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SONIC BODIES

REGGAE SOUND SYSTEMS, PERFORMANCE TECHNIQUES AND WAYS OF KNOWING

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Reggae Sound Systems, Performance Techniques, and Ways of Knowing

By Julian Henriques

continuum

Dedication
to my father Fernando Henriques
(1915–1976)

Frontispiece Erecting the speaker stacks, Skateland.

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Preface

This book started with a single idea, at a particular moment. This was a remark that Stuart Hall made to me over a restaurant supper. Talking about visual arts in the Caribbean, the conversation turned to Jamaica and he said to me something like: "You know it is really a *sonic* culture." A sonic culture, it struck me, as against assuming that culture was automatically visual. That was the seed from which the research and ideas presented here grew, thanks to Stuart's gift. It has grown on the ground of my research interests as a filmmaker, and the knowledge of the Reggae and Dancehall scenes in both the UK and Jamaica this gave me. Some of the BBC documentaries, like *Derek Walcott: Poet of the Island*, were located in the Caribbean, where I lived and worked from 1996 to 2001. In my short *We the Ragamuffin* and feature film *Babymother*, Reggae music and culture played a large part. What I remembered of this work was how, in practice, auditory communication is as meaningful as the visual, representational and discursive forms of expression that are commonly assumed to have the monopoly on meaning. Such sonic cultures encourage the values, qualities and intensities of audition to be given the same weight as the measure, quantities and spread of visual information. It is intended as a step towards understanding the meaning of audition and the sense of sound.

With this concern for subjectivity and knowing, *Sonic Bodies* returns me to my first research interests in *Changing the Subject* and the journal *Ideology & Consciousness*. But I would also like to acknowledge that a major theoretical inspiration for *Sonic Bodies* comes from the embodied knowing it seeks to understand. In particular the often nuanced, textured and subtle account that dancehall argot and popular Jamaican expressions often provide, have helped me develop an "overstanding" of the "vibes" of a sound and the "livity" of a way of life. Indeed the imaginative resources of Jamaican popular culture – in

the 1940s religious cults – were also central to my father's social anthropo-
logical study, *Family and Colour in Jamaica.* In any event, thinking through
sounding is touched with the experimental spirit of the studio recording
practices of *versioning* and *dubbing,* where, as it's said, "every spoil is a style."

Acknowledgements

Figures

Preamble: Thinking Through Sound

It hits you, but you feel no pain – instead, pleasure.[1] This is the visceral experience of audition, immersed in auditory volumes, swimming in a sea of sound, between cliffs of speakers towering almost to the sky, sound stacked upon sound – tweeters on top of horns, on top of mid, on top of bass, on top of walk-in sub-bass bins (see Frontispiece). There is no escape, not even thinking about it, just being there alive, in and as the excess of sound. Trouser legs flap to the bass line and internal organs resonate to the finely tuned frequencies, as the vibrations of the music excite every cell in your body. This is what I call *sonic dominance*.[2] It explodes with all the multisensory intensity of image, touch, movement and smell – the dance crew formations sashaying across the tarmac in front of the camera lights, the video projection screens and the scent of beer, rum, weed, sweat and drum chicken floating on the tropical air. The sound of the Reggae dancehall session calls out across the city blocks or countryside hills, to draw you in. This brings you to yourself, to and through your senses, and it brings you to and with others sharing these convivial joys – out on the street under the stars in downtown Kingston, Jamaica.

Such a scene is literally the dance of the *sonic bodies* to which this book attends. Sonic bodies are fine-tuned, as with the phonographic instrument of the sound system "set" of equipment. Sonic bodies are the flesh and blood of sound system crew and "crowd," as the dancehall audience is known. They are single and multiple. They are social, as with institution of the sound system session at the centre of the Dancehall scene. Sonic bodies pulsate as the bass line frequency of Reggae's signature beat. It is the crew's *esprit de corps*. Sonic bodies are vocal, as well as musical, with the MC (or DJ) voice booming out across the darkened dancefloor, to elicit the crowd's response. Sonic bodies also consist of a corpus of knowledge, handed down through five genera-tions of audio connoisseurs from the inventor of the sound system, ex-RAF

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radar engineer Hedley Jones. Sonic bodies are therefore "knowing," knowledgeable and they "make sense," as with the selector dextrously "juggling" the turntables to build the "vibes" of each dancehall session. Sonic bodies are performative and highly skilled, as with the crewmembers' techniques to generate and sustain the dancehall's economies of pleasure. These "scientists of sound" continually monitor, investigate and innovate the sound of the session to maintain their sound system's advantage in the most intensely competitive and sometimes violent of street cultures. This makes the dancehall session a unique living laboratory – an auditory Galapagos – outside the usual dominance of vision.

The Reggae sound system session at the heart of Jamaican popular culture can be considered as an unfamiliar example of the kind of auditory immersion that is occurring in many other places. Bodies are being increasingly recognised as sonic despite so much attention given to screen, images and digital communications. There is an auditory flood engulfing us from mobile MP3 players, "sodcasting,"[3] muzak, bespoke radio stations, personal playlists and ever-decreasing download latencies from an ever-increasing range of music, archives and back-catalogues.[4] There is, however, a major distinction to be made between this musical ubiquity and the dancehall sound system. With the sound system, bodies are placed inside sound, whereas with earphone listening it's the opposite, sound is placed inside bodies. As with much to do with sound there are two sides to this auditory saturation – receptive and expressive. On the one hand, this current immersion in auditory abundance can be experienced as a sonic *invasion* of our bodies and their personal space. On the other, it can also be heard as a sonic *extension* of the body, in the way Marshall McLuhan considered the wheel was of our feet. After having been imprisoned in writing for the past two and a half millennia, in little over a hundred years of phonographic recording sound and music are being liberated from music's transcription and sound's circumstances of embodied production. Recording, distributing and listening to sound has become almost as easy, ubiquitous and mobile as reading and writing. This is the quotidian context in which we are now enjoying – or suffering – this auditory excess.

Sonic bodies may be contrasted with light bodies in the way that audition carries a corporeal weight – exemplified by the liminal extremes of the *sonic dominance* sound system session – that vision has traditionally been used to escape. Sonic bodies have to be heard, felt and given the attention of listening. It is of little use looking for them. Sonic bodies demand being approached in a certain way, one based on a relationship of mutual recognition and respect, as distinct from the positivist scientific paradigm of prediction and control. Sonic bodies produce, experience and make sense of sound. Sound, even as

the playing of a recording, is always "live" at the point of hearing. Sounding has to be embodied as an event in a particular time and place, as distinct from being "frozen" as a text or image whose embodiment is less immediate. This is the point that Jacques Attali famously makes: "… the world is not for the beholding. It is for hearing. It is not legible, but audible."[5]

In this book I offer you, as the sonic body of the reader, an invitation, simply put – to become a listener. Only then can you venture inside the sonic body, or rather some of these multiple sonic bodies. *Sonic Bodies* is a journey into sound. My entire approach and orientation is one of thinking *through* sound. This is sound *qua* sound, that is, auditory vibrations. This is distinct and different from how certain sounds are taken to indicate objects or events. Thinking through sound is also distinct and different from our habitual thinking through images, or, it is important to note, music. Indeed, it also has to be distinguished from thinking *about* anything. Sound can indeed be an object of thought, as gained research attention with the Canadian work in sonic environments and *soundscapes* in the 1970s.[6] Instead, thinking through sound is a *way* of thinking, a process of knowledge, and a gnosis.[7] Thinking through sounding brings to the fore the value of auditory propagation as a mechanical process, as a model of a way of understanding that avoids being entirely bound up with language, notation and representation.

Sounding is a dynamic patterning propagated through a medium. Though it cannot be expressed outside its embodiment in such a medium, it is in itself entirely immaterial and insubstantial. Sounding is a transitory event in time, rather than an often more permanent mark on a visual surface. Such events are entirely distinctive, unique and unrepeatable. Sounding has direct sensorial effects and affects, as with smells, tastes and gestures, in addition to how it is purposed as a medium for encoding meaning, as with phonetics. This intrinsic meaning of sounding is often independent of conscious attention, as with the prosody of the actual utterance, that is, tone of voice. Thus the idea of sounding serves to draw attention to a rather different object of enquiry than the conventional ones of text or image. In practice it is not object at all, but a process or event, not a coded representation but medium, not a thought but a feeling – often independent of conscious reflection.

In these ways, *Sonic Bodies* mounts an auditory investigation, rather than only an investigation of audition. To do this, sounding is considered *mechanically* – as auditory propagation and specific sensory modality of audition, distinct from, yet integrated with, the other senses. It is also considered *practically* – as the basis for the techniques and traditions of a particular popular auditory culture of the Jamaican Reggae dancehall session. Drawing on such embodied ways of knowing grounds the investigation with the material of

numerous examples. Finally, sounding is considered *theoretically* – as a dynamic model for both raising questions about the world – as distinct from the way the trope of the visual image is often used to settle them – and understanding itself – as is developed with the idea of sound judgement in the conclusion.

If thinking were only a matter of ideas, that is, an activity of a mind that could be isolated from its body, then the model, metaphor or medium of thinking would not be quite so important. On the other hand, if thinking is more than this, as is argued throughout *Sonic Bodies*, then important implications follow. Furthermore, if what is called thinking has its origins in the kinds of processes, practices and potentialities that only our embodiment affords, then the metaphor is not to be dismissed as a crutch, but is the actual limb of thought.[8] Like any language, sound embodies its own unique sensitivities, nuances and idiomatic forms of expression that inevitably get lost in translation. The auditory vocabulary carries values and associations: we "sound someone out," for instance, or have "sound judgement," as is discussed in the conclusion. Thinking through sound is thus a matter of working through the *medium* of sound as thought. We work *through* something to find out more, or "to work it out." This can mean "taking it in," or letting it "sink in," that is, absorbing, assimilating, incorporating, or even ingesting something, so that we become part of it and it becomes part of us. So the passage of working *through* indicates the crossing of a threshold. With sound, this can be the traditional barrier between thinking and doing, or interior and exterior worlds, or mind and body, for instance.

What sound offers is a dynamic model of thinking. This can only be expressed through corporeal practices of thought, rather than the more commonplace discursive line of thought. Indeed, such a tissue of thinking lends itself to diagrammatic expression, as with the numerous triangulations throughout *Sonic Bodies*. These are, of course, expressed in a visual medium, but without being tied to this form representation as such.[9] Thinking through sound concerns vibrations specifically, as against the more commonplace visual preoccupation with words or representational images. It draws on a repertoire of metaphors, analogies and models that are distinct and different from those of representation, discourse and inscription. Light and visual processes are often used in expression of the immateriality of mental images. By contrast, sounding, though emphasising relationships, also insists that we do not forget that auditory processes always require expression through a particular material medium, such as air or water. *Sonic Bodies* proposes auditory propagation itself, that is, the periodic movement of vibrations through a medium, as a suitable model for sociocultural as well as corporeal and material processes. These vibrations have to be considered together with the techniques and the instruments required to make them. As with sounding itself, sonic bodies are

only ever expressed in a particular, embodied and specific medium, event and location, that is, a time and a place.

The specific exemplar for *Sonic Bodies* of the Reggae sound system session takes place every night of the week, out on the streets of Kingston. But before we get there, there is another way in which the particular and specific character of sonic bodies can be taken into account. Both sonic bodies and sounds themselves, as events situated in time and space, are always distinctive and unique. Indeed, with embodiment we can never forget ourselves. It is our own subjectivity, as with a sound event itself, that needs to be recognised and appreciated – rather than sacrificed on the altar of objective science. So the writing of this book has necessarily been a personal biographical journey, as it is with every researcher, and what draws them to their research topic. Often this is entirely unconscious, only evident in retrospect, or with the clarity that another person can supply with comparative ease.

Even to begin an understanding of how the crew members stage and run a dancehall session demands setting aside commonplace approaches. On the one side, there is the model of understanding as rational or cognitive process, involving representation and calculation. The improvised, extemporised and spontaneous character of their performance appears to rule out such a cerebral picture of what they do. As the antithesis to this, the crew's performance could be considered as entirely intuitive, instinctive and even "natural," as consistent with the racist stereotypes. But the range of frequencies of wavebands, detail of nuance and judgement of timing, demand a far more complex account than such biologically determined approaches can offer. *Sonic Bodies* claims that the crew's fine-grained, sophisticated and subtle responsiveness and manipulation of the multi-sensory and multi-media apparatus of the dancehall session demands a different understanding of the nature of rationality itself – as a challenge to what are conventionally considered the limitations of embodiment. This is one of the major rewards for thinking through sound.

My journey into sound was from music (rather than from the frequently "overlooked" value of sound in filmmaking). Music had often been the subject of the BBC documentaries I made throughout the 1980s, particularly as a vital component of popular culture. When I moved into making fiction films and eventually the feature film *Babymother*, music featured literally centre-stage in this Reggae musical set in Harlesden, West London. Musical performance gave my on-screen characters, not to mention the often fresh talent of my cast, a certain confidence. So when it came to repurposing my filmmaking experience for academic research, it was natural to utilise the Dancehall scene that had been the subject of my documentaries and the setting of the fiction. Here it was the sound system engineers who attracted my interest, as the

Dancehall scene is primarily one of playing already recorded music, that is, phonographic reproduction, rather than an artist's live performance.

Living in Kingston from 1996 to 2001 gave me the opportunity for easy access to the dancehall sessions downtown. Over this period I ran the film and television department at CARIMAC (Caribbean Institute of Media and Communications) at the University of the West Indies, Mona. Researching and writing my feature film *Babymother*, I established a research relationship with Winston "Weepow" Powell. He is the founder and boss of Stone Love Movement, the island's leading and longest established sound system. But it took a friend, the filmmaker John Akomfrah, to point out to me that my interest in popular culture was in fact very much following in my father's footsteps. Fernando Henriques' *Family and Colour in Jamaica* was written on the basis of his research into the popular African-Christian religious cults, such as Pocomania, in rural Jamaica. That was published in 1953, with me hardly born. My connection with the field that would in the 1970s and 1980s establish itself as Cultural Studies has also been a personal matter. Its founding figure, Stuart Hall, claimed to me that on the eve of his departure from Jamaica to England, as a Rhodes scholar at Oxford, he had had what was to turn out to be a fateful conversation with my father.[10] (Their families were friends, both living in Port Antonio, Portland.) My father, also at Oxford, had returned to Jamaica for his PhD research. According to what Stuart told me, this conversation inspired him to recognise that there could be other professions, besides the middle class favourites of lawyer and doctor, that he might pursue. Such are the contingencies, necessarily specific and local (and personal), for which Stuart was later to provide such a persuasive theoretical account that is also the lineage I am most comfortable locating myself. Such, also, is the connectivity of sounding.

So this was the personal history I now like to think guided me on my path to the dancehall sessions in downtown Kingston. These sessions are enjoyed by audiences several thousand strong, with dance crews sashaying across the tarmac dance-floor, in front of camera lights for live large video screen projection and round-the-clock local cable television broadcast. The compulsive energy and contradictory extremes of the Jamaican dancehall sessions are best located in the auditory culture of the island's society. For over 50 years this street dance scene has been the lifeblood of many West Kingston communities, with the sound system as a mechanism for converting cultural into commercial capital.[11] Dancehall style and fashion cuts and mixes African rhythms and retro vinyl technologies together with the latest digital music and video software; Rastafarianism and a strict Christian religiosity; sexually explicit costume and choreography with internationally censored anti-gay lyrics; local and global markets; sectarian ghetto political violence

and American consumerist values. In an inner city session a "gun salute" is the highest praise for the MC, and the "clashes" between rival sounds evoke fierce fan loyalties, as with football teams. Not only is Dancehall a *bass* culture in terms of the pumping lower frequencies of the Reggae bass line, but also a *base* culture as a popular street culture, not to mention the bottom-up of its signature "bumper-grinding" sexually explicit choreography.

Insisting on the importance of the materiality and corporeality of media promotes ways of understanding that are inevitably gendered, raced, classed, aged and so on.[12] The sound system crewmember's ways of knowing tend to be male, compared with the young female ways of knowing of the crowd, for instance. Particular situated and embodied ways of knowing also contrast with the conventional ideals of knowledge as universal, objective and abstract "ideas" in general, where the signifier "floats" above the signified. This makes sounding materialist in its approach, but this is a *rhythmic* materialism, as distinct from what can be called the gross materialism of genetic reductionism, for example, or deterministic historical materialism. Sound is always a dynamic event, forever incomplete and continually in a state of change. Thus, thinking through sound offers a way to voice criticisms of the status quo and raise questions, in the way that images are often used to settle them. In the mechanics of auditory propagation, noise is necessarily a disturbance: it disrupts and can be used as a destructive weapon.[13]

As with sound-making, sonic bodies require an instrument for their propagation, as vocal cords can be described as the instrument for voicing. The dancehall sound system "set" is the particular instrument for Jamaican music. As a phonographic technology at the centre of the shared musical event of the dancehall session, it is widely recognised that it has exerted a considerable influence on Jamaican music and many others worldwide. As Michael Veal puts it, "These sound systems have been more central to musical innovation in Jamaica than live performance, and the creative practice developed in the sound systems have in turn influenced the evolution of recording conventions."[14] This is such that Reggae and Dancehall music in Jamaica has developed in tandem with the sound systems themselves.[15] In his comparative study of the Kingston and Montreal music scenes, John Constantinides describes the sound system as "the lynchpin of Jamaican music … not only a mediator or diffuser of recorded music, but an influential creative actor in the production of Jamaican musical culture wherever it may be found."[16] Working and thinking go together, not only in the performance techniques of the crew, as the subjects of the investigation, but also its methodology. This demands a continual shuttle between, on the one hand, observation and listening to the phenomenon, and on the other, theoretical considerations and elaborations.

Besides medium and instrument, the third element for auditory propagation, to which *Sonic Bodies* gives sustained attention, is the skilled techniques for playing these instruments. The crew's performance techniques embody a particular way of knowing, know-how, or *techné*. Aristotle contrasts *techné* with both *episteme* (from ἐπίσταμαι, "to know") or formal, analytical or scientific knowledge, on the one hand, and on the other, *phronēsis*, or practical wisdom, to which we return in the conclusion. The sound system crewmember's expertise and skilled techniques for playing the set have certainly contributed to Reggae's international success, as well as its influence on many other music genres. These techniques have been the foundation for a host of musical genres, from Hip Hop to Techno and Grime. Jamaica is arguably the source of black power. In music, this was initiated with King Tubby's innovative dub techniques, anticipating sampling and being felt across pop and avant-garde music, as well as Big Youth's "toasting" pioneering Rap in the 1980s. In addition, the Jamaican musical influence has been felt internationally in Hip Hop, Jungle, Drum & Bass, Garage and currently Grime and Dubstep. As an instrument for enjoying music, sound systems have also shaped DJ performance technique, the studio practices of *versioning* and re-mixing, as well as the pleasures of listening in Raves, Clubs and Carnivals.

Sonic Bodies contends that the media, instruments and techniques that allow auditory propagation can also account for the spread of sonic bodies. Rhythms are infectious. The musical, cultural and political "vibes" of Reggae, Dub and Dancehall have been carried abroad in the music of such international stars as Bob Marley and, more recently, Turbulence, Movado, Shaggy, Sean Paul and Damian Marley. The sound crews' skills are also tested on the international stage in sound "clashes" or championships, where Japanese, German, Italian and American, Canadian as well as Jamaican Sounds compete. There are also vibrant local sound system scenes in these countries as well as in Mexico and Brazil. These Sounds, as sound systems are called, are crewed not by Jamaicans, but by natives of those countries. Some of these, especially the Japanese and German sound systems, have the enthusiasm, skills and confidence to compete against Jamaican Sounds on their own island turf – for example, Sentinel, a German Sound, won the 2006 World Cup Clash. Sonic bodies are thus both one and many at the same time, as is expressed as much in the Rastafarian conception of singular as plural – as "I n' I" – as it is in Bracha Ettinger's concept of the *matrixial*.[17]

Sonic Bodies draws on several years of participating and observing the island's leading Stone Love Movement in action; and listening to what they say:

When you get the instrument of authority with the mic you must use it constructively …
You have to love the music … sound business I born in it, grow by it, live by it …
You connect musically with the people, like you become this puppeteer …

Winning a competitive dancehall "clash" often depends, *inter alia*, on the choice of music. So how does the selector, for instance, know which is the right groove to drop the needle in? The answer to this question, it is proposed here, is to be found in the media and periodic movement of sounding itself. Just as the popular culture of Dancehall provides a specific site for investigating auditory culture, so the particularities of sound itself provide materials for understanding how this works. Working sonically in this way takes its cue from the *phonographic* reproduction of music by the sound system set of equipment itself. As against "live" musical performance, this inspires consideration of the crew's *re*-performance skills for re-playing already recorded music. As one engineer put it: "A sound system is re-processing music that's been processed already." It is an apparatus for the re-presentation, rather than representation of music. In short, re-performance is the remix of the mix of performance. Re-performances combine the tradition of interpretation (as with a classical musical score) with a record, together with that of improvisation (as in jazz), but here "rewinding" the track, or with the MC extemporising on top of it.

So *Sonic Bodies* calls for a dive deep into the mechanics and materiality of the auditory medium itself, with its tones, textures and intensities. Thinking and working *through* and *with* sounding suggests *sinking into* sound, theorising down to the depths of the lower frequencies of the bass line, the infra sound of its roots and routes, sinking into the substance of the subject, being immersed in it, as with the sonic dominance of a dancehall session, and thereby deep into the frequencies. The vibes of sounding sink into theorising to produce sonically saturated theory, as it were – as a *syncing* of the dynamics and auditory vibrations of sound theory with those of a dancehall. With its auditory sensibility and methodology of listening, the propagation model attempts to establish *sounding* as a particular activity for investigation. Sounding is a complex set of relationships that is invariably expressed on several different registers at the same time. Most often these registers are considered separately, isolated from each other, as with mechanical and social processes, or technological or psychological levels of analysis, for example. The conceptual force of sounding is to refuse such dichotomies in favour of an intrinsically relational approach. *Sonic Bodies* raises the question: what can thinking through sounding tell us about social and cultural practices and the

processes of communication in particular? If this is a theoretical question, it is answered by way of a specific practical example: how, or in what manner, does a sound system work? That is what this book explores.

THE TIME AND PLACE OF SOUNDING

The idea of thinking through sounding is hardly without precedent in *practice*. This way of knowing is the living heartbeat of many music traditions, especially where these are popular and oral, as with the Reggae sound system. Thinking through sounding is what the engineers and other crewmembers actually do, without necessarily "reflecting" or verbalising it. Similarly, there is a small but significant body of scholarship describing Jamaican music and culture, without necessarily utilising this as evidence for any particular theoretical position. This provides a useful context in which to place the particular findings on the Stone Love Movement sound system. The current literature on Reggae and Dancehall was pioneered by Carolyn Copper's *Noises in the Blood* and more recently *Sound Clash*. It also includes Norman Stolzoff's *Wake the Town and Tell the People*, Lloyd Bradley's *Bass Culture*, Donna Hope's *Inna di Dancehall* and Sonjah Stanley-Niaah's *DanceHall: from Slave Ship to Ghetto*. A broader political and cultural context has been provided by Deborah Thomas's *Modern Blackness* and Obika Gray's *Demeaned but Empowered*.

