985: 19) as being the most emphatic modality of violence that can be effectuated and propagated by the state upon a captive. She also suggests that somatic violence is the initial encounter that kick-starts all ensuing rhythms of ritualised abuse. Her hypothesis that "physical pain is able to obliterate psychological pain because it obliterates all psychological content, painful, pleasurable, and neutral" (1985: 34) proving to be an inadequate hypothesis when considering the martial rhythms of psychological torture in Guantánamo. At no point does she announce sonic torture's no-touch capacity to generate lacerating psychological and physiological pain, an objectified damaging of the self that has regularly been cited as being worse than more straight-forward physical abuse.

Despite the problems with the ways in which Scarry theorises the sonic through the production of pain, she does hint at the importance of the soundscape as the sensorial dimension in which critical transformations occur; from communication to silence to internalisation; from break down to re-connection and the extraction of information. She states, "in this world of broken and severed voices, it is not surprising that the most

powerful and healing moment is often that in which a human voice, though still severed, floating free, somehow reaches the person whose sole reality had become his own unthinkable isolation, his deep corporeal engulfment" (1985: 50). Unfortunately there is no development of this analytic trajectory that recognises the crucial role played by the voice (and other waveformed phenomena) in spatialising and organising the production of pain within contemporary no-touch torture practices. Whilst Scarry's text is rightfully influential, it ignores the fact that psychological forms of torture - such as intense sonic pressure - have been occurring globally since the mid 1970s. It has seemingly taken the extreme noise-ridden aberrations in places such as Guantánamo Bay and Abu Ghraib to make philosophers, reporters, and musicians not believe their eyes and to listen instead; and we have to listen well because when the state wants us to hear the objects of pain rather than look at them, it has moved to hush the transmission of its inherent violence.

The Dynamics of Not Wanting to Listen

If those of us outside of sonic torture's immediate earshot are to listen more attentively, then what should we be listening for exactly? Most concretely we could suggest that it would be to our advantage to engage with the act of listening in a more socio-politically and reflexive manner, so that we can better comprehend the full waveformed range of oscillations. Thus by forming a taxonomy of waveformed affect - from joyous intoxication through to cognitive devastation - we could more effectively perceive their resonant implications upon identity construction. Alternately we could ruminate upon the more abstract relations scored upon the self (and its extension) through the act of perceiving waveformed phenomena. "As David Levin put it 'by virtue of developing our listening, we may find ourselves granted the sense of a different norm, a different measure, a different

principle for thinking the 'ratio' of rationality'" (Henriques, 2003: 471). For those who are forced to listen in torture cells however, their measure is one of achieving psychological distance and detachment. Whilst the detainee's anatomy is shackled during sonic torture, his hopes of retaining cognitive autonomy during this process, reside in his ability to perform feats of cerebral eschatology. Cusick (2006: 5) substantiates such captive exigency and the need to temporarily disengage when she declares that:

> The state's interrogators share with many civilian musicians, composers and scholars the notion that listening to music can dissolve subjectivity, releasing a person into a paradoxical condition that is both highly embodied and almost disembodied in the intensity with which one forgets important elements of one's identity, and loses track of time's passing.

In lieu of the detainee's need to shut out or escape from the sonic pressure bearing down on them, Naddaff takes matters to a sensorially instructive conclusion by proposing that, "listening to music imposes a particular form of violence on the psychic structure that dissolves cognitive, linguistic and affective capacity. Music torture produces subjects who cannot listen, who no longer desire to listen, who must not listen in order not to speak involuntarily" (2009). As we are well aware, enacting modes of 'not listening' or 'not hearing' is easier said than done. This is especially true if we are to believe Schafer's declaration that we submissively relate to sonic phenomena inasmuch as "We hear sound. We belong to sound. We obey sound" (2003: 30). If the detainee is to resist such conclusions, then the ear is only one of the sensory facilities that he must negotiate a psychological distance from. From his point of hearing, he must re-orchestrate the amplitude of his entire anatomy as well as his psychology, so that the tensile waveformed pressure gripping him is prohibited from breaking down possibly the most defining

attribute of the self – that vulnerable and porous psychological manifestation named *sanity*.

When utilising music for torture the legislative distance orchestrated by the U.S. military from its own country's legal system is instructive, as are the attempts to camouflage such procedural transgressions. From an interview conducted with a member of the U.S. military's sonic torture squads named C.J. Grisham, Jonathan Pieslak presents us with information pertaining to the notion that the American military respected the Geneva Conventions. He writes, "Grisham also said that he made a tape of babies crying; detainees usually answered questions after a half hour. He explained, however, that interrogators could not be reckless in their choice of sounds, because they were required by law to listen along with the detainee" (2009: 88). Later in the same passage the same soldier is quoted as saying "You are not allowed to do anything to the enemy, by law, that you wouldn't do yourself... We can't treat them any worse than we treat ourselves... We had to sit there for hours listening to babies crying, but we know what the purpose of this is, so it doesn't really get (on) our nerves as much and we can tune it out" (Pieslak, 2009: 88). The suggestion that torture practices in Guantánamo abided by occidental mandates of legal procedure seems disingenuous and specious at best, and contemptuous and laughably cruel at worst. Since Pieslak's book is written from the perspective of U.S. soldiers who served in Iraq and concerns their musical inclinations, rituals, and productions, it is not surprising that the overall tones of the text are defensive and sympathetic. As critically dubious as the aforementioned body of research sounds, it does inadvertently bring to the fore some interesting questions in relation to those who conduct sonic torture and how they themselves, listen.

In the Guantánamo cells, a soldier's soundscape is composed of a mix of disconcerting tracks of anger, resentment, alienation, pain, and confusion. One would think that being enveloped in such sonic loops of recusant feedback would, over time, have detrimental effects on those employed to exist within them. For army personnel, being informed as to how sound is to be harnessed, to what ends, and when transmissions will be activated and terminated is of no little significance. Being in the receipt of such knowledge locates those amplifying sound in an acutely more cogent and authoritative position than that of the submissive detainee in relation to psychological trauma. As further examined in the following pages, one listens, hears, and perceives differently when under intense duress as compared to another who is involved in similar activities of their own volition and with little external pressure to bear. Put simply, those at the controls of the sonic technologies (the soldiers) perceive in a privileged manner whilst they are part of a network of power relations that confirms their convictions, beliefs, and status. There are, however, still questions pertaining to the waveformed repercussions upon those whom are sonically empowered. One could not be human if one were not affected by what they perceive, particularly when that which they hear everyday, repetitiously consists of extreme and intense music, noise, and terror. This is not to say that we should have sympathy with those who conduct sonic torture, it merely points to the idea that we have little conception of the oscillating potential of waveforms to inflict different degrees of damage upon both the receiver and the transmitter. We exist within exponentially removed degrees of mixed waveforms all day, everyday, and we still only have notional ideas pertaining to the measurement of their affect; not only on humans, but also on the world we live in and everything that relates to it.

As suggested, conceptions of agency and instrumentality over music are pivotal tenets to the dynamics of how one situates, oscillates, or is situated in the soundscape. It is an elementary proposition but an important one, as Johnson and Cloonan confirm when they state that, "the sense of control is central to many negative reactions to music" (2009: 24). Whilst not a groundbreaking idea, it does initiate speculation about the claims made on the psychological, spatial, and physiological self by frequencies. We have already ascertained music's calibre to extend the self and its aesthetic predilections, political sympathies, and transgressive desires into other spatial domains, so we can also assume that these characteristics manifest themselves in the presence of others who inhabit those spaces. In this case the sonic becomes a carrier or messenger of personal information as it delivers one's will into the intimate presence of another.

It is because waveforms are physical - moving the material at a sub-atomic level and transferring content into and beyond the organic interface of the body – that they are deemed as having the power to deliquesce that which we consider demarcating of the self and it's immediate physical space. Yet music has no time for borders or thresholds. At its most essential, it is a transgressive force. When externalised sonic trajectories permeate architectural construction (a house wall for example), they carry on, into the body, which soaks them up and leaves it to the psyche to negotiate their habituation of the self. This presence of music not only informs us about the sonic presence of waveforms, it also informs us about the intimate being and detailed presence of another in a spatiality that we think of as our own. Indeed, "of all the elements in the modern soundscape, music is among the most invasive, because over and above basic sonority, it projects finely

discriminated markers of social difference such as taste, class, race, age and gender" (Johnson and Cloonan, 2009: 163).

A prime example of the sonic's propensity to reveal and expose information that would regularly be regarded as private, would be that of hearing the next-door neighbour's music. We are not annoyed so much by the fact that we hear it, it is more that we are receiving intimate signals about another's character and temperament. Thus we are impelled to perceive at any particular moment, what another is sonically feeling, expecting, and desiring. It is often this knowledge that causes anxiety and which subsequently organises our responding activities and presence within a spatial (and sonic) context. Within sensory phenomena, it is only music that has the capacity to assume this role of psychological interlocutor/harbinger. If we wish to extend our feelings of melancholy, frustration, or joy we turn first to music to extend these powerful emotions that we often have difficulty in fully expressing via language. Taken to its sonological conclusion, in terms of transmitting the micro-rhythms and layered oscillations of the self's orchestration, it is proposed that, music takes up where the capacity of language's expression ends.

It is safe to say then, that the "relations of power (who chooses the music, and the conditions under which it is experienced), can enable any music to arouse aggressive forces" (Johnson and Cloonan, 2009: 146). In Guantánamo, the repetitious music played to the detainees is intended to pacify and rupture them rather than to make them aggressive. However, the music played by those who torture, instils more aggressive and confrontational modalities of behaviour within the soldiers; vindicating the employment of violence in their daily routines of subjugating detainee's to the whims of the U.S. state. The power relations of sound are obviously vital to how one perceives torture, as

concurred by Vinokur who reports that "the reaction of human bodies to the same noise can also be very different and even anomalous (for example, an experimental study done in Russia revealed that about 7% of cadets from one military engineering school that were tested performed better under high-intensity noise than in normal conditions" (2004: 2).

It should be clearly stated here, that the above statements are not attempting to compose Schafer style arguments against increasing levels of 'sonic detritus' (see glossary) in the world. Rather, they are posited to assist in explicating the sonic dynamics of intimate spatiality; dynamics that help us better comprehend the locality of our musical and noise-based aggravations as well as accentuating remote considerations about existence in the Guantánamo soundscape where realising "that one no longer has ownership of one's own sounds is a profound and painful violation" (Johnson and Cloonan, 2009: 158). If we understand why our behaviours, reactions, and allegiances are so purposefully composed, organised, and oscillated by waveforms then we might negotiate the spatial extension of the other more skilfully, and simultaneously learn how to resist the state's waveformed agenda. Currently, our cultural predilections are somewhat apposite, as we countenance the notion of music as torture as amusing whilst being intensely angered by a cell phone's ringtones on public transport. It seems more vital than ever that we form a frequency-based politics to deal with such perverse dichotomies, because without one, the danger is not so much that we will become slaves to the rhythms, its more that we will just be confused and disoriented by them.

Fear of Music

Attali (1985: 19) writes:

> Make people Forget, make them Believe, Silence them. In all three cases, music is
> a tool of power: of ritual power when it is a question of making people forget the fear
> of violence; of representative power when it is a question of making them believe in
> order and harmony; and of bureaucratic power when it is a question of silencing
> those who oppose it. Thus music localizes and specifies power, because it marks
> and regiments the rare noises that cultures, in their normalization of behaviour, see
> fit to authorize. Music accounts for them. It makes them audible.

The creation of fear is one of those authorised behaviours that music has been historically
understood to have been fit to address and produce throughout the centuries. In the early
part of the fourteenth-century, Europeans had started utilising gunpowder in conjunction
with firearms to increase a military's capacity to kill from a distance but "it was another trait
of expression of gunpowder that made it a success: the loud noise it made as the
explosion was actualized had a powerful effect on the enemy's morale" (De Landa, 1991:
30).

Historically speaking, coupled with the attendant anxiety associated with the archaic sonic
signature of gunpowder, existed the generation of fear through the visualisation of the
weapon. Hence, "the mental habit of *recognizing* pain *in* the weapon (despite the fact that
an inanimate object cannot "have pain" or any other sentient experience) is both an
ancient and an enduring one" (Scarry, 1985: 16). As we have been made aware, ocular
perception has long been detached from unquestioning and indubitable belief, thus the

notion that sensorial values have changed is not a surprise. That the weapons we are examining are common everyday objects associated with the transmission of pleasure, potentially is. The observation that seeing is no longer symbiotic with believing can in part be put down to the rise and reliance on sonic forms of communication, amplification, and recording. Somewhat ironically, a similar sense of evidentiary detachment is now occurring with *listening* as we move into an era of waveformed distrust. Through speaker systems, Ghost Army (see glossary) sound engineers of the Second World War helped sonically engineer such contemporary sensorial disconnect and it is they who haunt the deceptively resonant bodies of the Guantánamo detainees - who no longer want to believe everything (or possibly anything) they hear.

"The channelling power of music, like that of religion, is quite real and quite operative. Like an individual, a society cannot recover from a psychosis without reliving the various phases of its terror; and music, deep down, induces a reliving of noises' fundamental endowment with form, the channelization of the essential violence" (Attali, 1985: 30). Attali here forwards the notion that essential violence has been manifest in all societies throughout history, but that its forms of expression (its channelization) mutates, as societies and their belief systems are re-organised over time. We could interpret and develop this idea by proposing that the sounds of violence, terror, and pain resonate in the cultural DNA of all peoples. These culturally impregnated waveforms oscillate for centuries after creation; retaining the potential to instil anxieties that cause cultures to rhythmically sweat when taboo sounds becomes threatening. Goodman recognises the human capacity to transmute sonic taxonomies of fear through generational transfer when he writes that, "sound is often understood as generally having a privileged role in the production and modulation of fear, activating instinctive responses, triggering an evolutionary functional nervousness" (2009: 65). In the torture cell, the inevitable

nervousness of each detainee is constant, entrained, and fostered to create anxiety, as internal pressure systems pre-empt the next torture session. Never before has the intuition that "listening to music by oneself restores, refreshes, and heals" (Storr, 1992: 122) seemed so simplistically optimistic and hopelessly utopian. We now know that such listening activities - when re-modulated and intensified - can also root down into neural networks, creating schizoid overtones that decompose the very notion that the *one* in *oneself* ever existed in the first place; but then maybe this is more of an introduction to comprehending pressured waveformed subjectivity than it is a conclusion.

Amplifying the Utility of Futility Music

Music has often been attributed with possessing the capacity to create schizophrenic dimensions amongst the psychological foundations that support lucid, knowledgeable, and rational architectures of thought. Over the following pages the modalities and rhythms of these dimensions, along with the potentialities of the sonic to re-organise basic principles of cognition will be considered in relation to acoustic torture practices. To initiate this discourse, a very brief explanation of how we will conceive of the 'schizophrenic' is necessary for us to proceed. As the study has circumnavigated traditional psychoanalytic theory, it is to Fredric Jameson that we turn as he succinctly advances the idea that "With the breakdown of the signifying chain,… the schizophrenic is reduced to an experience of pure material Signifiers, or in other words of a series of pure and unrelated presents in time" (1991: 72). With this notion of disconnection - from oneself, the other, and the world at large – underpinning the ensuing investigation, a number of diverse perspectives explicating the relations between music and the orchestration of schizoid practices, psychologies, and spatialities will be explored.

In the twenty-first century, through the hands and speakers of the military-entertainment complex, the medicine of the mind (music) has been transmogrified into also acting as a poison. Thanks to contemporary mobile playback and amplification technologies, the process warranting this conversion has become insidiously simplistic - select a track, play at high volume, and repeat as long as is deemed necessary. Without wishing to sound glib, as a technique, it is child's play and this is wherein lies its power. It is a process determined by the illogical excesses of sonic overload that has the potential "to circumvent normal rational process" (Henriques, 2003: 457) and it is a phenomena that every man, woman, and child capable of hearing is vulnerable to. In trying to expand our appreciation of why music has the facility to rupture basic psychological functionality, we must assume that sound is to some degree neurologically hardwired to assist in engineering our cognitive behaviours. "Cosmides and Tooby argue that music's function in the developing child is to help prepare its mind for a number of complex cognitive and social activities, exercising the brain so that it will be ready for the demands placed on it by language and social interaction", writes Levitin (2006: 262). If this is the case, then it is logical to suppose that a phenomenon assisting in the construction of rationality could subsequently be reverse engineered, allowing it to regress the mind so that it no longer creates connections and no longer desires interactions.

As established earlier in this chapter, when under the duress of sonic pressure, detainees are impelled to escape psychological and physiological abuse through processes of internalised eschatology, eschewing connections and interactions with their captors. In attempting to mentally remove themselves or camouflage the location of their psyche (symbolised by the inner voice) from their immediate painful situation, a certain numbness to sensorially induced affect must be achieved. This results in a perceived emotional

retreat from the said context, echoing in the process, some of the traits of hebephrenia (see glossary). For Adorno (1973: 129):

> ... hebephrenia is finally revealed from a musical perspective to be what the psychiatrists claim it to be. The 'indifference towards the world' results in the removal of all emotional affect from the non-ego and, further, in narcissistic indifference towards the lot of man. This indifference is celebrated aesthetically as the meaning of this lot.

That temporarily achieving such a psychological state of disconnect has become a necessary survival tactic - or more accurately, an expedient 'sanity tactic' - in Guantánamo, articulates a sombre musical irony that would not have been lost on Adorno.

As investigated by Gordon Thomas (1989), throughout the past century there have been a number of medical experiments pre-dating these sonic techniques for inducing schizophrenic behaviours that also utilise drugs and electroconvulsive therapy. Endeavouring to induce psychological states such as hebephrenia, 'reality distortion' (see glossary), and 'psychomotor poverty' (see glossary) (understood to be the three manifestations composing schizophrenia) as well as trying to correcting such maladies, the Central Intelligence Agency (CIA) employed Donald Ewen Cameron to conduct experiments for Project MKULTRA at the Allan Memorial Institute of McGill University in Canada between 1957 to 1964. Cameron's most remarked upon procedure was called 'psychic driving' and involved depatterning subjects, which meant putting patients in drug induced comas for long periods of time (upto 3 months) whilst playing sonic content to them repeatedly via tape machines under their pillows. The sound would vary; at times consisting of noise and at others, positive or negative messages such as "Madeleine you

let your mother and father treat you as a child all through your single life", followed by "You mean to get well" (Rejali, 2007: 370).

Parallels drawn between the MKULTRA methods and the repetitive sonic torture techniques employed by the U.S. military in Guantánamo are revealing. In *The Shock Doctrine* (2007), Naomi Klein comments on the CIA's MKULTRA program, asserting that Cameron's procedures were predicated primarily on constructing scientific techniques for extracting information from subjects who were silent and/or conceived of as being difficult. Importantly however, the ambitions of the CIA and the U.S. military diverge at resonant points in their practice. Whereas the CIA were interested in erasing minds so that they became akin to blank tapes onto which new programs of behaviour could be recorded, the U.S. military are more interested in breaking down the cognitive mechanisms of the outer voice so that they can extrude and amplify information from the unprotected and silenced internalised voice. Whilst striving to re-record memories and compose fictitious histories "Cameron was able to destroy minds, but not rebuild them" (Rejali, 2007: 371). The U.S. military meanwhile are able to decompose cognitive behaviours but conversely have no interest in re-orchestrating them.

For the state, it appears that the most telling difficulties of conducting no-touch torture in Guantánamo were associated with their apparent lack of measuring techniques; systems that would allow them to successfully gauge the effectiveness of their brutalising 'science'. Remarking upon a loquacious source's comments, Cusick (2006: 4) leaves us with no doubts as to the severity of these martial techniques and their intentions to induce palpable psychological afflictions:

This modern system aims to combine "sensory disorientation"… so as to cause a prisoner's very "identity to disintegrate". Whether that disintegration takes the form of induced regression (to infantile behaviour) or induced schizophrenia, the experimental data showed this "modern system of torture" to be much more efficient than beatings or starvation, producing psychological disintegration in a matter of days, rather than weeks or months. And, as one CIA researcher noted, it was hard to document, for with the exception of the standing (which can cause grotesque swelling/bruising of the feet and legs) these "techniques" leave no visible marks on the fleshy surfaces of a human body.

Whereas quantifying and naming psychological damage was challenging for the state, the official classification of the sonic tool utilised in these hard to document operations appears to have been simpler. "The Pentagon's Schmidt investigation identifies it as 'futility music'--that is to say, screamingly loud and deliberately Western music that will, per the Army field manual, 'highlight the futility of the detainee's situation'" (Bayoumi, 2005). Militarily speaking, the purpose of synthesising such futility and despair is multifaceted as it testifies to both the savage nature of the state as well as its ability to provoke unnatural acts of self-mutilation in its captives as it "produces listeners who are deprived of reason, becoming mimetic puppets of senseless sounds and excessive, destructive emotions" (Naddaff, 2009). Whilst this quote from Naddaff adequately elucidates to us the effects of sonic torture, it is in actual fact extracted from a paragraph explaining the reasoning behind Plato's (of the Republic) bid to censor the practice of Poïesis - a mimetic artform consisting of both words and music. Plato's fears, it seems, still echo within our contemporary soundscapes. Afraid of the saturnalian extremes that music could evoke in the subject, Plato attempted to construct, in legal terms, a waveformed cultural gate that effectively caged the beast within; a sonic restraining order

that would choke the monstrous nature of wo/man if it should ever try to break out and exceed its somatic limits.

Within the realms of conflict and its constitutive violence's (such as no-touch torture), the capacity to be naturally brutal and thus be monstrous is a pre-requisite for operational success. As the West diligently characterises the Islamic fundamentalist subject as a monstrous inversion of all that is reasonable, comprehensible, and civilised, the occident concomitantly demands its own citizens and military to become equivalently aberrant in their methods of attack and retaliation. In such circumstances, Virilio's summing up of the practices that coordinate preternatural violence between adversaries rings truer than ever as he intuits, "a phenomenon of mimetic training, a reciprocal apprenticeship of the horror of the other, war is always a school, a university of shared terror where, bit by bit, we become like our enemy by dint of opposing them" (2002: 57). As such, it is in the Heavy Metal music cells that the divergent characteristics of the monstrous come face to face. Targeted and objectified by the state, the detainee is sonically projected as the monstrous embodiment of psychological chaos, irrationality, and waveformed rage. The torturer meanwhile must be transformed into an organised and controlled performer of the states monstrous capacity for vengeance and violence. He will carry out "a regulated practice obeying a well defined procedure..." (Foucault, 1975: 40) and in the process become an absolute master of sonic excess.

The dynamic of this theorisation is essentially a Foulcauldian one and is further supported by his claim that "torture is a technique; it is not an extreme expression of lawless rage" (1975: 33). Yet what has become apparent from the myriad of reports, interviews, and documentaries concerning Guantánamo, is that an uncontrolled violence did manifest itself within the deranged everyday existence of the camps; through the bizarrely ferocious

cases of sexual abuse; through the savage random beatings frequently metered out; and through the practices of sonic torture (that employed genres of music which themselves documented alienated, frustrated, and violent subjects engaging in inhuman and monstrous behaviours). The proposition that an uncontrolled and barbarous martial nature was not only tangible but also made permissible by the state is further substantiated by the soldiers themselves, who articulated to Pieslak that, "war is people having to step outside of themselves. It is you having to become what I consider to be a monster" (2009: 161) thus "you've got to become inhuman to do inhuman things" (2009, 162). Pieslak (2009: 163) subsequently goes on to write:

> Psychologists Robert W. Rieber and Robert J. Kelly observe that the circumstances of war can cause combatants to develop inhuman or dehumanizing views: "Self and object-directed dehumanization are inevitably heightened in situations where the threat of combat is present." In these instances, the music could be said to have a transformative power that removes the humanity element from human identity. Music becomes a means of dehumanizing an adversary or oneself.

Whilst speaking more specifically about soldiers preparing for battle in Iraq, this quote pertinently articulates the utility of music in Guantánamo to martially transubstantiate the subject; composing a form devoid of the characteristics that we would regularly attribute to a living human, such as consciousness, cognition, and compassion. In this sense, the dehumanising potential of the sonic comes to echo the legal status of the detainees. It disembodies Foucault's torturing protagonists so that they also come to represent the monstrous and inhuman in the form of the living dead. If Adorno was correct in asserting that "modern music sees absolute oblivion as its goal" (1973: 99), then the music of Guantánamo soundtracks a *haunted modernism*; a tormented existence in which the

wandering waveforms of music have returned to feedback on their own material producers. By transforming those who were once alive into the living dead and by torturing those who already represent the living dead, the music of Guantánamo Bay transmits to us its goal – to orchestrate the absolute oblivion of that which embodies the human.

Section 3: *The Repetitive Cell*

It will be argued in this section, that the occidental strategies of musical and noise-based repetition have been impelled to their political, psychological, physiological, and sonic conclusions via the torture practices employed in Guantánamo Bay. In other words, this is the end of the tracks for repetition as a technique. Whatever follows in terms of organisational procedure and structure will rely on different waveformed modalities to achieve its goals. The notion of ideologies of excess - as virulent economies of extension, will be examined next, along with the attendant concerns that come to the fore when the pressures of cultural replication manifest themselves. The manner in which the sonic affords territorial presence and the ways in which walls of sound have become the military's architectural *modus operandi* will be considered so that the political, spatial, and sonic dynamics of the torture cell can be further revealed. This discourse will lead to a wider conversation about the capacity of the sonic to organise space and the associated imperative of composing a waveformed geography capable of charting mutations in the soundscape. Concluding this section will be an investigation into the spatial thresholds between the heard and the unheard, and the movement of military practices from discernible terrains to covert environments.

Repetitive behaviours have always been integral to the disciplined practices of establishments such as military organisations. To start with, they rely on steadfast rhythms to organise the procedures, training, and collective identity of their personnel. In the sixteenth-century, "drill produced entrainment. That is, soldiers became "oscillating entities," repeating the steps of a cycle over and over, and this created a strong bond among them, the unit of cohesion that alone guaranteed the continuity of command needed in a war machine" (De Landa, 1991: 58). For De Landa, achieving entrainment through repetitive commands and actions signalled the first time that a methodological approach to a soldier's psychological and physiological preparation had been institutionalised (The Dutch army of Prince Maurice of Orange being the first military to practice drilling sessions in their daily routines). However, in establishments such as the prison system, repetition works to the tune of a different mandate, one that organises detention, pain, and discipline in order that legal transgressions do not occur again. Thus for Foucault, the prison rationale demands that, "one must calculate a penalty in terms not of the crime, but of its possible repetition. One must take into account not the past offence, but the future disorder. Things must be so arranged that the malefactor can have neither any desire to repeat his offence, nor any possibility of having imitators" (1975: 93). Replete with divergent signification in the prison and military systems, repetition is versatile, non-partisan, and central to the ideological constructs of both, yet bound to neither.