The specific detail of the particular Stone Love Movement sound system exemplar also follows in the footsteps laid by Olive Lewin, Cheryl Ryman and Garth White's pioneering ethno-musicological research on Jamaican folk traditions. In fact, one of the earliest studies of Jamaican popular culture was my father's, mentioned above. The general approach of *Sonic Bodies* draws on the Cultural Studies approach to subcultures, initiated with the work of Richard Hoggart, Raymond Williams and Stuart Hall, and developed by Dick Hebdige, Dave Morley, Iain Chambers, Paul Willis, Paul Gilroy, Angela McRobbie, Laurence Grossberg and many others. It is concerned with "culture" and systems of signification that include everything that people do in and with their expressive practice. Style and fashion are invariably critical, as Zora Neil Hurston and Henry Louis Gates have shown in their accounts of rhetorical tropes in the African-American vernacular. Jamaican Dancehall is possibly the fastest moving, most creative and occasionally most violent of music scenes.

Sonic Bodies is also to be located in the musical cauldron of the Caribbean region, in relation to work on other Caribbean genres, such as Gordon Rohler's *Calypso and Society* and Jocelyne Guilbaut's on zouk music, and recently on kaiso, as well as Mimi Sheller's *Consuming the Caribbean*. Also the

Reggae of the sound systems can be considered in a broad range of influences, namely from African music, with Kofi Agawu's work, and African dance and visual culture with that of Bibi Bakare-Yusuf. Reggae's own influence on Hip Hop is explored for example in Trisha Rose's *Black Noise*. The theoretical use that *Sonic Bodies* makes of Caribbean cultural material includes embodied ways of knowing and modernism for which David Scott's *Refashioning Futures* and *Conscripts of Modernity*, Antonio Benìtez-Rojo's *The Repeating Island* and Anthony Bogues's *Black Heretics, Black Prophets* have provided inspiration. Another way in which *Sonic Bodies* is different from much of the Jamaican and Caribbean literature is how it uses particular situated local practices to raise more general theoretical issues. In this respect it follows Huon Wardle's *An Ethnography of Cosmopolitanism in Kingston* on Kingston's street culture, or Tim Ingold's anthropological study of skilled craft practices (though these are those of Arctic Laplanders).

Thinking through music has certainly been most productive, with Kodwo Eshun's *More Brilliant than the Sun* with his sonic journey into Jazz and Funk, Josh Kun's *Audiotopia* on the American racial imagination and James Sneed's prescient essay *Repetition in Black Culture*. In the classical field, Jacques Attali's *Noise* and more recently Alex Ross's *The Rest is Noise: listening to the twentieth century* need to be mentioned. But the principle concern *of Sonic Bodies* is with the *sound* of music, as distinct from music as such. As Sílvía Torres-Saíllant points out in *An Intellectual History of the Caribbean*, musical subjects have their limitations, and he criticises what he calls the "favorite spot" Caribbean scholarship has for popular music and assumptions about the progressive political character of music. This attention to sound takes its cue from dub music itself that emphasises the material and dynamic base and bass of sound, rather than the superstructure of musical melody and harmony. It draws on Michael Veal's account of music studio production techniques in *Dub: Soundscapes and Shattered Songs in Jamaican Reggae*, mentioned above, Louise Meintjes's in *Sound of Africa! Making Zulu Music in a South African Studio* and Louis Chude-Sokei's essays on the sound system. But rather than studio recording, post-production, or the traditional concert, *Sonic Bodies* concentrates on the crew's re-performance of pre-recorded music. This auditory emphasis is on techniques located in a popular cultural phenomenon, rather than in the traditions of avant-garde and classical music as is more often the case, as, for instance, with Douglas Khan's brilliant *Noise Water Meat*.

In so far as *Sonic Bodies* is located within the field of Cultural Studies, it aims to develop an *auditory* Cultural Studies in relation to, but distinct from, its more usual *visual* inclination (along with most other disciplines

and approaches). Furthermore, it attempts a mode of Cultural Studies that is *itself* auditory, as distinct from one that has audition as its object of investigation. This specifically auditory emphasis also makes *Sonic Bodies* distinctive within the Jamaican and Caribbean literature – in contrast with the literary tradition of "reading" images, lyrics and musical "texts," as well as the more recent social geography of the location of Dancehall venues in Sonjah Stanley-Niaah's work.[18] Thinking through sound draws attention to the mechanical processes of auditory propagation; music, on the other hand, attends to social and cultural ones. Neither sound nor music afford immediate opportunities for representation in the way visual images and graphic signification do – that is, with the phonetic harness of language. Outside a Caribbean setting as such, Les Back and Michael Bull have taken up the importance of sound with their groundbreaking edited volume *The Auditory Culture Reader*. Jonathan Mowitt's *Percussion* and Barbara Browning's *Infectious Rhythms* on Brazilian samba are also important in this respect. Steve Goodman's *Sonic Warfare* theorises the full range of frequencies, from infra to ultrasound that make up the auditory spectrum. Daphne Brooks's *Bodies in Dissent* adds a historical dimension to race and performance. Another important lead is given by Francis Dyson, who in her *Sounding New Media: Immersion and Embodiment in the Arts and Culture* takes the important step of using sound to understand phenomena that are *not only* auditory – that is, virtual reality.

Within the field of audition, a sound system is a *phonographic* instrument *par excellence*, that is, it plays only already recorded music and sound effects, rather than the beats and pitches from which these recordings have been "built" (to use the Jamaican music producer's lingo). This has been recognised by Dick Hebdige, Paul Gilroy and others in respect to the sound system. More recently, the particular importance of phonographic technology more generally has been explored in the pioneering work of Jonathan Sterne's *The Auditory Past*, Alexander Weheliye's *Phonographies: Grooves in Sonic Afro-Modernity*, Mark Katz's *Capturing Sound*, perhaps initiated by Evan Eisenberg's *The Recording Angel: The Experience of Music from Aristotle to Zappa* published in 1987. Its phonographic medium propels *Sonic Bodies* to give special attention to the performance techniques and practices of the sound system crew, as these have been described in Frank Broughton and Bill Brewster's practical guide *How to DJ Properly*. The selector's turntable ability to mix or "juggle" tracks is also of considerable theoretical interest. Nicolas Bourriaud builds an entire postmodern aesthetic on what he describes as the DJ's "re-performance" skills, in *Postproduction, Culture as Screenplay: How Art Reprograms the World*.

BODY OF SOUND

Sonic Bodies claims that thinking through sounding is relevant well beyond the particular example of the Jamaican sound systems. It argues that there is a distinct and different *way* of thinking expressed through sounding. This emerges from the intimate nature of the relationship between sound and embodiment, one that is only matched by that between vision and the disembodied mind, as an entirely different sensory modality and another kind of object altogether. Otherwise, of course, the body's ear is quite different from the mind's eye. With the current corporeal turn,[19] this auditory connection to embodiment is gaining an increasing purchase. It has certainly been aided and abetted by renewed interest in the senses, often from within an anthropological tradition. Here the work of Paul Stoller, Katheryn Geurts, David Howes, Constance Classen and others has been most important. Crucially, the turn *towards* the body is also a turn *away* from the discourse, language and inscription with which so much in arts and social sciences has been preoccupied. It is also a turn *away* from any hierarchy of the senses and the dominance of vision in particular, *towards* a pattern of cooperation of sensory modalities in which each contributes its unique qualities for our negotiation through the "ambient energy flux."[20] While readily recognising surfaces, edges and patterns, the eye is most accurate with alignment by the straight line of sight. The ear, by contrast, is at home in the depth and textures of timbre, recognising the complexities of melody, harmony and octave transposition most readily. This not to essentualise the sensory modalities, but rather to recognise their affordances.

The dancehall session provides *Sonic Bodies* with a test bed for understanding the full-bodiedness of sensory experience. Here, the crew's performance techniques together with their *phronēsis*, or practical wisdom, exemplify the kind of complexities, subtleties and sophistications of which the body is capable – far more so than when the dominant dualistic tradition condemned it to being the mind's extension, or its fleshly slave. Philosopher Richard Rorty sums this up most succinctly: "If the body had been easier to understand, nobody would have thought we had a mind."[21] In this way, the crew's connoisseurship and expert evaluations express their embodied ways of knowing, or "logic of practice," to use Pierre Bourdieu's phrase.[22] Dealing with sound and music, their performance expresses a kind of rationality that is not necessarily tied to formal logic, discourse or representation, though of course it can be so purposed. The sound crew's evaluative techniques are described as the *analogia*, rather than the logic, of their practice, as they are not restricted to analysis, calculation, inscription or visual representation. This develops the

idea of the *ratio* of rationality, as the kind of expertise both of, and at the heart of all manner of other performance and re-performance settings, situations and practices. Many contemporary creative practices of these techniques often cannibalise existing recordings, as with Hip Hop scratching, Chris Cutler's "plunderphonics" or MP3 file "mashing," for example. This remixes the traditional distinctions between production and consumption.

On the basis of a fine-grained account of the performance techniques of popular culture sound system practices, *Sonic Bodies* challenges some of the most widely held assumptions about what knowledge itself actually is. One such assumption is that knowledge resides in "the mind" – as if this could be separate from its body. Another is that knowledge is information about things, rather than relationships and dynamic patterns. A third assumption is that knowledge originates with peer-reviewed research in the academy, rather than subaltern or lumpen street cultures. So, some questions to start with: What kind of knowledge may a person have without knowing it? When is tacit *know-how* more important than explicit *know-what*? How is thinking through *sound* any different from thinking through *images*? What is meaning when it has nothing to do with representation? Thinking through sound encourages an auditory epistemology. The central idea is *propagation*, as with the periodic disturbances of sound waves through a medium. The longitudinal waves of sound, as with the transverse ones of light, need to be continually propagated. Without the periodic movement of vibrations there would simply be silence. The verb *sounding*, as distinct from the noun *sound*, emphasises such activity. Sounding always requires kinetic movement, with the corporeal agents of sonic bodies – whistling, clapping or singing; blowing, scraping, banging or otherwise playing a musical instrument; or pressing "play" on a recording of any of the above. Indeed, the echo and reverberation – the signature sound of Reggae dub – are music studio production methods for elongating this auditory life.

The practices and processes of propagation ensure an approach that is dynamic as well as structured, addressing energetic fields rather than separate static objects. It is concerned with *rhythmos*, the patterning of intensities through time, rather than the pattern of symmetries, systems and codes in space. The foundation of this auditory epistemology is the crowd's visceral immersive experience of *sonic dominance* in the dancehall session.[23] This sensory experience is the pivot around which thinking through sound turns and returns – its *leitmotif*. Thinking through sounding also calls for a practical methodology of listening, where sound is a subject, a vehicle and a medium for the thinking process. As sounds displace images, thinking itself becomes more than just a cognitive manipulation of representations, and knowledge is

not only visual. Listening concerns depths rather than surfaces, disposing it to evaluation, as with "sound judgement," further than mere monitoring. It is a haptic sense and, as touch itself, simultaneously both makes a connection between one and another, and recognises their separation. The ear serves as the organ of balance, readily "making sense" of things and recognising resonances and proportions between the frequencies of sound waves – as with an octave, for example. The eye can make very accurate alignments, but has no way of telling the proportional relationships between the frequencies of light.

The sound crew's phonographic re-performance obliges them in their practice – as we do in our investigation – to pay particular attention to the three dimensions of longitudinal waves. These are: frequency or pitch, amplitude or volume, and timbre or sound "colour." The crew's skilled techniques "build the vibes" of the crowd in the dancehall session in the way the music producer "builds" the beats, harmonies and melodies of a "riddim" (rhythm) track from auditory vibrations. As sonic bodies themselves, the crewmembers are built out of such vibrations. Furthermore, the dynamic patterning of these vibrations offers the opportunity for an understanding of how the crewmembers "make sense" of what they do, which may include – without being entirely dependent upon – any conscious calculation or visual representation. The multi-sensory extremes of the sonic dominance of the sound system session make it a living laboratory for investigating the crew's embodied ways of knowing. *Sonic Bodies* aims to expand the idea of sound, with the concept of *sounding*, in the way that Christopher Small has done for the concept of music, with his concept of *musicking* (but using the popular culture of the dancehall session, rather than Small's culture of the classical symphony concert).[24] Sounding encompasses everything, everyone and all the activities that go into the making of sound. This includes listening, as sounding is always reciprocal and often rhythmic: impression and expression, crescendo and decrescendo, as well as the corporeal routine of breathing – as both inspiration and expiration.

BODY OF THOUGHT

In theory, thinking through sounding takes on an altogether different complexion than it does in practice. Sounding boasts a radical edge, entirely absent from habitual patterns of thought in terms of light and image. From the trumpets sounding the downfall of the walls of Jericho, the destabilising influence of audition has long been recognised. This critical attack that sound can be used to mobilise literally strikes at the heart of the predominantly ocularcentric character specific to Western metaphysics, and it has been

extensively documented.[25] Seeing is believing, but hearing is only hearsay. But it should be noted that visual dominance is far from universal. It is not the foundation of many Eastern philosophies, for instance.[26] In fact it can be argued that sounding initiated Western philosophy, with the Orphic cults and Pythagoras' "music of the spheres," as Joscelyn Godwin suggests in *Harmonies of Heaven and Earth*. Before Plato's cave wall becomes the screen on which shadows played, the cave's rather more distinctive – and mysterious – characteristic was as a resonating echoic chamber. Sound certainly lingered on in the unwritten dialogic tradition of pre-Socratic philosophy, as it did in scientific investigation up to the start of the seventeenth century, with Johannes Kepler's *Harmonices Mundi* and the "sound-house" of Francis Bacon's *New Atlantis*.[27] Early twentieth-century avant-garde art was more concerned with making itself heard than with harmonics. The Italian Futurists were famous for their noise machines, Russian revolutionary art less so for its invention of "artificial sound."[28] Far from being a "natural" phenomenon, sound has a rich social and cultural history, much of which remains to be written.

More currently, in the context of the corporeal turn, the resonances of sounding and body can become a weapon against the reflections of lighting and mind. Thinking through sound thus evolves into a philosophy of resonance, which is, in almost every respect, rather different from more commonplace philosophical reflection. But what does a philosophical resonance sound like? It is likely to be concerned with relationality, that is, mixing, mingling and synthesis as well as analysis, similarities as well as differences, and continuities as well as dichotomies. Most critically it includes embodied practice and subjective sensory experience as well as the manipulation of mental images or cognitive process. In short, this way of philosophising exploits a vocabulary of auditory mechanisms and a repertoire of models and metaphors from sound and listening, in the way traditional philosophy has relied on visual support. This is certainly not to abandon reason, but rather to consider it as ratio, rather than only representation, as I do in the concluding chapter with the idea of "sound judgement."

Sounding also has a critical edge against the text, the discourse and the formalist and structuralist preoccupations of much recent work in the arts and humanities that the philosophy of light has underpinned. While these, in their time, proved useful against positivism and behaviourism, such reductionism no longer occupies the dominant position it once did. As might be expected, the critical questions sounding raises for text is orality and voicing (to which Chapter Seven, on the MC's vocal performance, is devoted). For language, the questions sounding raises concern the importance of phonetic expression of the particular utterance. Sounding turns away from Saussure's

La Langue, or language system, towards precisely what this eschewed, *Parole*, or speech itself. Sounding draws attention to analogue variation, rather than the diacritical differences of a system of signification; contingencies rather than abstract types or essentialisms; it is concerned with communication as an embodied, situated and particular process in the way feminist episte-mologies have pioneered. The reorientation from a discursive to an embodied emphasis, that working through sounding encourages, might seem to favour a sensory gear change from eye to ear. The mind's eye for text was invariably privileged over and above the body's ear for speech. But thinking through sound does not call for a reconfiguration of the senses as such – other than recognising their multiplicity.

There is currently a growing interest in a metaphysics that refrains from the traditional ocularcentric obsession where vision stands as the paradigm for all perception, as Casey O'Callaghan argues in *Sounds: A Philosophical Theory*. This is a philosophy of sound, rather than a philosophy that is in any way itself auditory – as with the kind of auditory methodology advocated here. From within the tradition of analytical philosophy, O'Callaghan makes no mention of European thinking on sound and audition. This favours enquiry into listening and the voice, as with Jean-Luc Nancy's *Listening*, Peter Szendy's *Listen: A History of Our Ears* and Mladen Dolar's *A Voice and Nothing More*. Prior to this compar-atively recent work, such interest came from phenomenologically oriented thinkers, such as Don Ihde with *Listening and Voice*, David Michael Levin with *The Listening Self* and Joachim-Ernst Berendt's *The Third Ear: On Listening to the World*. Jean-Francois Augoyard and Henri Torgue in *Sonic Experience: A Guide to Everyday Sounds* describe the empirical detail of sound as effect. As Adriana Cavarero details exquisitely in *For More than One Voice: Toward a Philosophy of Vocal Expression*, sound has always been an anathema to the dominant tradi-tions of Western philosophy. This is because the sound of the voice makes it impossible to ignore our human embodiment, both in general and in particular, as with the distinctive sound that each individual's voice expresses. To be sure, a person's face is key to our relational identity with the Other, as Emmanuel Lévinas has proposed to be the foundation of philosophy as ethics.[29] But equally important is their voice, where the *value* of this distinctiveness is very different. This is due entirely to the mechanical characteristics of auditory propagation, compared to those of light – that is, physics, rather than metaphysics. Our eyes see a face, or the surface of any object, to the extent that it reflects or absorbs an ambient light source. The face itself has no say in the matter – exactly the opposite when the face chooses to speak, that is, to take responsibility for its own propagation in the auditory sphere. Similarly, in the dark, a person might be forced to identify him or herself by shining a light on their own face.

It is such practical properties of the propagation of sound that configure thinking through sounding to produce an "auditory imagination," to use the term T. S. Eliot originally coined for the understanding of poetry.[30] The idea of an imagination has merit compared to the more formal alternatives of auditory philosophy, epistemology or metaphysics, in so far as it expresses the potentialities embodied in knowing that sounding is being used to explore in this volume. From the point of view of light, sound always remains in the dark shadows. From the point of view of listening, there are questions on which light always remains silent. It is these that *Sonic Bodies* begins to ask.

THE ARGUMENT OF *SONIC BODIES*

Starting the journey of *Sonic Bodies* by thinking *through* sound, as distinct from thinking *about* sound as an idea or an object, the next step is to consider *talking* through sound. This involves an appreciation of the idiomatic vocabulary and nomenclature of those that work with sound in Jamaican popular culture, namely the sound system crew. This leads to a methodology, or a *doing* through sound, that informs the investigation. Not surprisingly *listening* to sound is central to this methodology, followed by *describing* exactly what was heard of the processes and practices of sounding. This leads to a *theorising* through sound itself, that is, completing the account of the practice and performance techniques of sonic bodies with a theory of a *sonic logos*.

In the introductory part, **Practising and Theorising Sounding, Chapter One: The Dancehall Scene**, locates the dancehall session and the Reggae sound system within the Dancehall scene. This is then situated more widely within the orality, musical traditions and auditory values of the Jamaican sensibility – that is, as a *bass* culture. The second task of the chapter is to introduce the approach of thinking through sound, specifically and literally, as a periodic disturbance or longitudinal wave that propagates through a medium. The chapter then makes two claims. One is that the entire Dancehall scene, with all its various sonic bodies, is configured in, as and by these vibrations. The other, following from this, is that these vibrations can be usefully considered as falling into three distinct wavebands. The first of these is identified as the *material* waveband of sounding propagated through the gaseous medium of the air. These frequencies are produced by the "set" of equipment whose qualities of "tone" and "balance" the audio engineers are skilled at monitoring and manipulating. Second comes the fleshly *corporeal* waveband of the crew's performance and the crowd's participation, with the selectors' choice of music and "riddims" tracks played in the session, the crowd's dance and their own performance skills on the decks. Finally, there is the *sociocultural* waveband or

simply the "vibes" by which the session "makes sense" to the crowd in terms of their feeling and understanding of the Dancehall scene. The final part of the chapter locates this idea of a vibrational waveband model in the context of other theoretical approaches.

Chapter Two: Sound Systems, describes the transmission of these vibrations of sounding at each of the three wavebands. It proposes that any such periodic movement requires three elements, that is, a *medium* for the propagation, an *instrument* for making the disturbance and a *technique* for using the instrument. In this way, the term sound *systems* in the plural plays both theoretically – as a system or framework of understanding – and practically – as the phenomena of the auditory vibrations themselves and the Reggae sound system or institution for *sounding*. Here the *media* of sounding include material vibrations of a speaker cone, for instance, as well as the sociocultural medium of the Dancehall scene as a whole. The *instruments* of sounding include those of the flesh-and-blood crew at corporeal frequencies; the phonographic sound system "set" of equipment, in the material waveband; and the session itself, in the sociocultural waveband. The *techniques* of sounding in the corporeal waveband include the crew's kinetic skilled performance skills, such as the selector's dextrous skills on the turntables, for example, or the crowd's dance; and in the material waveband the *amplitude*, *frequency* and *timbre* of the sound waves themselves.

With the two triads of the wavebands and elements of sounding in place, **Part One: Audio Engineer and Material Waveband** turns to the audio engineer as the crewmember with special responsibility for this particular waveband at electromagnetic and electromechanical frequencies. At the same time, it must always be remembered that no waveband can be considered in isolation from the other two. A crewmember's specialist responsibility in one waveband can only ever expressed in relation to the other two. **Chapter Three: Fine-tuning** gives a step-by-step account of the *pre*-performance practice of "compensation" by which the engineers adjust the auditory output of the phonographic set of equipment. This is a recursive skilled technique comprising three corporeal procedures: *manipulating* the value of the electronic components of the set (for example, by substituting one for another); and *monitoring* the consequent output variation – the auditory amplitudes and frequencies. Finally the engineer has to *evaluate* auditory qualities of "balance," "weight" and "attack," as well as what one described as "my harmony with the sound," with skills located in the sociocultural waveband.

Next, **Chapter Four: Learning to Listen** broadens the scope of the enquiry to situate the audio engineer's acquisition of their skilled techniques in the

context of an apprenticeship tradition. Here the youngest current Stone Love engineer, for instance, is the fifth generation of engineering apprentices, starting with the inventor of the sound system set, Hedley Jones, 60 years ago. Such skills learning draws attention to the importance of the evaluative judgements by which the crew "make sense" of what they do as they do it in the session, further to those required for the initial playing, recording and production of the music. The engineers are considered as sonic bodies mediating "betwixt and between" all three wavebands of sounding, rather as merely having a "technical knowledge." The chapter investigates what a "prento" (apprentice) engineer has to learn for his engineering and researcher's methodology of listening (as distinct from viewing or reading). Sound asks questions in the way images often settle them. Listening is always distinct from – but in relation with – both the auditory faculty of hearing and the practices of sound making. The engineer's learning is contextualised with that of other skills (Levin, Ingold, Sterne) and with the research relationships and methodology of working through sound, as well as Goethe's "delicate empiricism."

Part Two: Selector and Corporeal Waveband adopts a similar approach for the second key crewmember of the selector. **Chapter Five: Juggling** gives an account of the selector's skilled and dextrous (or "deckstrous") performance and *re*-performance role and function in the session. This includes "building the vibes" or intensities of the session, and "steering" the crowd along the procession of the night. The selector's re-performance techniques, like those of the engineer, involve *manipulating*, but in this case of the musical material on record or CD, which is done by cutting, sampling, or selecting one particular music track or part of it; mixing a smooth transition between one selection and the next; and repeating the record played, or part of it, or its echoing tail as a sound f/x (effect) – in response to the crowd's requests for "pull-ups" and "rewinds." The selector also engages in *monitoring*, not meters or screens like the engineers, but "reading" the vibes of the crowd. As with the engineer working with auditory materials, the selector's skills include *evaluating* with their expertise, connoisseurship and "know how," not sounds, but the feedback from the crowd.

Chapter Six: Cut, Mix 'n' Rewind locates the selector's skills in the broader context of those of the recording studio production techniques of Reggae "versioning," Hip Hop "looping," and the value of repetition, as a typically modernist trope, but "inna dancehall stylee." The selector's re-performance (Bourriaud) techniques are key to phonographics of the apparatus of the sound system (Weheliye). This affords a critique of the dichotomies that visual metaphors are often used to promote, which invariably separate technologies

from their use, sound-making from listening, production from consumption, transmission from reception and performance from re-performance.