From a more enveloping perspective, Attali's conceptualisations of cultural repetition within twentieth-century Western capitalism, leads him to claim that, "repetition today does indeed seem to be succeeding in trapping death in the object, and accumulating its recording" (1985 126)... Everything in our societies today points to the emplacement of the process of repetition" (1985, 127). Within the former of these two quotes resides the

ideological imperative born out of Edison's invention of the phonograph in 1877 (a technology capable of both recording and reproducing sound) - that of dropping *the end* into a feedback loop that never has to finish. As such, music never has to encounter a sonic death. It is produced as an object that can be stockpiled, played back, distributed ad infinitum without any material or acoustic degradation. Musical genres have been borne or have evolved into compositional modes that embrace repetition as the heartbeat of their sonic construction. Add to this list, the forms of dissemination, such as mainstream radio, which transmit the same tracks every hour, day and night, and it becomes apparent that we are baring ear witness to the modal strategies of sonic repetition on an everyday basis. Ever since that moment when our culture attained the power to playback a recording, we have gradually increased the speed and intensity of those repetitions until we have reached the point in Guantánamo where music has realised its innate relentless potential to be played without silences, without breaks between transmissions.

In the torture cell, the spaces in between waveforms have been collapsed into a stream of noise that has no time for any redemptive interstices. We can identify this reverberating channel as the final acoustic solution; a sonic manifestation of violence, that becomes audible via the annihilation of silences, and is amplified by the creation of pain through pure excess. The lineage of this channel weaves in out of civilian and military histories that have amalgamated into the present form of the military-entertainment complex; an inevitable act of acoustically forced copulation given that sonic "violence is no longer limited to the battlefield or the concert hall, but pervades all of society" (Attali, 1985: 36). With the soundtracks of everyday living being orchestrated by this military-civilian coupling, distinctions between the cell and the home have become not so much ideological, political, or economic as they have temporal. They are distinctions borne of a chronological taxonomy where the signifiers of difference between perceived sanity and

breakdown reside in the units of time between repeats. Thus we can say that the assimilation of music by the military-entertainment complex into a direct weapon has forever changed the political, aesthetic, and cultural standing of sonic expression. Attali foresaw this radical shift in the vital agency of organised sound when he declared that "music, exploring in this way the totality of sound matter, has today followed this its path to the end, to the point of the suicide of form" (1985: 83). With Attali's statement in mind, it is not overly dramatic to propose that music can never be thought about in the same way again. The final nail in the coffin of music's period of innocence has been hammered in - and home - by military assimilation; meaning the demise of its sole identity as a form of cultural expression is more a case of whether its end is to be documented as assisted self-destruction or murder?

If music is witnessing its own demise then it is simultaneously predicting the incremental dissolution of other cultural systems of organisation, giving credence to the idea that "music today is in many respects the monotonous herald of death" (Attali, 1985: 125). Through further interpretation of Attali's statement, we can place the detainee in the cross hairs of its prophecy; the living dead in Guantánamo enduring endless sonic invocations of their situation. They are offered more of the same or ultimate cessation from a military that has always championed the post-modern fracturing and death of the subject. Alternatively Attali's quote could be translated as anticipating a more inclusive kind of death, that of a culture. Accordingly we would decipher the U.S. military's sonic torture policy as a virulent cultural offensive against Muslim societies. By infecting Muslim detainee's with contagious sonic cells the U.S. will subsequently send them back to their homelands where their symptomatic experiences will signify the ensuing threat of future propagation. Put another way, Guantánamo's music represents not only an assault on individuals, it also symbolically announces the intentions of the U.S. military-entertainment

complex to ideologically propagate and transmit their culture into Muslim ipods, living rooms, shopping malls, public transportation systems, and streets – into the core networks of Muslim's everyday living.

With powerful global communication networks, production facilities, and distribution systems at their disposal, this threat from the U.S. is not an idle one. The culturally imperialistic timbres embedded within the Western voices of the camp guard, and the articulations of the rappers and rock singers that are employed to torture, consequently come to represent the tonal currency of a moral chaos for the Muslim subject and state; the individuated narratives of occidental excess predicting the future degeneration of a collective religious ordering. As Foucault rightly points out, "in the 'excesses' of torture, a whole economy of power is invested" (1975: 35). The power implicit within Guantánamo's musical torture resides in the threat of contagion, and in the potential for such excessive musical and sexual practices - overflowing with seductive virulent intent - to become irreconcilably embedded within the Muslim's systems of communication, organisation, and entertainment. The occidental weaponising of culture through repetitious music, therefore, comes to signify the virtuosity of the viral to endlessly oscillate and replicate. It also makes clear music's cultural status as the most infectious and easily transmittable armament, given its capacity to both channel excess and amplify its instrumentality at the same time.

In *Parallax View,* Slavoj Zizek (2006: 370) iterates a similar perspective in relation to the imperialistic torture practices of the U.S., albeit one that beholds a crucial flaw in its logic. He writes:

> Abu Ghraib was not simply a case of American arrogance toward a Third World
> people: in being submitted to humiliating tortures, the Iraqi prisoners were in effect

initiated into American culture, they got the taste of its obscene underside which forms the necessary supplement to the public values of personal dignity, democracy, and freedom...

Zizek's premise that the ritualistic nature of the torture in Guantánamo and Abu Ghraib represents some form of initiation ceremony is misleading and misses the point. Initiation or hazing rituals into publicised secret societies and clubs such as Yale University's 'Skull and Bones' (whose alumni include former presidents George H. W. Bush and George W. Bush, as well as U.S. senators such as John Kerry), military inner circle cabals, and criminal organisations (such as the Triads, Cosa Nostra, or Yakuza) are undertaken by subjects who have the tacit understanding that acceptance will be gained upon successful completion of the ritual. For those who undergo initiation, there is a gratification in being in receipt of ritualistic suffering when it is understood that it will cease and one will eventually be sanctioned to carry out similar tasks in the future – the promise of acceptance empowering one to inflict ceremonial pain, suffering, and humiliation on those who attempt to become part of the group afterwards. In Guantánamo, there are no options for role reversal within the torture cell and certainly no opportunity for the detainee's to play music of their choice to their captors.

As such, the utilisation of music as torture is not practiced in order to measure the captive's worthiness for being inducted into some kind of covert society (even if at times the Guantánamo camp vicariously references groups that practice bizarre and sadistic rituals). Zizek speculates that the U.S.'s employment of extreme forms of musical and sexual practices as torture belies a sentiment akin to 'have a taste of the very core of our way of life' (2006: 368). Whilst this is somewhat accurate it is also overly simplistic. What sonically offends the detainee's, in terms of content, is not the fact that Rap and Death

Metal music symbolise American culture's differences, it is more that the types of behaviours, beliefs, and desires expressed within the music are bound within wider Western economies of sonic excess, sexual indulgence, and legal transgression. As Muslim culture conversely insists upon; the cohesion of a social, religious, and legal order; the negation of an individuated code of everyday practices; set guidelines for sexual and cultural modes of conduct and expression, it is easy to understand that they would identify such cultural expressions (which represent the breaking of their most important values and beliefs) as being aberrant and the cultures that produced them as being the architects of all that is decadent, spoilt, and dangerous.

Constructing Walls of Sound

Conducting virasonic sorties through sprawling global communication networks requires an architectonic comprehension of rates of aesthetic infection, levels of informatic feedback loops, and latitudes of asymmetric contagion. The engineering of resonant threat within the torture cells, however, requires a different mode of waveformed architecture altogether, to effectuate the annexation and contamination of the subject. The essential acoustic building method for such undertakings is elemental in its structure and easy to bring down if required – it is the 'wall of sound'. Mick Brown (2007) explores the history of this term, which was derived from a recording technique developed in the 1960s by Phil Spector (in LA's Gold Star Studios) for producing rock and pop music. The basic premise of its sonic construction was to have multiple performers playing the same musical part in unison and recording them in an echo chamber, giving the final layered recording a reverberating and impenetrable acoustic dynamic. In a parallel martial manoeuvre the torture cells of Guantánamo become analogous to the studios responsible

for the construction of such sonic politics. As the sound beats off the walls, the torture cell refers to the reverberant echo chamber for obvious reasons. But more than that, the techniques that are produced in both the studio and the cell are microcosms of infectious sonic affects that will later be transmitted to a wider dispersed network of targeted listeners.

The architectural grounding of the term 'wall of sound' reveals much to us about our cultural propensity to construct material narratives around the hapticity of waveforms. Upon first iteration, the wall of sound is an architectonic formulation predicated on the absolute physicality of frequencies and their facility to organise and construct spatiality. On second iteration, we can conceive of waveforms as being able to psychologically construct emotions and expeditiously fabricate dwellings for our fears, desires, and aggressions to temporarily reside within. Upon its third iteration, the wall of sound falls instantly and we are compelled to appraise the motile calibre of waveforms and their capacity to operate as 'transarchitectures' - as nomadic cultural signifiers of presence and habitat that are there one moment and gone the next. It is this third calling that motivates the military to utilise the transient and ephemeral ideologies inherent within 'sonarchitecture' (the construction of spatiality through waveforms) as the walls of sound overlay and re-inscribe the limits imposed upon the sensorium by the physicality of the concrete walls.

Such a proposition exposes the shift that occurred in self-orienting techniques between the nineteenth-century cells analysed by Foucault in *Discipline and Punish* and the torture rooms of Guantánamo. In the former construction, "the walls are the punishment of the crime; the cell confronts the convict with himself; he is forced to listen to his conscience" (Foucault, 1975: 239). In Guantánamo, having already established that there is no state

interest in producing modalities of self-reflection within the detainee, it is posited that there is an authoritarian commitment to developing environments in which the self echoes and reverberates. The ideological shift proposed earlier is manifested in the cell by the construction of a sonic dominance that does not confront the detainee with himself so much as inverts his notion of self. The negation of his physical self-extension beyond the cell is amplified by the silencing of his sonic self-extension, forcing him to interiorise his presence. Sonic walls are thus the most malevolently effective structures of power as they can be dropped and raised at will, meaning that release from a sonarchitecture can be promised at any point in time and then cruelly rescinded the next.

As we have heard, walls of sound can establish authoritarian efficacy on a number of sensorial levels. Here it is helpful to deliberate further upon how the subject defends, locates, and extends itself outside of the cell so that we can conclude as to how walls of sound effectuate an active compression of the self in Guantánamo. In order to further elucidate the behavioural modalities enacted when a subject psycho-geographically locates its self-identity within a wider socially constructed environment, we will employ the metaphoric guiding principles of Radar (see glossary) to assist us. Radar's potential to both construct imperceptible walls as well as situate one's own presence in correlation to those spatial denominations is noted by De Landa when he concludes that during the Second World War "Radar had to be developed in a few years... and in the end it became the single most important weapon of the war, the electronic wall that stopped the Luftwaffe" (1991: 51). Analogously, humans repeatedly send out signals within wider social bodies in order to situate themselves economically, politically, sexually, and emotionally; endeavouring at the same time to locate the obstacles (the walls) that could hinder their movement along such trajectories. Thus our personal detecting and ranging systems assist us in mapping - potential channels of extension and the walls that stop

others transgressing the self's boundaries. We identify the range of our distance to individuals, institutions, and social grouping so that we can accordingly adjust our behaviours, levels of intimacy, and ratio's of trust according to how close we perceive ourselves to be to them.

When a detainee was kidnapped and taken to Guantánamo he was no longer capable of situating himself via such ranging and positioning methods as he was disconnected from the environment that had pre-eminently constructed his identity, beliefs, and values. He was dislocated from his country and family, his workspace, religious meeting place, and friends and he was kept in the ultimate construction of emotional, economic, and political alienation – the cell. The state then ventured to achieve the most exacting of dislocations, that of him from his sense of self. Locative pulses generated by the detainee, and radiated out, only transmitted as far as the walls that limited his physicality, except that is, for the sonic pulses that allow verbal communication to occur with other distantly incarcerated captives. When the walls of sound were raised, this definitive final channel was transmuted into an acoustic black hole that subsumed all sonic transmissions into its 'supercollider logic' (see glossary). There were no more distances to be negotiated, no emotional pulses to extend or measure, just sonic waves of architectonic pressure that repeatedly confirmed the position of the detainee as being static. He was a fixed object whose echoes were lost in a cellular vacuum of white noise.

The Excessive Reality of the Sonic Cell

Whilst the massive noise of Desert Storm's incoming carnage would have been bone-shakingly close for the Iraqi people in 1991, the technological prowess of the U.S. military

allowed them to mount a logistical destruction that was largely conducted from distance - the majority of damage to Iraqi military and civilian infrastructures coming by way of over 100,000 aerial sorties flown by coalition forces at the start of the war. The violent aftermath however - starting with the second Persian Gulf War in March 1993 - has rendered Baudrillard's (1991) claims that such conflicts are now virtual and akin to 'Nintendo Wars' as being inaccurate and territorially myopic. The long-term reality of the Iraqi invasion consisted of anything but digitised bodies, next level politics, and CGI theatres of operations. Indeed, a more exacting analysis would inform us about its noisy, close at hand, bloody, devastating, and dirty travails. As in the Guantánamo cells, the sonic strategies employed to orchestrate distances in Iraq (using similar types of music) were, upon first hearing, surprisingly basic in their composition, but this is where the parallels between the sonic cell and the sonic battlefield begin to end.

Conducting acoustic reconnaissance on territories outside the torture cells reveals to us, the ways in which spaces surrounding them were politically, socially, and geographically contoured and delineated by sound during conflict. Germane examples of waveformed methods utilised to extend presence and to define cultural and spatial limits in conflict zones are profuse, given that the U.S. military regularly traversed the streets of Iraqi cities in Humvees, amplifying Western music. In one instance the citizens in Fallujah decided to acoustically engage with their sonic nemeses, obviously frustrated and offended that their soundscape was being dominated by music that did not echo their beliefs or values. Turning up the volume of several Mosques' speakers (that reside in each building's minarets), they responded by amplifying their nasheeds (see glossary), and in doing so engaged in a waveformed battle of cultural and religious extension, paranoia, and acoustic intimidation. Whilst the notion of battle sounds is not novel to us, the modality by which music becomes the sole weapon definitely is. In the past, music has been utilised in

conflict to encourage physical aggression whilst on the battlefield, but cases such as the one mentioned, expose a new battle dynamic - one in which the armaments of assault will consist solely of electrically amplified speaker systems and track selection.

In a somewhat inevitable turn, the asymmetric techniques of conflict engagement and geographically abstract weapons systems have been spurned in favour of an on the ground base reality – an unspoken rule that says whoever shows up with the most powerful sound system owns the space (until a louder one comes along). This example of speaker system battles in Iraq ends any possible circumspection about music's potential to be utilised directly as a weapon. How sound is harnessed to denote range, inscribe the circumference of engagement, and determine the nature of our presence as we negotiate such territorial oscillations is still contentious however. In terms of the embattled soundscape, whilst there are obviously no clashing of arms in the torture cells, there are screams, articulations of pain that are only faintly heard (if perceived at all), by soldiers who carry out their painful sonic practices via an organised geometry of distances, setting them apart from their victims.

Historically established forms of torture such as electrocution, the hammering of metal wedges under fingernails, and beatings require the immediate presence of the torturer, but more than this they engage him in a direct and intimate physiological, psychological, and spatial relationship with the captive he is assaulting. However, within the dynamics of no-touch torture, perpetrating sonic violence necessitates that he who tortures, attains a viable distance from the amplifications of his techniques, so that he does not make himself vulnerable to the effects of their unbounded acoustic furies. Thus, the torturer will delegate pain from a safe distance, outside of the room. He will watch and listen in relative comfort and with little requirement for person-to-person interaction (negating any feelings of

compassion that might arise from relationships being unexpectedly formed during interrogation) whilst conducting his logistically precise abuse. No-touch torture activates this new set of violent behaviours, spatial reasonings, and impersonal relationships and in doing so converts the distances that the detainee used to socially negotiate into a new set of sono-spatial channels between himself and those inflicting pain upon him.

Cultivating further this discussion about distances and the creation of space, place, and territory via sound, we would start asking questions of the spaces residing outside the torture room. The 'safe areas' where soldiers take notes from and carry out recordings and observations of the detainee's responses to torture. Since we have explored the sonic spatiality of the cell at length, it is useful to think more about the immediate soundscape that surrounds it and to investigate how those who territorialise it, inhabit it. If it is valid to state that, "sonic dominance helps to generate particular sense of *place* rather than a general abstract idea of space. It's unique, immediate and the place of tradition and ritual performance" (Henriques, 2003: 459), then we can conceivably start forming a sonic taxonomy of resonantly concentric spatiality. A waveformed system of classification that would naturally question; whether the space immediately outside the cell is rendered abstract because it is shut off from the sonic delineation of place? Whether such exteriorised spatialities are denoted by a hushed reverence, by jocular tones, or by a scientific verbal channelling of the ensuing violence? Whether the cell or its surrounding rooms deserve the ultimate spatial degradation of being classified as a non-place?

The questions posited above will remain rhetorical ones for now, as there is not the scope to answer them within this thesis. The final question does however return us to a theme that is transmitted throughout the third section, in the shape of the non-place. For

Henriques (2003: 459) it would seem that the torture cell could not be described as such because:

> Acoustic space and sonic place are the antithesis to the typically post-modern 'non-places' of airports, shopping malls, high streets and ATM aprons that Marc Auge discusses. Those are generic, abstract and empty spaces. Sonic spaces are by contrast specific, particular and fully impregnated with the living tradition of the moment. Each has a certain definite haeccity [sic] or 'thisness' about it.

According to Auge, one of the exemplary characteristics of a non-place is its transient functionality that allows subjects to traverse it without friction and as quickly as possible. A second characteristic of the non-place is its indifference to presence, inasmuch as the subject, who travels through it will form no emotional attachments to it. It terms of identifying the non-spatial status of the sonic torture cell, it is difficult to imagine that either of these definitions do not apply to the detainee's desired relationship with it. The timing of the transfer through the cells however presents us with questions regarding definition, as in terms of presence, years go by in Guantánamo for the detainees, rather than the minutes, hours, or days that usually apply to Auge's temporally non-placed subjects.

Sonically, the walls of sound constructing the torture cells bestow them with the 'thisness' that Henriques alludes to. As we have heard, they were referred to as 'Discos'. Yet, for the detainee, such notions of haecceity are shut out as he attempts to negate the excessive reality of the waveformed pressures he is at the centre of. Such dichotomies expose the nexus of contradictions that construct the identity of the sonic torture cell; for it is at once the quintessential form of dystopian spatial trajectories - the non-place that all other non-places theoretically lead to – as well as being the archetypal sonic space that is defined

by its walls of sound. It is a spatiality that is rung with emotions but which functions by ultimately negating them in the process of breaking down those who would show them. It is a construct beholden to an overflowing of humanity (when the detainee's interior machinations are literally pressed out of him) as well as one of the most inhumane environments (marking it as an architecture that defines the borders of cognisance). So extreme is this mapping of the subject, that in the moment before it's breaking, we find ourselves at the periphery of humanity, negotiating a sonic abyss of excessive realities. In terms of the torture cell's inordinate wealth of characteristics it seems that we will not come to a definitive conclusion as to its spatialised status but then maybe this is the point. As its position reverberates amidst the military and the entertainment complexes strategies; as its status oscillates between place and non-place, noise and silence, human and inhumane, it composes upon us a responsibility of sorts - to rigorously question and identify its 'living' condition on an ongoing basis. Only when we engage with this process will we be able to perceive the torture cell's capacity to compress everything that we are and everything that we don't want to be into a 6.5 x 8ft space.

Cultural Compression and the Sonic Cell

It has been argued throughout this text that the military-entertainment complex has progressively compressed the architectural frameworks in which it expresses its waveformed instrumentality - the structure of the cell being the acoustic apotheosis of its bit/body crushing motivations. Scarry (1985: 38) comments upon this compression in a broader context by naming it as a technique that aims to erase the detainee's latitudes, longitudes, and amplitudes of existence. Thus "...while the room is a magnification of the body, it is simultaneously a miniaturization of the world, of civilization". She further

explicates how the architectural dynamics of the cell become part of the persecuting arsenal, which as we have surmised, is vital when inflicting sonic pain. Scarry (1985: 40) proposes that:

> The torture room is not just the setting in which the torture occurs; it is not just the space that happens to house the various instruments used for beating and burning and producing electric shock. It is itself literally converted into another weapon, into an agent of pain. All aspects of the basic structure – walls, ceiling, windows, doors – undergo this conversion.

This proposition of architectural structures being re-modulated into armaments is a significant one, as it supports an important hypothesis forwarded in this thesis - that waveformed and architectural strategies are harmoniously composed in order to privilege military-entertainment instrumentality. Even at Waco where the architectural structure of the compound was not purpose built for such practices (as were the factory and the cell), the architectonic strategies orchestrated by the state to contain it were woven around sonic amplification and recording techniques, constructing a cocoon of deprivation around those inside. Here again, the strategic time signatures of the architectural landscape and the sonic soundscape were compounded by each other's rhythms, so that they might dominate the physical, the psychological, and the affective resonances of agency that oscillated between the two. By returning to, and extending, Scarry's initial premise, it is stated that the cell is not only representative of such composite relations between the transience of waveforms and the stasis of architecture, it is infact, the ultimate symbol of their fusion. It is the filtered concentration of military-entertainment spatiality; a dissecting room of sonarchitectural affect.

Upon defining the rationale, construction, and practices of the cell, it is useful to further consider the thoughts of Foucault. His hypothesis that, "even if the compartments it assigns become purely ideal, the disciplinary space is always, basically, cellular" (1975: 143), being of particular relevance here, as he develops his argument by tracing the history of such forms of architectural organisation back to the monks cell and to the religious exercising of bodily limitations and self-restraint. Rather than conceive of the cell as a terminal realisation of architectural compression (as Scarry does), Foucault identifies it as an "*enclosure, the specification of a place heterogeneous to all others and closed in upon itself. It is the protected place of disciplinary monotony*" (1975: 141). Whilst it is judicious to say that, "discipline organizes an analytical space" (Foucault, 1975: 143), in contemporary Western culture, it is legitimate to now assert that discipline also organises a politics of the displaced; a relational ontology that purposefully transports our attentions from the cell to the club, from the theatre of operations to the movie theatre, and back again at will. The identity of the sonic cell can no longer be protected or isolated because it is in a state of constant networked transferral between military and leisure environments; and it is in this communication loop, that the Guantánamo detainment camp realises its defining architectural modality - that of nomadic violence.

As preparatory behaviours for conflict are installed within domestic regimen, Virilio's prophecies alluding to military/municipal rhythms of exchange are further enhanced by the architectonic parallels between the spaces of festival, performance, and dance, and the torture cells. In terms of inhabiting space - being shackled into a space and dancing in a space are worlds apart – but linguistically these antithetical environments are being continuously and irreconcilably drawn closer together. Thus for Scarry (1985: 28):

It is not accidental that in the torturers' idiom the room in which the brutality occurs was called the "production room" in the Philippines, the "cinema room" in South Vietnam, and the "blue lit stage" in Chile: built on these repeated acts of display and having as its purpose the production of a fantastic illusion of power, torture is a grotesque piece of compensatory drama.

Such macabre traditions of characterising torture rooms as places of cultural expression have been propagated in Iraq and Guantánamo as evidenced by Haitham al-Mallah's recollections of being sonically tortured in the 'disco' of Mosul (Bayoumi, 2005).

This naming of torture cells as architectures of cultural expression is telling. Through such designatory acts, the military-entertainment complex teleologically identify the routing of content transferral between military zones and municipal zones of leisure; locating the civilian spaces in which re-countings and re-enactments of their violent histories will be told in the future. For it is in the cinema, the theatre, and the music venue that the majority of future generations will come to witness, second hand, the atrocities of torture; violence that will be remembered for where it happened as much as why it happened or who was responsible for it. This brings us to the other logic inherent to this architectural naming of violence. The rationale of alluding to compressed spaces of pain as expansive places of pleasure is one that seeks to humanise the actions occurring within these rooms - activities reliant on the capacity of the soldier to extend himself into the realm of the inhuman. As the military know full well, it is difficult for us to culturally speak about that which we consider inhuman, let alone name it. As such, if the soldiers are acting out scripted orders, then they are playing anonymous roles in comparison to the named torture rooms, which - through time - will take centre stage and become the remembered protagonists of their aberrant productions. Via a convenient transmutation of memorial

presence and guilt, the sounds, actions, and personal identities of the military become subsumed by the architecturally distinguished characteristics of remembered violence. For future entertainment productions, it makes for better viewing and easier listening this way.

The Catwalk and the Death Camp

To deliberate further upon the mediatised nature of the Guantánamo detainment camp, we are not required to project upon impending histories, for this grotesquely martialled theatre has provided us with copious documentation of its machinations. Since 2004, there have been new sound recordings, videos, photographs, books, interviews, and reports produced on a daily basis pertaining to the abuses that occurred within its walls. This statement is not intended to scorn the regularity or velocity of such information. Rather it connotes a state complicity, as it strikes one that the military have inveigled the amplitude and exposure of this documentary wave to ensure that the clandestine threat of the detainment camp is extended to a global audience. Through this channelling of unmitigated violent potential, a new politics of the body has been produced. In this contemporary globalised theatre of operations "It is a question of situating the techniques of punishment – whether they seize the body in the ritual of public torture and execution or whether they are addressed to the soul ..." (Foucault, 1975: 28). The practices within the detainment camp do not imitate the ritual of public torture spoken about by Foucault nor are they the methods of confinement and self-surveillance that would 'better the soul'. Guantánamo locates itself in-between the two modalities, its penal arrangement orchestrated most coherently by sonic discipline. Fashioned in a continuum of traded violence, musical pressure directs the performative and demonstrative torture practices that are made to reverberate around its covertly abusive platform. It is by oscillating

between such extreme states of revelation/amplification and radical secrecy/silence, that Guantánamo can be comprehended as conducting its operations according to the principles of a fashion catwalk as much as by the dictates of a 1970s Chilean concentration camp (see glossary).

The music, flashing lights, media friendly practices of no-touch torture, and the constant parading of orange suited men in black hoods, goggles, and headphones denotes a performative assembly of techniques that could be associated with a bleeding edge fashion show. Yet Guantánamo was purported to be a top-secret facility, albeit one situated in the 'enemy country' of Cuba. On the surface, its existence reads like a bizarre fictionalisation; an absurdist's nomadic construction pitched between the collapsed logic of Thomas Pynchon's post Second World War opus *Gravity's Rainbow* (1975) and the shifting economies of paranoia at work in Don Delillo's *White Noise* (1985). The reality of Guantánamo, however, is composed by a well-defined rationale (as are the aforementioned texts) that destabilises our perceptions as it panders to them; the electronic mediatisation of the detainment camp fetishising torture and inverting Sassen's globalised spatial equation which rightfully infers that "the disparities, as seen and as lived, between the urban glamour zone and the urban war zone have become enormous" (1998, XXXIII). In twisted Guantánamo fashion - having never before been so intimately linked - the embodiment of these seemingly contradictory spaces finds expression in their disgusted embrace; a bi-polar dance that reveals its techniques whilst obscuring the identities of its choreographers.

Theoretically situating Guantánamo's *modus operandi* between that of a fashion catwalk and a secret death camp does not trivialise the sonic violence under examination. Such a proposition has been formulated to draw attention to the media-based strategies

programmed by the U.S. to ensure that the illegal detainment camps, and the violent

practices carried out within them, are known to the world at large. When the sonic, image-

based, and textual documentation of the camps is fed into media networks, the resulting

exposure serves as a threat to those whom the state perceives to be an enemy. The

threat announces that their (the enemy's) forms of violence will be met with equivalent

forms of asymmetric and inhumane abuse, force, and warfare and that these retaliatory

measures could be escalated in terms of intensity if deemed necessary. By echoing the

transmissions of externally perceived threats, the camp composes its own fearful politics

of presence that functions by making us neurotically justify and doubt its existence

simultaneously. Thus Guantánamo does not symbolise the camp that is solely "the

diagram of a power that acts by means of general visibility" (Foucault, 1975: 171), nor can

we say that its aims are to simply "render visible those who are inside it" (Foucault, 1975:

171). Instead, it is a camp whose condition is better diagnosed by a waveformed analysis

as it fluctuates between sonic overload and silence; its macabre instrumentality

orchestrated between the musical recording, recordings of the detainees, and its covert

wishes to be recorded by others.

With the latter desire copiously satisfied, Guantánamo has realised its potential as an all-

encompassing symbol of immanent danger; one that is pan-national in scope, contingent

in its manoeuvres, and intensely agglomerated around the citing of power. Symbolising

either the nightmare scenario or the logical conclusion of globalisation, the camp's

detainees inadvertently became the U.S.'s poster boys of systematic transfer.

Commenting on the increasing rates of transience within global systems, Sassen writes,

"It is true that throughout history people have moved and through these movements

constituted places. But today the articulation of territory and people is being constituted in

a radically different way at least in one regard, and that is the speed with which that

articulation can change" (1998, XXXII). The articulated movement of bodies towards Guantánamo expressed this new dynamic of accelerated transfer perfectly. To begin with the captives staccato movements were fast and silent as they were transported - handcuffed, hooded, and ear plugged - in rushed fashion, across political, geographic, and economic borders - without friction - to incarceration. Once inside the camp, however, they were enveloped in stasis, their lack of motility exposing the quantum mechanical consequence of a system's over stimulation as they fell victim to the inevitable effects of entropy. In this spatially stuttering state, where movements were slowed down, almost to a standstill, where the silences were amplified into fugal rhythms of noise, we record our final conception of the detainment camp – as that of a deteriorating system; of the detainee's will, of waveformed political coherency, (and most importantly) of perceptibility.

As Guantánamo has experimented with our perceptual rationality and the capacity of our cultural attention spans, it has signalled a new waveformed direction for the military-entertainment complex. Modulating its presence between the heard and the unheard, the seen and the unseen, the named and the unnamed, it tested our resolve to identify its procedures, to track its movements, to preserve our collective resolve to care. Guantánamo thus became the personification and the rupture of perceivable strategies. It was also the testing grounds for a new set of martial-civilian dynamics. The techniques of perceptual overload embodied in sonic torture have reached their sensorial conclusion - the rates of repetition and volume levels having been increased to their maximum ratios and output. The advantages of operating within the realms of the perceivable have been taken, analysed, manipulated, and exhausted. It is now time for us to track the military-entertainment complex as it invests its energies into movements outside of perceptual theatres, into uncharted zones, where the maxim 'out of sound, out of mind' comes to

represent an entirely new way of thinking about waveformed affect, cognition, and spatiality.

Whilst this shift into the yet perceived, amplifies the military's desire to inhabit and shape the silent and the invisible. It also signals the intent to mutate and transform the perceptual apparatus of the body - to extend the range of stimuli that it can operate within. This reconfiguration of the somatic will not just concern the audible and the visible. Over time all five senses along with those that we have only recently started to name and begun to comprehend will inevitably be upgraded in techno-military terminology. In the present, however, the audible and visible channels towards Guantánamo Bay have ended and there are now only impending departures; both for the detainees and for the military-entertainment complex. With the latter making new waveformed tracks into the remote realms of the sensorium it is the fields of perception that will become the new battlegrounds of the twenty-first century. Thus it is to the cartographies of unsound that we inexorably move into next, with augmented phantom ears, eyes, and organs extending the theoretical and functional capacity of our worn out phantom limbs.

CHAPTER 4

Out of Earshot:

A Ventriloquistic Ontology of Directional Ultrasound

Section 1: *The Production of Ultrasonic Linearity*

The fourth and concluding chapter of the thesis, focuses on a recently developed ultrasonic beam technology known as either HyperSonic Sound® or as the Audio Spotlight®. The chapter shall commence by discussing the technological and logistical aspects of this new ultrasonic speaker system that delivers audible content upon contact with a material surface. So that we may appreciate how ultrasonic systems have been developed into this new beam technology, a brief history of acoustic weapons will be carried out followed by a wider study of the non-lethal weapons that represent its extended calibrated family. Analysing the ways in which the ultrasonic beam decomposes traditional relationships between the somatic, spatiality, and waveformed affect, the section shall conclude by investigating how the body has been resituated within its inaudible environment.

As mentioned, the ultrasonic beam technology under investigation has two names by which it is known. This dual nomenclature results from two different companies having simultaneously developed acutely similar technologies at the turn of the twenty-first century that harness ultrasonic frequencies to produce the same effect - to make sound highly directional. The LRAD Corporation in San Diego is responsible for producing the HyperSonic Sound technology (referred to as HSS) that in the words of their website, "...gives you the ability to direct sound exactly where you want it." Meanwhile, the Holosonic Research Labs, Inc., from Massachusetts (referred to as Holosonics) are accountable for having produced the Audio Spotlight, which they profess (on their website) will "add sound... and preserve the quiet™". So far, it is not obvious as to whether there are differences between the two technologies; the socio-logistical divergence between the LRAD Corporation and Holosonics only becoming apparent upon

further research into whom the end users are and in what type of circumstances the systems are being utilised in.

Whilst the LRAD Corporation gears its speaker systems towards a number of commercial uses, they are more often utilised by military and policing organisations for reasons of crowd control, area denial (in sites of conflict), and for ship to ship communication. The Holosonics technology meanwhile, has predominantly been purchased by commercial and culturally oriented organisations such as museums and art galleries. It is through the amplitude of connections between cultural and military organisations that one of this study's themes is again amplified, as the technologies employed by such institutions project ideologically related trajectories. One of the definitive channels of the military-entertainment complex's joint rationale is made active by the newly realised targeting of the individual body over that of the mass social body, marking an important shift in speaker system functionality, perceptibility, and location. Never before have covert frequency-based technologies such as these, been employed in public, leisure, and conflict strewn locations to dislocate the individuated waveformed body from its environment. In order for us to distinguish this new unheard politics of the sonic body, we shall learn about the technology's potential from those who produce them.

HyperSonic Sound

The HSS in best described by its evangelical inventor Elwood G. Norris in an interview he undertook in 2003 with Time magazine journalist Marshall Sella. She is impressed enough by the invention to proclaim that it represents the first revolution in acoustic technologies since the invention of the loudspeaker some 80 years ago. During the interview Norris

reverentially describes the process that allows the small flat speakers - which are connected to a CD or mp3 players and an amplifier - to aim sound in highly directional beams of upto 450 feet at a consistent volume level. Norris (Sella, 2003) explains that:

> At the source, in the circuitry of the emitter, audio frequencies are "stirred together",... with ultrasonic frequencies and then sent out as a "composite frequency" that is inaudible to the human ear. The sound "hitches a ride on the ultrasonic frequency," Norris says, which travels in a laserlike beam in whatever direction it is pointed. "And here's the beauty part", he says. "The air molecules themselves convert this ultrasonic frequency back down to a frequency that can be heard". So unlike sound that travels on radio waves and has to be converted by your stereo's receiver, you simply need to be standing in the path of an HSS beam in order to hear the sound.

Thus the localisation of the sound can be realised within a subject's interior physicality, as the audible element of the beam is only exposed as being sonic upon touching the surface of the targeted skull, whilst those outside of its path hear very little. The article goes on to reveal that from its inception, the HSS has elicited similar responses from all who have experienced its directed transmissions - the lucid but insidious proclamation that "the sound is inside my head" (Sella, 2003).

The Audio Spotlight

In a similar vein to the revolutionary claims made about the HSS, Jennifer 8. Lee writing
for the New York Times (2001) reports on the Audio Spotlight invented by Joseph Pompei
and the MIT Labs and contends that:

> The real revolution of the acoustic beams lies not in the circuit boards, but in the
> mind. The audio spotlight will force people to rethink their relationship with sound, as
> the arrivals of the phonograph, the telephone and the Walkman have done before.
> An occasional cathedral or dome delights us with acoustic tricks played by the
> architecture when sounds from far away seem to originate nearby. But those are
> isolated effects. With the exception of Walkmans and headsets, sound is public, a
> shared phenomenon. We are sceptical of those who claim to hear sounds and
> voices that we can't hear. Humans are immersed in a world of overlying spheres of
> sound. We can close our eyes, but can't shut off our ears.

As Lee intuitively adduces, ultrasonic beam technology ruptures and reconstitutes the
very organising principles of the soundscape; from the nebulous mesh of waveforms we
exist within everyday to a newly occurring dissected spatiality that carves up the logic of
Enlightenment perspective and our place within it. For Goodman (2009: 186), such a
schism in the formatting of waveformed territorialisation renders the audio spotlight and
HSS technologies as:

> ...perhaps the most significant phase shift in capitalism and schizophrenia since the
> invention of the loudspeaker. It scrambles McLuhan's classic analysis of the
> opposition between acoustic and visual space, in which acoustic space is immersive

and leaky, whereas visual objects of perception occupy discreet locations. Holosonic control shifts us therefore from the vibrational topology of the ocean of sound to the discontinuous, "holey" space of ultrasonic power.

As this chapter develops, the implications of this épistémic shift will be amplified. The affects of ultrasonic linearity upon the audibly networked relations between the body, environment, perception, and cognisance shall be oscillated to expose the new ambient violences and territorial turbulences within our re-modulated soundscape. It is in this waveformed environment that an evolving array of techniques and asymmetric ideologies to conduct warfare through can be witnessed; an age of 'death lite violence' that sanctifies intense force by declaring its weapons to be non-lethal. No longer can we rely on the previously trusted sonic dynamic of the echo to locate us; from now on we have to listen for its unheard inversion - an ultrasonic reverberation that negotiates the reference points of one's sanity more than it does one's situation.

Non-Sound, Non-Lethal Weapon, Non-Pain?

The fictionalised projection of waveformed armaments over the past century has been commonly narrated through films, books, and music (in terms of literature there is Ayn Rand's novel *Atlas Shrugged.* In film there are numerous examples including Alfred Hitchcock's *Foreign Correspondent* (1940), Sherman A. Rose's *Target* Earth (1954), and Edward L. Cahn's *Invisible Invaders* (1959)) but as an active class of practical munitions, non-lethal weapons are relatively new. In the 1960s U.S. police forces had employed rubber bullets and chemical sprays in order to deter and subdue rioters. During the first Gulf War a second-wave of non-lethal weapons including lasers, sticky foams, caustic

solutions, and a range of 'acoustic' weapons (that utilise any frequencies, including infrasonic technologies that caused debilitating nausea and sickness) were introduced into conflict zones. Non-lethal weapons have been developed and introduced into theatres of conflict with their media representation in mind. Governments and military leaders around the world realise that their public support can quickly decompose via empathetic repercussions to observed violence and pain. They have learnt how to play the media game that Marshall McLuhan spoke about in the 1960s, leading them to "research the "bioeffects" of beamed energy... searching the electromagnetic and sonic spectrums for wavelengths that can affect human behaviour" (Pasternak, 1997). In fact, they have not so much learnt how to play this game, as they have re-imagined it; by changing the locations on which it focuses - from the observable battlefield to the non-visible theatre of operations, from the zone reverberating with screams and explosions to the non-sound environment, a spatiality where one cannot hear or locate the presence of the enemy.

The movements that transfer the military from noise to silence, from the perceptible to the non-perceptible are ideologically composed from the age old scores of camouflage. It is only recently, however, that weapon systems have caught up with the martial desire to out manoeuvre and damage an enemy without having to make oneself or one's armaments overtly present in the process. Dr. John Alexander - former member of the U.S. Army's Special Operations division and advocate of non-lethal technologies - supports such asymmetric and abstracted types of conflict because "there is a misconception that war is about killing... War is about imposition of will. Non-lethal weapons fit in the spectrum of this" (BBC News, 2003). As noted by Steve Wright (2000) non-lethal techniques in the form of acoustic weapons are being used in both military environments and in civilian contexts such as hostage rescue, crowd control, and urban combat precisely because they do not articulate the old language of observable pain. The empowering of agency

through waveforms has now reached a point where the instrumentality of a weapon is defined as much by its capacity to negate its own violent identity as by its potential to forcefully extend one's political beliefs or geographical preoccupations.

As outlined in an paper given by the Arms Division of Humans Rights Watch (1999):

> There are indications that acoustic weapons are also being developed for secret "special" missions and covert operations such as counter-terrorism. Acoustic weapons are also being developed with commercialization in mind, for civil law enforcement, border control, and internal prison use... The existing military literature indicates that acoustic weapons--across the entire frequency spectrum, from infrasound to ultrasound--have the ability to cause severe pain, loss of bodily functions, and bodily injury. Depending on the frequencies, intensities, and modulations employed, acoustic weapons could cause permanent or temporary physical damage, including damage to internal organs, interference with the workings of the central nervous system... tissue destruction, haemorrhaging, spasms, acoustic fever... significant decrement in visual acuity, incontinence, postexposure fatigue, and diffuse psychological effects.

Sonic weapons force us to re-think violence and its affects, pain and temporality, and geography and extension of the self because the taxonomy of conflict we have come to know and understand is being re-recorded by techniques and tools that refuse the history of perception. Instead they orchestrate a future of non-presence. This leaves us with a question to contemplate. In a future world of non-sound and non-lethal weapons how do we begin to perceive non-pain?

As far back as October 1992 this non-lethal future had been simultaneously foretold and questioned in patented form; the practical application of covertly applied waveformed force coming by way of Dr. Oliver Lowery from Norcross, Georgia and his Patent #5,159,703 for the 'Silent Sound Spread Spectrum' (see glossary). More recent developments of such ultrasonic technologies include the LRAD Corporation's production of the 'High Intensity Directed Acoustics' (HIDA) system (an offshoot technology of the HSS) and a microwave weapon called 'MEDUSA' (Mob Excess Deterrent Using Silent Audio), which - echoing the objectives of the HSS - beams sound directly into a subject's cranium. According to Lev Sadovnik of the U.S. Sierra Nevada Corporation, the system "exploits the microwave audio effect, in which short microwave pulses rapidly heat tissue, causing a shockwave inside the skull that can be detected by the ears. A series of pulses can be transmitted to produce recognisable sounds" (Hambling, 2008). Navy reports concluded that MEDUSA should be considered a success given its facility to produce a range of painful effects - from irritation to incapacitation. Assertions such as these, regarding technological accomplishment, are routinely issued by military and corporate sources. There are however, researchers who remain sceptical about such waveformed claims to pain. Vinokur infers that, "much of what is published on acoustic weapons in the media (in particular, about "acoustic bullets" and 'deadly' infrasound rays) is often based on hearsay and misunderstandings, leading to criticism by professional scientists" (2004).

Widely acknowledged as an expert on the efficacy of acoustic non-lethal weapons, Jürgen Altmann from Dortmund University in Germany has repeatedly expressed his doubts about the practicality of acoustic non-lethal weapons through published reports and papers (1998, 1999). Employing rigorous testing methodologies, Altmann systematically challenges the scientific basis upon which company, military, and government representatives found claims about the functionality of such technologies. Whilst

Altmann's views are respected, there are those who propose that his position towards non-lethal weapons is borne from a personal commitment to their non-proliferation and that he has a vested interest in downplaying their efficacy in the hopes that such findings will deter the military from pursuing further developments. Whilst Altmann's findings are distinguished by a scientific acumen, the effectiveness of acoustic non-lethal weapons is not what is at stake here. What is important to grasp is that there has been a perceptual paradigm shift in the manufacturing of affect, pain, and violence; and whilst the techniques that cause this rupture aim to silently territorialise new imperceptible realms, their *modus operandi* can be located in our experiences of the everyday and the everywhere.

Civilian Uses of Ultrasonic Non-Lethal Weapons

"Could it be that property owners now have their own sonic weapon in the battle against hooded youth who have previously attacked their pacified soundscape with their voices, ring tones, pirate radio, and underground music infrastructures? Has ultrasonic warfare graduated to the High Street?" (Goodman, 2009: 183) To this seemingly rhetorical question we could only hum in affirmation. Rather than discuss at length the numerous inaudible systems of waveformed conflict existent within our urban environments however, a device that silently speaks for the others will be focused on. It is a technology beholden of a moniker that neurotically suggests the film *Children of the Damned* should have been a documentary. It is the 'Mosquito Mk4 Ultrasonic Youth Deterrent'. On the surveillance/deterrent technologies website - www.cctvdirect.co.uk, the inaudible speaker system is enthusiastically marketed as such:

The new Mosquito MK4 Multi-age now has two functions. Either set the device to kHz to disperse groups of troublesome teenagers OR set it to 8 KHz to disperse people of ANY AGE from areas where loitering can be an issue such as subway terminals, car parks or any areas where people feel insecure at night due to other people loitering in the shadows etc.

Not content with identifying and profiling the sexual, economic, and racial body of the domestic enemy, our culture now targets and prepares itself for conflict with a newly branded internal nemesis – the body of youth.

The Art of Movement of Unheard Bodies

As ultrasonic non-lethal weapons come to spatially re-organise the soundscape and its inhabitants - by either deceiving them (through the covert nature of HSS beam technology) or moving them (through pain inflicted by the Mosquito) - these dynamics quietly signal a new frequency-based era of influencing, manipulating, and torturing the body. Whereas we could once feel relatively safe from intimate waveformed violence in a publicly crowded space, today, any subject, whether static or in transit, can be isolated and defined as an admissible target through the logistical application of ultrasonics. No longer do we simply move and situate ourselves in the rhythmic spill of the sonic speaker system. Through such inaudible transmission technologies - designed to acutely trace our spatial activities and deviances – we are urged to renegotiate the terms of presence and the role of the sonic body in space. Whilst the military and entertainment industries currently map this new waveformed politics of the body, it will inevitably take time for us to fully comprehend the co-ordinates, affects, and perceptual taxonomy of its modalities.

That said, there are signs that such knowledge is being assimilated and composed into tactical manoeuvres as personified by children's use of ultrasonic frequencies as cell phone ringtones. Due to the condition of 'presbycusis' (see glossary) those over 25 do not register such waveforms, so they can be used without their knowledge. Upon considering the inaudible evidence at hand, it is safe to say that the technique of training the unperceived (the HSS beam) is equally at home on the battlefield as it is in the civilian metropolis, and its capacity for engaging with mobility – both its own and its targets - knows no bounds.

In *Speed and Politics*, Virilio asserts that an essential strategy of warfare has been *"the art of movement of unseen bodies...* able to strike no matter where and no matter when..." (2006: 62). By changing the terrain of perceptual modes – from the landscape to the soundscape - the military-entertainment complex has effectively upgraded and uploaded Virilio's analysis into a waveformed system of thought, composing new forms of somatic non-presence in the process. The previously camouflaged (unseen) military body is now conceptually transposed onto the frame of the victim in terms of the negation of observable pain and violence; exchanging immaterial presence to a somatic occupation that resonates with inaudible intent – the body of the unheard. Quiet but focused, this somatic will extends itself through the HSS's irrational linear perspective; channelling space through obtusely oriented frequencies that aim to alter the point of its target's consciousness. Aware that "for the sonic unconscious, speed of movement is processed directly in the body" (Fuller, 2005: 30) the perceptual shift projected by the HSS's unheard body is rationalised by a more clandestine instrumentality; the aim to deceive, disorient, and decentre by speeds and movements of information directly processed in the head.

Section 2: *The Story of the Whispering Parasite and Siamese Consciousness*

The tone of the remaining sections in chapter four is predominantly speculative as it amplifies the potential of ultrasonic beam technology to be employed as a weapon. It is more the ideological trajectories that will shape its movements and developments through time that interest us here, rather than the current status of its functionality. It is these channels that will articulate a wider cultural re-modulation of waveformed psychology, spatiality, and physiology. Thus this second section explores the HSS's *modus operandi* to psychologically deceive those in its covert trajectory and amplifies its inaudible potential to decompose the perceptive rationale of its target. The ability of such weapons - to create and calibrate fear in the individuated body will also be contemplated, as the imperceptible nature of the waveforms threatens to rupture our observed logic of cause and effect. The HSS's facility to not just speak to the inner voice, but more precisely, to create another internally occurring articulation will be considered a central objective of the technology - its explication therefore being crucially significant to the study. In aiming to multiply the internalised voice of a subject, those employing the HSS ultimately desire to proliferate a psychologically disorienting modality, creating in turn, an excessive sense of the self. The ultrasonic beam's prospective channelling of the schizophrenic condition and the resonant manner in which it questions the logistics of sentience will be the final focus of this section. To begin with, the instrumentality of perception will be discussed in order to understand how ultrasonic weapons present us with a new way of defining the presence, agency, and extension of the waveformed subject.

In the previous chapter it was established that techniques harnessing audible overload for affect reached their nadir in the torture cells of Guantánamo. By applying acoustic

repetition and excess the detained subject was pressured by sound into deteriorating rhythms of psychological collapse and break down, in the hope that his inner voice could be located and amplified. As already suggested, the ultrasonic beam represents a whole new way of thinking about perception, excess, and agency. Instead of perceptible sonic pressure, we have an imperceptible channelling of externalised agency to consider, one that negates the efficacy of the sonic as an effective force. As an instrumental modality, the power of excess no longer resides in the external production of sonic dominance and its reverberatory politics. In ultrasonic terms, the operative properties of excess are now re-modulated to directly manifest and propagate themselves within the internal cognitive facilities of the subject, as voices are beamed into a target's head. The extension of one's voice into the mind of another, without it being perceivable by the sensorium, circumvents all rational practices of defining the self's relationships to the world at large. This transmitted voice is not identified as emanating from an external source however. Rather it is deceitfully projected as an internally occurring presence. In an act of acoustic double-cross, the HSS ultrasonically simulates a secondary essence of the self - a whispering parasite that engages with a target's inner voice to spawn a Siamese consciousness.

Whereas philosophers such as Deleuze and Guattari (1987, 2004) have conceptualised the historical, behavioural, and socio-political dynamics of the contemporary schizophrenic subject through the fractured voice, the consciousness being discussed here is represented by the congealing proliferation of excessive vocal channels. Hence the HSS takes measure of the notion that "inner speech is an almost *continuous* aspect of self-presence" (Don Ihde, 2003: 65) and by increasing its cadence, orchestrates a surfeit of presence within the self. Anonymously supplementing the subject's audible and inner articulations, the ultrasonic beam plants another third voice directly into head, covertly disassociating it from its source. More than any other mode of sonic reference, the voice

and more specifically, speech - especially when it is perceived as being disembodied - has the potential to create a debilitating range of corollary states, from fear and terror to insanity. Casey O'Callaghan (2009a) explains such reactive locutory phenomenon as being particular to oral dialogue because:

> ...perceiving speech is similar to perceiving these other special sorts of biologically significant things and activities, in that its concern is a type of *animacy* exhibited by living things to which we have special sensitivity. Like facial expressions and some non-linguistic vocalic sounds, speech sounds are caused by and thus have the potential to reveal the communicative intentions of their animate sources. Speech perception thus belongs to a special class of perceptual phenomena that serve to reveal biologically significant intentional activities involved in communication. Perceiving speech is detecting and discerning language-specific kinds of biologically significant events: ones that are generated by communicative intentions of fellow human talkers. We hear people talking. We hear them as interlocutors.

If we hear speech engaging us in real time that we cannot sensorially perceive as being connected to an external presence, then we are forced to conclude that it must be a voice of one's own internalised manufacture – an imaginary voice (see glossary). Historically (or in non-occidental cultures) this would not have necessarily registered as being problematic as suggested by Schafer who states that, "rationalism extinguished the rich treasury of imaginary voices that once existed in Europe and still exist in many less civilized parts of the world" (2003: 34). In the twenty-first century of the West however, the HSS's ultrasonic agency eschews any notion of hidden acoustic treasure by allowing one to speak from a different kind of secret location, and to do so with no time lag, directly into a subject's skull; endowing it with the capacity to mutate a target's organisation of external

and internal perception. Not being able to rationalise the presence of a voice through its spatial, temporal, or somatic characteristics creates sensorial stress and anxiety in those experiencing such waveformed disjuncture. If we further contemplate an instance of our cultural predilection to construct sensibilities and behaviours around the perception of the audible voice, such a proposition becomes easier to comprehend. The example of the telephone is useful here as it is a technology that essentially transfers disembodied voices from discrete locations. The first thing we do when answering a telephone is to ask who is present, followed by inquiries as to where the caller is located which in turn leads to questions about why they have made the call. When engaging with technologically transmitted disembodied waveforms, we are compelled to locate their somatic source and to identify the reasons as to why they are being directed at us. The answers are essential keys to our perceptions of self, location, and engagement; all of which assist us in composing embodied channels of presence within the dislocative and disembodying networks of modern communications systems.

When the remote voice one engages with is conceived of as an internal transfer however, then the questions posited to the external telephone caller are asked of the self; causing rationality and reason to oscillate with atonal frequency as agency and perceptual cognition are inevitably questioned. Thus, a targeted subject's inability to locate the sonic, physical, or visible source of a voice (or of a sound) that is occurring within their skull is evidently of great importance to the ultrasonic beam's efficacy as a weapon. This is because when we perceive waveforms, we simultaneously process information supplied by all the other senses, formulating a multi-sensorial comprehension of our presence and status within an environment. O'Callaghan (2009b: 12-13) develops this notion of the infinitely connected sensorium by stating that:

...emerging evidence challenges the assumption that the senses function as independent systems and furnish encapsulated channels of awareness. Perceiving involves extensively comparing, weighing, reconciling, adjusting, and integrating the evidence of the senses. Experience is shaped by robust cross-modal interactions. Consider ventriloquism. This well-established perceptual illusion, which need not involve speech, occurs when the visible location of a sound source affects the auditory experience of location (Howard and Templeton 1966; Bertelson 1999; Vroomen et al. 2001). The fascinating McGurk effect upon perceiving speech sounds involves a change to the phoneme one hears that results from watching the lips of a speaker pronounce a different phoneme (McGurk and Macdonald 1976)... The simple model of the senses as separate systems and atomistic modes of awareness requires revision. Conceiving of the senses as autonomous domains of philosophical inquiry has reached its limits.

In contrast, philosophical investigation into the realms of the inaudible and by extension the imperceptible has barely begun; the only conceivable limits in these circumstances being those transgressed at the periphery of phenomenological rationality. As powerful agents of perceptual transfer, military and entertainments industries are unsurprisingly portrayed to be the leading protagonists of such research, as they stage new mimetic acts of make believe in silent theatres of operation. When there are no other sensorial evidences to be perceived, ultrasonic deception is afforded the time and space to produce a different kind of show; one in which voices are thrown to deceive the receiver into believing that they are the source of the sound. As these new inaudible techniques prove, the perceptual blueprints of deception inherent to warfare and ventriloquism needed updating; a task undertaken by an ultrasonic technology that secretes essential amends and modifications with hidden messages. The old double act of analogue duplicity has

been digitally remodelled and there is no longer any requirement for a visible dummy to show off the sonic illusion. Through the inaudible alchemy of the HSS's ultrasonic routine, the previous model of reception is transformed into the fleshy substance of the targeted subject and as if by magic a newly tailored modality of deception has been brought to life.