Part Three: MC and Sociocultural Waveband addresses the skilled techniques of the third and final crewmember considered in *Sonic Bodies*. **Chapter Seven: Voicing** describes the MC's (or DJ's) performance as "acoustic master" (Chion), adding a distinctive sociocultural waveband to the sounding of the session. It describes how the MC's techniques contribute to the affective intensities of the whole of the session – by "exciting" the crowd, "guiding" them through the session and championing them in the lyrical battle or "clash" against sound system competitors. The MC's techniques include "lyricing": issuing instructions, or "chatting the mic"; with performance tropes such as "riding the riddim," "conducting choir" (antiphony), a wealth of idiomatic expressions and "tracing" (ritual insulting, Gates); and the distinctive tone of their voice, usually both authoritative and entertaining.

Chapter Eight: Rhetoric and the Logic of Practice situates the MC's voicing in context of the ancient rhetorical triad of *logos*, *pathos* and *ethos*, claiming this to be more comprehensive and useful than contemporary theories of communication. From this it is then suggested that the MC's and other crewmembers' way of knowing needs to be located within the embodied, particular and situated character of the *sensus communis* of the session as a whole. This has three components: right time or *kairos*, right place or *topos* and right *action*, all of which are considered in relation to the idea of knowledge, ways of knowing and specifically Bourdieu's "logic of practice." Both knowing and communicating when described in this manner embody a relationship between *measure* and *value*, drawing on Hans Kayser's account of the Pythagorean concept of harmonics, where the circle of value is squared in the measure of practice.

To conclude, **Triangulating the Sonic Logos** claims that thinking through sound encourages the kind of sensibility that might prove useful for understanding the ways of knowing to be found in other situations and settings – with nothing to do with a Dancehall session or indeed with sound as such. It takes the performance techniques of the three sonic bodies of audio engineer, selector and MC as an exemplary expression of a *sonic logos*. This is a way of knowing particularly susceptible to, and expressive of, *phronēsis*, that is, practical wisdom or sound judgement that often involves proportion and *analogia*. This triangulates with the *techné*, the know-how or practical craft of the crewmember's skilled performance techniques, and the *episteme* of analytical or scientific knowledge. In fact triangulation – expressed in such abundance within and between sonic bodies – is a key feature of the *sonic logos*, taking its cue from Peirce's semiotics. Triangulation encourages an

escape from the dualities and antimonies often sanctioned by ocularcentric and language biased philosophies. With a *sonic logos*, mind and body, viewer and viewed, subject and object, internal and external worlds mingle and merge to render rationality in terms of ratio rather than just representation.

Introduction: Practising and Theorising Sounding

Chapter One

The Dancehall Scene

A sound system is a unique apparatus – a musical medium, technological instrument and a social and cultural institution. This chapter begins by describing how it is possible for sound systems to play all these different roles in Jamaica's music scene and in the island's society more broadly. This material is then used as evidence for what is described as the three wavebands of sounding. Since their invention over 50 years ago, sound systems have been a key part of Jamaica's music scene.[1] Without them the open-air all-night Jamaican "dancehall sessions" – or "bashments" as they are called – could not take place. These sessions are at the heart of the Dancehall scene,[2] around which much of the popular musical and the cultural and commercial life of Jamaica revolves. The excitement, energies and "turbulence" of a dancehall session make it a rich topic for research. Sound systems perform as sonic war machines, vehicles for cultural expression, vessels for identity and pleasure, economic engines, commercial ventures, instruments for musical production, institutions for artists' training, multimedia communication systems, test-beds for technological innovation, laboratories for sonic science, programme content providers for local commercial cable TV stations and ambassadors for Jamaican music abroad.[3] The particular Jamaican sound system that serves as an exemplar or case study is the Stone Love Movement (Figure 1.1). After 30 years at the top of the sound system scene, Stone Love may be considered Jamaica's premier Sound.

The sound system itself should be ranked as one of popular culture's major achievements, anywhere in the world. It is indeed a sophisticated apparatus, in terms of both its technology and the social and cultural forces it brings together – despite what some might assume on account of its subaltern origins. As with the repurposing of musical instruments key to the creativity

Figure 1.1 Stone Love Movement logo on a banner.

of jazz, or the repurposing of turntables central to that of Hip Hop, the sound system has afforded Reggae's re-invention of the machinery of phonographic reproduction. The modernism that emerged in relation to African traditions has evidently never felt any inhibitions in its relationship with technology. Furthermore, the complexities of the apparatus require a considerable skill from a large number of people in order to operate effectively, not to mention the appreciation of a well-developed subculture on the part of the crowd attending the dancehall sessions.

  Although a sound system serves as a specifically auditory *medium*, at the same time it is nothing short of a multi-media apparatus in which live video projection and dancing have become increasingly important. The sound system "set" of equipment can configure the latest digital equipment together with retro turntable and vinyl reproduction and even valve amplification. This contributes to an experience of listening that has to be shared and social, as distinct from that played on iPods and other personal devices. The qualities of a session are appreciated in terms of its "vibes" and "excitement." This is the ambiance, atmosphere and feelings generated within and between the embodied presence of the crowd.

  At the most modest scale, sound systems start as merely a couple of speaker boxes inside (Figure 1.2) or outside virtually every rum shop and

music store, and on every street corner. Indeed, historically this is how they evolved, as Bradley (2002) describes, making the interesting point that the Dancehall scene carries its technological past into the present, as with its musical memory, with the continuing currency of "golden oldies."[4] The music played out on the street in this way helps in the local economy, encouraging sales. This is sometimes organised as a "round robin," whereby the bar owners in the community take it in turns to have one busy night per month.[5] Then there are "birthnight" sessions, weddings and christening parties, street dances and bigger events promoted by the local Don at regular intervals, and advertised with small handbills and posters. There are also regular large sessions that attract a "crowd" (an audience) of thousands and are broadcast live on local cable television. Some are staged midtown around Half Way Tree. Others, interestingly, retain their location in the ghetto, as with *Passa Passa* on Wednesdays in Tivoli Gardens, on the Spanish Town Road,[6] and Rae Town on Sundays (Figure 1.3). These are the only occasions when people from outside these particular communities would feel safe to travel there.[7] These sessions therefore provide members of the crowd one of the very rare points of contact with others across the divisions of the Jamaican class system.

Figure 1.2 Bar on Baker Street, Jones Town, Kingston.

The term "dancehall" refers to the open-air venue for the session, and "Dancehall" as the current genre of Jamaican music, the successor to Ska, Rock Steady, Reggae and so on. Dancehall music is reputed to have got its name from the venue of the dancehall, as in the early 1990's the music was initially regarded as unsuitable for radio play. Dancehall sessions in the plural, are to be considered as the *media* for the social and cultural practices of sounding; in the way the air can be considered as one for the auditory medium, as discussed below. A session does not consist only the physical bodies that make up a crowd, but further in the knowledge, understanding, appreciation, sensitivity and expectations that they bring with them. Many are young, but others come with years of experience of attending dancehall sessions. This is to describe the session as a social and cultural medium, or *milieu*, whose qualities are unlikely to be apparent to anyone unfamiliar with the scene. Dancehall scene is the medium afforded by the numerous dancehall sessions taking place every night of the week, throughout the year in Kingston. Without specifying any details, it can be said that this scene is the meaningful context within which a particular session, like Skateland, "makes sense" to its participants. This is within the cycle of activities over the week, an annual season, confident upsurge or downturn of activities, as Wee-Pow described to me,[8] and even the broad sweep of the development of Jamaican popular culture since the 1950's. In this manner, the Dancehall scene extends way beyond the boundaries of any one particular dancehall session into the entire history of Jamaican sonic culture. Geographically the Dancehall scene extends literally all over Kingston (Figure 1.3), as well Montego Bay, Ocho Rios and the other principle towns of each Jamaican parishes and the countryside.

In recent years Dancehall has been enjoying a considerable resurgence, both creatively and in terms of a widening audience. This has been stimulated by the growth of several new local cable TV channels dedicated to Dancehall and Reggae music, such as Hype TV or Channel View. Consequently the traditional terrestrial channels, TVJ and CVM, now have their own Dancehall shows and there are Dancehall nights at uptown clubs, notably the Asylum in New Kingston. There has been international commercial success for certain artists, such as Shaggy and Sean Paul, so that local artists are beginning to value their skills as a way of making a living and "investing in music videos rather than gold chains." In addition, unusually for a music scene in which there is usually a very rapid turnover of talent, there is also continuity in the music, with Beenie Man and Bounty Killer remaining the top artists for an unprecedented number of years. There is also a strong crop of new artists, for example Elephant Man and such other emerging artists as Vibz Cartel, Wayne Marshall, Assassin, and most recently Movado. The Dancehall sessions

Sentinel Clash, 2005

Burlington Avenue, Stone Love HQ, *Weddy Weddy Wednesday*, 2004

Asylum nightclub

Firelinks *Hot Mondays*, 2003
Skateland, 2002

August Town, *Chuchu Benz*, Wednesdays, 2004

Benbow Street dances, 1996 to 2000
Stone Love workshop, Torrington Avenue

Passa Passa, Wednesdays, 2004

Rae Town, Sunday sessions
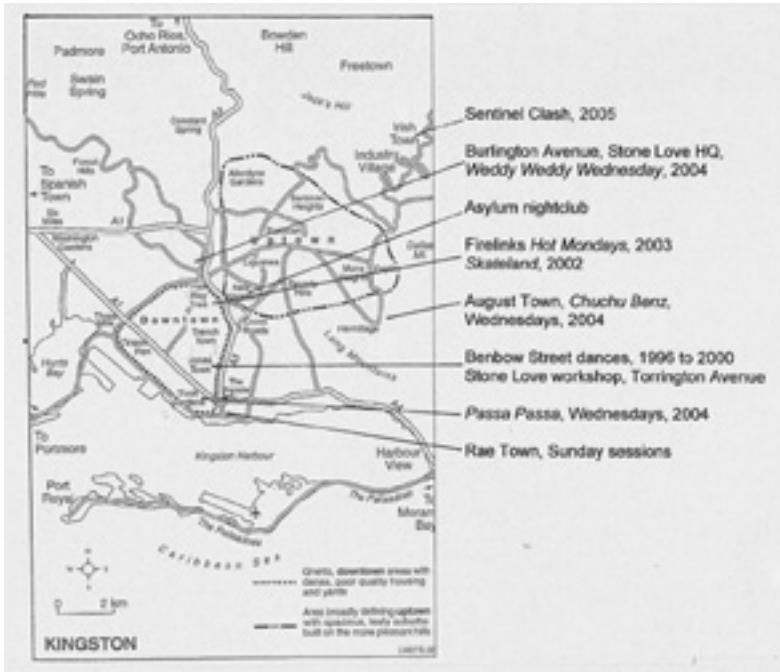
KINGSTON

Figure 1.3 Map of Kingston, uptown and downtown, with the locations of some of the dancehall sessions attended.[9]

have become more inviting to attend with the crowd's dance becoming more obviously important, with new dances such as the *Drive By*, the *Log On* and the *On Line* helping to generate a relaxed and dynamic energy to the vibes of the session.

JAMAICAN AUDITORY CULTURE

The particular value and status given to the auditory sense on the Dancehall scene is evident across Jamaican society, especially in the downtown ghetto areas of Kingston where Dancehall originates.[10] With open windows and corrugated zinc walls, sonic privacy is impossible. The tropical heat beating down on the inner city pushes people out onto the streets. This makes for a cacophony of sound: children playing, car horns, motorbikes, radio, television, church services, sound systems, cocks crowing, not to mention the occasional gunshot. This distinctive, shared, open-air sonic "livity" – as is said in Jamaican English – is part of Jamaica's rich African musical heritage.[11] Wittgenstein would call it a "form of life,"[12] Bourdieu (1990), the disposition

of a *habitus*. In short, sound itself provides the orientation of a symbolic order, as Alain Corbin (1999) describes with the uses of church bells in the rather different setting of 19th-century French village life.

In Jamaica and the diaspora, sound expresses not only power, but also a resistance to it – "an attitude," as would be said in the lingo. As DJ Charlie B on London pirate radio station Vibes FM has it: "Tune in, pump up the volume, and rip off the knob. We just don't care." In his study of the social power of the urban poor in Jamaica, Obika Gray coins the phrase "badness-honour" to describe this kind of disposition:

> Badness-honour is a repertoire that employs language, facial gesture, bodily poses and an assertive mien to compel rivals or allies to grant power, concede respect, accord deference or satisfy material want. … Acts of badness-honour constitute a gestural-symbolic system and a carrier of moral communication. Through badness-honour, inter-subjective understanding about the basis of identity and the terms of power are conveyed …[13]

According to Gray, this repertoire is by no means restricted to Jamaica, but is extended currently to the "gangsta rap" culture of the USA, and historically to the slave-masters and colonial authorities.[14]

Orality

Jamaican culture has a particular *orality* (following Ong 1982), or orientation towards the spoken word. The voice, as the *viva voce*, has a specific kind of value, as exploited in the MC's rhetorical performances (described in Chapter Six). Besides music, the liveliest of the media in Jamaica is undoubtedly radio, especially the talk shows. Also story-telling, with Anancy and a host of other folk tales, proverbs, and even "tracing" (family name-calling as an insult), all are key elements of the richly expressive dramatic performance of everyday Jamaican culture. By way of contrast, on other Caribbean islands such as Trinidad and Tobago, newspapers and magazines are the most sophisticated of media, besides the strong popular tradition of Carnival. In Haiti, it is painting rather than music that dominates popular culture. Martinique, on the other hand, is famous for its literature, with the late poet-president Aimé Cesaire. The particular sensibilities of Jamaican culture can also be located more broadly in Antonio Benítez-Rojo's *The Repeating Island* (1996), his Deleuzian study of the commonalities across Caribbean cultures, and in Sílvía Torres-Saíllant broad-ranging *Intellectual History of the Caribbean* (2006).

The Jamaican oral tradition is also developed in the vernacular or "labrish" poetry pioneered by the late Louise Coverely-Bennett, a.k.a. Miss Lou (Bennett

1966). This rich oral tradition has also been developed over the decades by Edward Kamau Brathwaite with his performance poetry,[15] and by a host of dub poets such as Michael Smith and Mutabaruka, as well as Linton Kwesi Johnson and Jean Binta Breeze in the UK. Brathwaite has also given cultural and political status to this tradition of oral performance, improvisation and popular vernacular expression, with his concept of *nation language*.[16] The opus of the St Lucian Nobel Literature Prize-winning poet Derek Walcott can be located as a compliment to this popular tradition, rather than in opposition to it as it has often been considered to be. Walcott invariably draws on classical European literary traditions, poetic forms such as iambic pentameter and the mythical figures of Classical Greece, such as Achilles in his epic *Omeros*, for instance.[17] But Walcott also mixes these with French creole expressions, rhythms and expressions.[18] Furthermore, there are literary approaches to Caribbean sensibility in the work of the Guyanese novelist Wilson Harris (1969) and the very important, but neglected, philosopher Sylvia Winter.[19] The social anthropologist Huon Wardle (2000) makes a similar connection in his ethnographic study of the values and judgements of street vendors and others in inner-city Jamaica, interpreting these as being an expression of Immanuel Kant's philosophy. This Classical–Caribbean mix is certainly one that resonates with thinking through sounding, when concepts from Aristotle's rhetoric are used in the analysis of the selector's and the MC's performance (in Chapters Five and Six). Its value is in providing a way of recognising the complexity of, and the creativity achieved in, the embodied skills and performance techniques of the sound system crew.

The strength of the churches and Jamaica's long-established Baptist, Pentecostal and Revivalist traditions makes another connection between the oral and textual currents of Caribbean culture.[20] There are reputedly more churches per capita in Jamaica than anywhere else in the world. A traditional religiosity pervades Jamaican sensibility, evidenced by the frequent use of biblical proverbs in speech and biblical quotations painted on the walls of inner-city communities (Figure 1.4). Biblical literacy is so high that in some instances only the reference, rather than the text, seems to be required (Figure 1.5). Such religious sentiments mean that in Jamaica the sound of the spoken word can be considered as a spiritual medium, such an approach being centred on the idea of the creative power of the spoken word. This discursive interpretation of the *logos* (that is, as word, rather than ratio, as discussed in Chapter Seven), takes its cue from the opening of St John's Gospel: *in principio erat verbum* (in the beginning was the word). Indeed, the Jamaican Pentecostal churches are so-named for their reference to the descent of the Holy Spirit at the feast of the Pentecost. With a strong following in Jamaica,

Figure 1.4 Quotations from the Gospels on the wall, next to advertisements, Jones Town.

their services give free reign to *glossolalia* (speaking in tongues), which is another reference upon which the MC's rhetorical performance draws. This also resonates with the even more ancient idea of the magical power of words – proverbially *abracadabra* – to change things in the world. Walcott picks up on this idea with his account of the Caribbean artist who is "blest with a virginal, unpainted world/ with Adam's task of giving things their names."[21] Chambers (2001) discusses the importance of such a "linguistic turn,"[22] as does Gell (1992) in respect of the art and magic of technology. This magical approach is one among several types of understanding that audio engineers have within their repertoire (as discussed in Chapter Three).

Musical traditions
The musical and preaching style in Jamaican Revivalist churches informs the sensibilities of the dancehall session and Reggae and Dancehall music. Beckford (2006) begins to explore these links between church hall and dancehall through the Reggae music technique of dubbing. But the Dancehall

Figure 1.5 A biblical reference without a text, car rear window, Jones Town.

scene also draws on even more ancient traditions; from the island's rich African musical heritage, particularly the religious cults of Kumina and Pocomania that still have their practising followers. Puerto Rican sociologist Angel G. Quintero Rivera claims that these musical traditions have a particular value across the region:

> In the Caribbean, before the word, in the beginning it was the drum, rhythm, and movement. In the complex conditions of "encounter" among "migrants" speaking diverse languages, music and dance preceded the first "discourses." The contribution of socio-cultural identities for Caribbean peoples has been inextricably linked to our sonic forms of expression and communication.[23]

Against the grain of prevailing middle-class prejudices dismissing popular culture in Jamaica, there has been a small stream of research giving attention to the local popular cultural or folk forms.[24] Musically, the links between African traditions and the Dancehall scene are not difficult to establish. Traditional African rhythms, and Nyabinghi drumming in particular, provided the rhythmic beat that turned Ska into Reggae as a musical form.[25] Indeed, Rastafarian spiritual beliefs were crucially important in the formation of Jamaican popular music in the 1960s, as has been comparatively well

documented.[26] This influence only increased as the perceived failures of the political and economic project of national independence after 1964 paved the way for the cultural nationalism of the 1970s (Gray 2004). This "cultural" strand to music, as it is called – as distinct from that of the "rude bwoy" or gangster lyrics – has also continued to flow through the Dancehall scene in the 1980s and 1990s and up to the present, with recording artists such as the late Garnet Silk, Luciano and Capleton. Such grassroots popular musical and cultural traditions may be contrasted with government-supported local cultural production that the sculptor and artist Edna Manley, wife of Jamaica's first Prime Minister Norman Manley, ensured was a part of Jamaica's nationalist project.[27] Despite all this – and despite Bob Marley's international popularity as a Jamaican cultural export in the early 1980s – it is only recently that the commercial potential of Dancehall music and the Dancehall scene has begun to be exploited.[28] Currently, Dancehall "riddims" make use of Kumina rhythms (as Reggae had previously used Nyabinghi rhythms), although, interestingly, the musicians themselves are not necessarily aware of the rhythms' origins as such.[29] In this way, ancient old-world African traditions come "up to the time," to use an Elephant Man catch phrase, with the latest digital technologies at the top of the Jamaican hit parade.

Bass and base culture

Jamaican sonic culture has a particular affinity with the auditory values of sound itself, as well as with speech and music. It is of course the audio engineers who are responsible for production of the bass-heavy signature of the sound system – deserving as much credit for the sound of Jamaican music as their better-known music producer cousins such as King Tubby or Lee "Scratch" Perry, who invented dub music in the recording studio. The special value of sound in the popular culture of Jamaica comes to the fore in many different ways, some of which have already been made evident whilst others will be elaborated upon in the chapters that follow. One of them is the sheer size and music power of the sound system equipment, with several speaker stacks the size of a double-decker bus around the open-air dance-floor, delivering up to 20,000 watts of music power that can be decisive in a competitive "clash" between sound systems (Figure 1.6). Another indication of the value of sound is the secrecy surrounding the audio-engineers' work, leading them to wire the electronics of their sets in cables of a single colour, rather than the usual colour coding – to prevent industrial espionage by rival sound systems. The effort and inventiveness that has gone into the development of the sound system equipment is also indicative of this value, such as the five-way music signal split from treble to sub-bass, with amplifiers dedicated to each frequency
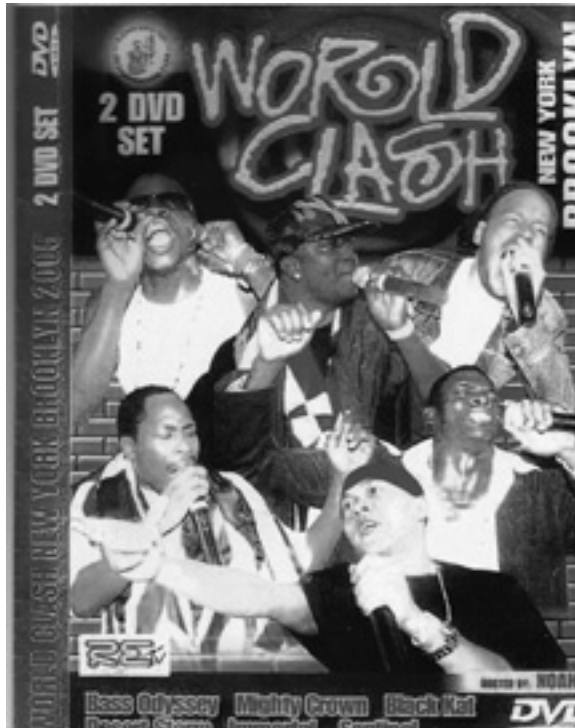
Figure 1.6 DVD cover for the 2005 World Cup clash, New York.

on each channel, as was reproduced in the Grateful Dead's "Wall of Sound" stage sound system.[30] This, along with other aspects of the fine-grain detail of the expert embodied knowledge and connoisseurship of the engineers, gives them an extensive sonic vocabulary, and can cause them to spend several days working to fine-tune equipment after a repair (as described in Chapter Three).

There are a least two key characteristics of Jamaican auditory culture, one sonic and the other social. On the auditory frequency spectrum, Jamaican auditory culture is a *bass* culture.[31] It is the high volumes, low frequencies – rather than mid or top – and distinctive rhythmic patterning that make Reggae's auditory vibrations memorable, quickly becoming culturally laden, or "fully loaded," as would be said. On the Dancehall scene the term "massive" is used for the crowd and their intensive, immersive, visceral experience of *sonic dominance*. These powerful low frequencies resonate with embodied movement and furthermore bleed into the cultural spectrum to become a carrier frequency, as it were, for Africa's musical gifts to its diaspora. There are patterings, entrainments and syncopations between these auditory

vibrations and the breaths, pulses and heartbeats of the crowd's corporeal vibrations. This makes a phonetic connection – where none exists etymologically – between bass frequency and *base* matter, as the corporeal embodiment of the crowd.