Changing the Channels of Duplicity

Inverting the traditional military roles of deception and camouflage, the HSS performs a neural charade in the new battlefield that is the skull. Virilio (2002: 33-34) signalled this martial channelling of duplicitous affect into the psyche (without going so far as naming its anatomical destination) sometime ago. Commenting on one of the prime directives of conflict – the will to impose ones perceived reality on another – he traces the ephemeral reconstruction of strategic deception according to the dictates of technological progress:

> War was always linked to perceptual phenomena, such as I call the "logistics of perception". The technologies are such that it no longer suffices to camouflage a plane, but instead its path must be camouflaged to conceal its movements by means of disinformation (deception) that fabricates false random trajectories. The ruses of war are as old as war, except that today the deception is in images, radar signatures, electronic countermeasures.

Amplifying the increasing significance of the covert trajectory and the subliminal channel, Virilio explicates the contemporary dynamics of applied violence and their evolution through waves of imperceptible pressure. In doing so, he began to articulate the emergent politics of ultrasonic instrumentality, extending the amplitude of his research, which has

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ultimately overlooked and underlistened to the significance of waveforms. Recounting previous ocular techniques of deception he references the camouflaging of aircraft, but there are many other crucial waveformed strategies that could also be recounted. Enabling us to comprehend the recent history of English and American military practices of waveformed deception, the following brief outline of exemplary techniques will further expose the perceptual shift instigated by the ultrasonic beam; from the practices of audible duplicity to the undetectable sly motility of non-sound.

This brief survey begins in the final days of the First World War, with German forces regularly intercepting radio transmissions, allowing them to anticipate American manoeuvres. In such circumstances, two American soldiers successfully entered 'voice scrambling' into the lexicon of effective communications techniques. Realising that "in warfare, knowledge must be complemented with deception" (De Landa, 1991: 185) Ben Carterby and Private First Class Mitchell Bobb simply spoke their native Choctaw language to each other and in doing so created a closed channel of information dispersal - earning them the moniker of 'Code Talkers'. Some thirty years later during the Second World War, the success of this strategy would be re-enacted as the U.S. military employed 400 Native Americans (of Navajo descent) to fulfil the roles of Code Talkers. Since the Navajo language was articulated through its oral tradition it meant that there were no written materials to be captured and deciphered. Adding to the unintelligible nature of their transmissions, the Navajo Code Talkers created new words that only they knew (meaning that even other Navajo speakers would not know them) resulting in a message relaying system that was proven impossible to decode. As detailed by Deanne Durrett (1998) the ideological practices of secure sonic communication systems had begun in earnest.

Researched in detail by Philip Gerard (2002), the following example of military duplicity also occurs during the Second World War. The 'Ghost Army' was a U.S. tactical deception unit consisting of approximately 1,100 artists, actors, musicians, and other creative types sequestered from art schools and advertising agencies to construct fake military installations, rubber tanks, false radio transmissions, and fabricated soundscapes, (acoustic techniques that were later used in the first Gulf War, when speaker systems placed behind sand dunes, dictated the movements of the battlefield by transmitting imaginary battle sounds). The directive of the Ghost Army was to saturate the Nazi's with duplicitous acoustic signifiers of mass troop and artillery manoeuvres (mounted on armoured vehicles, large speaker systems transmitted soundtracks in covert locations to fabricate the presence of large numbers of soldiers and equipment) and to more generally transmit disinformation about the numbers, plans, and whereabouts of the allied forces. Conversely, during this period of time, the Nazi's utilised sound in the form of coerced music to acoustically camouflage the grotesque cruelty of their 'final solution' (see glossary) to the 'Jewish question in Europe'. In the Birkenau concentration camp, "the camp band had regularly been required to play adjacent to the railway platform during selections or to perform in front of the gas chambers, thereby deceiving newly arrived prisoners into believing that they did not confront an immediate threat to their lives" (Fackler, 2003: 117). The musicians were also forced to cover the sounds of extermination as recalled by trumpeter Hermann Sachnowitz who recounts that, "we also played on other occasions, especially during executions, which usually occurred on Sunday afternoons or evenings... perhaps they intended to drown out the last protests and final curses with music" (Fackler, 2003: 116).

The final example of this survey is a more recently occurring strategy of sonic deception and it is one that has been conducted and transmitted during all major armed conflicts led

by the English and U.S. army's since the Second World War. It is the clandestine radio programming of the military's Psychological Operations (PsyOp) divisions. By fabricating phantom radio stations that are able to move their transmitters at will (as well as broadcast over long distances), military organisations are empowered to channel disinformation and propaganda directly into the homes, offices, and battlefields of the countries they are engaging within. Furthering the range and scope of transmissions, military aircraft such as the EC-130 have - according to the 'Psywarrior' website - "been converted to flying radio and television stations, capable of pre-empting a country's normal programming and replacing it with whatever informational broadcast that is felt necessary to get the message through to the listening audience". Given the duplicitous success of the radio stations, it means that they have become an integral part of any contemporary conflict strategies as proven by their deployment in Grenada (1983), Panama (1988-90), the first Gulf War (1990-91), Somalia (1992-93), Haiti (1994), Bosnia (1995) and Iraq (1998). Considering that clandestine radio technology has consistently featured as a PsyOp weapon in all U.S. led invasions since the Second World War, it is safe to say that within the taxonomy of sonic deception, it rates as the military's most potent weapon. Its efficacy is reliant on its capacity to directly transmit disinformation to citizens and military personnel alike and in its potential to instigate mass transformations in a culture's sympathies and territorial behaviours. We can also add to this list, its broadcasting facility to create waves of dispiriting anxiety, which is an important asset if we are to believe that "the *field of battle* is a *field of perception* which must be organized in such a way as to control the movements of the adversary and cause them to follow a false lead, to demoralize them and exterminate them" (Virilio, 2002: 96).

The Ear of the Schizophrenic and Psycho-Geography

By transmitting channels of disinformation from hidden locations, clandestine PsyOp radio shares ideological trajectories with the ultrasonic beam technology. It is in their scope that they differ. Whereas the radio focuses upon creating multiple mass deceptions of the social body, the HSS targets the individuated body and endeavours to alienate and isolate it from the enveloping social networks it is a part of. The convergences of these technologies can easily be registered again however, in their dislocative schema. Both the radio's and the HSS's capacity to achieve 'multi-channelled states' in or around their targeted listeners is reliant upon the inability of those who hear, to locate the source of the transmission (a schizophonic or acousmatic (see glossary) state). For now, we will be further exploring the term schizophonia as it more precisely articulates the military's waveformed agenda to cause a multiplicity of psychological maladies in its targets, including those of confusion, disorientation, and alienation.

The concept of schizophonia has been mentioned several times before in this text but it is in the ultrasonic beam's rupturing of audible agency that the cultural trajectory of this term is fully amplified. When writing about the historical instigation of a schizophonic state of sound, Schafer was originally referring to the period of the 1870s, when Alexander Graham-Bell invented the telephone in 1876 and Thomas Edison invented the phonograph in 1877 - for these are the technologies that signify the beginnings of the Western fascination and drive to disembody the voice from its anatomical mechanisms. From a more generalised perspective, this cultural process dislocated the rational trajectory of the sonic by relegating the perceptual necessity of its original production to the peripheral conceptual hinterlands of the remote. By composing such a nomadic waveformed modality "the separation of sound from its original source through

electroacoustical technology instantly impacted the cultures of the world" (Bishop, 2002:1), leading Jack Bishop to conclude that, "this *schizophonic split* has arguably been the single most important moment in the history of music" (2002: 1).

Whilst this latter statement is historically instructive, we have now reached a new impasse in the twenty-first century where a new split has occurred in the soundscape (one that is possibly just as important as the schizophonic one), from technological pressures applied by the military and entertainment industries. This split is necessarily different, however, as it orchestrates several conceptual scores. The first split score is that of the sonic from the audible, as the soundwave is silenced and redefined in the ultrasonic weave of the HSS beam. The second split score is the potential directive of the beam and its quiet calibrations, to tear the subject from its rational perception of the self and its corresponding relationships with its environment. Between the rupture of the rational mind and the re-modulation of the soundscape, ultrasonic weaponry simultaneously operates on both the somatic body and the spatial body, fabricating a new psychic space in the process.

As such, ultrasonic beam technology either represents the final stages of schizophonia or maybe more persuasively, it announces the evolution of a new state of waveformed consciousness, organisation, and agency that we are yet to name. If this is so, then one of the first statements to be made about this incipient era is that we can no longer conceive of *hearing voices* as being the sole preserve of the religious, the chosen, and the insane. Possibly anticipating that these voices would be re-channelled back into Western culture, Schafer (2003: 33-34) began a list of those who were culturally assigned to receive such voices and explains their connections:

The ear of the dreamer, the ear of the shaman, the ear of the prophet and the ear of

the schizophrenic have this in common: messages are heard, but no matter how

clear or compelling they may be, there is no evidence of a verifiable external source.

The transmission seems intracranial, from an interior sound source to an ear within

the brain.

We can now add to this list, those who did not make Schafer's initial draft – namely

anyone - for the HSS envelops all into its schizophrenic logic. There is no picking and

choosing of receivers due to their religious beliefs, spiritual expectations or 'symptoms of

psychic disorder' (see glossary), there is simply an inaudible directive to channel the

irrational murmurs of an unsound mind into the skull of a targeted body.

In closing this section of the chapter, it is proposed that by calibrating the index of

rationality via silent instrumentation, the HSS is in the throes of defining a new epoch. It is

doing so by composing a new theory that speaks to us about the broader ideological

amplitudes of the age and which applies itself to the production and predictability of

waveformed (in)sanity. This is not the chaos theory applied to the stock markets in order

to pre-empt currency fluctuations, nor is it "the mathematics describing the onset of

turbulent behavior in flowing liquids (which) is now being applied to understanding the

onset of armed conflicts between nations" (De Landa, 1991: 57). No, this is a new

speculative analysis about the creation of disorder; an unsound theory that aims to

delineate the sublime equations of inner turmoil rather than comprehend the logistical

disarray of territorial disputes or virtual economic crashes. It is a specious narrative that

employs the mathematics of waveformed turbulence to articulate conflict between voices;

and its predictions of future ultrasonic organisation within the military, entertainment, and

civilian economies of covert psychological violence are all lining up.

Section 3: *A Silent Killing in the Trans-Auditive Era*

The third section of the final chapter is where the spatial, viral, and speculative analysis of ultrasonic beam technology is articulated. It will begin with an inquiry into the current shift of military and entertainment industry's strategies, from heard and seen presence to unheard and unseen non-presence. The ramifications of these unperceived movements - within sites of conflict and leisure, and the newly composed zones fabricated by both industries - will subsequently be discussed, so that we might comprehend the abstraction of space and waveformed agency. Following this will be an investigation into the nature of locational waveforms and the forwarding of possible alternative taxonomies for perceiving the HSS's spatial significance. Thereafter, the philosophy of the viral channel will be transmitted more resonantly as the proliferation of asynchronous media, asymmetrical ideology, and parasitic warfare - all constitutive of the ultrasonic beam - come to define the context of twenty-first century existence. The dénouement of the chapter will explore the esoteric trajectories inherent within ultrasonic systems of organisation, in order to understand where and how the unheard future of the antenna body is mobilised within our newly modulated soundscape.

Over the course of this text the antenna body has broadcast to us its journey, from the increasingly compressed architectural spaces it has come to be present within. From the work/public space of the factory to the domestic/private space of the compound to the incarcerated/cellular space of the torture cell, we now arrive at the final spatiality from which it transmits and receives its signals – neural space. After the cellular space of Guantánamo Bay had been sonically mapped and overloaded, the next logical step for the military to take was to decompose the existing architectonic symphonies of violence and move the theatre of operations directly into the skull. With no operating costs, no visible

aberrations, and no escape velocities to worry about, it was a logistically sound and predictable transfer to enact. This new sonic architecture will not be constructed from concrete, metals, and plastics; instead it is cranial and it is engineered from neurons, synapses, and transmitters. Its driveways and highways are no longer laden with asphalt and traversed by motorised vehicles for here those connective phenomena are named axons and they are negotiated by signal pulses called action potentials. Thus the focus of ultrasonic territorialisation has inexorably opened up a spatiality, which in bypassing existing material constraints, has established a new frontier in frequency-based conflict. An idea shared with Goodman who projects that "the colonization of the inaudible, the investment in unsound research, indicates the expanding front line of twenty-first-century sonic warfare" (2009: 187).

By acknowledging the development of these new spatial dynamics, the HSS's voice to skull transmission negates the need to define an acoustic wilderness (as the FBI did at Waco), or to construct walls of sound (as the U.S. military did at Guantánamo Bay), and instead employs non-sound to engage directly with the construction, deconstruction, and reconstruction of inner space. It is via ultrasonic technology that we witness the military-entertainment complex shifting its operations and apparatus from more predictably structured audible locations to new acoustically nebulous zones that facilitate asymmetric empowerment and arrhythmic agency. This break from solely operating in the sonic environment is somewhat logical for a military that has also become vulnerable to the intense connectivity of the networked culture machine. As the civilian populace acquires access to increasingly affective technologies of communication (and systems of knowledge mobilisation), then its members also become more independently able to run resistant interference patterns across the waveformed and visualised global infoscapes via the Internet, cable technologies, satellite systems, and pirate radio. Accordingly, it has

become essential for the military-entertainment complex to resituate selected areas of conflict and to relocate the dynamics of engagement (at home and abroad) to perceptually inchoate and intangible topologies.

In chapter three, it was surmised that the notion of presence - of both the captive within Guantánamo Bay and of the camp itself - was manipulated by an array of perceptual techniques that were employed to simultaneously amplify/expose and mute/secrete the detainee to and from the rest of the world. This construction of perceptions situated Guantánamo Bay between the observed and the unobserved, between the recorded and the unrecorded, analogously mimicking its socio-political/physical status in Cuba as an illicit offshore spatiality. An externalised environment where new experiments, illegal activities, and global threats could be practised and transmitted in the name of the state; a governmental 'escape architecture' which simultaneously evaded responsibility due to its non-presence on home soil. The operating logic of the peripheral is what is important to comprehend here, as it only functions to its fullest capacity when it is manifested in the hinterlands of perception, legality, and humanity. For the military, such an ideology of the periphery is useful because it empowers them to slip in and out of space, presence, and character, at will. The HSS presents us with an extension of this thinking but with a schism in its technological application, as the literal nature of air space becomes the new conflict zone and frequencies become the ammunition through which it is negotiated, territorialised, and dominated. If Guantánamo Bay represents a physical manifestation of the perceived and the unperceived, of the heard and the unheard, then the HSS represents an otherworldly variation on the theme. Being between stations, the ultrasonic beam is re-organising the soundscape via the transmutation of vibrations and codifying our perceptions by manipulating the waveformed principles of physics.

With the functionality of architectonic noise having been perfected within the Guantánamo cells, the will to perfect the violent utility of silence has been mandated as the next step for those interested in commanding zones of conflict and leisure. By achieving this, the military-entertainment complex will become adept at seamlessly transposing their strategies and techniques between silence and noise. Operating in the smooth space of their chosen dislocation they are able to not only modulate their presences between the civilian zone and the battle zone, but more than this, they can oscillate between states of conflict and eschatology and ultimately manoeuvre in between the senses. Thus whilst Guantánamo represents the dénouement of a waveformed technique, it also symbolises an illicit system of transfer. Previously in this text, it has been suggested that the military-entertainment complex's strategic shift from noise (symbolised by the sonic torture in Guantánamo Bay) to silence (signified by ultrasonic beam technology) has been defined by its unidirectional flow. It would serve us to ruminate further upon this idea now and propose that it is the regulation of this flow and the attendant capacity to reverse at will, one's allegiance to a particular waveformed state, that truly represents the mastering of spatiality, perception, and presence.

By moving into the imperceptible spaces outlined by the HSS, the military has mapped out a new environment that it can exist within and in which it can logistically conceal its functionality, agency, and systems of extension. Consequently, it can be powerfully effective without its manoeuvres ever being perceived as such. The military has always been cognisant of the motile power residing in those phenomena that are not perceivable by the sensorium. Now that technology is allowing them to inaudibly articulate the finer points of this supposition, it is necessary to rethink Lex Wouterloot's prognosis that states, "it is not to be expected that in the near future the battlefield will become silent. The trans-auditive era of the silent killing has not yet dawned" (1992). Nearly twenty years after this

statement was penned, we find ourselves beyond the cusp of this era, enveloped within the dual vibrational dynamics and ideologies of an unheard temporality. In this epoch, silent killing is as much a prime directive of the military machine as is the noisy death. When it useful for the act of killing to be heard, the military's actions will be audibly resonant. When it is necessary for this process to be silent, the weapons employed will be those that can simultaneously mute the target as well as the environment in which it previously existed.

As has been deduced, the waveformed manoeuvres of the military-entertainment complex are not totalising ones. It will leave many of its techniques, apparatus, and signifiers of violence within the observable realm, so that should its power, influence, and threat require observation to be deemed effective, then perceivable channels are left open for it to transmit its agency through. Just as "the power of the countermeasure thereby resides in its apparent non-existence" (Virilio, 1994: 66), the power of the attack inhabits the realm of the perceivable and vice-versa. Furthering this logic, it is proposed that whilst presence is represented by noise and non-presence is symbolised by silence, together they signify a thirded vacillating demeanour intent on updating Attali's declaration that "today, Noise triumphs and reigns supreme over the sensibility of men…" (1985: 23). From a military and entertainment perspective, it is neither silence nor noise that is triumphant over human sensibility, rather, it is the potential to inhabit either state whilst harnessing its waveformed dynamics to apply force and pressure, (and to subsequently empower oneself) that dominates current thinking.

If this exploration of the ways in which power is exerted, maintained, and concealed through alternating channels of the heard and the unheard, the perceived and the unperceived, and the measure and the countermeasure is amplified, echoes of Antonio

Gramsci - and more specifically his ideas about cultural hegemony - can be heard. For Gramsci, the capacity for one group of people (for him it was the ruling class) to dominate the wider culture that it is a part of is dependent, to a degree, on its ability to silence and camouflage its power, whilst expressing it at the same time through the normalisation and rationalisation of its existence. By consistently articulating and muting the dynamics of its own agency, along with those of all other groups, this dominant unit comes to form an oscillating entity that envelops the wider social body. Orchestrating a seemingly all-inclusive rhythm, it functions by impeding those outside of its command hierarchy from locating the covert sources of its power, as they continually shift between seemingly unrelated positions, actions, and transmissions. In this way, the dominating group explains its presences whilst hiding the reasons for them. It makes noises about being a universally beneficial system whilst silencing those who would be critical of it. In this way the hegemonic model achieves control not though brute force but rather through the creation and propagation of consensus.

According to Gramsci such consensus or 'social harmony' is fabricated through a duplicitous array of cultural ambitions, which, whilst portrayed as constituting universal values, only serve those who constituted them in the first place. The echoes referred to in the previous paragraph are especially resonant here as the theories of cultural dominance and martial strategy are mixed into each other's seductive rhythms, to compose loops of justified turbulence. Thus what we might call 'military-entertainment hegemony' analogously perpetuates violence through music, film, and literature – rendering it as an essential component of existence - in order to rationalise and normalise Western culture's systematic preparation for and instigation of conflict. In turn, the recorded outcomes of these struggles will be reconstituted as future content for cultural production and so on and so forth. As such, Gramsci's symphony of domination, which found its voice in the

theory of hegemony has - in the hands of the military-entertainment complex - become a symphony of audible and inaudible feedback, in which the impossibility of picking out single notes of cause and effect becomes symptomatic of a more encompassing crisis of reason.

We are Never Outside of Geography

The manner in which our perceptions of the soundscape are disoriented by ultrasonic linearity denotes a crisis of spatial reasoning that breaks down old divisions within the frequency-based environment. Within this context, domination is not accomplished by plundering another's land but is rather distinguished by the facility to pass through such space in order to invade another's skull. Through covert positioning and deceptive synthesis, the HSS disrupts apparent relationships between the concatenation of events linking the point of transmission with the point of audition and in doing so thoroughly disproves the theory that, "the locations of sounds you hear are connected with the locations of their sources in the environment" (O'Callaghan, 2009b: 5). As the incoherent rationale of ultrasonics compels us to construct new ways of thinking about waveformed location and situation, it concurrently articulates the language of an age-old struggle. The conflict over territory (whatever its formulation) has been resonant within human and animal kind, ever since environments could be traversed, as pointed out by Edward Said in *Culture and Imperialism,* when he claims that we are never outside of this negotiation of geography and by extension, of spatiality (1993).

"Social privilege is based on the choice of viewpoint (before attaching itself to accidents of fortune or birth), on the relative position that one manages to occupy, then organise, in a

space dominating the trajectories of movement, keys to communication, river, sea, road, or bridge", intones Virilio (1977: 94). From the perspective of those utilising the ultrasonic beam, the ocular viewpoint is still significant, as targets need to be sighted in the first instance, so that the HSS can be trained upon them: But, it is the waveformed channel that privileges them with the key to discrete communication. As the linear transmission of the frequencies opens up hermetic corridors of latitude and longitude, it transgresses the mapped logics of distance and vehicular transportation by generating concealed passages. In this way the ultrasonic beam renders the connection between space and distance a tenuous one; for at the centre of it's calibrating system is the targeted subjects cranium whilst its circumference embraces the cerebral amplitudes of sanity and insanity. The only metering of distance that matters here is the one dependent on the direction of a technology that equates the rationale of the compass with the extension of the self into another body.

In the previous chapter it was proposed that waveformed subjects judge distance between themselves and surrounding bodies by sending out a constant stream of pulses - analogous to the transmissions of a radar - in order to locate relationships and assess levels of intimacy. The subject that we are listening to within the ultrasonic environment, however, has a different relationship to other individuals and to the movements of the mass social body. The dynamics of his/her interactions are more suggestive of Georg Simmel's (1903) notion of formatting and maintaining distance as a metropolitan strategy, than they are of the radar's metronomic negotiation of range. Thus, "social distancing, as a type of performance in response to the overbearing rhythms of the city, was thought by Simmel to characterize the urban personality", states John Allen (2000: 61). It is just this kind of fear - of being engulfed in swells of urban orchestration - that fuels the solipsistic tendencies of the ultrasonic beam. It could be said that the HSS has simply harnessed

and dysoptically romanticised the continuum of modern urban alienation and recomposed its inherent distances into a hyper-modern tumult of isolation. Subsequently the desire of the urban subject - to be conceived of as a differentiated individual - has been taken to heart by the potentiality of an inaudible weapon that ultrasonically amplifies this will and extends it by simultaneously disembodying the self - detaching it from its social composition.

Supporting and contemporising Simmel's analysis of the disconnected urban dweller and his/her remote associations with the city and those whom inhabit it, Allen ascertains that, "to bring Simmel up-to-date in this respect, perhaps there is now as much a need to live the 'global' intensity of relationships and their effects at a distance, as there is the complex rhythms within cities" (2000: 63). Symptomatic of the era in which it was written (the 1980s), such a statement is tuned to the harmonic resonances of British and American Conservative governments of the time and their individualistic ethos that pervaded all strata of public and private life: Margaret Thatcher's relentless efforts to break up collective labour associations - such as the trade unions - being the most pertinent evidence of these sentiments (as recorded by Peter Dorey (1995)). In today's era of globally networked consciousness, social isolation is supposed to be an anachronistic modality. However, the remote affordances implied by the network express their effects in the decentralisation of the urban subject who can now work, live, and learn at a distance from the city.

Teaching, receiving information, and interacting remotely are activities defined by robotics theorist Ken Goldberg (2000) as areas of concern for 'telepistemology' - an upgraded electronically networked version of epistemology that aims to reveal our current locative practices of accruing knowledge through mediation. In making such removed behaviours

possible, the Internet symbolises the oscillating potential of infinite connection. In contrast, the HSS technology represents the dystopian reverberation of Western science, dealing as it does in severance, detachment, and rational mutation. Whereas the Internet transmits the bifurcations and minutia of informational vicissitudes, from and through distance, the HSS pitch shifts telepistemology's mandate into a paranoid echo of 'videodromotic transmission' (see glossary). It is does not take a great leap of association to suggest that the arcane dark signal in *Videodrome* (see glossary) - causing neural transfiguration and hallucination - has technologically evolved from a cultivated science-fictive blip in 1983 into a martially distributed channel of mental destabilisation and spatial dislocation in 2011.

In the HSS's sounded out terrain of obfuscation and echo, the transformation of a cultural pulse into a martial channel suggests that it is within such ultrasonic topologies that cultural abstraction and military camouflage were always meant to meet. If abstraction is concerned with distance (removing oneself from the language of the immediately definable) and camouflage is concerned with deception (the blurring of the immediately definable), then the HSS's hushed sibilance is intimately obliged to dislocation and displacement (the fracturing of the immediately definable). For Virilio "the notion of displacement without destination in space and time... imposes the primordial idea of disappearance in distance, and no longer in the danger of cataclysm" (1977: 64), which in describing the ambiguous presence of the contemporary war machine posits it in a state of terminal transfer as "it rushes non-stop toward the beyond" (Virilio, 1977: 64). Negotiating silence and disappearance in both cultural and military environments personifies the efficacy of the HSS, and as for the beyond, it is where ultrasonic transmissions mutate structure and where "deterritorialisation... the question for the end of this century" (Virilio and Lotringer, 1997: 142) inaudibly begins.

Extolling the virtues of the displaced, the deterritorialised, and the mutated, Michel Serres offers alternative methods for analysing the waveformed spatiality composed by ultrasonic technologies. For Serres the channel that is opened up between the HSS speaker and the targeted receiver of the beam is of more significance than is the end result or the initial transmission. More importantly - in lieu of his theorisations about the parasite – is the mutation that occurs to the information passed through this system. Appropriately it is the space in between the sender and receiver, and more specifically, its mediating attributes that designates it as the essential testing grounds of communication. Qualifying the conduct of middle space and its capacity to function as an arbiter of connection and intervention, Serres further elucidates, "given: two stations and a channel. They exchange messages. If the relation succeeds, if it is perfect, optimum, and immediate, it disappears as a relation. If it is there, if it exists, that means that it failed. It is only mediation" (1982: 79).

Investigating 'middle' or 'between' spatiality and the mutative nature of the transmission Serres concludes – developing McLuhan's (1967) discourse concerning the nature of the medium and the inevitable transformation of content that occurs in its passing - that noise is an inevitable presence within all acts of communications. This noise signifies the ways in which the medium, (represented by the channel in his previous quote) transforms the original intent of the sender. The definition of this interference is adherent to and utterly dependent on the operating dynamics of the channel, which leads Serres to surmise that noise is also representative of the parasite. "In French, parasite can mean the unwanted noise of communication, an uninvited guest, or a life form that lives off another. It is not just any particular organism or noise, but rather the appearance of the medium, which

compels any given system of order to either adjust to its presence or expel it", writes Crocker (2007). Impelling us to further question the waveformed dynamics of the parasite, the channel generated by the HSS constitutes not so much an inversion of the medium but rather a camouflaging of it, forcing us to rethink the identity of the parasite and by extension, the viral, as it functions and transforms through the medium of non-sound.

This is not the silence mooted by Serres when explicating the rationale of noise. It is a new inaudible formulation of waveformed transfer and an unfamiliar way of perceiving the virus. In the evolving channel of ultrasonic communication proposed by the HSS, noise, as we know, is wrapped within silence and its facility to transform and modify is contingent upon this symbiotic relation between the perceptible and the imperceptible. If it is true that "music makes mutations audible" (Attali, 1985: 4), then the same can now be said for silence. This represents a profound shift in the way we think about interference and the mutative function of the transfer, from one entity to another. Noise is not heuristically removed or operated on, nor is it accommodated, instead it is disciplined and guided by the directives of the inaudible. Thus, whilst the dynamics of Serres' channel persist within HSS systems (the linearity of the beam being vulnerable to obstruction and thus to noise), the conduit is predominantly orchestrated by the subversive properties of non-sound. The modifying nature of the viral subsequently finds its expression in silence as much as it does in the sonic. The idea that sound possesses the power to disturb silence is no longer a monaural proposition, for now the inaudible can ineluctably mutate noise.

If this is indeed the case, then it is incumbent upon us to question the concepts Serres developed from - 'Father of Information Theory' (see glossary) - Claude Shannon's ideas (1949). Summarising Shannon, Crocker relates that, "the snow on the television set, the hiss on a tape, or a missed registration in a printing operation are all instances of noise, or

parasitism. In each of these cases, the presence of the medium is registered in what would, seemingly, otherwise be a clear transmission" (2007). Unwilling to tow the sonic line, the HSS proposes to conceal the presence of the medium by silencing it, just as digital musical playback technologies propose to silence the scratches of vinyl and the hiss of tapes. By redirecting the efficacy of the parasite, it disavows its "relation not to things, but to relations" (Crocker, 2007) and instead demands that noise (and thus the virus) is removed from the transmission so that it can be placed directly into the consciousness of the channels target. The parasite is herein displaced from its old set of relations, between the sender and receiver, so that the modifying affectivity and excessive productivity of the virus can be set to work in a new neural network of transmutation. In setting the virus free from the messenger's single channel, we are subsequently enabled to both rearticulate the nature of the transmission and to locate those viral ideologies, which have themselves been mutated into significant models of distribution within late capitalism.

Furthering this proposition, it is submitted that a number of cogent viral principles analogously resonate between the HSS speaker system and systems of viral marketing. To begin with, there is the shared concentration upon the target that is to be affected and infected. Instead of initially aiming at the mass social body, both systems take precise aim at the individual. More pertinent to this text, however, are the harmonious dynamics of silence that establish the transfer of content between the sender and receiver. In viral marketing strategies an individual is targeted based upon their influential status amongst a wider demographic group. When this individual is given (infected with) goods – lets say a brand of trainers – her silence is also employed. For if it is known that the owner of the trainers has been paid to wear them, then the illusion of *authentic* credibility is lost, as it is this individuals agency and capacity to make telling decisions and choices (whether they

be concerned with fashion, language, music, or politics) and her power to dictate the choices of others, that is being purchased. If it is understood that her choices are not of her own making, and are infact paid for, then the transfer of affect to her immediate social group will be radically different. By keeping silent and deceiving the wider social group about the nature of her choice, the duplicitous personal statement will be transmitted successfully to the surrounding hosts and they will be considered to have been successfully 'assimilated' (see glossary). The camouflaging of the medium and the silencing of the channel - through which the affect will travel - are imperative deceptive states that the viral marketer and the HSS operator must achieve then, if their viral transmissions are to successfully infect their targets; and it is upon the fabrication of these states, that the true capacity of the virus is fully exercised, as it modulates the receivers sense of reality by extending the sender's will into their personal network of relations and connections.

The Engineering of the Twenty-First Century Ear

In attempting to extricate meaning and rationality from the complex network of strategic deceptions, illicit fabrications, and camouflaged infections that have been cross-wired into the HSS system, the final thoughts of this chapter consider the future of ultrasonic technologies. With regards to the ideologies and applications of covertly directed waveforms, it seems in many ways, that we face an immediate future of anxious uncertainty in terms of the constructed soundscape, its habitual mutation, and the efficacy of our sensorium within its realms. It is suggested therefore that the engineering of the twenty-first century ear and its claims to veracity are undergoing a similar series of tests, recordings, and operations similar to those conducted on the eye in the nineteenth-

century (as analysed by Jonathan Crary, in his seminal text *Techniques of the Observer* (1992)). Commenting on the manufacturing of technological modalities that at once re-imagined the roles of perception and reason Crary writes, "the issue was not just how does one know what is real, but that new forms of the real were being fabricated, and a new truth about the capacities of a human subject was being articulated in these terms" (1992: 92).

As ultrasonic technologies such as the HSS aim to manipulate the real and contrive the articulation of the unreal, the soundscape - and the role of the human subject within it - will inevitably mutate. The antenna body will be formally vindicated and fleshed out in this case (just as the scopic body was fleshed out in the nineteenth-century after it had been borne centuries before during the fourteenth-century - sixteenth-century European Renaissance). It will be the somatic modality able to receive and transfer the newly occurring; waveformed perspectives; arrangements of sonic thought; everyday practicalities of non-sound interaction. In anticipatory mood, Goodman (2009: 128) forecasts that the coalescing rhythms of viral ideology, military application, and cultural synthesis will result in a waveformed future city that is pre-emptive, responsive, and constantly modifying itself and the behaviours of those who inhabit it. This does not render the ultrasonic body passive though, for whilst it is being modulated, it is also busy modifying its sensorial mechanisms, so that it might survive and proliferate in the developing 4th world of the imperceptible. If we are to accept "Walter Benjamin's claim that in the nineteenth-century 'technology has subjected the human sensorium to a complex kind of training'" (Crary, 1992: 112), we can only hope that such diligent exercise has stood us in good stead, for a future that will require us to engage in a conflict of the senses on a daily basis.

Quietly orchestrated into the cadence of the city and the battlefield, the prospective approach of directional ultrasound is already lining us up. Whether in the street, on the frontline, or in the cinema, we are all implicated in its ambition. Our senses will have to learn to adjust quickly and adroitly, the ways of the silent, the asymmetric, and the asynchronous. This is proposed, not in order to over dramatise the argument but rather to address a situation that has been stealthily evolving over the past decade. Back in 2005, the Sony Corporation had already patented an ultrasonic device to be employed within leisure complexes that Ian Sample (2005) reports, could:

> ... evoke smells, flavours and even a sense of touch in audience's brains, in the hope of enhancing the movie-watching experience... According to the documents, pulses of ultrasound would be fired at the audience's heads to alter the normal neural activity in key parts of the brain... "This particular patent was a prophetic invention", according to a Sony spokeswoman. It was based on an inspiration that this may someday be the direction that technology will take us...

Having predicted the current fixation with ultrasonic utility, J.G. Ballard's fictive writings about the dystopian trajectories of Western technologies, and the resulting neurotic pathologies that come to infect those exposed to them, are still pertinent and revealing. In his short story *The Sound-Sweep,* the ultrasonic future has arrived and audible music has been outlawed and rendered illicit, so that "in the age of noise the tranquillizing balms of silence began to be rediscovered" (Ballard, 1960: 49). Pre-empting the shift of military-entertainment waveformed operations from the noise of Guantánamo Bay to the non-sound of the HSS, his black humoured attack on the stifling of audible expression is symbolically a fait accompli. Satirising the decorum of a culture that equates being quiet

with being civilised, Ballard (1960: 48) announces that future channels of inaudible transmission such as:

> radio programmes consisting of nothing but silence interrupted at half-hour intervals by commercial breaks seemed absurd. But gradually the public discovered that the silence was golden, that after leaving the radio switched to an ultrasonic channel for an hour or so a pleasant atmosphere of rhythm and melody seemed to generate itself spontaneously around them.

It is clearly understood that in Ballard's world of muted protagonists the sonic is an obsolete form of pleasure. Sound has too many associations with disorder, chaos, and noise - the channels through which demons are excised. Conversely, in the realm of the inaudible, divine power reveals itself; a hushed soundscape where the God of the early Christian cathedrals communicated its presence through the embrace of infrasound, and where now, the futuristic masters of technology communicate ultrasonically, in subliminal vectors of absence. For Schafer, such prophecy of tranquil(ising) otherworlds is quiet music to his ears, given his deliberation that ultimately "the final power then is – silence, just as the power of the gods is in their invisibility" (1993, 202). Extending the logic of Ballard's story and Schafer's theory to their conclusions, these very different perspectives converge in a future world, where musical turbulence, noisy exchange, and sonic interaction have been eradicated from the sensorial agenda of the human. Thinking back on how essential the audible transmissions, the vociferous articulations, and the dissonant receptions of the antenna body have been so far, we can only hope that both suspensions of quiet disbelief remain in the realm of science fiction.

CONCLUSION

The conclusion of the thesis will summarise the original contributions that this study has made to the existing field of research. By reviewing the spatial proposals, somatic investigations, and viral positions forwarded throughout the previous four chapters it will be possible to discern the resonant trajectories, shifts, and oscillations orchestrated by electrically powered speaker systems within the soundscape since 1922. It has been proven over the course of the text that strategies and techniques have been employed by the military-industrial complex and then subsequently by the military-entertainment complex, to influence, manipulate, and torture subjects in increasingly individualised situations. From the mass working body in the Fordist factories through to the individual body during leisure time, the targets of the speaker decrease in number as do the number of speakers employed. In corresponding fashion, the architectural circumstances in which these strategies are deployed reduce in terms of their physical dimensions, until they disappear altogether. Ultimately, it has been suggested that those invested in this waveformed trajectory (factory owners, FBI, organisations that are a part of or are sympathetic to the agendas of the military-entertainment complex) have always aimed at breaking free of the material and spatial constraints of surround sound techniques. The creation of the HSS is the realisation of such aspirations, for it is a technology that can elide architectonic relations and allow military and policing organisations to directly do what they have always wanted to do, namely, 'get into another's head'.

This study has understood and theorised waveforms as being more than simply positive vibrations or expressions of joy (frequencies – and their compositions - that are distinguished by their therapeutic powers to heal). By instead listening to how frequencies are rendered as utilitarian, territorial, and violent phenomena by industrial, military, and policing organisations, a more nuanced taxonomy of frequencies and their affects on the perception (of all living things) has been composed. Investigating the functionality of

sound and non-sound - from the subliminal everyday arrangements of the Fordist industrial factory to the extreme overload of the torture cells in Guantánamo Bay - helps us comprehend the motile puissance of waveforms and the significant influence they have on all of us; whether we find ourselves in the rhythm of the same old same old or in the cadence of shock and awe orchestrated by a nation's foreign policy department. The research of the thesis has gone on to conclude that within the soundscape, even though the channels of individuated micro-politics and collective oscillations or mass movements are inextricably connected, the transfers of technologies, ideas, and practices through them, are becoming increasingly silent. It is therefore submitted to be crucial, that a frequency-based language is composed, so that we might better comprehend how waveformed conflict comes to shape and relate, the remote battlefield with the urban playing field.

As our capacity to perceive - the strategies by which the military and entertainment industries score their own logic into each other's reasoning - becomes more questionable, it is imperative that we devise systems for decoding the signals of such organisational transmutation. Since 1922, the role of speaker systems in shaping emotional, socio-political, aesthetic, and violent registers has become increasingly abstruse and compounded within the ontology of that which we cannot yet perceive. Accordingly, the study has been written up in a manner that echoes the ways in which presence, territorialisation, and affect within the soundscape has mutated and shifted - from the perceivable and graspable history of Muzak to the silent conspiracy bound futurism of the directional ultrasonic beam. Thus, as technological enhancements such as the HSS have rendered the twenty-first century soundscape an increasingly abstract spatiality for the sensorium to inhabit, so the language and ideas chosen to document this trajectory have become increasingly theoretical and hypothetical as the chapters develop. The level of

abstraction within the text accordingly echoes the abstraction of speaker system usage within the soundscape; from historical documentation of industrial forms of sonic organisation to futuristic speculation upon the ways in which sensory apparatus will become mutated, exteriorised, and territorialised.

In brief, this study presents the conceptual models of the antenna body and the waveformed body as two new analytical protagonists in the field of sound studies. They both help provide original knowledge about the territorialisation of waveforms and move forward the debate which takes as its central theme – the ways in which strategies, techniques, and tactics are deployed to map the soundscape and our relationships within it. Thus it is via these embodied examples of waveformed agency that new conclusions have been formatted about the purposeful mutation and repetition of psychological topographies by industrial, commercial, and military organisations. It is the ramifications of these conclusions, in the context of sound studies and its interdisciplinarity, which are further elucidated.

Approaching the Soundscape

Throughout the study the term 'soundscape' has been utilised to refer to the entire range of waveforms that we are enveloped in everyday. Referred to by a host of authors, it has many other names that it is known by, including the 'audiosphere', the 'sonic environment', the 'sound spectrum', the 'world of waveforms' and the more harmoniously inclined, 'music of the spheres'. In one way or another all of these terms attempt to linguistically orchestrate a metonym that represents our existence amongst the enveloping, oscillating, and reverberatory nature of frequencies. By further defining the

amplitude, presence, and affect of the soundscape upon the body, it is intimated that the pressures brought to bear upon the somatic, whether they be psychological, spatial, or physiological, are more indebted to the efficacy of (the entire range of) frequencies than we have ever given credence to. With the entire spectrum of human existence implicated within this proposition, this study has made an original contribution to knowledge by engaging with, amplifying the convergences of, and mutating, a wide variety of academic perspectives and approaches, in order to articulate the complex registers and taxonomies of waveforms.

The following pages are dedicated to the waveformed perlustration of investigative channels that have been amplified and listened to throughout this text. Thus, we will concisely work through the chapters, and in each case reveal an array of different epistemologies that have been employed to compose waveformed arguments. We will begin this process, by acknowledging the most salient conceptual approaches that were employed in chapter one, to investigate why, how, and where Muzak was initially transmitted into the workplace. Adopting a scientific approach through which to explore the piped music systems that were fitted into 1920s factories in the USA was a pertinent choice given that the Muzak company presents its employees as technicians of the fabricated soundscape; as analytical engineers of mood, relations, and performance who assure their customers that what they are purchasing from them is, 'the science of sound'. The inception of organised sound into the cacophony of the industrial workplace reveals how the perception of waveforms was radically altered by the twentieth-century mechanisms of advancement. Since noise (the by-product of industrial process) in the Fordist factories represented progress, efficiency, and productive dynamism, any associations that it had with irrationality, rudeness, or baseness had long been silenced by the time Muzak was introduced into the workplace. As the science of keeping production

line machinery in a constant state of motion became essential to a company's competitiveness in the marketplace, so too the science of modulating workers attention spans became an important component of the work environment to master.

It was in this era of temporal, somatic, and mechanical categorisation that the methodological engineering of the soundscape became a resonant objective for the military-industrial complex. Via sonic instrumentation the factory worker's physiology and psychology were systematically researched and scrutinised as objects of scientific study. This resulted in music being mandated as a scientific tool; a waveformed device that could be honed, its affects made knowable, and its principles, models, and formulas composed so that it could create desired conditions in the workplace. This is not the traditional 'science of sound' (see glossary) explaining to us how "waves propagate or travel at a speed determined by the density and elasticity of the medium" (O'Callaghan, 2009c: 8). It is a newly occurring Muzakal system of scientific analysis, signalling the first time that music had been designated as logical and quantifiable within a capitalist framework; an influential diagnostic modality that furthered the aims of industry by regulating somatic rhythm and organising spatial relations within the workplace.

From a psycho-sociological perspective, in configuring the waveformed dynamics of the factory, Muzak presaged the ways in which the environment would come - in later decades - to "be considered as a reservoir of sound possibilities, an *instrumentarium* used to give substance and shape to human relations and everyday management of urban space" (Augoyard and Torgue, 2005: 8). As the electrically amplified formulas of Muzak came to orchestrate the cadence of coerced synergy between humans and machines, they also established new ways of thinking about the psychological negotiation of space. By instigating new discourses concerning environmental sound, Muzak helped develop

the notion of architecture as instrument, a proposition that would later be transformed into techniques heard and seen - not only in urban contexts but also - in spaces of conflict and in martial zones of incarceration. As such, it would not be over zealous to name Muzak as the first phenomenological system of disciplining and ordering space and the body via waveforms; an ideological set of techniques whose influence on the frequency-based strategies enlisted in Waco and Guantánamo Bay cannot be overestimated.

A significant type of environmental soundscape not discussed whilst investigating Muzak is that of the naturally occurring one. To learn more about its particularised dynamics, an acoustic ecologist's approach was useful to listen to, as it assisted in explicating the sonic strategies that were employed by the U.S. government during the Waco siege. Intoning to us, that the state in which other living creatures inhabit the soundscape is comprehensively different to the way that humans interact and survive amongst waveforms, Schafer - in the foreword to *Sonic Experience: A Guide to Everyday Sounds* (Augoyard and Torgue, 2005: unnumbered page) - declares that:

> Birds and animals still live in a perpetual state of terror but civilized humans will sense it only in an alien environment, while travelling in a strange land or alone in a country house at night where every squeak is heard. It is in circumstances such as these that the synecdoche effect emerges prominently and one longs for the reassurance of known sounds, acoustic anchors.

If it is remembered as to how the FBI attempted to drown out the Branch Davidian's naturally occurring soundscape – of birdsong, dogs barking, and the sect's everyday rituals of prayer and song – the strategy of transforming a known audible spatiality into an alien one can be perceived. It is a technique, whose success is determined by its sonic

power to negate the reassurances afforded by known sounds and acoustic anchors, so that it might instead generate states of anxiety and terror.

Narrating the terms of sonic camouflage, the FBI's surround sound techniques at the Branch Davidian compound were mixed into the audible cover-ups fabricated after the event via channels of fictionalisation by the U.S. government. The importance of story telling - as a technique for creating truth - during the siege was made evident by both David Koresh's attempted interpretation of the seven seals and the U.S. Government's interpretation of the stand-off's final bloodstained days. To sum up the significance of the investigative modality of fiction writing in relation to this text, Ballard provides succinct disclosure. As pertinent to analysing the aftermath of the siege as it is to comprehending the duration of the standoff, his statement that "it's hard to believe that only a few years ago people completely failed to realise that sound left any residues" (1960: 53), is still eerily evocative. After all of the somatic and architectural elements of the Davidian compound had been transmuted into frequencies (via the burning of Mt. Carmel), the echoes of Waco are still resonant; the transformation of the landscape's living and built expressions into compressed residues within the soundscape, being the process that explicates how all things material, become at last count, the oscillations of their actions.

Examining further, the ongoing relations between the static and the transitory, it was the overloaded oscillations within the Guantánamo torture cells that provided the next contextual site through which the languages of the soundscape were translated; and it was from a sociological waveformed perspective, that the haptic relations of the speaker system were decoded. Explicating the social dynamics amongst youth - with regards to their affiliations and allegiances towards groups that harness sound and its amplificatory technologies - Henriques (2003: 456) provides us with a positive and productive

sociological model of speaker systems relations. Binding individuals together whilst setting boundaries of acceptable behaviours within its range, he states that:

> Contemporary youth sub-cultures invariably use musical sound, possibly more than the visual image, as their point of self-identification, if not rebellion. In fact, one important feature of the sound system culture is that it provides a tradition of prescribing limits of time and place for such sociality to prevent it becoming 'too' excessive.

The speakers within the blacked out Guantánamo cells symbolise a dark inversion of those technologies used by musical sub-cultures. An obsidious side of the sound system, their purpose is to not only break the identity of their captive listeners, but to go further, and orchestrate their cognitive malfunction. From a socio-political standpoint, the sound system "…comes before the subject with heightened intensity, bearing a mysterious charge of affect, here described in the negative terms of anxiety and loss of reality, but which one could just as well imagine in the positive terms of euphoria, the high, the intoxicatory or hallucinogenic intensity" (Jameson, 1991: 73). It is the sensorial arrangement of the sound system; on the periphery of the vacillating sublime; about to descend its listeners - at the flick of a switch - into realms of decadent pleasure or into the abyss of hellish torture that reveals its bi-polar potential. And with regards to the question of excess, it has only one setting for this generation of irrational pressure, the number 11.

The sociological and musicological perspectives on the military's production of extreme sound in the torture cell are significant, as they announce a shift in incarceral methodology. Throughout history, there has been no institution in which noise, sonic mutation, and silence have been controlled with such temporal and spatial accuracy as

the prison. Predominantly inhabited by subjects from working class backgrounds, the carceral system is the state instrument responsible for harmonising the thoughts and actions of those charged with discordant behaviours. Within this architectonic orchestration of adjustments, the prison inmate represents the social group that is most regularly associated with cacophony and uncultivated dissonance, as inferred by Johnson and Cloonan who propose that, "the rise of the mob, the urban crowd, the embryonic working class or the proletariat, those who were oppressed under capitalism, is figured as the rise of noise..." (2009: 46). As such, silence – encoded into penal efficacy via solitary confinement – has come to symbolise an anti-working class instrumentality; an enforced negation of the excessive sound, communication, and expression that has come to speak for the economically disenfranchised. Conversely, silence has long been understood to be the preserve of the middle and upper classes. What is telling in Guantánamo, however, is that class, as a motivation for waveformed strategies, comes second to religious status. Since religious practice incurs time of quiet meditation, it means that inflicting silence as a punishment becomes self-defeating. As a result, extreme repetitive noise replaces it as a waveformed solution within the cell. It is in this modulation of punishment techniques that we witness the transmutation of silence's power to punish and redeem, as its efficacy (which is lost in the cell) finds a new location and focus in the direction of the HSS's ultrasonic beam.

A waveformed research trajectory that has only been generally touched upon during this text - and which needs more significant exploration - is that of the racial composition of the soundscape and of the techniques wielded within it. In Guantánamo Bay there was overt religious and racial profiling at work, resulting in U.S. soldiers selecting music that most stereotypically registered as being offensive on both counts to the Muslim detainees. Whilst the technological format of the music (MP3) utilised for torture (and other cultural

offensives) might not seem that significant when examining racially infused waveformed agendas, there are theorists who argue otherwise. According to Matt Fuller, the development and proliferation of certain musical formats exposes Western techno-narratives that are steeped in racial bias. The embedding of frequency-based prejudices into the technologies that soundtrack our daily lives, requires further investigation, if we are to comprehend the ways in which the military-entertainment complex covertly engage their waveformed agenda's into our personally manufactured soundscapes. For Fuller (2005: 40), the shift in transmission and listening habits within the occident - to a new plateau of higher frequencies - comes loaded with genealogical and biological intent, prompting him to state that:

> The MP3 file format, which has achieved such mass usage as a means of circulating tracks via the Internet, is designed simply to match the included middle of the audio spectrum audible to the human ear. Thus it obliterates the range of musics designed to be heard with the remainder of the body via bass. This is not simply a white technological cleansing of black music but the configuration of organs, a call to order for the gut, the arse, to stop vibrating and leave the serious work of signal processing to the head.

To the operator of the ultrasonic beam, the head is always the target of serious signal processing – his/her objective being to quite literally *get into it*. The aim of getting into someone else's head has been with us since humans were cognisant of the fact that the head is the place that gives us aims in the first place. Throwing a voice into the skull of an unsuspecting subject will disorient the self's inner articulation and interrupt its system of waveformed association by disconnecting the locus of perception from the point of transmission. The network of decisions made every day by an individual, about presence,

movement within space, and possible routes of escape are based on an ability to define the dangerous from the quotidian. If one cannot determine where a voice is coming from, or why it is audible at all, it disrupts the essential causal relationships that one composes rationality and survival instincts with. It is this complex set of neural exchanges occurring within the brain; this editorial configuration of deciding what is going to harm us and what will not, that alerts us to the concluding exploratory approach, in the form of neuroscience.

For Daniel Levitin, the capacity to discern the menacing potentialities of externalised events and to be able to correctly equate amplitudes of pressure that are imposed on oneself is fundamental and indispensable to humans in terms of future existence. Clarifying his position towards the behavioural magnitude of this process - which equates the capacity to familiarise with the facility of contingency - he informs us that, "related to the startle reflex, and to the auditory system's exquisite sensitivity to change, is the habituation circuit. If your refrigerator has a hum, you get used to it so that you no longer notice it – that is habituation." It is "an important and necessary process to separate the threatening from the non-threatening" (Levitin, 2006: 186). When we no longer have the ability to make this distinction, when we are forced to unlearn the "language of sound imagery, where we simply seem to know "immediately" what any given sound means'" (Moore, 2003: 266), we are considered not in discord with the world but rather in conflict with ourselves; and it is the fabrication of this state of mind that bespeaks the (un)true aim of the HSS.

The waveformed composition, regulation, and mutation of spatiality is a prevalent theme transmitted throughout this text and it is the most significant theoretical conduit through which new and original knowledge has been channelled. In summarising the spatial discourses that have been orchestrated throughout the chapters, further clarification will be sort, about the ways in which frequencies come to organise physical and psychological territory. Theorising a waveformed geography is made all the more difficult if we are to believe Crang and Thrift's (2000: 1) criticisms of much spatial theory:

Space is the everywhere of modern thought. It is the flesh that flatters the bones of theory. It is an all-purpose nostrum to be applied whenever things look sticky. It is an invocation which suggests that the writer is right on without her having to give too much away. It is flexibility as explanation: a term ready and waiting in the wings to perform that song-and-dance act one more time.

With a scarcity of song and dance acts to choose from, waveformed spatial theory is still quietly articulated and requires a surfeit of cultural amplification for it to be heard. This is why much of the spatial analysis of frequencies throughout this study can be construed as original knowledge. For whilst writers such as Jean-Francois Augoyard and Henri Torgue clinically analyse and name the effects of sound in space, they do not theorise the socio-political ramifications of sound and they do not consider ultrasound or infrasound at all.

A more abstract and contentious focus than material space, waveformed spatiality is defined by its morphology as much as it is by its boundaries, and by its capacity to pleasure as much as by its facility to violate. By attempting to name and analyse the range

of non-sound environments, viral soundscapes, and audiotopias, the ambiguous nature of waveformed spatial composition is acknowledged; the power of these mutating zones residing in their potential to contest the limits, dynamics, and behaviours of the waveformed and concrete spaces that are taken for granted on a daily basis. In this way, such zones come to articulate the potentialities of Foucault's heterotopias whilst opening up new channels of discourse that challenge our perceptions of space, place, and territory. As Soja rightly points out, "the organization, and meaning of space is a product of social translation, transformation, and experience" (1989: 79). The same can be said for waveformed space except that, importantly, we have to add the roles of listening and feeling to the list of factors that delegate the shaping of the soundscape. Once we know how to perceive those engaged in such organisational behaviours, then we will be in a better position to potentially deflect the intense and discrete waveformed pressures that target us whether we are traversing the street or the battlefield.

As the military-entertainment complex continues to modify relations between martial and civil environments "...it is important to think what spaces are deployed and with what effects. This is never more important than when considering spaces of self and other, and the way that the spatial categories of interior and exterior have structured socio-spatial thought" (Crang & Thrift, 2000: 7). Collapsing the binary distinctions that orchestrate the spatial equation of being inside or outside, the soundscape envelops and transgresses somatic thresholds. Socio-spatial thought is subsequently forced to reconstruct its mode of analysis by waveforms, as the axiomatic dualisms that once constructed the borders of the somatic are reconstituted as channels of its transfer. In terms of the concrete environment, frequencies can be made to both re-inscribe its margins and frameworks of presence (as in Guantánamo) but their transgressive potential is only fully realised when they are made to go beyond physical borders and expose the vulnerability of their

composition (as does the HSS). Thus we could say that as "...social theory often relies upon the 'dark matter' of a hidden city to animate its concerns" (Crang and Thrift, 200: 13); waveformed theory now relies upon the dark aims of a covert technology to amplify its disquiet.