This is the bass and base of the flesh-and-blood body that finds expression in Bradley's *Bass Culture* (2002), which gives a very useful account of Jamaican sound system culture and history, as well as Cooper's *Noises in the Blood* (1993). It further reverberates through the UK dub poet Linton Kwesi Johnson's 1980 album *Bass Culture*, with the lyric:

> muzik of blood
> black reared
> pain rooted
> heart geared …
> it is the beat of the heart,
> this pulsing of blood
> that is a bublin bass,
> a bad bad beat
> pushin gainst the wall
> whey bar black blood[32]

The bass culture of the sound system may be contrasted with what Marshall (2010) calls the "treble culture" of earphone listening. Both bass and treble cultures are tailored to and by their particular phonographic technology, each inevitably favouring particular aesthetic forms. The mode and manner of listening is also distinct, with the shared *socialité* of the sound system delivering the bodies into sound with, by contrast, the isolated privacy of mobile devices delivering sound into bodies.

As well as bodily being, heartbeat and blood pulse, this idea of base extends further – into the body politic. The base is the means of production on which Marxist materialist philosophy is founded – as well as society's ideological superstructure. Indeed, the sound system sub-culture has itself been described as a "cultural apparatus,"[33] with "its own aesthetics and a unique mode of consumption,"[34] escaping and even reversing the dominant *political* ideologies of racism of society. Reggae music forges such resistance out of the intensities and dynamics of the material vibrations of sound itself at about the same historical moment of the 1960s and early 1970s as it was being rendered verbally as "black power," drawing on a political history that began with Marcus Garvey in Jamaica in the 1920s. This is bass and base as the bottom line of sound, upon which the "vibes" bass culture has been "built," to

use the studio producer's phrase. This idea of the special resonance that bass has for the substance of sound was also picked up by the American novelist Ralph Ellison (1947), as Alexander Weheliye (2005) discusses. In *The Invisible Man* Ellison provides an early iteration of the idea of a bass culture where he discusses the special significance of "the lower frequencies" for his hero's sense of identity.[35] The Invisible Man pumps his cellar not only with light, but also with sound, delivered by five radiograms simultaneously playing Louis Armstrong. The record playing on the turntable? Famously, it was (*Why Do I Always Feel So) Black and Blue*, recorded in 1929.

A further resonance between bass and base is suggested by the gendering of the sound system. Though this is certainly enjoyed by women, it is produced entirely by men.[36] In patriarchal societies, the gendered voicing of sound associates bass with male and the positive values of strength and authority, with conversely the higher pitched woman's voice being associated with hysteria and other psychological disorders, as Carson (1995) explores with reference to ancient Greek society. It is also interesting to note the contrast this bass inflection provides with current trends in metropolitan listening habits.[37] Here the technological limitations of the iPod – a similarly phonographic apparatus – severely compress the dynamic range of amplitudes and drastically cut the bass frequencies.[38] There is indeed a pronounced contrast between on the one hand the shared social experience of music in which the whole body is immersed, as in the dancehall session, and solipsist in-ear listening on the other.

This idea of bass culture has also been accompanied with that of "low end" theory as a marketing theme on the current London Dubstep scene, with Burial's second album *Untrue*.[39] The distinctive sound of Burial's music tracks explores the textures and colours of sound to achieve a particular late-night, after-the-club, urban feel, developing the distinctive London sounds of the 1990s Jungle and Drum & Bass, and more recently Grime. Dubstep, along with many forms of electronic music, is also inspired by Dub.[40] This musical genre was invented in the late 1960s and early 1970s by the sound engineers such as King Tubby, Lee "Scratch" Perry and others in Kingston recording studios and the dancehalls. Their techniques exploited recording and phonographic technologies to excavate the textures, timbres and resonating depths of sound itself. To dub is to copy, underlining what can be described as the actual *grain* of sound, as Barthes (1977) famously discusses with "the grain of the voice" at the limits of language.[41] Similarly at the limits of music, the particular tone and tenor characteristic of the Jamaican sound provide cues for thinking through the vibrations of the material waveband of sounding.[42] These are without recourse to ideas about authenticities, origins or essentials,

or referring to the structural features of melodies, harmonies or even rhythms, or attempting any musical homology with social and political structures.[43] Instead these vibrations give attention to the ebb, flow and flux of sound waves themselves.

On the social spectrum, Dancehall is also a *base* culture; it comes from the street, indeed the often unpaved ghetto street. It is a subaltern popular form of expression. This is one of the reasons why the Jamaican sound system scene makes a compelling object for investigation – at a contrasting extreme of the social spectrum to the experimental vanguard of European classical avant-garde traditions to which most musicological attention is given, such as, for example, IRCAM (Born 1995). In fact, experiments in the use of sound to make music were made in the 1970s in Lee "Scratch" Perry's Black Arc studio in Kingston, for instance, that were similar to those going on in Paris with Gerard Grisey's "spectral" compositions.[44] Indeed the Dancehall scene is bursting with an inventiveness and creativity to which this research project aspires. Every night of the week and every week of the year, the maintenance crews set up their huge stacks of speakers and massively powerful amplifiers and large live video projection screens. These sessions are attended by crowds of hundreds and flourish amidst the poverty, hardship and violent gang warfare of inner-city Kingston where they began over 50 years ago. Jamaican sound systems have proved themselves to be amongst the most resilient of social and cultural institutions. For many from poor backgrounds the sound system scene provides a livelihood; for others it is a way of life; and for many more it is a source of consumer-led style, fashion and entertainment. In terms of economic importance, identification and numbers, the only comparison to the sound systems would be the local football teams or the Jamaican churches.

The sound system scene is also of research interest as a *base* culture, as distinct from a culture of the superstructure, which is presumably what fuels Jamaican middle-class criticism. Dancehall is undoubtedly a creation of the street. It is working-class – vulgar, subaltern and *lumpen*, given the levels of unemployment – and marginal, given its involvement in the black or grey economies and criminal activities, as for example with "The British Link-up Crew" (Hope 2004). It is the creature of those in Jamaica called the *sufferahs* (as lyrically expressed in Bounty Killer's 2003 hit of that title). The values are those of materialism, conspicuous consumption and "bling," readily imported from the USA, only an hour's plane ride away in Miami, or the multitude of American satellite channels whose footprint falls on Jamaica. Urban geography reflects what has long been acknowledged to be a society sharply divided along colour and class lines.[45] In terms of local entertainment, as well as everything else, the poor downtown Kingston areas and other

ghetto communities consider themselves to be largely isolated and excluded from mainstream civil society.[46] Formerly middle-class and prosperous areas, these downtown inner-city locations in West Kingston might now be likened to *favelas* or shantytowns in other parts of the world. For decades they have had only minimal access to economic and educational opportunities and a marginal position in relation to government agencies and the institutions of the Jamaican State, principally the police.[47] The prevalence of poverty and violence has, however, encouraged an alternative unofficial political patronage system to establish itself in which local-area Dons provide resources, authority and protection for their communities, known as "garrisons."[48] Inner-city schools and churches often constitute the only local institutions whose representatives the local media can call upon for comment on local issues. In this respect, sound systems operate at the margins between their own world downtown and that of the mainstream.

One of the earliest studies to research Jamaican popular culture was my father Fernando Henriques' *Family and Colour in Jamaica* (1953). This described some of the popular cults with fieldwork conducted in the late 1940s in Portland, a rural parish on the north-east coast of Jamaica. The collective all-night music-making rituals, where drumming is particularly important, such as with a Kumina "duty," as it is called, have much in common with a dancehall session (Figure 1.7). Henriques describes Pocomania as being "… publicly practised. In its group activity the individual can feel identification with something greater than himself. This identification acts as a form of compensation for the general ills of life which affect everybody."[49] He writes:

> As all cult groups are strongly condemned by the upper and middle classes it is probable than many individuals are reluctant to admit their connection with Pocomania. The attendance at "meeting houses" in Portland suggests a substantial support from the lower class … Pocomania is essentially a proletarian movement.[50]

Trained at Oxford by the leading post-war social anthropologists Radcliffe Brown and Meyer Fortes, Henriques' work initiated an interest in Jamaican popular culture that I would like to consider my own research as developing.[51] It certainly encouraged the development of Stuart Hall's Cultural Studies approach in the UK.[52]

Continuing with the social side of Jamaican auditory culture, to describe the sensibilities of Dancehall as a *base* culture draws attention to their grounding, as expressed literally through Dancehall choreography and its African-inspired folk traditions.[53] Its baseness is the ground of the earth, soil, dirt or "dutty," as is it called in the lingo. With flat-footed stomps and

Figure 1.7 A Kumina Duty, Spanish Town, circa 2000.

stamps the dancers emphasise their earthly connection, as a distinct contrast to the pirouettes and leaps of the European classical tradition that aspire to have as little contact with the ground for as long as possible.[54] Furthermore, the dancing is literally bottom-up, with its signature sexually explicit chore-ography, "bumper-grinding." Here the bass note is struck by the body itself – celebrating its own fecundity.[55] Such an aesthetic continues to scandalise Jamaican middle-class opinion. For the middle classes, "base" denotes crude, unrefined, vulgar and even animal. Dancehall is therefore criticised in the register of sexuality as "slackness,"[56] and the dancehall session is condemned as the source of this corruption. Such basic lower frequencies and embodied resonances are considered as distinctly inferior to the higher notes that only the mind and not the body is considered capable of perceiving – with the refined sophistication of "high" culture. So what radiates from a session is not only the material vibrations of sound itself, and the corporeal vibrations of a new "riddim" or dance step, but also the word of mouth on the next session, not to mention all the gossip about who was there, with whom, what they

were wearing and generally "what-a-go-on." All this, as well as the cable TV broadcasts, DVD videos and compilation CDs, serves as a medium for the expression of the style, fashion and values of the Dancehall scene.

THREE WAVEBANDS OF SOUNDING

A dancehall sound system session is a specifically *sonic* destination. A sonic body is necessarily an event, as distinct from an object. Long before getting anywhere near one, it is heard before it is seen. Pointing out the auditory character of the dancehall session might appear obvious, or trivial, given the visceral impact of *sonic dominance*. This immersive intensity of sound is the reason why many of the "bashment gals" attend the session, as one of them describes:

> It's not just enough to hear it, you got to feel it … I take a dangerous proximity to the speakers. I tend to plug my ears. It's not loudness, yes it is about loudness, but it's also about this quality. I plug my ears so I can get nearer to the speaker.[57]

Figure 1.8 Bashment poster featuring artists, selectors, MCs and videoman.

Virtually inside the bass port of a speaker cabinet, the full music power of the sound system can then be appreciated as it permeates the sensory surfaces of the entire body.[58] Also, while a session engages the auditory senses in particular, at the same time it is also a multi-sensory experience involving a panoply of vision, touch, smell, taste, heat, movement and so on. This is expressed in the range of roles, such as the "videoman," featured on the advertising posters for the session to attract an audience (Figure 1.8). Each session is also a liminal experience in the way it always crosses over the threshold of one night into the dawn of the following day.

Taking inspiration from the qualities of the Jamaican auditory sensibility, bass culture, and the characteristics of the Dancehall scene within it, it is proposed to make *sounding* the centre of enquiry. This is to be done by expanding the idea of sound to include not only sound-making and listening, but also the entire frequency range of the vibrations that are involved.[59] The vibrations of sounding certainly include the auditory vibrations of sound itself, as produced by the sound system "set" of equipment. These are identified here as the *material* vibrations of sounding, associated with the mechanics of auditory propagation and listening. The dynamics of these longitudinal waves are of particular importance in that they provide model for vibrations at other frequency wavebands or registers.

The most important features of all vibrations are their periodic motion. This marks the difference between the essentially time-based character of the auditory sensory modality and the space-based one of visual perception. Indeed, the argument in favour of the primacy of either movement, or its opposite, stasis, has its origins at the very beginning of Western philosophy in pre-Socratic Greece. This was in the dispute between Heraclitus' idea of flux and fire and Parmenides, for whom change was only an illusion.[60] Sound is always a disturbance. A vibration is no more or less than the propagation of a dynamic pattern through a medium. Our most fine-grained, sensitive and intimate experience of movement is provided by the auditory sensory modality. This kind of movement can be specified as *haptic*, that is, a matter of the touch of sound. Sound waves are transmitted as auditory vibrations from the gaseous medium of air to the eardrum, to the three solid tympanic ossicles, to the liquid in the cochlea whose movement then disturbs the cilia generating impulses along the auditory nerve (Figure 1.9). The human ear is an instrument of incredible sensitivity (as is the eye). The ear has a frequency range from 20 Hz to 20 kHz and an amplitude range of less than one billionth of an atmosphere at the threshold of hearing to 10^{13} atmospheres at the pain threshold.[61] It is also important to note the reciprocal relationship between the active, effective and kinetic movement of sounding
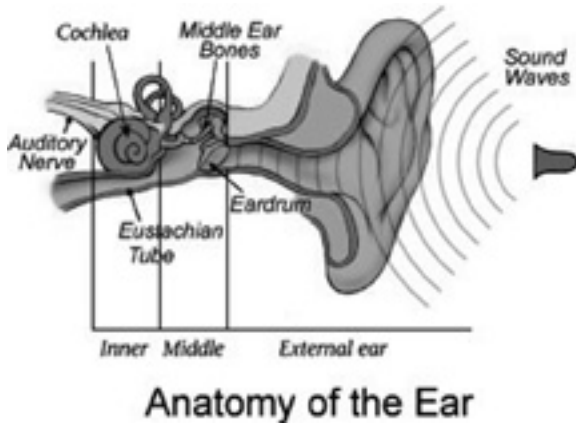
Figure 1.9 The middle and inner ear.[62]

on the one hand, and its passive, receptive and haptic movement on the other. Such reciprocations are typical of sounding.

With its three semicircular canals, the cochlea also provides for our sense of balance and orientation, as a third kind of movement. This is *proprioceptive* movement – the body's sense of its own position and motion. Proprioception makes a physiological connection between sound and correct judgement, that is, a sense of equilibrium, often described as "balanced." This movement is detected in the liquid of the three vertical, posterior and horizontal semicircular canals by the otolith organs of the vestibular system. The idea of sounding as an activity is therefore useful for bringing to the fore the triangulation of three different kinds of movement: kinetic, haptic and proprioceptive, whereas the idea of sound as an object, by contrast, is limited to kinetic movement alone.

Besides vibrations in the material waveband there are also *sociocultural* vibrations, with their resonances of different folk and West African traditions, auditory culture, and American materialism that "build" the "vibe" of the dancehall. In short, it is within the sociocultural waveband that Dancehall culture has meaning and significance for its participants. The third waveband is that of *corporeal* vibrations, with the crewmembers' skilled techniques on which the remaining chapters concentrate, together with the range of sensory affects and expressive dance movements of the crowd. This corporeal waveband of the crew and crowd's embodied practices has been relatively neglected, compared to technological and sociocultural approaches.

Material waveband

Without the *material* vibrations of sounding, such as the air molecules and mechanics of auditory propagation, there would be silence. This calls for an understanding of auditory energies as the dynamic sustenance of sounding.[63] It is this waveband of sounding in which the audio engineers specialise. The most important characteristics of the *material* waveband have already been described in terms of their amplitudes, repeating frequencies and timbres (as detailed in the next chapter). These vibrations include not only the longitudinal waves of sound propagation, but are also electromechanical, as with trembling surface of the speaker cone, for instance, as well as the waves of the electromagnetic within the circuitry of the sound system "set" of equipment. Here the frequency of the vibrations is considerably faster and their amplitude correspondingly reduced. Also the vibrations of the electro-magnetic spectrum are *transverse* waves, rather than the longitudinal sound waves discussed so far.[64] Apart from the occasional electrical voltage shock, these are not frequencies to which the human body has sensitivity. These material frequencies range from the 120 Hz of AC electrical current (often the connection is "jumped" into the street lighting supply), to the transmitter frequencies of the MC's radio mic, radio stations, mobile phones, up to the visible light spectrum. It should also be emphasised that thinking through the material waveband can never be done to the exclusion of the other wavebands. In short, vibrations are relational as well as dynamic.

Corporeal waveband

This second waveband of sounding is propagated through the fleshly medium of the bodies of the crew and the "crowd" (audience). It is this waveband of sounding in which the selector specialises. *Corporeal* vibrations are embodied sensory sensitivities and performance practices of the crew and the crowd. Without these there would be no hearing or dancing. In the dancehall session, corporeal vibrations are embodied in the patterns of the crowd's kinetic movement, the choreography of their dance, and the style, skills and techniques of the MC and selector and other sound system crewmembers. These corporeal vibrations resonate with material auditory vibrations, where the bass becomes the *bass-line* patterning of the amplitudes of inflected, emphasised, accented and unaccented moments[65] that are then patterned to build the rhythm of the bass line. In Reggae, these drum and bass rhythms have become the signature "riddim" tracks on which the Dancehall music scene flows.[66] These bass lines are literally the heartbeat of Reggae music, the "classic" ones being produced in a uniquely creative period of the late 1960s and early 1970s.[67] Often described as "foundation riddims," recognising yet

another depth to the musical genre, they continue to re-animate the music as the basis of innumerable *versions*.

The corporeal medium of sounding is fleshly, in the way that the material medium of sounding can be gaseous, liquid or solid matter. The vibratory frequencies of the corporeal waveband are considerably slower than those of the material medium. These include the embodied kinetics of all kinds, such as the beating of percussive instruments, bowing and plucking of strings, and the blown vibrations of reeds and brass. Bodily frequencies consist of all manner of pulses and bodily rhythms, including breathing and heartbeats, as well as the circadian, monthly and seasonal cycles, and innumerable rhythms, habits and routines for dance and indeed most other practices – not least, the skilled performance techniques of the sound system crew. This is done either with corporeal instruments, such as vocal cords, or using the hands and limbs to manipulate other non-corporeal machines and technologies. The corporeal waveband of sounding is *afforded*, to use Gibson's (1979) concept, by the potentials and constraints of the material waveband.

In this way, the corporeal waveband includes the sensory modality of hearing and auditory sensation, but cannot be reduced to physiological responses alone. The faculties that furnish sensation are corporeal, affording *haptic impressions*.[68] This is the sensory side of the sensorimotor system, as it were, compared to the *kinetic expressions* of propagation, the motor side of the sensorimotor system. The corporeal medium of sounding is also tactile, as with touching itself, where the *coverage* of surfaces is most important, especially the sensory surface of the enveloping skin, as with *sonic dominance*. For single-cell organisms with only one sense, this is touch – the most basic element of animate life. As Derrida puts it: "Touch is the only sense that the existence of the living as such cannot dispense with … Touching, then, is a question of life and death."[69] The tactile sense, even more than the traditionally esteemed visual one, is said to provide our most fundamental test of something actually "being there." But it is the touch localised in the skin of the hand, rather than the touch of the skin of the eardrum, that counts in this respect. Unless sanctified by religious ritual, hearing voices when the bodies responsible for speaking them are not visible or tangible is often considered as a sign of madness, as Blackman (2002) explores. But even tactile surfaces have to be understood as being "given by" the movement of the corporeal vibrations of their being touched, rather than pre-existing as "solid objects." In practice, touching always establishes this boundary or threshold. Touching is a simultaneous "both–and" – separating and connecting, the "toucher" and the "touched", kinetically and haptically. Being "in touch" with another person, for example, also recognises our separation from them.

While a dancehall session is a specifically auditory sensory experience, at the same time it groups together a range of senses including vision, touch, smell, taste, temperature, kinetics and so on. So the sound system is little short of a sensorium, that is, a totality of sensation, as a multi-media and multi-sensory apparatus with live video projection and dance becoming increasingly important (Figure 1.10). Rhythms spread by "jumping" from one medium to another (as described in Chapter Five). With the corporeal waveband a session becomes a particular kinetic space and shared social *place*, with a specific geographic location where the individuals come together as a crowd, an audience, for the duration of the *event*. Listening on iPods provides an example of the importance of such locating and scheduling. The phenomenon of flash mob raves in the UK and USA evidences the appetite for such a shared social listening environment, where this is juxtaposed with private hearing. For these events iPod listeners arrange to meet at a particular public venue, such as a railway station, in order to dance together – but without anyone necessarily knowing what music others there are listening to.[70]

Figure 1.10 Live video screen, dancers and camera (bottom right), Chuchu Benz session, August Town, 2004.

Sociocultural waveband

As well as the material and corporeal wavebands, a third kind of vibration needs to be introduced to give a fully comprehensive understanding of the propagational functions of the dancehall sound system apparatus. It is this *sociocultural* waveband of sounding in which the MC specialises. The sociocultural waveband consists of the Dancehall scene's customs and practices, its seasonal calendar, cycles of style and fashion, lingo and so on – the "vibes" of the ambiance, atmosphere and feelings the session generates. Without these sociocultural vibrations there would be no listening, understanding, valuing or "making sense" of the session or the Dancehall scene – nobody would come.[71] So thinking through the sociocultural waveband of sounding emphasises the *thinking* of sound, giving an abstract and meaningful inflection to sounding, in relation to its materiality and corporeality. The sociocultural vibrations of sounding are those of communication in symbolic, social and cultural systems, or – in Aristotelian terms – form, rather than substance. The vibratory frequencies of the sociocultural medium include those of seasons and cycles, and its propagation mechanisms include school education, publishing, broadcasting and, not least, the institution of the dancehall session.

These sociocultural vibrations are embodied in the crowd's way of doing and knowing with attitude, fashion, and indeed with lifestyle and way of life, in Jamaica called "livity." It is their expertise on what's in and what's out, telling the "fresh" from the "rinsed out." This is expressed with singing, speaking, music-making, dancing or simply "modelling" (striking a pose) in the dancehall session. The sociocultural vibrations of sounding are afforded by its corporeal vibrations, as it is only through these that our embodied senses can be "in touch" with the material waveband of sounding, or indeed with any part of the physical world. Sounding is also a body of understanding and ways of knowing, a corpus of social and historical work; it has cultural milieu, norms and expectations, interpretations, traditions, customs and ways of making sense and understanding. This is what makes sounding *sociocultural*.

These sociocultural "vibes" are "built" from the crowd's knowledge, understanding, appreciation, sensitivity, expectations and so on, often accumulated from the experience of years of attending dancehall sessions. Each crowd-member has their tastes, loyalties, memories, associations and expectations, depending on their knowledge of the selectors on the bill, the sound system, venue and so on. So for sociocultural vibrations the "body" can be the *esprit de corps* of the ensemble crew, the Sound's followers, and the crowd composed of different sub-groups of dance crews, such as Dancehall Queens and others. Top selectors, such as Stone Loves' Rory or Tony Matterhorn, are each known for the particular styles of music they play,

from "Rare Groove" and "Golden Oldies," to the bespoke "dubplate specials" (as described in Chapter Six), and to the latest hits. Indeed, the intensities of material waveband make multiple connections with and within the corporeal vibrations of the crowd, and between them and the sociocultural ones of the dancehall, expressed, for example, in the different ancestral and utopian temporalities of the session.[72]

The wavebands of sounding are in simultaneous, parallel and multiple relationships with each other, forming a single whole system. Each waveband of sounding requires the other two; they can only be separated analytically, never in actual practice. So, while the performance practices, each crewmember has a special responsibility for each of these wavebands, this can only occur in relation to the other two. This whole-system approach may be contrasted with more commonplace separations of "levels of analysis" and discrete "factors" or "functions," where the whole often tends to be reduced to one of its constituent parts (as discussed above). The apparatus of a sound system propagates vibrations across a range of auditory frequencies and other wavebands. Thus a dancehall session can be described as being built of the vibrations of each of the wavebands of sounding, in the way that Reggae producers talk of "building" a rhythm track out of auditory frequencies, and "laying" the separate pre-mix tracks.[73]

Recognising these sociocultural vibrations also gives attention to intentions and evaluations, on the ground that bodies are "enminded," as knowing subjects, continually trying to "make sense" of their world (rather than the mechanical instruments that the mind has to command, or whose sensory input the mind has to interpret, as discussed in Chapter Seven). It is sociocultural vibrations that make the distinction between material and corporeal wavebands – on the continuum between *noise* and sound, on which, extended further sociocultural vibrations would position themselves as music. Noising, to give it a verb-form, is an activity, something that happens, but is a mere off-cut or by-product, compared to sounding, as something that is done "on purpose" – though its actual auditory qualities might be identical. This *making* of sense is something the sociocultural brings out, as it were, from the material and corporeal vibrations of sounding.

Different wavebands are expressed corporeally by, in and as *bodies*, materially as the physical *world* and socioculturally as the *mind* (or even the heavens). Similarly, sonic *bodies* describe the different senses of these wavebands of sounding. Corporeally, bodies can be flesh-and-blood agents, engaged in a whole range of activities, most often with others. The performance techniques of the sound system crew are but one example of this. In this respect we can consider sounding as a set of practices, exemplified by the organisation of the sound system. Socioculturally, bodies can be *corps* of men or women, or social

institutions, with beliefs, feelings and ways of understanding in common. This is exemplified by sound systems as part of the Jamaican Dancehall scene. Materially, bodies can be considered *corpuscles*, or particles, such as air molecules in the gaseous medium of auditory transmission, that the sound system uses to such striking effect. It is as these practices, beliefs and particles that sounding gives attention. In short, bodies often do more than we think.

THREE-FOLD RELATIONSHIPS

With three wavebands of sounding the question of their relationship becomes important. This can only be answered in practice, that is, in particular instances and specific settings, as is attempted in the chapters that follow. It can be said, however, that the vibrations of sounding are always embodied in ways that are already social, cultural and technological, in contrast with other approaches that isolate "embodied," or "social" or "cultural," or "technological" aspects of the phenomenon. Similarly, what appear as technological phenomena are always already socially and corporeally embodied, and social phenomena are always already embodied and technological, following Latour (1993, 2005). In this way, a complex apparatus such as a sound system cannot be reduced to the set of equipment alone, as the material waveband of sounding, or even the crew's performance as the corporeal vibrations of sounding, or even a phenomenon of the Dancehall scene as its sociocultural vibrations. In short, sounding is expressed in all three frequency bands at the same time, as a triangulation (Figure 1.11).
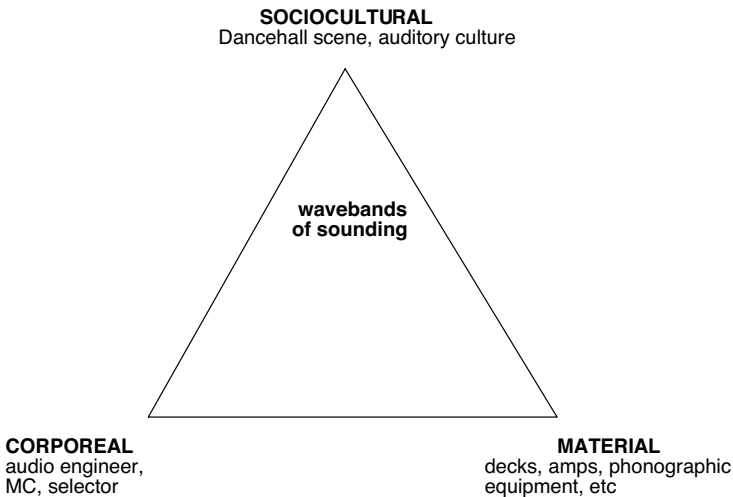
Figure 1.11 The material, corporeal and sociocultural wavebands of sounding.

Each is present as part of the whole for the others at every moment in the way the whole of a holographic image is present in every part. As longitudinal waves through a medium, sounding is to be described as triadic, that is, in terms of frequency, amplitude and timbre (as discussed in the next chapter), in a similar way as rhythm, melody and harmony are the three triadic elements of music. In the visual world it is the height, width and depth required for an object in space (Figure 1.12). In addition, as with sounds themselves, the wavebands of sounding overlap, layer and bleed into each other; in contrast to the hard, cutting edges of separation of exclusive definitions, sounding offers the mixing of layers and levels of a palimpsest. With sounding there is never silence, any more than there is a *tabula rasa*. Unlike with the three dimensions of sound or space, there is also a hierarchical relationship between the wavebands, whereby the material *affords* the corporeal waveband, and the corporeal *affords* the sociocultural waveband.[74] Another distinctive feature of the triangulation of sounding is its openness to the complex resonating and reverberating relationships between vibrations at every frequency. Thus the "vibes" of a particular event or milieu can be likened to the timbre of a sound.
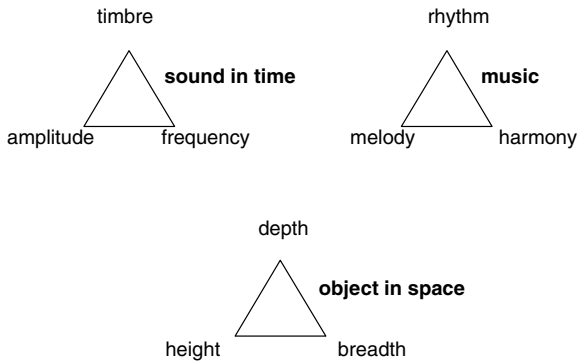
Figure 1.12 Three dimensions: sound in time, music, and an object in space.

A waveband in this context is described in terms of the three elements of any longitudinal wave, that is, its frequency or pitch, its amplitude or volume and its timbre, or "sound colour" (Figure 1.12). To talk of *wavebands* of sounding is to privilege frequency, rather than amplitude or timbre, as the defining element of a wave. It is important to note at the outset that these three wavebands have to be considered as the *dimensions* of sounding, where each one is both *irreducible to*, and *necessary for*, the other two, that is, they *triangulate* each other. This concept of a dimension is taken literally

and physically, rather than metaphorically, as simply an aspect of, or angle on, a phenomenon. The triangulation of the three dimensions of sounding is therefore distinct and different from the more commonplace idea of the accumulation of discrete independent causal factors, or indeed that of discrete autonomous "levels of analysis," as for example with physiological, psychological or social spheres. As with Small's idea of *musicking*, the emphasis is on the *relationships* between the wavebands of sounding in contrast with separations assumed of conventional economic, technological, sociological, cultural and musicological approaches. Thinking through sounding, about *how* and *why* sound systems operate in the way they do in Jamaica, raises some of the key issues for understanding embodied ways of doing, knowing and communicating.

The wavebands of sound invariably require expression through a material medium. Sounding is only ever an effect, as Jean-Francois Augoyard and Henri Torgue identify in *Sonic Experience: A Guide to Everyday Sounds* (2005). Such embodiment has to take time and place at several frequencies simultaneously. To think otherwise can only amount to reductionism.[75] With the wink of an eye, as an example, this embodiment is expressed in the material waveband in so far as an eyelid is a physical object whose surface reflects light waves; and in the corporeal waveband as a bodily movement; and also it is expressed in the sociocultural one as communication. It should also be noted that these wavebands are configured hierarchically, where the material is required for the corporeal and for the sociocultural (as discussed in Chapter Two). Thus the specificity of the wavebands increases, that is, proportion in the sociocultural waveband is a more specific form of relationality than in the material one, which is more specific than the field of the material waveband. There are also resonances between the three wavebands, such as, for example, the event of auditory propagation in the material waveband and the performance in the corporeal, or relationality in the corporeal and *analogia* in the sociocultural waveband.

As with all embodied expression, a wink is particular to its unique *kairos* (timing) and *topos* (placing), as with an utterance, as distinct from a generic linguistic form of expression. The scheme is not intended to contradict, but rather to supplement, the rather more familiar systems of signification, discourse and representation. It offers one possible way of understanding *embodied* meaning, as distinct from how it is most often considered as enminded, inscribed, notated or encoded. The phonographic technologies on which the sound system and the sub-culture of Dancehall depend do nothing if not exploit the potentials that sound recording affords embodiment. This auditory extension of ourselves was the starting point for *Sonic Bodies*.

THEORETICAL CONTEXT

To conclude, it might be helpful to place these ideas on the propagation model of sounding in the context of other approaches to the sound system. These have tended to focus on its technology, most often assumed to be a combination of different components, factors, aspects or functions. John Constantinides (2002), for instance, considers the sound system as both technological and embodied, with the distinction between the sound system "in the strictest sense, [where] one would be dealing with a mechanical system of musical amplification and diffusion including turntables, speakers, and a PA (public address) system" and "the Jamaican sense of [where] the term sound system (or soundsystem) is expanded to include certain human actors" (Constantinides 2002: 1). Obika Gray (2004) emphasises the importance of the value systems embodied in the Jamaican concerts and dancehalls of the 1960s. He considers that the dancehall and concert performances,

> … were nothing without the moral culture for which they were the vehicle … the dance hall allowed the ecstatic indulgence of cultural dissidence and collective black joy … well beyond the immediate scrutiny of an intrusive state and a racially discriminatory society, the aesthetic experience of the urban poor achieved authentic representation.[76]

For Gray, this is the context critical for understanding how:

> Kinetic prowess, verbal play and instrumental virtuosity by performers on stage could carry little force without related norms of cultural autonomy, personal excellence and black mastery … hence, concern for aesthetic values and technical expertise was never far from sentiments of collective cultural redemption.[77]

Louis Chude-Sokei goes further in describing the sound system as a "cultural apparatus." As he puts it:

> In Jamaican English a "sound" has meant many things simultaneously. In addition to the basic definition of the word, it means also a song, a style of music or sound system. It is in the final definition that all the different meanings find dynamic peace. To describe a "sound" via a sound system, is to define sound by way of what I would call a *cultural apparatus* – in this case one that requires deejays, selectors, engineers, producers, people who build up the sound and disseminate it through speakers or across record shop counters.[78]

This two-fold technological and social constitution of sound has been a

particularly important idea for the debates on Afro-modernity, to which Weheliye (2005) has made an important contribution:

> In the force field of sonic Afro-modernity, sound technologies, as opposed to being exclusively determined or determining, form a relay point in the orbit between the apparatus and the plethora of cultural, economic, and political discourses.[79]

This leads Weheliye to a discussion of the particular value of phonographic technologies for understanding modernity. Together Weheliye and Chude-Sokei's remarks emphasise how musical sounds have traditionally served as bearers of social and culture values, especially in Africa and the African diaspora.

Taking a different tack, Jonathan Sterne's historical account of the development of the nineteenth-century auditory technologies of the gramophone and the stethoscope, in his admirable *The Audible Past* (2003), is also very useful. Sterne establishes in convincing detail that: "Sound reproduction – from its very beginning – always implied social relations among people, machines, practices, and sounds" (2003: 219). Furthermore, addressing the sound system specifically, Dick Hebdige describes how the apparatus had a key social and cultural role on the British scene in the 1970s:

> The "sound-system," perhaps more than other institutions within West Indian life, was the site at which blackness could be most thoroughly explored, most clearly and uncompromisingly expressed. To a community hemmed in on all sides by discrimination, hostility, suspicion and blank incomprehension, the sound system appeared to represent, particularly for the young, a precious inner sanctum, uncontaminated by alien influences, a black heart beating back to Africa on a steady pulse of dub.[80]

Hebdige expands: "The 'system' turned on sound; the sound was intimately bound up with the notion of 'culture;'" and, as in Jamaica, "The music itself was virtually exiled from the airwaves." As he explains:

> It could only live in and through the cumbersome network of cabinets and wires, valves and microphones which made up the "system" and which, though legally the property of an individual entrepreneur, was owned in a much deeper sense by the community …[81]

Furthermore, Paul Gilroy, in *There Ain't No Black in the Union Jack*, a decade later, describes the UK sound systems of the 1980s.[82] The sound system

generates "its own aesthetics and a unique mode of consumption."[83] Relying on records, rather than live performance, Gilroy notes how the DJ aesthetic was "built around the pleasures of using exclusive or specialised language in cryptic coded ways which amused and entertained as well as informed the dancing audience."[84] This makes it clear that the role of the sound system apparatus as a medium and instrument for musical entertainment, with its own form and history, was quite different and distinct from radio, live concerts, music television, internet sites and so on.

More generally, there is a substantial tradition of investigation on the effects of the tools, instruments, machines and technologies of which the sound system could be considered an example.[85] The specifically phonographic character of the sound system can also be located in relation to Evan Eisenberg's *The Recording Angel: The Experience of Music from Aristotle to Zappa* (1987), Mark Katz's *Capturing Sound: How Technology has Changed Music* (2004) and James Lastra's *Sound Technology and the American Cinema: Perception, Representation, Modernity* (2000), all relevant here, together with John Mowitt's *Percussion: Drumming, Beating and Striking* (2002). But the danger of a technological focus is that it can lead to technological factors being considered, if not as determining, then certainly as *separate* from the social and cultural relationships. This raises important issues for further research, as discussed in the final chapter. One way of avoiding this has been to broaden the conception technology to include bodies, following Marcel Mauss when he says, "the body is man's first and most natural instrument."[86] In this approach, the human voice can be considered as corporeal technology, or as prosodic means of production, as in Don Idhe's *Listening and Voice: A Phenomenology of Sound* (1976) and Steven Connor's *Dumbstruck: A Cultural History of Ventriloquism* (2000).

Another approach relevant to the sound system is to emphasise the importance of the social features of technology in SCOT theory (Social Construction of Technology, Bijker 1995). From this perspective a dancehall session would be considered as an example of a *sociotechnical ensemble*. Indeed, the SCOT approach has been applied in admirable detail to the first mass-produced electronic musical instrument – the Moog synthesiser.[87] As Bijker, one of the SCOT pioneers, puts it: "Society is not determined by technology, nor is technology determined by society. Both emerge as two sides of the sociotechnical coin during the construction process of artefacts, facts, and the relevant social groups."[88] He continues:

> The sociotechnical is not to be treated merely as a combination of social and technical factors. It is *sui generis*. Instead of technical artefacts, each unit of

analysis is now the "sociotechnical ensemble." Each time "machine" or "artefact" is written as shorthand for "sociotechnical ensemble," we should, in principle, be able to sketch the (socially) constructed character of the machine. Each time "social institution" is written as a shorthand for "sociotechnical ensemble" … The technical is socially constructed, and the social is technologically constructed. All stable ensembles are bound together as much by the technical as by the social …[89]

While the SCOT approach is helpful in identifying the importance of the relationship between the social and the technological, these remain as separate factors, albeit ones that are in interaction with each other.

The distinctive qualities of sound system technologies are perhaps better recognised in terms of Bruno Latour's (1993) idea of *quasi-objects*. Latour takes "the hole in the ozone layer" as an example of a *quasi-object*, drawing on his collaborative work with Isabel Stengers (1997) on scientific discourses. Latour describes a *quasi-object* as an amalgam of social, cultural, political and scientific considerations. He then develops this as Actor Network Theory (ANT) with his collaborators (Latour 2005). Indeed, the present framework shares some of ANT's key assumptions concerning the "sociology of associations."[90] This is a radical type of *socialité*, required for investigating the relationships, assemblages and mixtures between things, or different kinds of materials – technological, biological, physical and so on. Crucially, this reverses the direction of explanation from that of sociological tradition established by Emile Durkheim. According to Latour, this has become tautological by trying to explain "society" as a material made up of social relations. Latour takes Gabriel Tarde, Durkheim's student, as the founder of this "sociology of associations" whose aim is to investigate how the stabilities of "society" are achieved:

> If inertia, durability, range solidity, commitment, loyalty, adhesion, etc. have to be accounted for, this cannot be done without looking for vehicles, tools, instruments, and materials able to provide such stability … this [the ANT approach] draws attention to the means necessary to ceaselessly upkeep the groups …[91]

This idea of the continual "upkeep" required to maintain the status quo certainly resonates with the incessant performance of auditory propagation necessary to maintain sounding, not to mention the multitude of musical and other rhythms found in the dancehall session. In short, sound, like music, may *end up* as an object of digital code, or the product of a recording, or a score, but it cannot *start up* as such, or be appreciated – until it re-enters

the corporeal medium. Stuart Hall's (1980) concept of the *circuit of culture* is most useful for its emphasis on the interdependence and flow between what are often considered as sequential elements, such as production and consumption.[92]

But the idea of the vibrations of sounding is most substantially indebted to Small's (1998) concept of *musicking*, the term he coined to describe the assemblage of everything, everyone and all the activities – listening as well as music-making – that go into a music-making event:

> The fundamental nature and meaning of music lie not in an object, not in musical works at all, but in action, in what people do. It is only by understanding what people do as they take part in a musical act that we can hope to understand its nature and the function it fulfils is human life.[93]

Small continues:

> To music is to take part, in any capacity, in a musical performance, whether performing, by listening, by rehearsing or practising, by providing material for performance (what is called composing), or by dancing. We might at times even extend its meaning to what the person is doing who takes the tickets at the door or the hefty men who shifts the piano and the drums, or the roadies …[94]

The sound systems session provides a ready example of musicking – though Small takes the rather different example of a classical symphony concert. For this he provides a textured, nuanced, fine-grained detail, "thick" Geertzian description of what goes into such an event, as thinking through the sounding of the dancehall session aspires to do. As Small puts it:

> Music should be viewed as an act instead of a thing. Who is doing it? where? and who is listening? then become the primary questions. By looking at music this way, we begin to understand the relationship between music, people, history and the larger culture.[95]

Small (1987) also draws on Chernoff's (1977) rich and detailed account of this social production and consumption of music in contemporary Western African music-making. It is the practice of musicking that generates meaning and feeling in the relationships and activity of performance. Studying popular music, the importance of performance has been emphasised by Frith (1966) and Auslander (1999, 2004, 2008). With the cultural theory of gender, Butler (1990a) developed the concept of performativity, drawing on Austin's (1962)

account of this function of language. The activity of musicking can also be considered in relation to Amari Baraka's (a.k.a. Leroi Jones) essay *Swing – From Verb to Noun*, where he states:

> I speak of the *verb process*, the doing, the coming into being, the at-the-time-of. Which is why we think there is particular value in live music, contemplating the artefact as it arrives, listening to it emerge. *There* it is. And *there*.[96]

Mackey comments: "This movement from verb to noun is precisely a strategy of cultural and political 'containment.'" So it's not just that a verb is mistaken for a noun by a cultural industry that doesn't know any better; rather, the movement from verb to noun can be considered as a process of subjugation, if not oppression. "'From verb to noun' means the erasure of black [sic] inventiveness", he tells us.[97] Against this, the Reggae music production technique of *versioning* provides a good example of precisely this kind of inventiveness (as described in Chapter Five).

The concept of musicking also owes a philosophical debt to Merleau-Ponty's (1962) phenomenology, in two respects. The idea of musicking involves the kind of immersion in the phenomenon for which the *being-in-the-world*, or *dasein*, of phenomenology is named. Furthermore, musicking has a helpful emphasis on action and the relationship between the agent and the world, where Merleau-Ponty describes the intimacies and intensities of this relationship as a *chiasm* or intertwining (Merleau-Ponty 1968), or a *doing-in-the-world*, to gloss Merleau-Ponty's term. This includes various technologies or *mis-en-scène* objects of music making, as well as the musical media of the session and the scene, together with the crew's instruments and skilled techniques. With musicking Small underlines the multiple activities, processes, rituals and people besides the musicians that go into "the business" of making music.[98] With the dancehall session this musicking includes: the maintenance crew, speaker-box carpenters, amplifier makers, dry-roast peanut sellers, not to mention the crowd and all the instruments, props, processes, rituals and roles, from printing and fly-posting before the session, to selling its recording as a mix CD afterwards.

In this way, the idea of musicking suggests a way of dissolving the traditionally hard and fast division between activity and passivity, agent and object, user and tool, player and instrument, transmission and reception, or performing and listening. It refuses to allow a fissure between the activities of performing, playing and making music, on the one hand, and participating, clapping, dancing, paying attention, listening and otherwise appreciating and enjoying on the other. As Small states: "The act of musicking establishes

in the place where it is happening a set of relationships, and it is in those relationships that the meaning of the act lies."[99] This echoes Raymond Williams when he says: "We have to break from the common procedure of isolating an object and discovering its components." Williams continues, "On the contrary, we have to discover the nature of a practice and then its conditions."[100] This emphasis on activity, practice and doing was also critical for the linguistic philosophers, as in Ludwig Wittgenstein's assertion that "the meaning of a word is its use in the language,"[101] or more emphatically, "Don't think but look!"[102] A research methodology of listening is particularly interested in asking questions, in the manner that sound is wont to do, contrasting with the way that images often settle them. For the sound system session the question is simply: *How does it work?* Also as Wittgenstein emphasises, this type of question about use, practice or function is of a different character to those that ask how something is to be named, described or defined. This suits the practices of sound-making very well, as they are most often without need of linguistic representation (as discussed in the concluding chapter).

A comparison between musicking and sounding is instructive. While the most obvious contrast to make with sound might be image, there is also an instructive counterpoint with music. Thinking through sounding suggests that dynamics of vibrations have to be understood before going on to investigate rhythms, for example, or indeed melody and harmony as characteristics of music. Musical and other rhythms can be the periodic inflections "built" from variations in amplitude. For the purposes of sounding, a rhythm can be considered as a *meta*-vibration, in the way that sampling can be considered as meta-music, that is, music made out of music (as discussed, with reference to Mudede 2003, in Chapter Five). Such patterns emerge out of dynamic processes, as when "things fall into place," but from the bottom up, as it were, rather than imposed as structures from above. The dynamics of sound vibrations include not only the intensity or amplitude of a frequency, as with the *sonic dominance* of the crowd's experience of the session, for instance, but also, most importantly, *variation* in these intensities. Rhythms are certainly an important feature of the corporeal waveband of crewmembers' kinetic performance, as discussed above. Such rhythms provide a very fruitful direction of research, notably pioneered by George Bachelard (2000) and Henri Lefebvre (2004) and their *rhythmanalysis*.[103] But whereas rhythms provide stability and continuity through their regularity, at the smaller scale the temporal and temporary diffusion of vibrations makes their actual *identity* one of variation, continually changing from one thing into another – *becoming different*. The variations of sound waves concern transformation, metamorphosis even,

where the movement is that of the whole, as a dynamic patterning or *gestalt*. It is such transformations that it is the crewmembers' job to manage.

Sounding shares many of the characteristics of musicking. Both are concerned with dynamic relationships, such as those between different practices, hearing and listening, listener's impressions and performers' expressions, and so on. Most important, both are concerned with a dynamic range of activities that are not restricted to diffusion through the material medium of auditory propagation alone. But it is also important to distinguish between the two activities. In one respect, sounding is concerned with smaller detail than musicking, as sound is a necessary component of music, one of the points made by possibly the most famous of avant-garde compositions – John Cage's 4' 33" of "silence." At the same time, sounding specifies the unique character of musicking that differentiates it from similar areas of creative activity. Theatre or fine arts, for instance, could also benefit from being considered as scenes of multiple and various components, participants and activities. But sounding is not central to them in the way it is to the Dancehall scene.

In so far as thinking through the vibrations of sounding does address sound as such, it is in contradistinction to both music and musicology. This discipline is rather limited for present purposes, tending to concern itself with classical or avant-garde traditions and music as it is notated, rather than performed or listened to. Adopting an audiological starting point also avoids assuming that popular music is automatically progressive, as Johnson and Cloonan (2008) point out. In a regional context, Torres-Saíllant (2006) identifies this pitfall when he says there is "[an] apparent incongruity between the power that writers and cultural critics ascribed to Caribbean music and the power that the rhythms and their performers have actually exhibited in the modern history of the region."[104] Sounding, by contrast, might be considered as more dangerous than music. It asks more questions, has a greater disruptive potential – because it escapes the bars and all the other confines of systems of musical meaning (as it does, of course, visual codes).