Explaining how cities - up until the Renaissance period - were constructed via an architectural ethos that was aligned with musical and scientific theory, Emily Thompson's (2004: 18) research into the relationships between the built and waveformed environments discloses a number of relevant connections between sound and buildings that have been lost through the over-determined rationalisation of spatiality. She articulates how:

> Philosophers and builders alike, from ancient times through the Middle Ages and into the Renaissance, believed that the phenomena of sound and music were inherently linked to architecture through the underlying harmonies of the universe. Simple numeric ratios expressed the order of the cosmos as well as the harmonies of music, and architects – whose goal was to re-create that divine order on a human scale – based their designs on those same proportions. This belief in the harmony of the universe, a belief that integrated music, architecture, astronomy, and mathematics, was gradually transformed as modern science took shape during the sixteenth and seventeenth centuries. The new science presented an understanding of the world fundamentally different from the divine ratios of the premodern cosmos. As this new way of thinking took hold science parted ways with both music and architecture.

Somewhere between Foucault's model of the carceral city (1975: 307) and Ital Calvino's imaginings of *Invisible Cities* (1972) (see glossary), the architectures examined throughout this text can be understood as representational sites of a theoretical waveformed city that has no set location. With a population that counts everyone as a citizen, the movements, conflicts, and pressures experienced by a range of its subjects - from the disciplined to the imaginary – have been recounted. With its frequency-based geo-politics - enacted through vast networks of transmissions, noise, and receptions, these citizens come to relate to each other as antenna bodies. Throughout the past century of this trans-national megalopolis, the sonic strategies initiated by the military-industrial complex - to organise the mass working body - have been steadily developed into the military-entertainment's ultrasonic techniques that focus on disorienting the individuated subject. Until the new directions of the HSS negate the dependence of the speaker system upon the building, the perceptual efficacy of these techniques are architecturally performed, meaning that "the crowd, a compact mass, a locus of multiple exchanges, individualities merging together, a collective effect, is abolished and replaced by a collection of separated individualities" (Foucault, 1975: 201).

Despite the complex dynamics that have been proven to exist in the composition of sonic spatiality, there are writers who are sceptical about the waveforms' capacity to shape and transmit information about space. Circumspect about the spatial veracity of the auditory experience in comparison to the visual experience Matthew Nudds (2001: 213-214) opines:

> We are visually aware of the space within which we see things in a way that we are not auditorily aware of the space in which we hear sounds. When we see (or seem to see) something, we see it as occupying or as located within a region of space;

when we hear (or appear to hear) a sound we simply hear the sound, and we don't experience it as standing in any relation to the space it may in fact occupy.

In harmony with Nudds's cynicism about the sensorial efficacy of audition, English metaphysical philosopher P. F. Strawson intones that, "sounds of course have temporal relations to each other, and may vary in certain ways: in loudness, pitch, and timbre. But they have no intrinsic spatial characteristics... A purely auditory concept of space... is an impossibility" (1959: 65-66). It hardly needs saying that both of these thinkers have obviously not thought - at the most basic level - about the visually impaired subjectivity, and the fact that their conception of space, movement, and time predominantly relies on the facility of waveforms.

The entire range of rebuttals that could be offered against the propositions forwarded by both Nudds and Strawson are too numerous to mention, so for the sake of brevity, a succinct statement by Johnson and Cloonan about the significance of topographical audition will suffice. From an ethnomusicologist's perspective, they note that "sound is the most ancient, widespread way of defining the territory through which human beings project their individual and collective identity" (Johnson and Cloonan, 2009: 42). Intimating that it is a latitudinal sonic efficacy at work (when the stakes of spatial ownership and identity are raised) this statement obliquely intones that we should also investigate the relationships between waveforms and longitudinal space. To enact this inquiry we need to turn back to Texas. During the Waco siege, the tone of the conflict altered early on in the proceedings - from a minor key to a major key. In terms of its mediated status, the siege went from being an inconsequential local incident to a significant international event. As time passed, the pressure of the standoff was scaled up until the pitch became as deafening as the splitting of constitutional terra firma under the duress of a socio-political

earthquake. The seismic sonic activity that the FBI was attempting to trigger, however, was of a vertical nature; a perpendicular earthquake aimed at splitting the longitudinal communications that the Davidians professed to have with their God. Thus it could be said that the U.S. government were more interested in harnessing waveforms in order to split the earth from the skies. By inflicting sonic pressure, they shook the soundscape in order to silence the connections Koresh believed he had with the spatiality of the heavens above him.

Throughout the text, a number of approaches were employed to determine key dynamics governing relations between methods of applied pressure, waveforms, and space. To help compress the multiple discourses generated, it is useful here, to offer an everyday example of how waveforms compose realistic mapping systems. It is a given that, "on the basis of pressure variations at your ears, you gain access to an abundantly detailed world of sounds, things, and happenings" (O'Callaghan, 2009b). Thus the short story of our exemplary subject, simply lists the origins of these pressure variations, as he sits in front of his computer with music playing. As he writes, he can also hear the low whirring of the hard drive fan, the noise from traffic, people shouting, and birds calling from the environment outside the window of her apartment, the humming mechanics of the fridge, the internal oscillations of her cilia courtesy of tinnitus, and the faint drone of jet engines eight miles high. On a daily basis, he is simultaneously a part of six, seven, or eight sonic spatialities at any given moment and we have not even begun to take into account the imperceptible ultrasonic and infrasonic influences upon her moods, rhythms, and perceptions. Sonically speaking, he lives (paraphrasing De Certeau (1984: 201)) in a pile of heterogeneous spaces, each with its own particular dimensions of social presence, mobility, and exclusions. Within this dense mix of waveformed spatialities "the central problem of auditory perception involves the auditory system's capacity to discern from

complex wave information the number, qualities, location, and duration of sounds and sources in one's environment" (O'Callaghan, 2009b).

For Caroline Bassett (2003: 351-352), the problems of distinguishing the frequency-based characteristics of an environment are compounded by the diversions offered to the subject's attention span by mediating networks of communication:

> As we increasingly switch our attention from one place to another, each time at the expense of the last... our lives become fragmented. To some extent we become a 'patchwork of dis-connected states' (Crary 2000: 1). Something that is useful about attention is precisely that it never presumes absolute presence – and cannot therefore presume absolute disconnection.

Whilst her intuition concerning 1). The increasing affect communication technologies have on our sense of presence in space and 2). The perception of our own agency during modes of spatial transfer, is interesting, her concept of the fragmented self is no longer an adequate model to explicate and speculate upon our twenty-first century waveformed existence. Accordingly, this study has composed new ways of articulating our simultaneously compressed and extended states of being. For we are not fragmented when we transmit within, oscillate within, and receive within the ever-mutating sonic, infrasonic, and ultrasonic spatialities of the soundscape. The notion of the fragmented self has become a mismatched mannequin of the West's spatially technologised ennui and is better suited to clothing the bare boned arguments of privilege than it is to amplify the needs and wants of the working antenna body.

Amplified throughout the study is the notion that the body that is operative when simultaneously compounding, articulating, and mutating is the one that best represents our travails in waveformed environments. It is the same body responsible for orchestrating the overall tone of the text, and for re-sequencing previous philosophical modalities of space such as Henri Lefebvre's 'spatiology'; - "a rapprochement between *physical* space (nature), *mental* space (formal abstractions about space), and *social* space (the space of human action and conflict and 'sensory phenomena')" (Merrifield, 2000: 170). For Lefebvre, the fact that these distinct yet intrinsically fused fields had been separated by capitalism was injurious, their disconnect serving the status quo by creating consent though isolation and misunderstanding. The analogy of the fragmented body in a fragmented state thus comes to echo the spatially alienated victim that Lefebvre had theorised by way of critiquing the capitalist grasp on spatial relations. This is why it is the model of the fragmented body (rather than the subjectivity of said body) that has been identified in the text as the phenomena that is truly broken. It lacks the potential to coherently translate and transmit information about the ways in which we negotiate presence, exclusion, and transformation within the constantly morphing circumstances of the soundscape. Were Lefebvre to hear about this study's waveformed space, inhabited by antenna bodies, he would surely acknowledge its potential to reunite physical, psychological, and social phenomena, given that it is "organic and fluid and alive; it has a pulse, it palpitates, it flows and collides with other spaces" (Merrifield, 2000: 170).

Analyzing the relations between spatial philosophy and the modalities of its practical application, Merrifield surmises, that for Lefebvre, "theory must render intelligible qualities of space which are at once perceptible and imperceptible to the senses" (2000: 170). Accordingly, in terms of future research, Lefebvre should be considered a salient figure that warrants our full attention; for when endeavouring to compose evolving discourses

about the sensorial contingencies, affiliations, and resonant spatial characteristics of the soundscape, it is essential that we map its perceptible sounds as well as its imperceptible haptic frequencies. Rather than evolving a spatial ontology that functions by dispersing objects, events, and phenomena and observing their causal relationships, theories need to be developed through a process that is invested in the continual merging, clashing, and transmutational qualities of frequencies. For ultimately the soundscape that is being pre-empted will not be static nor will it be repeatable. It will continually be in a flux of pressures; a harmonic maelstrom of social, somatic, aesthetic, economic, geographic, and scientific intensities; forces that compel us to listen without forcing us to feel.

If we are to carry out such speculative manoeuvres within the soundscape, the system of thought employed must be alert and reverberatory (and whilst referencing Lefebvre's notion of 'rhythmanalysis', the investigative modality proposed in the text, does not harness it methodologically). Assigning these values to our theorisation of the antenna body in waveformed space, seems to predispose us to form allegiances with Bruno Latour's actor network theory; given this philosophy stipulates that there is no such thing as closed, pure categories - only ever expanding networks of mutation and transformation. Indeed, through actor network theory Latour has "produced a sense of a world of partial connection in which all kinds of constantly shifting spaces can co-exist, overlap and hybridise, move together, move apart" (Bingham and Thrift, 2000: 299). As harmonious as this proposition sounds, it is not the spatial trajectory that has been imagined for the antenna body. For with its seductive tones of endless exchange and transformation, this philosophy amplifies a semi-utopian symphony of communication that is as politically elusive as it is technically over orchestrated. Criticisms of actor network theory are many and varied. Bingham and Thrift for example, point out that "…actor-network theory ignores the 'quite real effectivity of victimisation' (Wise, 1997: 39); it is studiously neutral and, as a

result, it bypasses questions of unequal power" (Bingham and Thrift, 2000: 299). Whilst our want is to imagine a soundscape in which we, as performers, are arranged by the flows of good vibrations, our need is to recompose the waveformed order by orchestrating a rigorous 'unsoundcheck' (see glossary) of the instrumentality at work in the territorialisation of the frequency-based environment. Only when we have listened to the external pressures that move us can we say that the socio-political, economic, and martial rhythms of the antenna body have been theoretically scored.

By denoting movement through the soundscape as being simultaneously choreographed by presence, mutated transmission, slippage, and convergence, the language and ideas employed to describe existence amongst the colliding worlds of communications technologies are echoed. Whilst we hope for clear and direct lines when utilising mobile phones, video-conferencing softwares, and satellite uplinks, the actuality of our remote exchanges is supplemented by the added on realities of noisy interference, signal drop, and crossed connections. In contrast to the more basic perceptions of the ocularised environment, the sedimentary nature of waveformed communications space comes to amplify multi-tiered concerns: a proposition supported by Henriques' assertion that "sonic time, like sonic space, is not travelled in straight lines. It's too heterogeneous for that. If written it would be in layers and with the depths of a palimpsest. In contrast, the writing of visual space is in Euclidean straight lines and flat planes on the uniform blank expanse of a *tabula rasa*" (2003: 459).

Henriques' textual invocation of the sonic stratum not only explicates the deep lattice of waveforms that constitute the soundscape, it also delivers us back – for the final time - to the spatial languages forwarded by Lefebvre. Through his concept of 'meshwork' Lefebvre (1991: 117-118) describes how the cadence of movements within the lived environment

belie the textural dynamics of spatiality. If applied to the soundscape, the concept of waveformed texturality comes to associate the ways in which we slip in and out of frequency-based environments with the manner in which we effortlessly transverse the remote spaces opened up by communications technologies. Such analysis helps explain why both academic and non-academic interest and research into the dynamics of the soundscape have dramatically intensified over the past decade; because theories of waveformed spatiality offer the most coherent translations of our simultaneous presence (and non-presence of the self) within multiple spaces, of processes of transformation, and of divergent temporalities.

As technology allows us to be increasingly mobile and to disperse ourselves into laterally occurring mobile networks, distant topographies, and far-flung relationships, our comprehension of twenty-first century existence equates to being continually enveloped in multiple realities (this proposed dispersal and non-presence of the self echoing Kittler's (1999b) notions about the manner in which the modern self has been composed through mediating technologies). We are always only a mouse click away from the digital space of the Internet, a button press away from the remote verbal space of the cell phone and a randomising click away from the eschatological space offered by the mp3 player. By way of conclusion, it is posited that each of the study's four chapters, in part, articulate a territorial waveformed-narrative that - whilst changing its tune through time - oscillates with the same sets of frequencies. Thus the study is a sequencing of events that informs us about the ways in which frequency-based technologies and communication networks have come to symbiotically negotiate a spatial fascination that has always been with us; a compulsive problematic that equates our capacity to be anywhere at any time, with our potential to become sonically omnipresent.

The capacity to have one's voice or sounds present in a diverse range of locations at the same time resonates throughout this research. It is being inferred that the theoretical dominance of temporality over spatiality - throughout Western philosophy - is challenged by waveformed ontologies. "We have often been told... that we now inhabit the synchronic rather than the diachronic" states Jameson (1995: 64). He argues, however that "it is at least empirically arguable that our daily life, our psychic experience, our cultural languages, are today dominated by categories of space rather than by categories of time" (1995: 64). The lived experience of sonic spatiality proposed throughout the text questions our assumptions, about not only the presupposed linearity of space and time, but also about the points at which they intersect and pull each other out of rhythm and shape.

Terminal Thoughts about the Viral Waveform

The viral channel that transmits throughout the text connects the physicality and the psychology of the somatic, and the materiality and ephemerality of the spatial. Through the study, it has been ascertained that viruses and waveforms share similar characteristics and potentials, evidenced most pertinently by their mutating and transformational behaviours. Flowing between the industrial factory, the sect's compound, the military torture cell, and the ultrasonically targeted skull, the flow of the viral waveform has transmitted its recordings from all of these contexts and in doing so, has formed one of the study's most significant narrative trajectories. The viral channel has connected the study's four speaker systems - that have been deployed to influence, manipulate, and torture - along with the disparate spaces and temporalities in which they existed, into a virtual patchwork of transmission technologies; a theoretically pan-spatial and pan-temporal acousmonium that only functions when the infectious nature of the waveform

has signalled its orchestration of a contagious network of association. By theorising through this malleable sprawling skein of connections, it has been argued that both viral and waveformed phenomena have the propensity to displace us from our located sense of self; to reorient our agency in social networks; and to transgress the perceptions of the sensorium. By making resonant their potential to place us inside, between, or outside of their contingent modalities they oscillate any sense of rigid and unyielding space. Most significantly, they question those isolating impulses of dominion that compel us to position ourselves at the centre of our constructed realities.

For Goodman (2009: 129), the displacing of the subject - in terms of the networked body and its registers of consciousness – is a significant factor that needs taking into account when theorising waveforms through the philosophical filter of the viral:

> The concept of the virus as applied to cybernetic culture, from computer infections to the dynamics of "hype," has become generally prevalent, yet particularly under thought in relation to sound. There is now a burgeoning, if problematic, range of discourses that extend from theoretical biology and medical epidemiology, to software programming, cultural theory, marketing strategy, and science fiction, which finds in the virus, biological and digital, so much explanatory potential regarding the nonlinear dynamics of cybernetic culture.

Listening to how the dynamics of the virus have extended themselves into such a wide range of research fields, it is sometimes difficult to comprehend why they are still so globally maligned and demonised. By theorising the past century's soundscape through the philosophical modality of the viral; and by employing the infectious dynamics of waveforms to explore the socio-political and psycho-geographical anatomy of the antenna

body, this study has made an original contribution to knowledge by furthering our understanding as to how frequencies are modulated to create nervousness, fear, and distance.

Through the frequency-based investigations carried out over the four chapters, a search for the reasons of this cultural disquiet has been instigated. In conclusion to this line of questioning we would posit that it is precisely the non-linear (and thus unpredictable), the ambiguous, and the abstracted identity of the viral and the waveformed that causes such bouts of cultural anxiety and mistrust. It is their capacity to volte-face in the splitting of an eardrum that makes us nervous about their borderline dispositions. For both viral and frequency-based phenomena can aid in organising all that we have catalogued, stored, and documented about the known world around us. Conversely, they can destroy the divisions between the chaotic, the random, the unutterable and the order that we so preciously maintain, re-inscribe and re-record at every possible juncture. With such an inherent facility to systematise, mutate, and devastate, it is not difficult to comprehend why the military-entertainment complex and those who resist it are seduced. It is not for nothing that we designate the viral and the musical with the symptoms of the infectious.

Once the initial direction, duration, and intensity of the virus has been engineered, its modality attains a level of flexibility that is unsurpassed, meaning that it can be placed into any set of relations and prove to be effective. Infecting and mutating at the most basic level of any living entities functionality, the pure and innate adaptability of the virus is why it is to be found in waveformed, marketing, biological, physical, communication, and language systems. Commenting on the essential performance of replicative phenomena, Crocker (2007) refers to theoretical virology in order to discuss the manner in which the

virus not only mutates itself but also transforms its host in the process, creating a symbiotic evolution of form and content:

> Luis Villareal, a leading virologist suggests that new work on the role of viruses in evolution challenges our accepted ideas of "life." Viral research places in doubt the common doxa that the cell is the basic unit of life, because it contains the material for its own replication. Viruses are purely relational beings that must live off the life force of some other thing. Because they lack the capacity for self-replication, viruses have been thought to be only partly in being, or to have some problematic, liminal status outside the web of life. Villarreal and others now believe, however, that viruses are far more complex and challenge our ideas of what constitutes life. In fact, they even suggest that cells may have required viruses in order to evolve.

If we were to channel Villareal's ideas through Attali, we would substitute the words 'cells' for 'humans' and 'viruses' for 'music' (in the final sentence of the preceding paragraph) to submit that 'humans may have required music in order to evolve' (a proposition supported by Levitin's assertion that "music's evolutionary origin is established because it is present across all humans... it involves specialized brain structures, including dedicated memory systems that can remain functional when other memory systems fail" (2006: 265)). Through the writings of virologists such as Villareal and sonic philosophers such as Attali, it can be deduced that whilst the virus and the waveform retain the potential to destroy, ultimately it is not in either's interest to be engaged with system failure or killing (this is the domain of the corollary effect). Rather, each entity is in constant transformative negotiations with the receiver so that the host and the content of the transmission can mutate in some manner. Extending this line of thought to its conclusion, it is tendered that viruses and waveforms are both predisposed to relations rather than to outcomes. In the

context of the study, this resolution is useful as it allows us to make further analogies to the relations orchestrated between the transmitter and receiver by the HSS ultrasonic beam; by the U.S. speakers hidden behind sand dunes in Iraq; and by the Ghost Army's symphonies of battle duplicitously broadcast during the Second World War. In all of these instances, speakers systems are deployed to enmesh their targets into conflicts of perception; transmuting the *modus operandi* of both transmitter and receiver in the process, and ultimately deceiving the adversary into thinking that there was no point in resisting, given that the battle was already lost.

In summary, it has been determined that the speaker technologies being discussed are betrothed to duplicitous relationships that not only avoid the death of the target/host but which also avoid engaging it in open conflict. From a biological, waveformed, and cybernetic perspective it is more useful to keep the receiver of transmissions alive so that more pressure and disinformation can be passed through it. For the virus and the waveform, the host is merely a conduit, a marker of their territorial movements (as evidenced in the civilian marketing soundscape by the audio viruses, ear worms, and jingles that pervade the contemporary consciousness with the same intent). From a military perspective, this dynamic can be heard at work in the radio programming of Psychological Operations units. For it is these transmitters that sonically epitomise the manoeuvrable capacity of the virus, as military code is made to traverse the spatial relations of the radio network to infect listeners. As each receiver of the disinformation also carries the potential of reiterating information to other listeners outside of the radio network, the affectivity of the contagion is reinforced by the transmitting capacity of word of mouth. There is no one out of reach of the viral waveform, only those who can simulate infection.

The viral nature of language – more specifically, the word from the mouth - has been explored throughout the text, both in relation to its deployment throughout the study's viracoustic channel and through its specific associations to technologies such as the ultrasonic beam. A trajectory of research that warrants further investigation - given its socio-scientific approach to the viral facility of verbalised and written language - is viral marketing. Within the taxonomies of connection, influence, and infection created by adherents of this advertising modality, the production of an affective system of verbal circulation is referred to as an 'Echo Chamber'. In the terminology of Dan Zarella's online viral marketing glossary, "an echo chamber is a tight social network that tends to agree on certain issues and has conversations amongst itself. The term comes from the amplification effect that people with similar points of view create when communicating in social media". It comes with little surprise that this parasitic construction of commercial feedback should be named after an architecture dedicated to the reverberation of musical excess. In terms of the study, the model of the echo chamber becomes increasingly resonant when discussing chapter three, as it conflates the repetitious vacillating pain of the torture cell, the intense musical wall of studio sound, and the desired linguistic motility of contemporary marketing strategies. Of all the architectonic models, sites, and structures studied throughout the text, it is the waveformed spatiality of the echo chamber that finally comes to represent the nexus of military-entertainment, commercial, and cultural viral trajectories.

By placing ourselves within the communicable realm of the echo chamber, we are able to hear how the nomenclature of these three systems of thought (mentioned above) is amalgamated to form a new mutated language. It is a form of communication whose words oscillate between the phenomenology of information dispersal and the fiction of storytelling; whose grammar is dependent on the connections made between martial, civil,

and hallucinatory states; and whose potential to convey meaning requires a propagatory system of social exchange to be enacted. It is a language that can be found at all levels and within all fissures of investigation into the waveformed and the viral, making it impossible to relegate to the footnotes of the soundscape. Subsequently - as the matter of assessing information enveloped in conjecture and hearsay is a significant one - in defining how the critical nature of the viral relates to the study, the final thoughts of this section will be spent summarising the contagious irrationality of conspiracy theory.

For every substantiated claim made within the theoretical frontiers of the soundscape, there are numerous false alerts concerning waveformed technologies that can transform metals into liquids; of sonic schemes that can convert organs into jelly; and of frequency-based weapons systems such as the HAARP facility (see glossary) that can turn clouds into armaments. When examining frequency-based warfare, research is undertaken with a tacit understanding that we must enter the territory of the sonic mirage and that we must consider prospects of validity in an era not of fools gold but of waveformed gold. From the court cases involving those proclaiming to hear backward masked messages in rock songs (discussed in chapter two), to the urban myths concerning Vladimir Gavreau's infrasonic organ (a weapon that could supposedly flatten Marseilles), there is a set of conspiracy theories for each micro-range of frequencies. Composed of elements of axiomatic truth, recollections of proclaimed experiential veracity, and steeped in cultural anxiety, conspiracy theories attain viral status as they are passed on via word of mouth, the Internet, and independent media - under the rubric of revelatory documentation. When it comes to phenomena that is imperceptible by the sensorium, the fictional amplitude of narratives founded on frequencies that can not be heard, is increased exponentially, as an ontology of that which is felt takes precedence over that which can be recorded.

Most commonly referred to as 'ultrasonics' on a myriad of Internet websites, technologies such as the HSS have been the focus of much speculation, ever since their inception into public and military life. Whilst the current trend of non-sound fictions around such technologies are in harmony with a generational wave of unsound rumours, conspiracy theories about ultrasonic frequencies and weapons, (especially those that inculcate the U.S. government in some capacity) date back to the 1970s and beyond. In his book, *The Zapping of America*, Paul Brodeur researched the human risk from being exposed to microwaves and subsequently outed individuals and organisations responsible for carrying out experimentation with them (and for concealing information from the public about their associated dangers). He informs us for example that, "CIA documents revealed that the agency had conducted a fourteen-year program to control human behavior with drugs, electric shock, radiation, and ultrasonics" (1977: 298). As far as conspiracy theories go, disclosures of this type and magnitude reside in the more prosaic and believable side of things; yet it is not the veracity of the content that interests us here, it is rather the mobilisation of the narrative form that captivates, as it is this which reveals to us, the efficacy of the viral.

Feeding on disinformation leaked through asymmetric and asynchronous communications media; declassified documents concerning warfare strategies; reports from experiments carried out with insidiously named sonic weapons; and stories from the paranoid networks of civilian displeasure, occidental conspiracy theories adopt folkloric styles of dissemination and amplify them through contemporary technologies. Utilising guerrilla publishing techniques, pirate radio-broadcasts, illicit sample-based music, cell phone worms, and online Trojan horses, those invested in propagating information, theories, and resistance tactics of an unofficial and unauthorised nature, find in these methods, a user friendly epidemiology. As dominant outlets of information dispersal such as newspapers

and television networks are controlled by an ever-decreasing circle of people, a growing number of the public - feeling disenfranchised by the homogeneity of mainstream perspectives - subsequently turn to the viral to assist in formatting this off the record storytelling tradition.

As the joint economies of paranoia and neurosis are increasingly invested in by a culture that no longer believes everything is going to be alright, the format of off the record narratives channel illicit modalities of reason in order to disrupt the authorised logic composed by the military-entertainment complex. That the covert material histories, capacities, and futures of frequency-based weapons are woven into by threads of conspiracy theory is not remarkable given the tendency of the viral waveform to amplify accounts of that which was previously unrecordable and unobservable. As such, it is the transgressive nature of the conspiracy theory that comes to most potently symbolise the relational capacity of the viral waveform; for neither signal is orchestrated by phenomenological rationale, just as neither is concerned with having their presence officially or observably registered. With regards to how conspiracy theory has been registered when undertaking this research, it is not in the interest of the study to castigate or promote the efficacy of such narratives. Rather, it is concluded that conspiracy theories form the background noise of the investigation, from which the telling movements, dissonance, and connections orchestrated by the viral must be distinguished. Only when we engage with such procedures will it be possible to compose the most revealing theory of the viral waveform; the one that continually re-invents itself after it has been heard.

Transmitting back to us, the perceptible and the imperceptible dynamics of the soundscape, the antenna body was the theoretically composed somatic presence within the study which was affected by, which channelled, and which offered potential futures of the waveformed human subject. As the theoretical protagonist of the study, it was formatted to provide us with new information and original knowledge about the ways in which the somatic has been, is, and will be affected by the pressures of frequencies. It was a body conceived by the coupling of electricity and speaker systems, generating a new frequency-based entity that could transmit and receive at distance. Accordingly the study begins by researching the early days of the antenna body, spent in the industrial factory. Conveying to us the sonic development of the first scientific methodologies for organising the working body in conjunction with machinery, the antenna body started life being tested, recorded, and influenced by architecturally wired speaker systems in the industrial workplace. Its parents - the military-industrial complex – oversaw the adoption of this U.S. Army invention into a new family of civilian manufacturing relations, epitomising the harmonious co-development between the military and civilian spheres that would evolve and proliferate over the following century. It is what the military-industrial complex mutated into that shaped the antenna body however and it is where the trajectory of the study was directed.

"The military-industrial complex, had... been forming for a long time, at the interface of military logistics and the civilian economy" De Landa informs us (1991: 108), to which he adds, "as the nineteenth-century drew to a close, new arms races emerged, involving new feedback loops between civilian and military manufacturing industries" (1991: 111). When the science of organising, cataloguing, and manipulating the working body had been

honed to such a level that there was little room left to improve the industrial employees performance, the focus of control changed. As progressive technological developments, automation, and digital systems cut down the numbers and hours of the workforce, there was a surfeit of leisure time produced, and it is here that Western culture invested - in the spaces, processes, and technologies of the entertainment industries. A century later, the feedback loops spoken of by De Landa have been recomposed and redistributed so that they operate between the instrumentality of martial war apparatus and civilian mechanisms of leisure. As the rhythms of social organisation are transformed by the military's change of developmental partners - from industrial to entertainment collaborators – so the architectonic locations, from which the antenna body transmitted from, altered.

The reciprocity between these newly engaged industries can be witnessed through the evolution of speaker technologies, microphones, video games, and battle simulators, and in the content that is passed through them. These ideological and technological loops between military and entertainment zones are not always closed or locked however, as proposed by Fuller who declares, "standard formation and nonstandard uses create a recursive cycle that is always ongoing but never entirely predictable" (2005: 41). As the utility of technologies that are developed by the military are transformed when they are placed into civilian markets, so now the content of civilian cultural life is assimilated and its usage radically altered by a military who have learnt how to operate in an increasingly unpredictable, abstract, and asymmetric fashion. Nowhere is this acculturation made more evident than by the U.S. Army's co-opting of music to inflict pressure on the antenna body of the Guantánamo detainee. By employing torture techniques that leave no visible traces, the military body is able to conceal its brutal activities, further supporting Virilio's hypothesis that, "today, war is no longer so much a war of "images", but one of waves"

(2002: 41). This is why it is the antenna body that the study has listened to, so that we might record and amplify the mutations orchestrated by the military-entertainment complex, in the loops between the engineering of conflict, leisure, pain, boredom, and joy.

As the battle for the extremes of the antenna body's expression are waged in military and entertainment zones, the boundaries of the sensorium - and of the somatic in general - become the spatialities that undergo mapping and territorialising operations. It is precisely these new cartographies - and their frontiers - that have not been recorded and amplified before, and it is where this study forms much of its original knowledge concerning the construction of the self. For Crang and Thrift "boundaries are not the limits of the self but rather they create that sense of self" (2000: 9). In waveformed terms, if this is accurate then subjectivity can be understood as being shifting and transient; a notion of the self that is more based on vibration than fragmentation. Each chapter of the study has accordingly conceptually traced the ways in which the perception of the self has been affected by speaker systems, so that we come to understand the affordances of creation as being determined by demands made upon the somatic. These pressures have been analysed through perceptual channels such as Scarry's pain of the self, Serres' mutation of the self, and Foucault's training of the self. What unites all these channels of inquiry is their insistence upon the notion that the boundaries of subjectivity are never neutral and that they are infact, always under the duress of external forces. What has concerned this study, is our capacity to amplify, record, and speculate upon those forces as they become increasingly difficult to perceive.

This proposition of the shifting and oscillating antenna body is important, as it displaces accepted notions of agency and disorients the perceptual compass of those subjected to intense waveforms. In this sense, the antenna body is a conceptual evolution of the

subject described as being decentred twenty years earlier by Crang and Thrift. For these spatial theorists, cultural analysis of the body's status led to it being significantly re-conceived; from a "privileged centre of perception, to *embodiment,* in which carnality becomes a field which only ever has a partial grip on the world and which constantly interacts with other fields, mimetically and otherwise" (2000: 19). Throughout the study, the antenna body comes to be distinguished as the epitome of the motile and networked subject, the body that is in continual interaction and negotiation with its environment; and whilst it understands that its "whole life is based on environment and condition" (Lanza, 2004: 222), it is also aware of its facility to transmit and make communicable, the construction of new environments and different ways of speaking about them. This is not the language of socio-techno-science inferred by McLuhan in the 70s (in 1977 he mooted the idea of forming a media ecology (McLuhan, 2004: 271)) or demanded by Virilio in 2002 (in *Desert Screen* Virilio intones, "it is time to found an ecology of the media" (2005: 32)). It is a new way of denoting the viral relations of the body, spatiality, and temporality to frequencies; an ontology of the haptic and the imperceptible; of the peripheral and the oscillating; of the emotional swell and the break down; it is time for the antenna body to mutate and to assist in synthesising a 'waveformed ecology'.

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Apocalypse Now (1979, Francis Ford Coppola, USA, 153 mins.)

Children of the Damned (1963, Anton Leader, UK, 90 mins.)

Dark City (1998, Alex Proyas, Australia/USA, 100 mins.)

Dick Barton Strikes Back (1949, Godfrey Grayson, UK, 73 mins.)

Dune (1984, David Lynch, USA, 137 mins.)

Earth vs. The Flying Saucers (1956, Fred F. Sears, USA, 83 mins.)

Foreign Correspondent (1940, Alfred Hitchcock, USA, 120 mins.)

Invisible Invaders (1959, Edward L. Cahn, USA, 67 mins.)

Jarhead (2005, Sam Mendes, USA/Germany, 125 mins.)

Mars Attacks (1996, Tim Burton, USA, 106 mins.)

Metropia (2010, Tarik Saleh, Sweden/Denmark/Norway/Finland, 86 mins.)

Minority Report (2002, Steven Spielberg, USA, 145 mins.)

Target Earth (1954, Sherman A. Rose, USA, 75 mins.)

The Hurt Locker (2008, Kathryn Bigelow, USA, 131 mins.)

The Ipcress File (1965, Sidney J. Furie, UK, 109 mins.)

The Matrix (1999, Andy Wachowski and Larry Wachowski, USA/Australia, 136 mins.)

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APPENDIX

GLOSSARY

160dB – As verified by Vinokur "... acoustic noise starts inflicting discomfort to the ears at 120dB and pain at 140dB in the audio region. Eardrum rupture occurs at approximately 160 dB; lung rupture may happen at 175dB" (2004: 5).

A Clockwork Orange – A 1971 film by Stanley Kubrick, (adapted from the 1962 novel of the same name by Anthony Burgess) in which the protagonist 'yob' Alex is treated by state doctors via 'the Ludovico Technique' for his overly aggressive tendencies. They force him to take drugs and watch violent films whilst listening to classical music by Beethoven for two weeks in the hope of curing him of his violent characteristics.

Acousmatic – In 1994 Michael Chion - re-conceptualising Schafer's notion of schizophonia - named audible sound without an observable source as being acousmatic. Noting Chion's contemplations about the soundscape which led him to coining the term, Paul Moore writes, "Chion (1990) points out that sound in everyday life is omnidirectional, composed of both direct and indirect reflections and many pieces of aural information" (2003: 275).

Acousticprints – A waveformed version of blueprints. Thus a plan of how a future soundscape will be founded and composed from a guiding set of frequency-based principles and designs.

Alpha Waves/Beta Waves/Theta Waves – Measurable by electroencephalography (EEG), alpha waves produced by the brain are electromagnetic oscillations that occur between 7/8 Hz –12 Hz. Historically they have been associated with occurring when the body is in a state of relaxation (just before sleep being the most common state), but more

recent thought posits them as occurring when the brain is negotiating network coordination and communication. Frequencies below 7/8 Hz are referred to as theta waves and are associated with creative modes of thought. Brain wave frequencies above 12 Hz, named beta waves, are generated during the majority of our waking lives. They are linked to the analytical modalities of thought manifested during periods of problem solving. For David Walonick in his article *Effects of 6-10 Hz ELF on Brain Waves* (1990), "a question of importance is: 'If we can electronically shift the brain wave frequencies to alpha or theta, will a person's moods or thought patterns change to those commonly associated with those frequencies?' In other words, if we can electronically move a person's brain waves to the alpha frequencies, will they become more relaxed? Will their state of consciousness change to coincide with their brain waves?'"

Assimilation – In viral marketing terminology, assimilation is an essential concept. Dan Zarella's online glossary of terms explains that, "once a person has been exposed to an idea virus, if they internalize and retain the idea we say that they have assimilated the meme. Typically this process comes with an amount of recreation by which the individual attempts to fit the idea into their existing mental frameworks".

Audile Technique – Jonathan Sterne conceives of this term in his book *The Audible Past: Cultural Origins of Sound Reproduction* (2002). Audile technique refers to a skill for distinguishing the nature of sounds, a capacity that is historically embodied in the work of two exemplary professions - that of the physician and the telegrapher.

Audio Architecture – In the 1980s the Muzak company began a new initiative of designing custom playlists for their clients, moving away from their previous process of producing omnipresent 'elevator music'. By employing terms that allude to man-made

sonic environments, the Muzak Company aimed to render concrete models of its system's effectiveness. In the words of the Muzak website, "Audio Architecture is emotion by design. Our innovation and our inspiration, it is the integration of music, voice and sound to create experiences that link customers with companies. Its power lies in its subtlety. It bypasses the resistance of the mind and targets the receptiveness of the heart. When people are made to feel good in, say, a store, they feel good about that store. They like it. Remember it. Go back to it. Audio Architecture builds a bridge to loyalty. And loyalty is what keeps brands alive".

Cannon-Bard Theory of Emotion – A theory credited to the work of American physiologist Walter Cannon who had been investigating the ways that bodily changes occurred in conjunction with emotions (1915), which was later modified by French physician Philip Bard. The theory proposes that in an emotionally stimulating situation, emotions are initially felt, activating a part of the brain called the hypothalamus to subsequently produce physiological changes in the body.

Chilean Concentration Camp – During the Chilean military coupe of September 11th, 1973, concentration camps were set up to hold political prisoners that had been arrested. There were eighty such camps in Santiago alone, many of which were highly secret. Thousands disappeared in them, with bouts of brutal torture reported as being everyday occurrences for those detained. More information about the camps can be found in the 1990 'Report of the Chilean National Commission on Truth and Reconciliation', also known as the 'Rettig report'. The translated findings of this commission can be found at the United States Institute of Peace Website.

CIA – The Central Intelligence Agency of the United States government is a civilian intelligence agency that also functions covertly at the behest of the countries president.

Cultural compression – This term refers to the modification of intensity levels that occurs when technologies are transferred from the battlefield into civilian environments. A prime example is the Long Range Acoustic Device (LRAD) technology (see glossary) which can be used in both civilian and military contexts. The manner in which it is used will more likely tell us how much of a threat the 'enemy' is perceived to be. Thus the frequency and volume levels applied in situations in Fallujah, Iraq, where "music was played so relentlessly… that the Marines nicknamed the city 'LalaFallujah'" (Pieslak, 2009: 84) did not occur in New York when the police utilised the LRAD against protestors. Whilst techniques and technologies deployed across the socio-geographic realm are the same, the levels of intensity levelled against the targets, are not. Similarly, the rates of repetition and the levels of sonic force of music used against a detainee in a Guantánamo Bay cell are not the same as those employed by judges in the USA to punish those who have violated city noise codes. The point here is that there are levels of compression occurring between martial and civilian usage, but it should be understood that they are malleable and can be easily modulated at anytime.

Division of Labour – Also known as 'specialisation' - prescribes the division of manpower into roles in which each individual repetitively carries out specific tasks within a wider cooperative system of production. Economist and philosopher Adam Smith writes profusely about the dynamics of the division of labour and economics in relation to the Industrial Revolution in his seminal 1776 text *An Inquiry into the Nature and Causes of the Wealth of Nations.*

Épistémè – The use of the term épistémè can be traced back to Michel Foucault's utilisation of it in his 1966 book, *Les mots et les choses: une archéologie des sciences humaines* (translated as *The Order of Things*). The term refers to a previous history that contextualises and excavates a system of knowledge - and its discourses - so that its foundations can be laid bare, and its subsequent condition understood.

Everyday Living – A direct reference to Michel De Certeau's proposal that there is a potential subversive agency within the everyday practices and articulations of the mundane and the ordinary, what he called the 'tactics of living' (De Certeau, 1974).

Father of Information Theory – Born in America in 1916, Claude Shannon was an electronic engineer and mathematician who conducted some of the first experiments into artificial intelligence. By his death in 2001, he had been dubbed the 'Father of Information Theory'.

Fatigue Curve – Dr. Harold Burris-Meyer and Richard L. Cardinell conducted tests to ascertain how worker's fatigue patterns altered throughout the course of an average workday - charting rates of output and the times of day psychologically perceived by workers as passing slowly and quickly. The results of the tests indicated that worker efficiency is at its highest in the morning after they start their workday and drops to a low point after mid-morning before marginally picking up before lunch. The same pattern was found to occur in the afternoon but with lower overall output than the morning. Muzak was thus programmed according to the dynamics of the fatigue curve, upping the levels of musical stimulus during those targeted periods of low efficiency.

Field Holler – A work song intoned by African American cotton pickers, plantation workers, and muleskinners in the southern states before the American Civil War in 1861. Conveying information about possible ways to escape slavery; warning fellow workers of impending violence; and expressing religious sentiments, field hollers were a precursor to the blues and an early tactical utilisation of waveforms by the disenfranchised and marginalised peoples of the USA to empower themselves within civilian, military, and workplace soundscapes.

Final Solution – This refers to the final phase of the holocaust, in which the German Nazi leader - Adolf Hitler, along with Heinrich Himmler, executed the systematic genocide of European Jews during the Second World War.

Five Techniques – A set of torture techniques. In 1971 Jim Auld along with a targeted group of Northern Irish catholic men were picked up - without evidence of being associated to any crime - and as John Conroy relates, subjected to "a scientific combination of tortures" (2000: 5-6). A hood was put over Auld's head after which noises were played at an intense level. "Various survivors described it as the sound of an airplane engine, the sound of compressed air escaping, and the sound of helicopter blades whirring. For a solid week, the noise was absolute and unceasing, an assault of such ferocity that many of the men now recall it as the worst part of the ordeal" (2000: 5-6). Placed into stress positions, the detainee's were also denied water, food, and sleep and were refused visits to the toilets, meaning that they had to urinate and defecate in the boiler suits they had been forced to wear. A new era of torture had begun, the 'five techniques' (as they were dubbed at a later date) "induced a state of psychosis, a temporary madness with long-lasting aftereffects" (Conroy, 2000: 5-6) and had long lasting and widespread reverberations. These early pan-sensory experiments have also

informed sonic torture techniques employed globally; in soundproof acoustic abuse rooms in Mexico; white-noise rooms in Mali Alas of the Former Republic of Yugoslavia; and in isolation cells in South Africa soundscaped by tapes playing back the sounds of "human screams, breaking glass, barking dogs, and roaring lions" (Storr, 1992: 101). It should be noted here that sensory deprivation/overload techniques had been employed before 1971 but not as the refined version of the 'five techniques' formatted in Northern Ireland and later applied in Guantánamo Bay. Rejali informs us of reports made in 1957 by Harold Wolff and Lawrence Hinkle establishing that "isolation, sleep deprivation, non-specific threats, depersonalization, and inadequate diets placed enormous stress on individuals" (2007: 373). Suzanne Cusick meanwhile writes that, "in 1963 in the CIA's Kubark Counterintelligence Interrogation Handbook, the techniques of "no-touch torture" were used–indeed, consciously tested again and again-- by the CIA's counter-insurgency forces in Vietnam into the 1970s" (2006: 4). To put the techniques used in Guantánamo Bay into further historical perspective Rejali surmises that they are ultimately rooted in "old West European military and police punishments (Anglo-Saxon modern) or they have descended from the pre-Second World War practices of French Colonialism (French modern). Most techniques are low tech, many rooted in native American policing going back to the nineteenth century" (2007: 378).

Foucauldian Methodology – A methodology based on philosopher Michel Foucault's research practices. His analytic modality was dependent upon ascertaining how changes and differences occur over time: Transformations occurring within an extenuating context that allows some mutations to happen whilst impeding others. Thus Foucault's methodological approach is a historical one, albeit a radicalised version that uncovers the way truth is conceived and how circumstances are engineered to authenticate and propagate certain discourses, techniques, and ultimately truths.

Friendly Fire – A term typically used in battle, when one's allies, mistaking them for the enemy, accidentally fire upon their own, often causing injury or death.

Friendly Frequencies – Waveforms that adversely affect those who utilise them as weapons. The adverse affects that repetitive music techniques, used to torture detainees in Guantánamo Bay for example, have on U.S. soldiers have been under researched. There is the distinct possibility that these soldiers are also being psychologically harmed when employing such sonic torture methods.

Geneva Conventions – Britain, along with the USA agreed to abide by the updated third (relative to the treatment of prisoners of war) and fourth (relative to the protection of civilian persons in time of war), Geneva Conventions in 1949 - which legally dictate the humane treatment of civilians during wartime and the procedures to be abided by in relation to the caring for prisoners of war. In relation to the war in Iraq, Article 17 of the third Conventions (viewable at the International Committee Red Cross website) decrees that, "No physical or mental torture, nor any other form of coercion, may be inflicted on prisoners of war to secure from them information of any kind whatever. Prisoners of war who refuse to answer may not be threatened, insulted or exposed to unpleasant or disadvantageous treatment of any kind".

Ghost Army – The Ghost Army was a tactical deception unit within the U.S. military, which consisted of approximately 1,100 actors, sound technicians, artists, and other 'creative types' taken from art schools and advertising agencies to construct fake, tanks, soundscapes, and radio transmissions amongst other things. Philip Gerard (2002) documents their activities, which stemmed from a remit to saturate the Nazi's with disinformation about the plans, whereabouts, and numbers of allied forces.

Global Expansionist System – Marx and Engels never used the word 'globalisation' directly. It is a recently created term used to largely explain a new economic era. Rather they predicted how capitalism as a global expansionist system would transform societies, nation-states, and eventually, the entire world after the 1840s - the period in which they were writing.

Global Village – The term global village was first coined by Marshal McLuhan in *The Gutenberg Galaxy: The Making of Typographic Man* (1962). McLuhan outlines how the geography of the globe has been shrunk into a village by electronic communications technologies and their capacity to transfer information from any given point to another at great speeds. He proposes that with such contractions of physical space, humans have an increased sense of responsibility to a wider sense of community than ever before. Lanza states that through Muzak, General George Owen Squier "helped usher in the "global village" by concocting a hook-up system capable of compressing vast areas of time and space previously isolated by geography" (2004: 23).

Guantánamo Bay Detainment Camp – Originally consisting of three camps: 'Camp Iguana', 'Camp Delta' (including 'Camp Echo'), and 'Camp X-Ray', Guantánamo Bay (also referred to as 'Gitmo') is a U.S. military installation in Cuba. The codes of conduct practiced with regards to its detainees transgressed internal U.S. codes and mechanisms of due process by way of the Justice Department declaring it to be outside the USA's legal jurisdiction. During the period of its (fully functioning) operation, there have been numerous vociferous objections and complaints from human rights groups (such as Amnesty International and Human Rights Watch), political leaders, globally connected groups of protestors (such as The Society for Ethnomusicology), and ex-prisoners about the treatment of its inmates. These remonstrations are often based on reports and direct

observation of, and from, those held in the facility and accounts (by reporters such as Julie Hyland) of brutal violations of human rights via 'sonic torture', 'sleep deprivation', 'prolonged constraint' (being held in 'stress positions over long periods of time'), sexual degradation, forced drugging, and religious persecution.

Guantánamo's Living Dead – The term 'living dead' is employed here in reference to the legal status of the detainees in Guantánamo Bay, which as Zizek (2006: 371) points out, is in limbo.

HAARP – The 'High Frequency Active Auroral Research Program' is a U.S. 'ionospheric heater' located near Gakona in Alaska. The facility also functions as an extremely powerful transmitter, which is the application that has many people and governments worried. In the words of the HAARP website, it is "a high power transmitter and antenna array operating in the high frequency (HF) range. When complete, the transmitter will be capable of producing up to 3.6 million Watts to an antenna system consisting of 180 crossed dipole antennas arranged as a rectangular, plannar array". There are many who doubt the statements issued on the facilities website, however, and whom state that its functionality is influenced by technologies created by Nicola Tesla. For those suspicious of its capacities, more sinister intentions are projected, such as the control of weather formations and the beaming of electromagnetic pulses - in order to destroy aircraft and communications systems.

Hawthorne Effect – After Thomas Edison stopped funding studies into the effects of music, The Hawthorne Works (under the aegis of the Western Electric Company) in Cicero, Illinois, began conducting the first of five studies that started in 1924 and ended in 1932. They began by altering workplace stimuli such as music and light to inquire as to

whether their employees would be more productive with increased or decreased amounts of either. It was found that production levels did infact rise, when light levels were changed either way. It was concluded that rather than the manipulation of the environment being the decisive factor, it was the fact that employees were cognisant of the fact that they were being observed that instigated upsurges in efficiency. This effect, which came to be known as the 'Hawthorne effect' - when Henry A. Landsberger coined the term after analysing the results of the study over 30 years later - is now used to describe any short-term increase of productivity.

Heavy Rotation – Refers to the repetitive playing of songs on the radio over a period of weeks or months in order to maximise their sales potential.

Hebephrenia – A subtype of schizophrenia that is also identified as 'disorganized schizophrenia'.

Heinrich Rudolf Hertz – A German physicist who pioneered the testing and recording of waveforms outside of the audible range of human hearing. He constructed a device to both compose and detect VHF and UHF waves and proved to the world at large that they existed. The name 'Hertz' was subsequently used to denote the measurement (in cycles per second) of frequency, current, and electricity.

Hoodies – Garments with hoods. In England, hoodies have caused controversy over the past 5 years because they are associated with youth who wish to conceal their identities in order to carry out illegal acts such as shoplifting. This has led to bouts of near hysteria from past British Prime Ministers such as Tony Blair and Gordon Brown, both of whom supported the banning of wearing the hoodies hoods up and thus covering the face.

Hub of Transmission – This term refers to an architectonic narrative used in science-fiction films and books about draconian cities of the future; cities that have pivotal centralised information hubs from which control of the masses radiates. In order for those who control the cities to be overcome, the protagonists of the film/book must trace back their location along information networks, breach the system's protocol, and destroy the nexus of technological empowerment. Such narratives occur in William Gibson's book *Neuromancer* (1984), and in films such as Andy and Larry Wachowski's, *The Matrix* (1999) and Tarik Saleh's, *Metropia* (2010).

Human Relations Movement – Emanating from the Hawthorne studies, the Human Relations Movement was an American school of sociology, based largely on Australian social theorist and industrial psychologist Elton Mayo's theories about the behavioural dynamics of people in large groups. For Trahair (1984), Mayo's contested ideas - based loosely on social theories forwarded by Vilfredo Pareto and Émile Durkheim - stated that within market industrial societies, social relation structures (informed by scientific management strategies) did not take into account the workers senses of community and compassion. Mayo proposed that workers would therefore resist productivity goals set by management and instead seek to form their own isolated relational networks within industrial environments.

Imaginary Voice – A voice that cannot be associated with being transmitted from an external source. Schafer traces the silencing of the imaginary voice through a selective history of Western thought - from the classical Greek philosophy of Pythagoras to the contemporary occidental science of the space-time continuum. The following quote is of interest because it conceptually maps out an alternating yet corresponding trajectory - from encompassing surround sound (of the 'heavenly spheres in motion' for Schafer; of

the Fordist factory speaker systems in this text) to the silence (of the 'atomic structure of matter' for Schafer; of ultrasonic beam technology in this text) - proposed in this thesis. Schafer (2003: 34-35) states that "the empirical Greeks often referred to sound in their writings. Pythagoras created a musical system based on harmonics derived from listening to the heavenly spheres in motion. Socrates took counsel from his 'demon', an interior psychic voice that warned him about danger and evil. In his *Problemata*, Aristotle asked many questions about sounds and attempted to answer them. In *De Rerum Natura (On the Nature of Things)* the Latin poet-philosopher Lucretius has a vigorous discussion on vocal sound and acoustics in general. But by the time we reach St Augustine, philosophy was beginning to settle into a quieter mode, for, as he said, 'It might be contended that, though we utter no sound, we nethertheless use words in thinking and therefore use speech within our minds' (St Augustine, 'The Teacher', in Shapiro 1964). Logic, ethics and aesthetics became silent disciplines and remained so for centuries until Schopenhauer proclaimed music and noise as indispensable ingredients of philosophical speculation – noise because it can 'instantly shatter the power of thought', and music because the 'combined, rational, numerical relations set the brain fibres themselves vibrating in a similar way' (Schopenhauer, 1966). Still, a reader of Western philosophy might conclude that everything worth serious discussion exists in a silent vacuum: war, revolution, all social enterprise, and even the universe. This repudiation of sound passed over into science as well where major theories (the space-time continuum, the atomic structure of matter, and the wave-corpuscular theory of light) were construed as silent, as were the instruments used in their measurement (the telescope, the microscope, equations, graphs, statistics and numbers). It is almost as if the great achievements of Western philosophy and science were produced in a huge anechoic chamber".

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Intonarumori – Instruments (whose name translates to 'noise intoners') created by the Futurist musical composer Luigi Russolo in 1913 to orchestrate a wide range of sonic textures, comparable to those produced by the machines that the Futurists so revered.

Invisible Cities – Ital Calvino's 1972 novel *Invisible Cities* has the explorer Marco Polo narrate the fictive constructions of 55 imagined cities. Written largely in prose poetry, it has become a seminal text for architects, artists, and urban theorists involved in challenging ideas about the architectonic potential of urban existence.

James and Lange Theory - Late in the nineteenth-century, American psychologist William James and Danish physiologist Carl Lange independently proposed that emotions are triggered by physiological changes in the body - manifested by experiences in the world. James explains his theory in the *Mind* philosophy journal, stating that, "my thesis... *is that the bodily changes follow directly the PERCEPTION of the exciting fact, and that our feeling of the same changes as they occur* IS *the emotion*" (1884: 189). Thus if one witnesses a dangerous animal in the wild and feels the body shake for example, Lange and James's rationale proposes that this somatic reaction would trigger the emotion of fear, rather than the other way around.

Kriegsspiel – A war game used for training officers in the Prussian Army, attributed with having a defining influence on the surprising victory in the 1871 Franco-Prussian War of the Prussians over the Second French Empire.

Long Range Acoustic Device (LRAD) – Developed by the LRAD Company in San Diego, this speaker system has the capacity to transmit sound over 3000 metres, with a maximum range of 1250 meters over 88dB of background noise. The producers of this

technology declare on their website that "it is used to prepare the battlefield, or prepare city spaces or possible sites of conflict in Iraqi cities for military operations such as Fallujah and Baghdad, almost like an acoustic cultural swab. It was... used against protestors in 2004 in Union Square, New York".

Manichaeism – An influential Iranian Gnostic religion existent between the third and seventh centuries. It proposed an intricately dualistic cosmology in which a constant battle between good and bad rages. In terms of the somatic, the subject becomes a metaphysical war zone where good, symbolised by the soul (composed of light) battles evil, symbolised by the body (composed of dark earth).

Mass Industrial Body – An industrial workforce consisting of multiple individuals conceived of as a singular collective entity.

McCarthyism – An era in U.S. history (researched by Geoffrey Stone (2004)), in which any persons who showed political sympathies towards communist causes (and even those who did not), were aggressively and legally persecuted by the state. The prosecutors often worked with scant evidence that was regularly based on allegations made by unnamed informers – or with no evidence at all, of such allegiances or political affiliations.