This conceptual move from musicality to audacity is especially relevant where sounding plumbs the depths of the low bass frequencies, or reaches the excesses of intensity at the threshold of what I have described as *sonic dominance*, or *noise*, as Jacques Attali (1985) explores with his pioneering book of that name.[105] Sounding has a weight and depth of attack. It also has conceptual edge, compared to the tamed, more domesticated, culturally recuperated mid-frequencies, or the more firmly theoretically constituted object that "music" is most often considered to be. Sounding has *this*, a haecceity or thisness, or a force of attack and sharpness of edge, something

that Attali maintains, with noise, threatens violence. In part this is because sounding, like musicking, is a social and cultural practice, not a structure expressed as musical notation, an object or product of any kind. Sounding is nevertheless the systematic organisation of vibrations, for which the dancehall sound system provides an outstanding example.

Chapter Two

Sound Systems

This chapter describes how the three wavebands of sounding are propagated. To do this, it takes an entirely practical approach of describing how a sound system works, leaving theoretical issues to be raised subsequently. It starts by identifying the three elements necessary for making the periodic disturbances that are sound waves (as well as those of other kinds). The first element required to sustain sounding is an *instrument* or mechanism for generating the vibrations, such as a pair of vocal cords. The second requirement for sounding is a *medium* through which these waves, vibrations or periodic disturbances can be diffused. A medium may be described in terms of the frequency of vibration it affords, as with the three *material*, *corporeal* and *sociocultural* wavebands of sounding. Equally, a medium can be described in terms of the particles whose periodic movement affords such propagation, such as the gaseous particles of the medium of air. The third element is regular energetic periodic motion – as both the wave dynamics of vibrations themselves, and the *techniques* by which an instrument is used to bring these into play.[1] For the Ancients, breath was the prime mover of life itself, as discussed in respect to the MC's "voicing" in Chapter Seven. This thought continues idiomatically today, when we talk of "breathing life" into something, as with inspiration or aspiration. With death we breath out – we expire.[2] The propagation model includes listening as part of the dynamics of sounding, thereby giving attention to the reverse direction of energy flow, where the instruments are those receptive to vibrations, such as the ear, rather than those expressive of them.[3] Both sound-making and listening require the same three elements (Figure 2.1).

One of the important features of the propagation model is that its three elements are triangulated, that is, they are present together at the same time.

This marks out the mechanics of the propagation model against more simple linear cause and effect relationships. Without an instrument and a medium for expression, movement can only be an abstract idea. Thus it can be said that periodic movement is only *afforded* when there is a medium available and an instrument in operation.[4] Without the movement of an instrument the particles of the materials of a medium would simply remain at rest. As fleshly beings we are entirely dependent on our senses of medium and movement for any perception of our environment. Our incarnation also means that the frequency range of our faculties, though broad, is also finite, excluding the energy field of a magnet, or the digital code of a computer, for instance. Such fields or codes have to be converted into analogue variations, via some visual, auditory or haptic interface, before we sense them. The crowd's intensive experience of sonic dominance is particularly useful in drawing attention to this material presence of a medium, in this case, the gaseous air. It is the intensities, frequencies, disturbances and interference patterns in such a medium to which our faculty of hearing is sensitive. This in turn affords our attribution of such disturbances to the surfaces of "things" and to sounds (as discussed below).

Media
air, water etc

sociocultural   **longitudinal waves**   *material*

Techniques   *corporeal*   **Instruments**
clapping,   vocal chords, trumpet (making)
banging, singing   ear, microphone (listening)
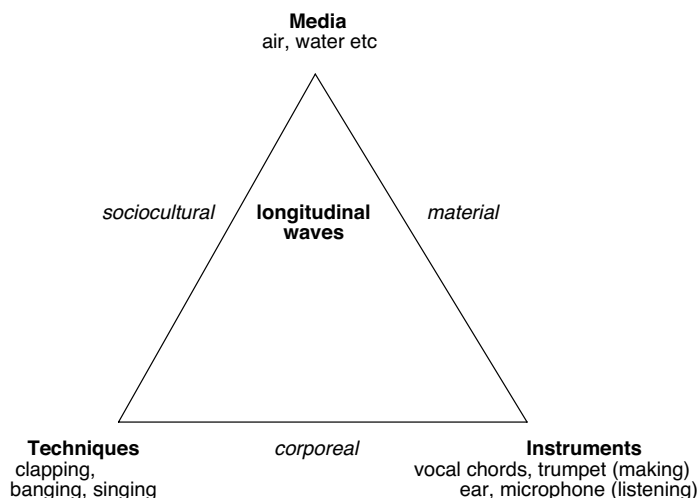
Figure 2.1 The triangulation of the three elements of propagation.

Another important feature of the propagation model is that it describes vibrations at all frequencies and wavebands of sounding. In the *material* waveband, for example, the frequencies may be the mechanical vibrating of a speaker diaphragm cone, the fluid dynamics of a water wave on a pond, or the auditory dynamics of sound propagation through the gaseous air. The

frequencies of sounding also have to include the *corporeal* waveband of the kinetic movement the crewmembers' performance, or the choreography of the several bodies-in-the-plural of the crowd. Further still, the idea of wavebands of sounding also embraces the phenomena of the Dancehall scene itself, Jamaican *bass* culture and how these "make sense" to the crowd, as was described in the previous chapter. This is the *sociocultural* waveband of sounding.

All the frequencies of each of the three wavebands of sounding require a medium through which their vibrations can be propagated, as mentioned above. This is the material-embodied basis for the kind of communication of auditory propagation models. It also contrasts with the commonplace idealised conception of communication as being a property of the mind and therefore immaterial – thus readily likened to light, as with the Enlightenment. Unlike the transverse light waves, longitudinal sound cannot travel through a vacuum. Consequently the idea of auditory wave propagation has to recognise the material qualities of its medium. Vibrations are only sensed as the material of the medium moves, as with the dynamic patterning of the gaseous medium of air molecules when sound waves strike the tympanic membrane of the ear, for instance.[5] It is this material medium that "carries" the signature vibrations, high in volume, and low in pitch, that give the distinctive feel to the auditory sensibilities of Jamaican culture, for instance. In the corporeal waveband the medium is that of the flesh and blood of crew and crowd. With sociocultural vibrations the medium resonates with social and cultural dimensions of the *zeitgeist*, *ether*, or "vibes" of a session; in short – "the media." This expanded idea of media is also supported by how those in the sound system scene understand what they are doing. For instance, Winston "Wee-Pow" Powell, owner of Stone Love Movement, compared his Sound to a music "broadcast system," *superior* to that of the radio.[6] Since the *sociocultural* waveband of Jamaican auditory culture and the sound system scene were described in the previous chapter, this one is devoted to the material and corporeal wavebands of sounding.

What a sound system does is to marshal together *media*, *instruments* and *techniques* as the three elements of a *system* of sounding. This is an apparatus whose purpose is to propagate vibrations across the entire frequency spectrum of the three wavebands (Figure 2.2). So sounding is propagated not only by the triangulation of the three elements of propagation, but also with those of its three wavebands. Sonic bodies are thus always *systems* of sounding, where sound is always in relation to other senses, other vibrations and other things. Systems of sounding operate on the basis of dynamic energies and functioning parts, mechanisms, instruments, organs and other devices – as

MEDIA or waveband	INSTRUMENT	TECHNIQUE
material	sound system "set"	auditory dynamics
corporal	embodied crewmembers	kinetic & haptic techniques
sociocultural	session as institution	Dancehall seasons & cycles

Figure 2.2 The wavebands of sounding and the elements of propagation.

well the experiential intensities that Deleuze and Guattari (1988) emphasise, to the extent of famously considering the body as being without organs. The key sound system crewmembers, the audio engineer, selector and MC, can be considered as sonic bodies, specialists with responsibilities for the sociocultural, material and corporeal wavebands, respectively, but at the same time recognising that these wavebands are never isolated one from another.

INSTRUMENTS

The mechanisms or instruments of sounding are one of the elements that propagation requires. These are considered across the three wavebands, taking Stone Love Movement as the exemplar of Jamaican sound systems. These instruments include the phonographic sound system "set" of equipment in the *material* waveband, the particular body-in-the-singular of a crewmember at the *corporeal* waveband. The kinetic movement of the pebble-thrower's arm together with the pebble itself would be another example. The institution of a particular dancehall session would be an example of an instrument in the *sociocultural* waveband. In short, the instruments of "sonic bodies" occur at every frequency.

Corporeal instruments
In the corporeal waveband the fleshly embodiments of the crewmembers themselves constitute instruments for propagation. Sonic bodies are importantly flesh-and-blood corporeal agents comprising capacities, energies and skills. Each crewmember is to be described briefly in turn, serving as an introduction to the more detailed account of their roles in subsequent chapters.

The owner
Stone Love Movement's owner Mr Winston "Wee-Pow" Powell, a.k.a. Father Powell (Figure 2.3) is in many ways an exceptional sound system owner, in the exemplary fashion with which he performs his role. Describing Wee-Pow thus has a special value for understanding the different aspects of the sound system's operations. As owner, he is also the C.E.O., C.F.O. and manager who controls

literally every aspect of the business, seldom delegating any of his decision-making power to anyone else (as is often the case with small businesses in Jamaica). With WeePow this includes the booking schedule for the Sound, the recording studio, down the to fine-tuning of the set of equipment itself.[7] As the official company profile says, Stone Love's story began with seventeen-year-old Winston saving up for his first set of equipment: "Wee-Pow worked relentlessly at his trade in order to come up with the money that he would use to buy the component set. When he had finally made enough money, Wee-Pow purchased the set and this was his biggest achievement in life."[8] Today, Wee-Pow is a leading figure and authority on the sound system scene and was the founding president of the Sound System Association of Jamaica.

Wee-Pow cuts an impressive figure in person, as I noted one night at Skateland, when the Stone Love set broke down for a second time:

> The crowd and crew move out of the way as Stone Love founder and owner for thirty years Winston "Wee-Pow" Powell, 6'4" in his flowing lilac shirt and matching pants, sweeps onto the scene. There's an empty hush across the amphitheatre of speaker stacks usually full with sound. When even his chief engineer can't sort out the fault, he does it himself. An anxious crew surround the trolleys of amplifiers holding bare light bulbs aloft for Mr Powell to conduct emergency electromagnetic surgery … Then music bursts back to life …[9]

Figure 2.3 Stone Love Movement owner Winston "Wee-Pow" Powell.

As manager and final decision-maker for every aspect of the operation of their Sound, the owner's role encompasses all three material, corporeal and sociocultural wavebands of sounding (as elaborated in the conclusion).

The maintenance crew
The maintenance crew is needed to "string up" the "set" every night. Without them, it cannot "play out." The maintenance crew, or roadies, also occupies a role entirely critical for the Sound's operations, but, as would be expected, with very little status or profile in respect of the crowd. During the session itself they are often to be found guarding equipment against damage or theft, or more likely, sleeping-off the exhaustion of their labours on nearby equipment cases. The maintenance crew's job includes transporting the equipment, unloading and assembling it (Figure 2.4) and then dismantling the set each night. This takes several hours of heavy work.

Figure 2.4 Unloading the speaker boxes, Skateland.

Wee-Pow has adopted an inclusive approach to crew membership. On Sounds other than Stone Love, the maintenance crewmembers are called "boxmen." Like many Sound owners, WeePow grew up in a poor and working-class downtown area; in his case, Molynes Road. But Wee-Pow has been unusually sensitive to the social class divisions permeating Jamaican society. This made him aware of the "inferiority of the boxmen," motivating

him to "change [their name] to the maintenance crew," though they still have to perform "the dirty work to lift the boxes." According to Wee-Pow, this illustrates his "hands on" management style:

> On other systems the boss wouldn't do that [dirty work], but I do that. I set example around here. When we just started out we didn't have help, so you just have to do it, so we just go along in the same trend. So today I still do everything. I go up there and lift my box and roll my wire and do everything. I don't have to do it but I still do it. Right now I'm doing an interview with you, but the work still have to carry on, so every now and then I will just pop in to see where the break down is.[10]

The extent of Wee-Pow's involvement in all aspects of his Sound, which I witnessed on several occasions, might help explain why Stone Love is the longest surviving of Jamaica's sound systems. His inclusion of the maintenance crew as *bona fide* crewmembers is consistent with a theoretical approach that gives the widest possible definition of what constitutes performance to include every necessity required for the performance to take place, rather than only those on stage in front of the audience. This follows Christopher Small's (1998) concept of musicking.

Audio engineer, selector and MC
These are the three crewmembers to whom separate chapters have been devoted. The engineer's job is to maintain and tune the sound system "set" of equipment. Also an engineer travels with the Sound when it plays out and is responsible for its "stringing-up," that is, wiring it together (Figure 2.5) and repairing breakdowns (see Figure 2.6). Although vital to the functioning and auditory quality of the Sound, the audio engineers keep a low profile on the scene. This is not the case with the selector, whose role is to choose the records, cue them up (using headphones) and mix between them. The selector's specialist phonographic re-performance techniques include cutting and mixing. Selectors are sometimes known for the style or styles of music they play, from "Rare Groove" and "Golden Oldies" to their exclusive "dubplate specials." Finally, the MC (Master of Ceremonies) on the microphone "chats" to the crowd. The selector and the MC are the crewmembers most in the ear, if not the eye, of the crowd – as most often the performance area is not illuminated in any way (as described in Chapter Five). On some music scenes these two are often amalgamated into the single one, the DJ.

Figure 2.5 Stone Love engineer Winston "stringing up" the set.

Figure 2.6 Running repairs following a breakdown of the Stone Love set at the Skateland session.

The crowd

It can be said that the dancehall session *is* the crowd and that a sound system *is* its "followers," as they are called. Each member of the crowd has the current hit songs in their head long before the start of the session. They all have their tastes, loyalties, memories, personal associations and expectations, depending on their knowledge of the selectors on the bill, the sound system, venue and so on. Further to the hardcore "followers," the crowd itself is composed of different sub-groups of dance crews, local celebrities, regulars and Dancehall Queens (Henriques 2007b). Indeed, the dancehall crowd provides a dynamic example of a multiple whole, for which many-is-one and one-are-many. Their participation in the session includes not only dancing, eating, drinking, kissing, smoking weed, not to mention all manner of "performances" from "modelling" – that is to say showing off – to "smadi-fication," literally somebody-fication (Nettleford 1969).[11] The role, identities and experience of the crowd in the session are subjects for further research.

Sociocultural instruments: a session

Besides the corporeal instruments of the crew, a single session should be

considered as a sociocultural instrument of sound-making and listening. This is distinct from sessions-in-the-plural, which are more appropriately considered as a component of the sociocultural *medium* of the Dancehall scene, as described in the previous chapter. The sociocultural instrument of the session is afforded both by the material instrument of a particular physical *space* that has a specific geographic location, and by the *corporeal* instrument of a social *place*, where the individuals come together to become the crowd. As ever, this is an expression of the triangulation of sounding.

Material instruments: the "set" of equipment
But the kind of mechanisms and instruments with which the sound system has been more readily identified is the "set" of equipment, as indeed has been the case in literature (outlined in the previous chapter). The "set" is the technological hardware required for auditory propagation, as much as the crew's skills at using it as an instrument for their work. A set assembles together a large number of component parts including amplifiers, pre-amps, f/x boxes, equalisers, crossovers, mixers, microphones, cables, driver units, speaker bins, record and CD decks, mixing consoles and numerous other gadgets and devices. These are what the maintenance crew unloads and erects every night the sound system "plays out" (see Figure 2.4). This technology was developed largely in the 1970s when a second turntable, cross-fader mixer and headphones for the selector were introduced. Whereas a sound system as a whole is an apparatus for "building the vibes," that is, propagating a range of frequencies, the sound system set of equipment has the material waveband as its special concern. It is this that the audio engineers fine-tune (as detailed in the next chapter). The instrument of the set is what propagates the auditory impact by which a dancehall session is defined as such.

More specifically, a sound system is a *phonographic* instrument, as identified by novelist Ralph Ellison (1947) and more recently elaborated by Weheliye (2005). It generates sounds by the re-production, or re-presentation, or re-playing of already-recorded music, as with a hi-fi system, CD or MP3 player, rather than as a "live" production. Stone Love engineer Horace McNeal put this crucial point to me as follows: "With a sound system you're *repro- cessing a product that has been processed already*. That's the big thing about it."[12] This is indeed most important: each sound system gives its particular mix to the already-mixed record (but without the individual pre-mixed tracks that are available to the music producer in the recording studio). Unlike a P.A. (public address) system or stage show set of equipment, the absence of a "live" performer concentrates attention on the qualities of sound itself, as distinct from those of the original musical performance, or the production or

post-production of the recording. This also makes the crew's re-performance techniques particularly important, especially as they are *acousmatic* (Chion 1994), that is, largely invisible to the crowd (as detailed in Chapter Five).

One of the features of the material instruments of the sound system set that make it particularly suitable as the subject of investigation is its sheer physical scale, with the speaker stacks towering up into the night sky (see Frontispiece) and the bass speaker bins often large enough for members of the crowd to climb inside. This makes a set an accessible object – notwithstanding the difficulties of negotiating research access (as described in Chapter Four). It can also be added that the global geographical spread of sound system culture, such as for example at the Notting Hill Carnival in London, offers further research opportunities. Another factor associated with its size is that sound systems often employ retro technologies, as well as contemporary ones. Thus the exposed physical form of a sound system's different electronic and electro-mechanical component parts, such as turntables, mixers, extenuators and so on, makes their functionalities distinguishable.[13] With current electronic technologies, on the other hand, form no longer follows function, but rather tends to be microscopically simulated within identical anonymous grey boxes.

The sound system set can also be contrasted with most contemporary consumer technologies in that it has evolved gradually over decades by means of a continuous informative feedback loop with users and participants. This is a "bottom-up" development, more akin to a natural and organic process rather than one of manufacture. As with the music itself, this ensures that each step of technological development is an incremental one, an example of this being the introduction of a second turntable to the set. Both technological and cultural progressions – the latest hit sound, artist or dance craze to sweep the island – consolidate and innovate in equal measure: preserving the tradition of what had gone before and at the same time introducing something new and different. By contrast, contemporary consumer electronics tend to be launched onto the market as new products, to replace older models, at a particular moment, as with games consoles or mobile phones, for example. These tend to be developed in isolation from their actual users, consequently requiring market testing, focus groups and so on.

Thinking through sounding takes the set *within* the session as one of its objects. The set has to be considered as a "tool of the trade," or an instrument, mechanism, or means of production – in so far as it is what the crewmembers require in order to perform their roles of "building the vibes" of the dancehall session. From the selector's or the MC's standpoint, the set is merely the means to carry across his or her voice or music to the crowd. Such instruments require no knowledge on the part the user, in the same way that a vehicle requires no

understanding by its driver to reach its destination – unless it breaks down. Its functionality tends to be invisible and entirely taken for granted. For the audio engineer, on the other hand, the set itself demands expert knowledge, time and effort to maintain at its best. As with a hand-made musical instrument, every set is different, with distinct and unique auditory qualities, and the audio engineer must be in tune with or attuned to distinctive characteristics of each person's voice, especially performers such as the MC (as discussed in Chapter Seven). By contrast, many other approaches assume technologies to exist prior to, or isolated from, their use, and thus are concerned to establish their social context (as discussed in the previous chapter).

To summarise, with the sound system, mechanisms and instruments are required at every waveband (Figure 2.7), as discussed in the previous chapter (see Figure 1.10). One of the implications of the foregoing discussion is how important it is that the idea of instruments themselves should not be restricted to material "technologies," as they are at the same time invariably corporeal and sociocultural. As Marcel Mauss (1935) reminds us in *Techniques of the Body*: "The body is man's first and most natural instrument."[14] Techniques invariably start as embodied practice, before being mechanised; that is, their periodic movement is captured and congealed as technology.[15] This takes us to the long history of debates on *techné* that unfortunately have to await exploration in a further research project.[16]

SCENE (sociocultural)
Dancehall scene, auditory sensibility, bass culture

instrument of
sound system

CREW (corporeal)
audio engineer,
MC, selector et al

SET (material)
decks, amps,
phonographic equipment etc
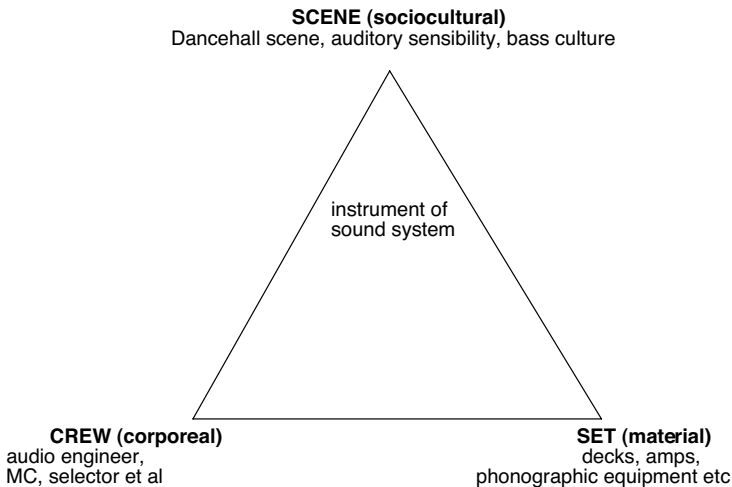
Figure 2.7 The instruments and wavebands of the sound system.

MEDIA

Turning from the instruments to the dynamics of sounding, this always involves, at whatever frequency, the dynamic patterning the relationship between the particles of a medium. In the material waveband the frequency or pitch of a tone is, of course, the rate, or speed, of such vibrations. The impact of a pebble thrown into a pond provides the dynamic energy for the ripples across its surface, giving a slow, large-scale example of such a longitudinal wave movement.

Periodic movement in the *sociocultural* waveband would be the changing seasons and cycles of the Dancehall calendar wherein the meaning and signification of the Dancehall scene "makes sense" to its participants. Each of these three frequency wavebands is described in turn. The central claim of the model is that the longitudinal waves of sound, as distinct from the transverse waves of light, can describe propagation at all frequencies. Furthermore, the periodic movement of sounding is not only productive but also receptive. The propagation model pays attention to listening, the sensorimotor affects of sound and even the *thinking* of sounding. So its resonating qualities also play *philosophically* in the way Nancy (2007) elaborates with respect to timbre (as discussed below).

The sheer size and power of the sound system set helps to draw attention to the dynamic, transitory and temporary nature of the auditory medium at the heart of the session. It is, of course, this sounding that produces the sound system's bass signature, along with the entire range of other audio frequencies. This fact has been literally amplified and turned into an audio art form by the engineers. Over the years they introduced an entire repertoire of sound f/x, now emblematic of the auditory atmosphere of the session. Indeed the role call of crewmembers should include the f/x man, whose job is to operate a special f/x console, next to the decks, for this purpose. While it is the dynamics of sounding that is our concern here, the ephemeral nature of the auditory medium makes one of the other elements of sounding, that is, the solid object instrument of the set, methodologically particularly useful.