Micronation – Also referred to as a 'model country' or a 'new country project', a micronation is a collective of people (although it can allude to an individual as well) that profess independence and socio-political autonomy. In many cases, as noted by Erwin Strauss (1985), no other major international organisations or governments recognise their

status as such. Examples include the former Second World War sea fort, now known as the 'Principality of Sealand' in the North Sea.

Mosquito – An ultrasonic speaker system that emits frequencies only audible by teenagers. It is utilised by shopkeepers, petrol station companies, railways, and governments to deter young people from 'loitering' on their premises or within public areas.

Multiplexing – Major General George Owen Squier of the U.S. military invented multiplexing. It is now a process occurring in telecommunications and computer networks whereby multiple analogue or digital signals are converged into a solitary signal and transmitted over a communication channel.

Muzak – In reference to the naming of Muzak, Major General George Owen Squier renamed the corporation according to his interest in the invention of the 'Kodak' company's name. In turn he created a portmanteau of the words 'music' and 'Kodak' and formed the name Muzak.

North American Free Trade Agreement (NAFTA) – An agreement drafted in 1994 by the governments of the United States of America, Canada, and Mexico, creating a North American trilateral trade bloc. The overall aim of the agreement was so eliminate barriers and difficulties that had arisen between the countries in terms of investment, employment, and economic growth.

Nasheeds – Traditional Islamic songs that don't generally contain music made by instruments but which employ percussive elements. Contemporary nasheeds, however,

are allowed to contain music made from a range of musical instruments in their compositions, as long as its content is structured around Islamic narratives.

No Touch Torture – A relatively new model of psychological torture (that does not mark the body of its victim), in which music is deployed to inflict pain. "'No touch torture' using music to dissolve others' subjectivities has been imposed on persons picked up in Afghanistan, Bosnia, Egypt, Ethiopia, Gambia, Indonesia, Iraq, Mauritania, Pakistan, Thailand and the United Arab Emirates" (Cusick, 2006: 8). For Cusick, this strategy entails that "a detainee... must experience himself as touched without being touched, as he squats, hands shackled between his shackled ankles to an I-bolt in the floor, in a pitch-black room, unable to find any position for his body that does not cause self-inflicted pain... the experience creates a nexus of pain, immobility, unwanted touching (without-touch); and of being forced into self-hurting by a disembodied, invisible Power" (2006: 8).

Operant Conditioning Chamber or Skinner Box – Theorised by American psychologist Burrhus Frederic Skinner in the 1930's, the Skinner Box was a system that involved the measurement of subject's (such as rats and pigeons) responses to events (stimuli) in their lived environment. The central proposition of this theory stipulates that when a stimulus-response dynamic occurs and is rewarded, then the pattern in reinforced and the subject is subsequently conditioned to respond in the same way again in the future. Within Skinner's philosophy - outlined in his text *Radical Behaviorism* (1953) - the element of reinforcement is a key factor to attaining desired responses.

Outsiders – Those who do not identify themselves within, or/and are not accepted within, the social dictates of the mainstream culture or social body they are on the periphery of or outside of. The proliferation of 'outsider' groups that have sought the social margins since

the Second World War has increased, as the static order of the pre-war era gave way to a newly contingent organisation of politics, countries, states, and territories, post 1945. Within this period of fluid dynamics, composed as it was of social reformation, geographical remapping, and economic reconfiguration, the relative chaos that ensued within the reorganisation of the world, meant that new wildernesses opened up that had not been perceived as such before. As (black) humorously fictionalised by Thomas Pynchon (1975), this post-war state of confusion in which moral, civic, and fiscal (to name some) boundaries were made ambiguous and in a near constant state of transformation, resulted in religious sects, political organisations, cults, ecological groups, and micro-nations seeking their own version of the wilderness, where they could protect their sense of agency through self-governance. With the restructuring of international economies, laws, and communities that has occurred during the past two decades of globalisation, the circumstances have become once again predisposed to the proliferation of independent (outsider) groups seeking the hinterlands for socio-political autonomy.

Panopticon – Conceptualised and drafted in 1785 by English social theorist Jeremy Bentham, the Panopticon is a prison architecture that allows an observer (such as a guard) to watch inmates without the surveilled subject being able to tell whether they are being observed or not. The goal of such engineering was to instil a sense of self-surveillance in the prison population, based upon the institutional threat that they were always open to being the focus of authoritarian gaze.

Pied Piper of Hamelin – A legend set in the thirteenth-century. It tells of a travelling piper offering to rid the German town of Hamelin of a rat infestation, for payment. By playing a song on his pipe, he led the rats into the Weser River where they drowned. Upon requesting remuneration for his services the villagers reneged on the deal causing the

piper to swear revenge. On Saint John and Paul's day - when the adults of the village were in Church - the piper lured the villager's children away, by way of song, so that they were never seen or heard of again.

Presbycusis – Young children are able to hear higher frequencies than those older than them, due to the ear's inner mechanisms being shaped in such a manner that they are able to perceive them. As humans get older their ability to hear high frequencies decreases with age. This state of deterioration starts at about 18 years old and is known as presbycusis.

Psycho-Geography – A phrase initially coined by Guy Debord in his 1955 essay *Introduction to a Critique of Urban Geography*. In his words it constitutes, "the study of the precise laws and specific effects of the geographical environment, consciously organized or not, on the emotions and behaviour of individuals".

Psychological Operations or PsyOp – Utilised in combat and in peacetime by military's around the world, PsyOp are an important force protector/combat multiplier and a non-lethal weapons system. Often using radio, printed materials, visual media, and other loudspeaker techniques, according to the 'psywarrior' website, "PSYOP are planned operations to convey selected information and indicators to audiences to influence their emotions, motives, objective reasoning, and ultimately the behaviour of organizations, groups, and individuals".

Psychomotor Poverty – In psychotherapeutic terms, this state involves a subject experiencing a poverty of speech, an inability to act spontaneously, and a subduing of emotional characteristics.

Radar – RAdio Detection And Ranging is an object detection system that identifies the range, direction, and speed of moving or still objects such as aircraft and ships.

Rasul v. Rumsfeld – In the legal case 'Rasul v. Rumsfeld', Jamal Udeen Al-Harith along with the 'Tipton Three' collectively sued former U.S. Secretary of Defence, Donald Rumsfeld. The claimants requested financial compensation from Rumsfeld, as he condoned the use of illegal interrogation practices upon them during their wrongful detention in Guantánamo Bay.

Reality Distortion – In psychotherapeutic terms, this state involves a subject experiencing hallucinations and delusional episodes, leading to a distorted perception of his existence.

Real Life – A term used by marketing agencies to sell cultural products that contain violent content, under the auspices that they are conveying an 'authentic experience' of the painful difficulties of existence. Examples include, the selling of musical genres such as Gangsta Rap, video games such as *Grand Theft Auto*, and war films such as *Jarhead*.

Rhythmanalysis – Many theorists have deployed Lefevbre's concept of rhythmanalysis in their efforts to define the mutating experiential relations created as the (not always present) body moves through space. For Crang and Thrift (2000: 22), through this term, Lefebvre "sought to convey a quality of experience which arises out of the conglomeration of different spaces and times, sometimes in harmony, sometimes in discord, but always mobile – encountering – alive, to be found in modern societies... he perhaps came closest to producing a sense of an embodied, inhuman, travelling means of inscription".

Sacrificial Body – A conceptualised body referring to the writings of Attali, this somatic form is symbolic of the originating body of music that "will be presented as originating in ritual murder, of which it is a simulacrum, a minor form of sacrifice heralding change. We will see that in that capacity it was an attribute of religions and political power, that it signified order, but also that it prefigured subversion" (Attali, 1985: 4).

Schizoid – The term schizoid is different in meaning to schizophrenia. The two are related, however, in terms of affected subjects showing signs of social disconnection from their environment and from those inhabiting it. 'Schizoid Personality Disorder' is a malady attributed to those subjects who live in solitary conditions, with few relationships, and a lack of perceived empathy towards others.

Schizophrenia – A clinical understanding of schizophrenia is employed in this study. Deleuze and Guattari's notion of schizophrenia developed in texts such as of *Anti-Oedipus: Capitalism and Schizophrenia* (2004) is not being referred to here. For these writers, schizophrenia is a mental state produced and propagated by a capitalist order that necessitates the systems social body be driven by neurosis in order for the status quo to be maintained.

Schoenberg's Revolutionary Alarm Call – In the *Philosophy of Modern Music* (1973) Adorno, states that tonality in music is a spent force. True to his dialectically informed philosophy, he fabricated a dualistic argument in an attempt to prove his point, stating that atonal composer Arnold Schoenberg's 12-tone works of experimental high art provided culture with an authentic musical model of the revolutionary spirit. In the opposing corner of Adorno's promoted fight between high and low art/culture stood Igor Stravinsky, whom

Adorno branded as being symbolic of the traditional, safe, and inauthentic values of the bourgeoisie, because of his continued use of popularised tonal techniques.

Science of Sound – The scientific approach to sound referred to when employing this term is based on Newton's research on the speed of sound waves, and more specifically, on his measurements of the time it took to perceive an echo after hearing the primary sound. Conceptualised before the basic principles of thermodynamics were established by Sadi Carnot in 1824, Newton's early formulas and propositions about the speed of sound used isothermal instead of adiabatic calculations and were thus not one hundred per cent correct.

Second Industrial Revolution – A phase of the Industrial Revolution that started in the mid nineteenth-century with the advent of new transportation systems such as steam ships and railways, and with major advances in the steel, chemical, and importantly for this study, electrical industries.

Sequential Arc Discharge Acoustic Generator (SADAG) – A sonic weapon that produces high-intensity impulsive sound waves by purely electrical means.

Silent Sound Spread Spectrum – Referred to as 'SSSS', 'S-quad', or 'Squad', the patent abstract (which can be found online at the United States patent and Trademark Office website) for this 'Silent Subliminal Presentation System', declares it to be "a silent communications system in which non-aural carriers, in the very low or very high audio-frequency range or in the adjacent ultrasonic frequency spectrum are amplitude - or frequency - modulated with the desired intelligence and propagated acoustically or vibrationally, for inducement into the brain, typically through the use of loudspeakers,

earphones, or piezoelectric transducers. The modulated carriers may be transmitted directly in real time or may be conveniently recorded and stored on mechanical, magnetic, or optical media for delayed or repeated transmission to the listener".

Sonic Detritus – R. Murray Schafer has consistently denigrated the transmissions of 'noise' and excessive levels of sound by humans and has conversely sort to record those sounds perceived to be under threat of being silenced. As a result of his convictions, Schafer formed a course of 'Acoustic ecology studies' in the late 1960s, at Simon Fraser University in Vancouver, as part of his 'World Soundscape Project'.

Stimulus Progression – Utilising Yerkes and Dodson's law allowed Muzak engineers to index all actions, emotions, and human relations within a musical framework of reference within the workplace. The ultimate expression of this 'musical science' manifested in their elaborate programming of 15-minute blocks of music. Known as 'Stimulus Progression', this new form of cataloguing and indexing sound was implemented by Harold Burris-Meyer and Richard L. Cardinell but was masterminded by Muzak executive Don O'Neill, who had toyed with the idea since he joined the company in 1936. Premiering in the late 1940s, Stimulus Progression was a method of organising music according to the 'ascending curve' that worked counter to the 'industrial efficiency curve' (or what was also called the average workers 'fatigue curve)', as stipulated by Yerkes and Dodson. Subdued songs, progressing to more stimulating songs, in fifteen-minute sequences (followed by silences of 30-seconds upto 15-minute periods between transmissions) throughout the average workday yielded better worker efficiency and productivity than did random musical programming. Programs were soon tailored to workers' mood swings and peak periods, as measured on a Muzak mood-rating scale, ranging from 'Gloomy – minus three' to 'Ecstatic-plus Eight'. Songs were thus categorised by Muzak according to their

'stimulus' capacity – incorporating rhythm and tempo analysis, types of instrumentation, and the size of orchestra - to ultimately classify any given songs propensity to encourage optimum labour throughout the workday. Constructing its ratio in relation to the rhythm of the human biological system, stimulus progression's *tabla rasa* was set at 72 beats per-minute - the tempo of the average human heart at rest.

Strategy/Tactic – When using the terms 'strategy' and 'tactic' throughout the thesis, Michel de Certeau's reading of these two differentiated types of behaviours is being employed. He refers to them outside of their military meaning by reinterpreting them as implicated social techniques. De Certeau defines strategy as a type of embedded behaviour that is enacted by an empowered authoritarian source such as an organisation, corporation, or government. A tactic meanwhile, is a type of action carried out by a more nomadic and less formally organised social group or individual, usually out of necessity, but without the proviso of 'taking over' or 'sabotaging', which differentiates it from modalities of resistance such as guerrilla warfare (De Certeau, 1984).

Sublime – The use of this term refers to Edmund Burke's concept of the sublime, which he constituted in his 1757 treatise on aesthetics - *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (1958). Within the text, he focused on a subject's feelings of fear and terror as they fuse with attraction to create a 'negative pain' that he names delight. From Burke's perspective, the sublime has to be removed and obscured so that the implicit terror involved in its perception can be conceived of from a safe perspective.

Subliminal Messages – Covert transmissions/communications that are purported to exist in musical recordings (and sometimes in other cultural products such as films and

artworks) that covertly urge audience members to carry out (often violent) actions. Examples of subliminal messages being blamed for violence include the court case of U.S. serial killer Richard Ramirez who was convicted of thirteen murders by a Californian court in 1989. As a fan of the hard rock group AC/DC he cited their Highway to Hell recording as his favourite album. David Oates - a reverse speech advocate - maintained that subliminal messages on this record, such as "my name is Lucifer" and "she belongs in hell", urged him to commit the murders.

Supercollider Logic – A rationale that can be attributed to a phenomenon's (digital, philosophical, or material) splitting of form through controlled pressure. This term refers to the particle accelerator, the Large Hadron Collider (LHC), which collides beams consisting of either protons or lead nuclei into each other, in order to answer the most essential questions about the laws of physics. It also refers to the dynamic programming language 'SuperCollidor' (a free software) utilised for algorithmic composition and often associated with the sonic process of granular synthesis.

Symptom of Psychic Disorder – A sign – such as a subject declaring that he is hearing voices - that communicates an individuals declining mental health to the wider population. Whilst anticipating the cultural reintroduction of multiple inner voices back in Western subjectivity, it is safe to say that Schafer was not envisaging that they would be transmitted from an ultrasonic beam. Thus when he writes that, "the steady development of consciousness and rational thought has transformed the inner voice into a symptom of psychic disorder. A person might ask: have they really disappeared or were they merely suppressed because they are too frightening or irrational for the modern mind? (2003: 34) we are forced by the HSS, to dispel the romantic associations Schafer imbues the schizophrenic subject with. The days of the 'romanticised' insane prophet who channels

information from discrete spatialities, is over. These previously occulted practices have now been taken over by militaries that are engaged in the waveformed engineering of consciousness.

Time and Motion Studies – Precisely measuring all movements within the workplace, Frederick Winslow Taylor conducted the first Time and Motion studies - by analysing the management and machinery of industrialisation - in order to work out how the entire working system could function more efficiently.

Topology – For this study, Steven Connor's reading of Michel Serres's spatial analysis of topology is referenced and utilised. For Connor, "topology may be defined as the study of the spatial properties of an object that remain invariant under homeomorphic deformation, which is to say, broadly, actions of stretching, squeezing, or folding. (It is) not concerned with exact measurement, which is the domain of geometry... but rather with spatial relations, such as continuity, neighbourhood, insideness and outsideness, disjunction and connection.... Because topology is concerned with what remains invariant as a result of transformation, it may be thought of as geometry plus time, geometry given body by motion" (2004: 106).

Torture Lite – A set of torture practices that is also deceptively referred to as the application of 'moderate physical pressure'. Employed by the U.S. military to torture detainees in Guantánamo Bay, torture lite methods include musical torture, psychological torture, sensory deprivation, starvation and thirst, sleep deprivation, waterboarding, forced standing, sexual abuse, and humiliation.

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Transhumanism – Also know as 'posthumanism', this intellectual and cultural movement born in the 1980s supports the enhancement of the human form by biotechnologists (amongst other future engineers of the body). Proponents of transhumanism believe that somatic phenomena such as disability, aging, and death are avoidable, leading many critics - such as health law professor George Annas - to liken its eugenic values to those ideas forwarded by proponents of 'master race' ideologies.

Tritone – Within the musical lexicon, a tritone is an interval that spans three whole tones. Through its musical dissonance and alleged provocation of sexual feelings in the listener, the tritone (as documented by F.J. Smith (1979)) earned the enviable name of 'Diabolus in Musica' or 'The Devil in Music' around the turn of the early eighteenth-century. Given its 'outsider' history, the tritone was always going to become musically popular with those who deem themselves to be socially alienated. In contemporary music, many heavy metal bands such as Black Sabbath and Rush have employed it because of its historical lineage and association with the devil.

Unsoundcheck – A process through which the levels of waveformed instrumentality at work - in a range of geographical, political, and temporal circumstances - could be tested. This investigative modality would be employed to evaluate the influence of waveforms in places such as Northern Ireland, where "the importance of the rave scene for young people has been seen as a unifying factor in the community (hence the opposition from paramilitary groups), and there is a great deal of as yet unpublished research evidence that the rave movement may indeed have played a role in forcing young people to question assumed difference" (Moore, 2003: 271-272); in North and South Korea, during "four decades of a 'sound war," throughout which the armies "exchanged anthems and invective across their common border through loudspeakers" (Johnson and Cloonan,

2009: 33); and in Montenegro, where "one of the Montenegrin judges was quoted as saying 'Yugoslavia was divided with guns, Serbia and Montenegro will be divided by songs'" (Johnson and Cloonan, 2009: 145).

Vector – The claim that it is the speed of the vector that displaces territory, as the primary narrator of political and military endeavour, is for Virilio crucial to comprehending the ways that technology has radically altered the cultural, political, and economic location of spatial discourse. This is made manifest by his statement, that "the maneuver that once consisted in *giving up ground to gain Time* loses its meaning: at present, gaining Time is exclusively a matter of vectors. Territory has lost its significance in favour of the projectile. *In fact, the strategic value of the non-place of speed has definitely supplanted that of place*" (1977: 149). McKenzie Wark offers a conceptual overview of Virilio's meditation upon the vector in the first 'Site' of *Virtual Geography: Living with Global Media Events* (1994: 3-29). In Wark's reading of the vector, the flow, orientation, transmission, signal, and reception are all theoretically grounded in speed as it pertains to the technological remapping of the landscape. Thus for Wark, the vector "is a term from geometry meaning a line of fixed length and direction but having no fixed position. Virilio employs it to mean any trajectory along which bodies, information, or warheads can potentially pass... Media vectors have fixed properties, like the length of a line in the geometric concept of vector. Yet that vector has no necessary position: it can link almost any points together. This is the paradox of the media vector. The technical properties are hard and fast and fixed, but it can connect enormously vast and vaguely defined spaces together and move images, and sounds, words, and furies between them" (1994: 11-12).

Videodrome – A 1983 film by Canadian director David Cronenberg. The film's protagonist is the CEO of a cable station who discovers that a signal - broadcasting extreme acts of torture and violence - causes hallucinations and mutations in those watching it.

Videodromotic Transmission – Referencing the film *Videodrome* (see above), a videodromotic transmission is a signal that harbours the potential to cause hallucination, violence, and neural/somatic mutation in those who witness it.

Viral Marketing – Also referred to as viral advertising, this marketing technique identifies influential subjects and social networks to transmit brand awareness through, by using propagatory methods analogous to those employed by digitally and somatically based viruses. One of the first books to explore the recent media phenomenon of viral marketing and still one of the most salient is *Media virus!: Hidden Agendas In Popular Culture* (1996) by Douglas Rushkoff.

Waco Massacre/Siege – As they endeavoured to administer a search warrant within the grounds of the Branch Davidian sect's compound, the United States Bureau of Alcohol, Tobacco, and Firearms instigated the 1993 Waco siege (which would later lead to the massacre). The sect resisted their advances, killing four agents in the process and losing six of their own members. A subsequent siege - lasting fifty-one days - resulted, during which time the FBI surrounded Mt. Carmel with speakers and blasted the Davidians with music, religious prayer, and sound effects (at high volume) in the hope that sect members would surrender their position. On April 19th, 1993, the FBI attempted to enter the compound by force. A fire, engulfing the wooden buildings that sheltered the Branch Davidians, killed seventy-six of the sect including their leader David Koresh.

Wandering Soul – During the Vietnam War (1959 – 1975), the PsyOp division of the United States military used a literal interpretation of haunting to induce an overwhelming sense of angst, fear, and anxiety within 'enemy' territories. The Wandering soul recording - also referred to as 'Ghost Tape Number 10' - was part of the 'Urban Funk Campaign' - an umbrella term for the operations of sonic psychological warfare conducted by the U.S. during the conflict. After researching the religious beliefs and superstitions of the Vietnamese people, PsyOp initiated this 'audio harassment' programme, which amplified ghostly voices to create anxiety and fear within resistance fighters. On his website explaining the rational behind the strategy, SGM Herbert A. Friedman (Ret.) tells us that "these cries and wails were intended to represent souls of the enemy's dead who had failed to find the peace of a proper burial. The wailing soul cannot be put to rest until this proper burial takes place. The purpose of these sounds was to panic and disrupt the enemy and cause him to flee his position. Helicopters were used to broadcast Vietnamese voices pretending to be from beyond the grave. They called on their "descendents" in the Vietcong to defect, to cease fighting".

Wired Radio – The first electrically powered speaker system network (transmitting radio programming to the workers) to be fitted into industrial factories in the early part of the twentieth-century.

Yerkes-Dodson Law – After researching how different levels of stimulus construct learning patterns (Yerkes and Dodson, 1908), this law was postulated in 1908 by psychologists, Robert M. Yerkes and John Dillingham Dodson. The law proposes that there is an observable relationship between levels of arousal and performance - and that a worker for example - will be more productive if they are psychologically or/and physiologically aroused. The levels of stimulus should be controlled, however, because

too much arousal becomes detrimental to the workers concentration. The theorem states that different types of activities require variable and specific intensities of arousal, in order to ensure ultimate task efficiency. According to the Yerkes-Dodson law, activities which require intellectual prowess demand a lower arousal intensity - allowing the worker to concentrate better - whilst repetitive and physically tiring assignments, demand a worker be stimulated by higher degrees of arousal, in order to increase their motivation.

Zero dB Campaign – A campaign initiated by the human rights group 'Reprieve', through which information - such as a list of the top ten songs employed by the U.S. military to torture Guantánamo detainees with - was released. According to the Reprieve website their "innovative 'silent protest' zero dB aims to stop music torture by encouraging widespread condemnation of its use within the US secret prison network".

Muted Knowledge not Included in the Thesis

The first area of interest researched but not incorporated into the study is the examination of the ways in which sound was used to influence and manipulate the social, industrial, and militarised body pre-1922 and thus prior to the date that the study takes as its starting point. Sound in the form of music had previously been used to help organise the mass social and military body for centuries but without the aid of electrical amplification. Instances include but are not limited to; the boosting of soldiers moral, camaraderie, and aggression whilst on or before entering the battlefield (the French national anthem *La Marseillaise* being a good example. It was originally named *Chant de guerre pour l'Armée du Rhin* (*War Song for the Army of the Rhine*)); and to psychologically intimidate and deceive opposing armies as to the size of a regiment of men with the sound of drums. In the realm of the incarcerated civilian, Ted Gioia (2006) documents the ways in which sonic organisation is epitomised by the songs sung by chain gangs as they laboured, constructing road and rail networks. Related to this last example but instrumentally different in terms of its functionality, is the 'field holler' (see glossary), which along with prison work songs, sea shanties, and other early American folk song were recorded by folklorist Art Rosenbaum between 1956-2007 and released as *The Art of Field Recording, Vol. 1* (2007). Other informative studies monitoring the functional utilisation of sound pre-1922 includes Alain Corbin's research into the ways in which bells were employed in nineteenth-century French villages to sonically denote spatial territory; maintain the religious symbolic order; share information about social events; and organise collective temporality (Corbin, 1998). From such studies about the nineteenth-century soundscape, many narrative threads about the functionality of waveforms and the harnessing of frequencies can be traced. It is however, the announcement of new modes of organising,

training, and torturing bodies that occurs when electricity, speaker systems, and their architectural hosts converge, that situates and defines the beginning of this study.

The next phenomena not explored fully in the thesis - but which registers within the amplitude of the research - is the use of military radio by the Psychological Operations (PSYOP) (see glossary) divisions of the U.S. and UK militaries. The radio was and still is - especially for those without access to the Internet or television in less developed areas - the most significant technological portal transmitting sonic information from the external world into the privacy of the dwelling. Realising that such channels of sonic information could become powerful tools of persuasion and deception, the U.S. / UK militaries contravened the traditional notion of the battlefield and migrated into the sonic milieu of the domestic home, blurring the borders of participation, redefining the psychology of engagement, and pinpointing the location where nationalised anxiety could be created. Such military compulsions to eviscerate the lines that make distinct the civilian from the soldier and the battlefield from the home is acknowledged by Virilio when he states that the "clandestine "invasion" of the social corpus, had, as we saw, a specific aim: exploitation by the armed forces of the nation's potential...Since then, social penetration has been linked to the dizzying evolution of military penetration techniques; each vehicular advance erases a distinction between the army and civilization" (1977: 124). Military radio is not examined further in the study because it is a mobile technology and is not bound or contracted to any specific architecture. Vitally, one chooses to have the radio in their home and selects the times to have it turned on and off meaning that the placement of this speaker system is not imposed upon the architecture or the self, as are the examples in each chapter.

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The third muted research phenomena, alludes to analysis of the ways in which waveforms have been functionally utilised and manipulated by creative producers such as musicians - Merzbow, Throbbing Gristle, John Cage, and La Monte Young; by film directors such as Gaspar Noé and David Lynch; and by visual artists such as Survival Research Laboratories (SRL), Disinformation, Jennifer Allora and Guillermo Calzadilla, and the Futurists. Practicing in the early twentieth-century, Futurist musicians dismissed traditional forms of instrumentation, composition, and aesthetics, choosing instead to score noise-based compositions for *Intonarumori* (see glossary) that referenced the mechanical soundscapes of a newly industrialised era. Seminal texts such as the *Manifesto of Futurist Musicians* by Francesco Balilla Pratella (1912) and *The Art of Noises* by Luigi Russolo (1913) helped format a coherent ideological stance by the Futurists; The latter text proposing that the urban soundscape had been irrevocably altered by industrialisation's noise, meaning the human ear required new relevant forms of composition, instrumentation, and discourse that acknowledged this paradigm shift in aural production and perception.

Whilst these twentieth-century modes of thinking about frequencies are relevant to the thesis, the Futurists outright championing of machine sound disregards the ways in which the soundscape was territorialised by industrial companies in order to orchestrate factory worker's rhythms and work flows. The Futurists ideas and compositions are not examined further because they do speak about those who are forced to listen, but rather about those who have the choice to. It can be said then, that this study is not engaged in the aesthetic, temporal, or spatial discourses proposed by cultural producers such as artists, musicians, or film directors as they are engaged with the soundscape at a level of volition. Their audiences choose to witness their waveformed transmissions in nightclubs, cinemas, and galleries for aesthetic, cathartic, and healing reasons, which is not the study's focus.

Instead this thesis researches the ways that waveforms are imposed on others; how they are used to influence, manipulate, and torture social bodies that are held as captive audiences by economic, religious, and socio-political dictates.