With each of the wavebands of sounding, a full appreciation of the dynamics of vibration suggests that the idea of *sound* as an "object" has to be dismantled. The idea of sound has to be rebuilt, expanded, energised and intensified, *versioned* as it were, to become capable of taking into account the range of activities, persons and technologies of the apparatus of the sound system. In this vein, the idea of the activity, *sounding*, is developed, as inspired by Christopher Small's (1998) concept of musicking, discussed in the previous chapter. Sounding expresses change, intention and agency; for

example, "sounding off" in anger, or the "sounding out" of an exploratory methodology. From this, the idea of sounding departs from the traditional sender–receiver communication model, as discussed below. If sound itself is considered as an activity rather than an object – that its recording does indeed become – then it cannot be packaged up and sent, received, trafficked or transported from one place to another; it has to be generated. In fact, sound should never be considered as an object as such. Sound is only ever an effect, needing continuous propagation. The ephemeral, transitory and dynamic characters of sound waves emphasise this. As Lastra points out, with sound it's an issue of *re*-presentation rather than representation.[17] Sounds have to be re-presented rather than represented, re-produced rather than reproduced, though these dynamics may be "captured" as a music product, for example, with an analogue trace or a digital code.[18]

Auditory dynamics are, of course, time-based, as is evident, for example, in the way sound played backwards is not recognisable, whereas a series of images are. Conventionally the auditory qualities of such dynamic patterns are difficult to describe, so it is the mechanisms and processes that produce them, such as with "the sound of a creaking door" for instance, by which the auditory tends to be identified. Both musical notation and phonetic writing work in this instructional manner. Similarly, a recipe book does not give an account of the taste of a dish, so much as how to prepare it; the ingredients, cooking temperatures and so on. Similarly again, the idea of *sounding* does not attempt to describe sound itself, but concentrates on the media, instruments and techniques of its production and reception.[19]

With the special place that sound has in Jamaica's auditory culture, it is no surprise that its auditory qualities and characteristics, as distinct from its musical ones, are not only at the centre of the dancehall session, they are also at the creative heart of Jamaican music, most notably and influentially in Dub.[20] As with the phonographic reproduction of the music in the session, Dub music pioneered another re-processing of already recorded music – but in the studio, often by the same audio engineers who designed and built the sound system sets of equipment. Similar re-performance techniques, such as reverb and "drop out," are employed in both settings. The studio production of Dub, Reggae and Dancehall music is built and tailored for playing on a sound system to a dancehall audience. Moreover, with Reggae Dub music specifically, not only is sounding a verb, it is re-verb, as with the reverberating echo, re-sounding, or the redoubling of the vibes that marks the sonic signature of the genre.[21]

The crowd's experience of the sound of the dancehall session calls for the processes of auditory mechanics to take centre-stage. The "vibes" of the bass

culture impel us to start *in medias res* – in the thick of it. This is more than simply giving sound the kind of "respect" that the crewmembers undoubtedly do. It is also doing more than expressing the excitement, energy and excesses of the Dancehall street culture itself. Thinking through the wavebands of sounding engages us with the dynamics of vibrations of the medium of sound itself. It is important to emphasise that the propagation model addresses vibrations as such, rather than only auditory frequencies. Thus the range of oscillations varies from high-pitch tweeter-delivered sounds at one end of the spectrum, to the seasons and cycles of activity on the Dancehall scene on the other.[22]

Auditory dynamics
The key motif for thinking through vibrations is that of the longitudinal *wave* itself, as the dynamic movement or recursive patterning of the particles of the medium. Sound waves are *periodic* disturbances, that is, regularly repeating patterns. The first person credited with describing sound as waves is Pollio Vitruvious (circa 80–15BC), the Roman neo-classical architect. He considered the voice as a flowing breath, and hearing as contact with this flow:

> It moves in an endless number of circular rounds, like the innumerably increasing circular waves which appear when a stone is thrown into a smooth water … but while in the case of water the circles move horizontally on a plane surface, the voice not only proceeds horizontally, but also ascends vertically by regular stages.[23]

A wave's periodic movement, kinetics, dynamics or energies deserve particular attention if only because the paradigms of Western thought, from its origins with the pre-Socratic philosophers, have tended to favour stasis rather than change. This follows Parmenides' idea that change is an illusion, rather than that of Heraclitus for whom the flux of movement was the ultimate reality.[24]

In the material waveband, periodic movement can be expressed as oscillations, vibrations and waves as the dynamics of forces, intensities and mechanical movement (Figure 2.8). With sounding, the condensations and rarefactions require a medium for diffusion, in the way that the propagation of light does not. The longitudinal waves of auditory vibrations are in fact periodic disturbances, or compressions, that are diffused through the gaseous medium of air, though also liquids and solid objects serve as such. Without the vibrations of the medium there would be nothing to hear. This is most helpful to describe exactly what these propagation waves are, in an entirely conventional scientific manner. At any frequency, waves are defined in terms

Timbre (sound "colour")
sensing

sound waves

Frequency (pitch)   **Amplitude** (loudness)
counting   *sampling*
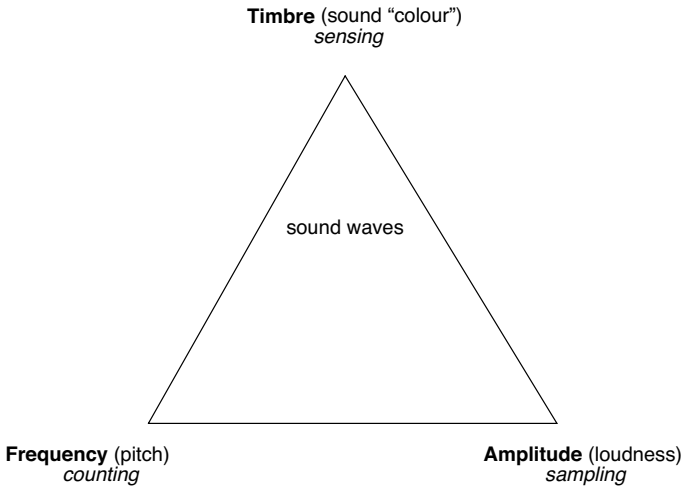
Figure 2.8 The three dimensions of a longitudinal wave as qualities.

of three features, described below.[25] First, there is *amplitude* or loudness of volume. Second, there is the *frequency*, pitch, or vibration wavelength. The third characteristic of waves is their *timbre*, or "sound colour," which is a combination of the amplitudes and frequencies.

Amplitude
For the crowd out for the night, one of the distinctive features of a dancehall session is certainly the loud volume of the music, as the term *sonic dominance* describes. This sounding out of the session acts as an auditory beacon, pulling in the crowd, as moths to a light, as it were. A session is easily heard from a distance of several city blocks, or many miles across the valleys of the Jamaican countryside. What pulls the crowd towards the sonic event of the session is their anticipation of its visceral sensory pleasure – the most powerful music machines in the world vibrating every organ of the body. The crowd experiences such cellular intensities as the sheer immersive weight, liminal force and substantive presence of the sounding – impossible to escape or deny. The audible becomes haptic and the intangible tangible. This fills brim-full the "bowl" of the dance-floor between the stacks of speakers that would normally be considered only as an empty "space" (see Frontispiece).

   In the dancehall session particularly, listening depends not only on the ears, but on the entire haptic sensory skin surface of the body, as one hard-core

Dancehall follower was quoted as saying. Such immersion of the whole body inside the sound may be contrasted with the insertion of music into the body when listening with in-ear headphones, for example. These amplitudes have to be expressed as continuous *analogue* variation. Such intensive values are measured (rather than counted) in decibels of sound pressure, ranging from the threshold of hearing to about 130 dB (giving an incredible sensitivity of human hearing between one billionth of atmospheric pressure to 10^{13} times this, that is $10^{-12} - 10$ watt/m^2).[26] The term "massive" for the dancehall crowd, as is often used on the scene, resonates with these issues of the materiality of sound.

Frequency

The second characteristic of material wavebands in the dancehall is their frequency or pitch, that is, the distance between peaks. These are *counted* in time (rather than measured) in Hertz, cycles per second, from the lowest for human hearing at about 20 Hz to the highest at about 20 KHz cycles per second. In the dancehall these are the bottom-end, low frequencies of a *bass* culture, discussed in the previous chapter. This frequency range is distinct from the mid-range or top of the listening spectrum that iPods and other personal earphone listening technologies favour. As Dennis Rowe, owner of the long established UK Saxon sound system told me, the music being listened to in the 1970s "was all treble and mid, it had no bass to it."[27] A "treble culture" (Marshall 2010) has since returned with the technical limitations of mobile device earphones for delivering lower frequencies effectively. In the mechanics of auditory propagation, the bass requires the most amplifying power and is the least directional of frequencies, compared to the mid-range or top whose directional source can be identified much more easily.[28] The technology of the sound system set has been developed specifically to accommodate these low frequencies, with the speakers designed to handle not only bass, but also to withstand sub-bass frequencies.[29]

Timbre

The third feature of vibrations, in addition to their loudness and pitch, is their *timbre*, or sound colour, as it is also called.[30] Timbre is a particular quality of a sound that make it distinctive – its harmonics, or the mixing of amplitudes and frequencies described in terms of the dynamic characteristics of vibrato, attack–decay envelopes, overtones and so on. Timbre has never been a popular topic amongst musicologists, principally because it resists notation. But as long ago as 1822 Joseph Fourier found that all sound waves, however irregular and complex, were composed of sine waves (or simple waves).[31]

Each particular type of instrument has its own "tone" (as distinct from its frequency pitch), such that, at the same pitch and the same loudness, the sounds of a trumpet and a violin, for example, are experienced as completely different by a listener. The term *timbre*, as indicated by the synaesthetic idea of sound "colour," by which name it is also known, together with resonances and overtones to the fundamental frequency, make it a complex and subtle feature of audition.

Besides amplitude and pitch, timbre makes a vital contribution to the crowd's experience of the *sonic dominance* of the session. Timbre involves harmonics. In *Listening*, the French philosopher Jean-Luc Nancy explores the subtleties of timbre. There is no amplitude or pitch, he tells us, "without timbre (*just as there is no line or surface without colour*). We are speaking, then, of the very resonance of the sonorous … Timbre is the resonance of sound: or sound itself."[32] In short, timbre is the very stuff of sound. It is also important to note that the triangulation of timbre with frequency and amplitude introduces another kind of relationship *not* found in the triangulation of rhythm, melody and harmony in music, or the height, width and depth in visual space. Timbre is not an irreducible element in the manner of the three dimensions of music or space. Instead, timbre is a *mix* of amplitude and frequency. To understand what is readily apparent between the same pitch and volume of a tone on two different musical instruments, auditory perception has to be included. This is our *subjective* experience of – and participation in – sounding. Thus it can be said that sounding triangulates the objectivity of amplitude and frequency with the subjectivity of timbre. This might go some way to explaining the involving, connective and associative characteristics of music that are so widely acknowledged.

In his discussion of timbre, Nancy links this quality of sound with specifically percussive reverberations of the skins of drums and other instruments, claiming that the origin of the word timbre lies in the "Greek *tympanum*, that is the tambourines of orgiastic cults."[33] With sound doubling back as the echo of itself, Nancy develops this into a conception of the *resounding* subject, "[a] sonorized body [that] undertakes a simultaneous listening to a 'self' and to a 'world' that are both in resonance."[34] This emphasises the intimacy between sound and self.[35] So to the expert discriminating ear, each individual example of each instrument is distinctive, as with different Stradivarius violins, for example, or indeed Kingston recording studios, as Reggae singer Beres Hammond pointed out to me.[36] In a similar manner, the prosody of each person's voice has a distinctive tone, recognised, for instance, every time we say "It's me" to someone to whom we are known (as discussed with reference to the MC's "voicing" in Chapter Seven). Of the three features of vibrations,

expressed in Figure 2.8, timbre is the most intimately material. At same time, its qualities are the most complex, subtle and ethereal.

Exporting the three features of vibrations from the material waveband of sound waves to other frequencies, it becomes possible to *repurpose* them to include the social, cultural and bodily features of the street culture (in a manner entirely consistent with how Jamaican street culture itself operates). In this way, the propagation of sound waves serves as a model for an entire range of vibrations, in addition to those within the auditory spectrum.[37] This is not only infra and ultra sound, as such, but other types of periodic movement, in other media. For instance, *amplitudes* are used to describe the emotional intensities of sensory experience. *Frequencies* are used to describe cycles of activity, periodicity, speed of repetition and rhythmic pattering, for example. *Timbre* is used to describe the evaluative judgement of a tone, for instance.

Medium and periodic motion

If auditory vibrations are to be given this kind of theoretical weight, it becomes important to audit the material medium of these frequencies more closely. For this it is useful to draw on the largely forgotten early work of *gestalt* psychologist Fritz Heider, best known for his later attribution theory (1958). Heider's seminal essay *Thing and Medium* (1959, first published in German in 1926), explored "the objective physical aspect" of media that made them different from objects. Heider claimed: "The question has never been raised whether something that serves mainly as a mediator has not, *from a purely physical point of view*, characteristics which are different from those of an object of perception."[38] One of the ways in which Heider's project is relevant to thinking through sounding is his attention to the physical medium or media on which our sensory awareness of our environment depends. This, appropriately for the dancehall session most commonly described in terms of its "vibes," Heider analyses as the dynamic vibration of media. But this kind of medium has a density or body to it, it is a viscous connective tissue of flavours, tones and textures, rather than being transparently thin. The cultural intensities of an atmosphere or ambience, for example, can be described as "thick enough to cut with a knife." The crowd's visceral immersion in the *sonic dominance* of a Reggae dancehall session, of course, also draws attention to the importance of the auditory medium of the air.

A second respect in which Heider's work is relevant to thinking through vibrations is the way in which things, or objects, have a patterning effect on their surrounding vibrating media, as with the striking of a drum causing sound waves. It is the diffusion, transmission or propagation of these patterned vibrations, received by an appropriate sensory apparatus such as the

ear, that make perception possible. As Malle and Ickes put it: "Heider argued that things shape media and not vice versa, so the perceptual apparatus must reconstruct things from their effects on media, and ultimately on the senses."[39] So Heider's idea of medium reverses one of the most widely held tenets of the psychological and communications theories, that is, media shape things, and reality is socially and psychologically "constructed."[40] For Heider, the medium acts as a resonating chamber, transmitting echoes of the original object, in fact, not unlike the reverberations of a dub mix.[41]

Heider's emphasis on the medium has been a major influence on James J Gibson's (1966, 1979) ecological psychology and his concept of the "information pick-up" that occurs when perception is considered as an ecological *system*.[42] It also informed Kurt Lewin's (1952) field theory and Heider's (1958) own social psychology of attribution. Furthermore, Heider's conception of medium is entirely consistent with Michel Serres's (1982) idea of *milieu* as the place of connection, mixing and mingling.[43] This has the characteristic of being not only ubiquitous, but specifically having proximity, emblematically, with the parasite (as discussed in Chapter Six). It is precisely this proximity, or contingency, between medium and object that Heider describes as "the close coordination between the two." In this way, he continues, "The light rays which meet the eyes are messengers from the object and represent it."[44] As Malle and Ickes put it: "When we look at a house we say, 'I see a house,' not 'I see sunlight,' even though the sunlight is the necessary medium by which we are able to see the house."[45] Travelling without a medium, that is, across a vacuum, light itself is invisible, until it is absorbed or reflected by the surface of an object, such as the air itself when thickened by smoke particles. As is often the case, sound draws attention to features of communication that are often overlooked or occluded by visual metaphors.

In this way, thinking through the media of sounding suggests that sounding *covers* periodic movement in the way that lighting covers surfaces. More precisely, sounding covers movement with amplitudes, frequencies and timbres, in the way that lighting covers the length and breadth of screens and surfaces with the patterning of chrominance and luminance. Periodic movement is what makes sound, as with the vibration of air molecules, required for a musical tone or the noise of a chair leg scraping across the floor, for instance. Sound also often makes embodied movement periodic, or more simply bodies move, as with the bass line of music that impels you "get up and dance." Furthermore, by covering movement, sounding also covers time. Periodic movement "takes" time, rather than being instantly present, in the way we might think of a painting as being. The word *covers* has a resonance to it. It includes both covering-up, as in hiding, and covering-over

for protection, as with dustsheets, profiling the distinctive shape of furniture otherwise unseen, or the bandages wrapping H G Wells' invisible man. Similarly, Heider's medium covers and then transmits the form of the objects it surrounds. The term *covers* also evokes the Reggae music practice of making numerous cover *versions* of a single track. It is also consistent with Snead's (1981) concept of *coverage*, literally, as an insurance policy that all cultures take out against the accidents and surprises that could disrupt their worldview as being immanent and continuous.

In the sociocultural waveband, where sound systems and the Dancehall scene have their significance and meaning, periodic movement is also all-important. This is expressed even in the name of many of the Sounds, not least Stone Love *Movement*, where it can be taken as a boast of influence, popularity and even social change. Generally, in the sociocultural waveband, periodic movement expresses evaluation, judgement and meaning, becoming more figurative, as with the movement of thought, for example. Indeed, with the sociocultural waveband, sounding becomes a medium of thinking itself. In this way the vibrations of sounding become reflexive in two respects, describing both how the crewmembers understand what they do, and how the propagation model understands this. Concluding on the sociocultural waveband, there is a single important point to draw out. This is to suggest how the dynamics of propagation could work as a model for the processes and practices of communication. This is to be achieved by contrasting periodic movement, that is, propagation or transmission, with linear movement, that is, exchange or traffic.[46]

Vibrations model periodic movement as an energetic *diffusion of a pattern through a medium*, as with longitudinal sound waves, which are distinct and different from the transverse movement of electromagnetic waves such as light. There are several ways in which the periodic dynamics of sound waves may be contrasted with more familiar kinds of movement such as circulations, rotations and coming and going from one place to another. Most often linear movement is taken to be that of the *position* or *displacement* of an object, as with a projectile, or the flow of a liquid from one place to another. The social sciences have been concerned with the circulation or trafficking of materials, commodities or information, as Arjun Appadurai has researched,[47] and as in Stuart Hall's (1980) *circuit of culture*,[48] repeating routines and rituals, as well as social movements and economic mobilities.

The longitudinal waves of sound, by contrast, are an energy pattern propagated through a medium, rather than transported *with* it or without it. Their periodicity, excitement or oscillation is on the spot, so to say. With such transmissions it is only the relative position between the particles of the medium that changes, before elasticity allows a return to equilibrium, ready

for the next disturbance. Audition is *intrinsically* dynamic – only ever an effect. Sound, as distinct from the product of recording, is only ever an event rather than an object. As Stephen Connor puts it: "All sound is disembodied, a residue or production rather than a property of objects … We hear, as it were, the event of the thing, not the thing itself."[49] Similarly affect can be considered "high maintenance," demanding continual propagation to "re-present" a transitory and ephemeral pattern.[50] What we hear or feel is only ever the trace which that periodic movement leaves behind: its echo.[51]

In terms of duration, propagation may be distinguished from conventional theories of communication that assume the latency of linear progress form one point to another. Instead, with vibrations temporality becomes a succession of moments that make up the continual present of duration, as with a musical melody, for example. In terms of space, the propagation model assumes the presence of both parties to the communication, rather than the gulf separating sender and receiver that precipitates the need for "communication" between them in the first place. In this way the propagation model is not concerned with latencies or distances, but rather with immediacies and intensities. Finally, with vibrations themselves, as distinct from their use as a medium, there is no distinction between signal and noise, or medium and message. In short, an auditory epistemology undermines the traditional distinction between knower and known. That which can be known is only ever incomplete. It remains in the process of becoming known – a horizon, never to be reached. What the periodic movement of the sociocultural waveband of sounding offers is a way of knowing – an idea of style.

TECHNIQUES

In the corporeal waveband this movement is best described as *technique*, defined as *ways of moving*, such as the crowd's choreographic performance.[52] These techniques are also embodied in the kinetic rhythms of individual crewmembers-with-instruments, such as the selector on the cross-fader and turntables, or the MC on the microphone, for example. Their fleshly embodiment can be considered as both the medium and the instrument for these dynamics, often combined with other technological ones. The skilled performance techniques of the crew, such as, for example, their *monitoring* and *manipulating* practices, is detailed in subsequent chapters, but can be outlined here. Other kinds of corporeal techniques are, of course, expressed *rhythmically*, most notably with the dancing of the crowd and even that of the selector and MC behind their turntables. Though each crewmember has a

specialist role, with responsibility for a different waveband of sounding, these wavebands of sounding remain inseparable.

Periodic movement in the corporeal waveband may be contrasted with that of the auditory dynamics of the material waveband. With naturally occurring sounds or noises, or an Aeolian harp, for instance, the "natural" physical movement of the wind operates the instrument, without any technique as such, further to that congealed in the skilled design and construction embodied in the instrument itself. But instruments for playing or replaying music usually require specific skilled performance *techniques*, rather than simply a conjunction of forces and mechanics that make a noise. Technique can be described as *fine-tuned* periodic movement – a *way* of moving, a style, and a sensibility, called "swing" in Jazz, for example. Many performance techniques are functional and practical ways of doing the kind of things that all or many people have to do, rather than specialised rituals. Yet, at the same time, they often express a distinctive personal style and tone by which we recognise an individual by the intonation of their voice or their gestures or gait. It is these embodied performance skills techniques around which the entire investigation turns, as with the selector's dextrous techniques – "juggling" records, for example (detailed in Chapter Five).[53] These skills require considerable amounts of practice and talent, most often within a particular cultural tradition. They have to be learned, rather than being innate, habitual or automatic, though the better they are learned the more natural they appear to be.[54] As well as sound production, there are also techniques of sound reception, that is, *techniques of listening* (as detailed in Chapter Four).

The phonographic conventions of the session demand that the crew re-perform already recorded music tracks, rather than allowing them the expressive possibilities of "live" musical performance. Consequently the skills and performance techniques of the sound system crew have to stand out as powerful, exciting and memorable to make an impression on the crowd – especially as selectors remain in darkness, unseen by the crowd throughout the night. Restricted in these ways, the crew's skilled performance at Sound system competitions or "clashes" with rival Sounds is where the selector's skills are "tested" against the performance of others to build their profile. Indeed, sound system selectors are the "brand name" for a sound system and advertised "crowd-pullers" for a particular session. Similarly the Dancehall Queens, crowned at national and international contests, are the leading personalities on the scene.

Finally, having outlined the elements and features of propagation across the media of all three wavebands of sounding, we can consider what this model might imply for an understanding of communication. As a

propagation apparatus, the sound system triangulates what are already the triangulations with the wavebands of sounding, the elements of propagation (see Figure 2.1) and the three dimensions of waves (see Figure 2.8), as is expressed in Figure 2.9.

In this, the configuration of any particular sound system session would
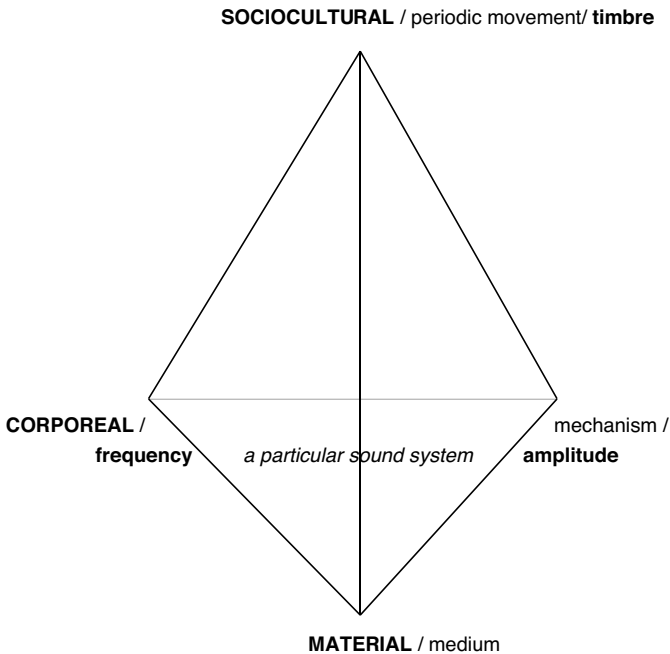
Figure 2.9 The triangulation of wavebands, elements of propagation and features of sound waves.

be expressed as the base of the pyramid. These kinds of relationships of reciprocation and affordance may be contrasted with the conventional ones of transmitter, propagation and receiver, most often used to describe sound. Another is that of sender, channel and recipient, commonplace in the transport model of communication theory[55] or McLuhan's dyad of medium and message. With auditory propagation, this would routinely be considered as the exchange of a sound object (albeit a wave), between the "active" sound source and its "passive" reception for hearing. So the transport model, like the stimulus–response model of behaviourism, is entirely mechanical, with only two kinds of element required – the instruments for transmission and reception on the one hand, and the medium and message on the other. What

is missing from such mechanical dyads, of course, is the third term of the human context, medium, intension or practical *use* of the instruments, or, put another way, the content or meaning of the message. It should be noted that such subjective–objective or internal–external dichotomies and absence of meaning in the analysis, are precisely what the triadic propagation model endeavours to challenge (as discussed in the final chapter). By contrast, with the periodic movement of *techniques*, the triad includes what would be considered as "subjective," "internal" and evaluative considerations, as well as mechanical and "objective" ones. In this way, the propagation model orients and sets the tone for the investigation of the skills and techniques of audio engineer, selector and MC in the chapters that follow.

The Audio Engineer and the Material Waveband

Chapter Three

Fine-tuning

Jamaican sound system engineers are sonic bodies; figures of sound; true audiophiles; and connoisseurs of vibrations, just as wine tasters, perfumers or fine artists are connoisseurs of their respective palettes. Jamaican audio engineers are quite possibly the world experts in sound, albeit their instrument is a *phonographic* one for playing already-recorded music. Sound system audio engineers have played a key role in the shaping of Jamaican sonic culture, though their contribution to the actual sound of the sound systems remains largely unsung. They are the ones who often also design and build Jamaica's recording studios as well as its sound systems. As Winston Blake, owner of the Merritone sound system, put it, "Without sound systems there would be no Jamaican music."[1] This chapter draws on numerous in-depth recorded interviews with several of Jamaica's most important audio engineers, including Denton Henry and his one-time apprentice Horace McNeal (Figure 3.1), each of whom have a long association with Stone Love Movement. Also important for the story are the sound system owners who are engineers in their own right, that is Winston "Wee-Pow" Powell of Stone Love (see Figure 2.3) and DJ Squeeze (a.k.a. Lenworth Samuels; see Figure 5.3), who owns and runs a radio station and a mobile sound system truck. So far I have not come across a single female sound engineer in Jamaica, though there are some leading female promoters and performers.[2] While issues of the gender and sexuality of Dancehall artists, dancers and patrons have received some attention,[3] this has not included discussion on the "gendering" of audition and musical production itself. This is an important issue for further research.

The history of Jamaican music is comparatively well known, thanks to several publications, numerous compilation CDs and some very informative websites.[4] This history has been told with various inflections; most often in terms of the key artists, such as U Roy, Bob Marley, or currently Elephant

Figure 3.1 Horace McNeal, Stone Love Movement chief engineer.

Man.[5] Other histories have included the role of record producers,[6] record labels, or musical influences such as American R&B or Jamaican folk forms. When this history does mention sound systems at all, the sound engineers themselves seldom get very much attention, even in Bradley's (2000) account, though Veal (2007) is an exception in this respect. But most often where such histories do mention sound engineers, as Stolzoff does with the major contribution of the inventor of the sound system, Hedley Jones, these accounts tend not to give very much attention to the actual technologies of the sound system themselves.[7]

The engineers' story begins in 1947 when Tom the Great Sebastian became probably the first sound system owner proper – by commissioning Hedley Jones to build a special amplifier, as discussed in the next chapter. The big sounds of the 1960s included Coxonne Dodd's Downbeat, Duke Reid's Trojan, Prince Buster's Voice of the People, Winston Blake's Merritone and Bunny Goodison's Soul Shack. In the 1970s and early 1980s, Gemini, Killamanjaro and Stone Love followed the pioneer Sounds of the earlier decades. Also the renowned record producers of the 1970s – namely Duke Reid and King Tubby – built their recording studios and were also sound system engineers.[8] This further evidences the strong link between the sound system and the sound of

Jamaican music itself. In fact, the sound system engineer, next to the owner and the selector, is the person who has most influence in defining what makes a sound system what it is, and what distinguishes one from another. This relationship between owner and engineer can be the partnership on which the sound system is founded and sustained. With the Stone Love Movement this was very much the case between Wee-Pow and both his engineers, Denton Henry and Horace McNeal. Horace told me: "I've been with Wee-Pow from before Stone Love, years, years, we've been friends from what, '77."[9] Indeed, they had met at Denton Electronics, on one of the many trips on which the young Wee-Pow had accompanied some of his father's sound system equipment to Denton Henry's repair shop.

With most sound systems it is the engineer who plays a major role in defining the sound of the sound system, its sonic signature, so to speak – one of the keys to the success of the Sound. Observing Wee-Pow and Henry working together on fine-tuning a set, this long-standing relationship was evident in the often unspoken understanding of how they collaborated. Wee-Pow is unusual in being both a "hands-on" owner who is also an audio engineer with a very good knowledge of sound system electronics. Furthermore, the audio engineers' own way of explaining their skills and techniques is important to include in the analysis. With terms such as "vibes" and "balance," their descriptive vocabulary can often be taken as directions for thinking through sounding. Of course, practitioners are not always aware of what they are doing or, if they are, are not necessarily able to express it verbally (as described in the methodology of listening in the next chapter). The research process itself also has effects on what is articulated or expressed. On occasion my interviewees told me that they had come to understand their working practices in a more complex way as the result of the interview itself. As DJ Squeeze put it to me:

> You probably think I talk this everyday. No I don't … You asking me things that probably inside of me are dormant and what you are doing is bringing it outside, speaking it in my words … and what happens, it makes sense.[10]

Further to how it "makes sense" for the engineers themselves, the style and skill of their techniques have to be understood in greater depth – by considering them in relation to each of the three wavebands of sounding described in the first chapter.

These relationships between the material, corporeal and sociocultural frequencies of sounding are best described as they are triangulated in actual practices of sound engineering. Though the engineers are the crewmembers most immediately associated with sound waves themselves, that is, *material*

vibrations, these concerns are never to the exclusion of the other two wavebands. This chapter begins with a step-by-step account of the engineers' pre-performance practice of "compensation," by which they fine-tune the set. Compensation is a skilled recursive technique by which the engineer gradually hones and shapes the auditory output of the "set." The engineer's embodied practice comprises two basic engineering procedures. One is *manipulating* the value of the electronic components of the set, by substituting one for another, for example. The other is *monitoring* the consequent output variation – the auditory amplitudes and frequencies. The engineer's kinetic and haptic movement can be located in the *corporeal* waveband, its effects on the *material* waveband of electromagnetic and mechanical frequencies of the "set." At a minimum, audio engineers maintain the set to ensure its reliable operation, the importance of which is only too apparent when it breaks down, as I have observed. More importantly, the engineers are also responsible for the *qualities* of the auditory output of the "set" of equipment: its tone, timbre, texture, power, balance and attack to give their Sound its competitive edge against their rivals in a Sound "clash." In short, they have to evaluate what they are listening for, in the *sociocultural* waveband. This skilled fine-tuning practice can be considered as emblematic of the performance techniques of all crewmembers.

AUDIO ENGINEERING

The engineers' key role is to "tune" the set, as well as designing, building and maintaining the equipment – for example, when replacing a damaged component, such as a blown speaker. It is also used every night, after the set of equipment is assembled and the "stringing up" is complete. But fine-tuning also serves to optimise the set's auditory performance; to regulate its entire frequency range; to ensure it is free from interference or distortion, and has a pleasant tone, texture and timbre. Such tuning is similar to that of a musical instrument, such as a guitar, where the strings are tuned to a particular scale, is akin to how a mechanic might talk about "tuning" the engine of a car (in the days before computer-controlled fuel injection and so on). With a sound system set, this is a complex matter, as there are a large number of individual electromagnetic, electromechanical, electronic and mechanical components that the engineer can adjust, control or modify to vary the auditory output of the set.

According to Stone Love chief engineer Horace McNeal, there is a specific procedure that he follows. The first step involves listening to each frequency at normal operating volume and then working with the crossover and the graphic equaliser:

First thing we put it in the rack. Set up a system. When you turn it on, you know what frequency you're going to use it on, start play your music. You make sure everything on that frequency is flat … Whatsoever frequency you're going to work on, the bass, the mids – then you start work with the crossover, just the crossover to the frequency you want to hear. Whenever you are satisfied with that frequency alone playing. That's how we do things round here, one frequency at a time.[11]

McNeal continued to tell me that, after the crossovers had been adjusted, even finer tuning takes place, "so we add an equaliser to it, to do the little difference. Maybe you defeat some, or you add to some."[12] This procedure is repeated for each of the three, and most often five, frequency bands that drive the five kinds of speakers on a large set: bass, low mid, high mid, horn and tweeter. A sound system is designed to amplify discrete frequency bands, rather than the entire frequency range together, as a PA (public address) system does.[13]

The second step is as follows:

After you think everything is right, now, you turn it down low. Very few people know about this. I learned that from in the studio. You turn it down low. And you know there is rim shot, high hat, kick drum and bass drum in a tune. Those are mostly the four frequency [sic] that you hear. So what you do now, you turn it down, and you listen and you make sure you hear all frequencies on the same volume, on the same level. Sometimes you do it and you hear the high hat a little bit loud, so you just turn it down a shade until you hear everything coming out the box same time, at the same level.[14]

Finally, the third step:

You're going to change the record now. You're not going to do too much adjusting after you change the record. You listen a couple tunes, and hear what is the difference within them.[15]

This gives some idea of the care and attention the sound engineer is expected to put into the tuning of the set.

From the above it can be said that the engineer's fine-tuning technique of *compensation* combines hand and ear in a recursive negative feedback loop. When I asked him, "what was the most important thing you learnt from your teacher?", Denton Henry replied with one word: *compensation*. As he emphasised, his teacher …

… always tell me to compensate for this and compensate for that. If it don't sound right use the condenser and the resistor to compensate to get the sound that *you*

want to hear … that what teach me to listen. Because if he didn't show me that maybe I wouldn't come to the conclusion you have to listen this and tune that to get what you want … [You] either cut the bass, or to lift off the high frequency, cut the treble. With this now you can juggle juggle. *Compensation is a filter circuit*. You set it up for any frequency you want to hear.[16]

The effect of compensation is to correct, or achieve a more pleasing or desirable sound output. As Henry told me, "When you carry a set 'pon the road, you have to tune it a particular way so as to appeal to the people. I learnt that from him [John Jones]. From an early time I understand the whole principle of having the right sound by tuning it proper."[17]

Every electromagnetic power, control or transduction device of the set (as described below) can be the subject of compensation, from the needle on the record, to the speaker cones, to the positioning of the speaker stacks on the dancehall floor, and literally everything in between. Henry described, for example, how he compensated for the different signal output of crystal and magnetic cartridges: "I used to sit down and compensate them to make them [crystal cartridges] sound like the magnetic [ones]. You just use the resistors and the condensers to get the network to play what you want …".[18] Henry also used compensation to give foreign records the bass sound beloved of local audiences:

> [W]hen I check it out I found out it was the recording standard foreigners used to use. And we because we were bass orientated, we used to put a bit more bass on our tunes. So even on a little system that is not so good, you still get a good sound. Foreign ones, when you put them on you don't hear any bass, (they) flat and weak. And that's what propel our music over their music, locally.[19]

He went on to outline how he solves this problem:

> So what I did I put a compressor and then put an equaliser on the bass, equalise the bass in such a way that if a bass frequency come at a certain level it carries it down. If it comes too low it carry it up. So if you put on a foreign tune you hear a good bass, put on a local tune, hear a good bass. You don't have to keep tweaking your bass.[20]

More recently Henry has used these same techniques of compensation to give the sets both "vinyl and CD tuning." This technique of compensation – or what he calls "juggling"[21] – is absolutely central to the sound engineers' working practices.

At the heart of fine-tuning lies a simple recursive principle. The engineer listens, and then adjusts, monitors and then manipulates the value of a component. He monitors, he substitutes, he listens again, and so on. He adjusts, he listens; he monitors, he compensates; he listens again, he makes another adjustment, and so on. With the auditory feedback of what he hears, gradually in this entirely goal-oriented procedure the engineer closes the gap between what he is hearing and what he is listening for, to make use of that important distinction established in the previous chapter. Then the tuning is complete.

For Henry, this practice of compensation began with his boyhood experiments:

> Anywhere a set was playing I used to go and listen, yea used to go and listen them … we sit down and we discuss what we hear and then we try to come up with something which is appealing … We tinker with this; we tinker with that.[22]

This listening and adjusting was further informed by "reading and getting ideas from other friends," as well as what would be described simply as "trial and error." In this respect, compensation uses the basic electronics technique of substitution for identifying a faulty component. This way of working is therefore a refining or distilling process, whereby the output of a component is shaped and adjusted until it achieves the desired characteristics.

In the early days, this business of fine-tuning the set was even more critical than it is today, Henry told me. This is because, as he said, there were "no knobs, [you] couldn't adjust it." This meant that any tuning adjustment, "before equaliser become so popular," was literally hard-wired. It had to be done with a soldering iron, replacing and re-soldering certain electromagnetic components, such as resistors, "[b]ecause at that time when you tune it was fixed. You couldn't go out there and use the equaliser and vary it."[23] With the introduction of variable controls to be used for compensation, "about '75 or maybe even early" it become technically possible to vary the output of the set, to take into account the particular conditions of the session. An empty dancehall, for example, has very different acoustic properties compared with one that is "ram" – that is, rammed full with the sound-absorbing bodies of the crowd. Henry recounts:

> I remember one time I went into a dancehall, I'm there listening [to] the set, it sounds good, clean, and after the crowd came in I could hardly hear the bass. So I say No, that not right. I stay and listen and work it out. I went back now and change the compensation on the amplifier, and instead of rotary switch, put slide switch so

as not to give him too much option. I say this is for when Dancehall empty and this for when it full [laughter] … What I did, I tune the base, 'cos I found out certain things about it, when the dance empty you can play it here, when it full you can play it here.[24]

After making these modifications, Henry returned to find out how the dance, against Coxonne Downbeat, had gone:

He say yea Denton man, we alright. The place ram. The Sound sound alright, not too bad. Him come over to me and say: "Me him not slide the switch you know." After the place get ram ram now, he come over to me and say "I'm going to slide the switch now." And him slide the switch and the base just swell.[25]

Even today the fine-tuning of the set has to take into account inconsistencies in the original recordings, as Wee-Pow put it:

Some of the records have not been engineered at a level where it would go across the board, like every record don't sound the same way. So every now and then you might have a particular tuning on the set, but when it comes up to this record it doesn't sound proper. So you have to try and balance the set in between, so when it comes up to that record has not been properly engineered or mixed it don't react that rashly.[26]

Currently graphic equalisers, standard equipment on every set, allow for a very full and flexible control of the set's sound output. Interestingly, as I observed with Stone Love, the main graphic equaliser control faders were locked away behind a grill, so they could not be changed. When I asked why this was so, I was told Wee-Pow had tuned up the set – and he had no wish for anyone to interfere with his settings. In this respect, the ownership of a Sound is indeed the ownership of a *particular* sound.

The practice of fine-tuning the set, for which the engineers have developed this technique of compensation, has so far been described in the words used by the engineers themselves. But in order to explore precisely their skills and techniques in greater depth, it is necessary to introduce some additional terms. Thinking through the vibrations of sounding, the engineer is concerned with the *material* vibrations of sounding in the minute detail of the electronic circuitry of the set, and the values of individual resistors and other components. The material vibrations in which a set operates includes its *electromagnetic* frequencies; that is, with the electrical impulses in the electronic circuitry of its amplifiers and so on, and at much slower

electromechanical frequencies, with the auditory vibration of the mechanical movement of the speaker diaphragm. This is the *power* process by which the recorded music is amplified to give the dancehall crowd in the session their uniquely embodying experience of the intensities of *sonic dominance*. Currently the top-range sound system sets, like Stone Love's, produce up to 20,000 watts of music power.[27]

Of course, such power would not have any practical use unless it could be controlled, governed and managed. So, in addition, the set also operates with certain *control* mechanisms, whereby the engineers can adjust its output according to the circumstances of the venue they are playing, the size of the crowd, and so on. This process concerns information, distinctions and differences, rather than energy. Besides the simple on/off switch, the key instrument for the engineers to control the power of the set is the variable gate or filter. These may be set to operate not only in terms of overall volume of the set, but also on particular frequency bands; for example, as with a crossover circuit. These power and control functions operate together, shown by Bateson (1979) by the example of the energy of the pressure of water in a pipe and the control mechanism of the tap to turn the flow partially on, fully on, or off. "The combining of the two systems (the machinery of decision and the source of energy)," Bateson tells us,

> [M]akes the total relationship into one of partial mobility on each side. You can take a horse to the water, but you cannot make him drink. The drinking is his business. But even if your horse is thirsty, he cannot drink unless you take him. The taking is your business.[28]

But to understand how these two processes operate together we have to add a further frequency of sounding: corporeal vibrations. The work of the audio engineers, it is important to note, cannot be restricted to a single waveband, in the way it is traditionally thought of as concerning only the "technology" of the set. One of the aims of expanding the concept of sounding across the three frequency bands is to prevent such reductionism. The engineers' techniques require them to use their ears and hands for fine-tuning: *monitoring* "by ear" the output of individual speaker-cone and driver units from which the speaker stacks are assembled, and manipulating them "by hand." Invariably these two practices of *manipulating* and *monitoring* go hand in hand, or rather ear in hand, so to speak, though they are described separately below.

MANIPULATING

Manipulating is simply making adjustments to vary the output of the set in some way. It operates *on* the *material* vibrations of sounding: the *power* processes of the set, operating at electrical and electromagnetic frequencies inside the equipment (see Figure 2.5). Manipulating operates *with* the *corporeal* vibrations of sounding; that is, the engineers' embodied motor or kinetic touch, varying the *control* processes and thereby the *power* of the set. The engineers' manipulation of the signal flow within the set makes use of the instruments, such as potentiometers, variable crossovers, filters and so on, controlled by means of knobs, slide-faders or computer display screen and mouse. Such practices are distinct from the days when, as Henry told me, "when you tune it was fixed," and therefore required manual dexterity, such as the skilled use of a soldering iron, to replace one component with another of a different value.

In the late 1960s Henry's apprenticeship actually required the building of equipment; taking these adjustments into the design stage, as it were. "What I learnt from [John Jones] was the technique of building amplifiers," including hand-winding transformer coils, he recounted:

> We build the whole thing, get the components and assemble it, put them together, the transformers wound out here. We have a fellow by the name of Winston Green, he's still here … He used to wind transformers for a whole lot of them (and) build the chassis too, for the tube amplifiers.[29]

Sound engineering techniques have moved on since those days. Henry went on to tell me that Winston Green "imports [transformer] cores now." There has certainly been a change from the vacuum tube amplifying technology to the solid state one of transistors. The development from engineering individual electronic components, like a transistor, to that of whole units with integrated circuits, is even more substantial. McNeal took up the story:

> Building days long gone now, cheaper to buy than build … When I was at Denton's used to build pre-amps and crossovers, usually use valves, but now strictly integrated, transistors … from 750 to 5,000 watts each … QSC amps is the most popular brand now.[30]

Engineering technology continues to move on in this same direction. McNeal went on to suggest that, "[though] I don't test it yet," there was a new generation of electronic music equipment about to replace all the different components of compressors, expanders, equalisers, crossovers, etc. with a single box.

Of course, what can be found to buy on the electronics market is not necessarily suitable for Jamaican dancehall purposes. One consideration is the treatment, and even the misuse, that the sound system equipment receives. This is an important issue. With respect to loudspeaker driver units, McNeal told me: "It's a question of which one can stand up to the heavy use … 'Cos you know *we abuse things in Jamaica musically*, we abuse equipments, what the man makes the things to do, we ahead of it."[31] This idea of abuse, or pushing the functionality of equipment well beyond manufacturer's recommendations, is indicative of the inventive and even excessive character of the Dancehall sensibility. Another reason is that the equipment on the open market is often unsuitable for the playing conditions. In Jamaica, all the dancehalls are held in the open air. "Mostly American [speaker] boxes designed for *indoor*, very rarely do they design boxes for *outdoor*, just of late they design a lot of boxes for outdoors, for the big stadiums."[32] So sound system engineers have had to be able to adapt and modify what they can find. In this manner, the engineer is doing to the equipment exactly what Reggae musicians were doing in the early days of the music – *versioning*.[33] In music, creating a local "cover" version of an "original" American R&B tune has become one of the distinctive features of Jamaican music (as discussed in the next chapter). Regarding speaker boxes, McNeal continued:

> What we do now, we listen [to] them and generally we buy one [speaker box], the original, pull it up, listen it and if we like it make one of it, compare it. Then we listen what we hear from the two boxes *to see what we have to alter to make it work out good.* I do a lot of that to get my boxes perfect.[34]

As well as the electronics of the set, the wooden speaker box, or cabinet, that McNeal builds in his workshop yard also has to be tuned. Henry takes up this point with the story of the Scoop boxes he had managed to find in the USA, which he "measured up and carry down" to have one built in Jamaica (Figure 3.2). Until he had tuned it properly, its performance was far from satisfactory:

> Stone Love build three of them and started to play and it frighten the people. They never hear anything like that here … Them say them never like it … The note was kind of high, so I have to tune the box, you know, pad it, special tuning on the equaliser … and then put the foam in it to kind of cool off the high frequencies, let you hear the lows. But what I did I tuned it properly. Then everyone start to use it … Get that almost bass reflex sound. It is a bass reflex but for out of doors.[35]

Figure 3.2 A cabinet-maker at work in Horace McNeal's speaker cabinet production workshop, Torrington Avenue, Kingston.

So the job of the engineer currently tends to be to assemble the ready-made components into the configuration that will be unique to that particular sound system. Thus the selecting and sourcing of the right components is a key skill, as McNeal mentioned: "The [speaker] driver units we get them from America, Electrovoice, but right now I mostly use them from Europe, European transducers, speaker drivers … right now we're using RCF which is Italian."[36]

Henry told me the following story concerning his search for a particular type of speaker box:

> I was still searching for box design and I had this box design in my head that I knew from when I was a little boy. They call it the House of Joy. I was always trying to get back the original measurement to see if I could scale it down. We use the smaller version, which is the Scoop. When I went to America in '86 and I visit a friend in the sound business and when I look 'pon the set that them show me, I see he have some Scoop in a corner. So I say, "What you do with them box them?" He say "Cha, we don't bother with them box again." I say what you mean you say you don't bother with them box, you know how long I look for them?"[37]

So, in this instance, Henry found what he was looking for, or rather what he was listening for, taking us to the second procedure: monitoring.

MONITORING

Choosing the best equipment and adapting it is done on the basis of what is probably the most important of all audio engineering skills – listening to the output of the set, as McNeal and the other engineers discuss, above. Such monitoring concerns the sensory side of the *corporeal* vibrations of sounding. What is being monitored, as the *material* vibrations of sounding, are the frequency vibrations the engineer hears from the set's loudspeakers. With monitoring, the engineer takes note, as it were, of the consequences of each manipulation. The importance of the corporeal vibrations of sounding is emphasised by the fact that the engineer's most valuable instrument for this is undoubtedly his ear. As McNeal put it, for fine-tuning the set: "You use your ears … sound system on the whole deal with your ears."[38] This is especially the case for the fine-tuning of the entire assemblage of the sound system set, once all the individual components have been fine-tuned. By emphasising the value of their listening, the engineers also made the point that listening was an active, engaged and indeed stressful process – requiring that they periodically gave their ears a rest. As DJ Squeeze put it:

> After a while you must always rest your ears when you tuning a sound, like I've been in here listening, I must get out and walk about and come back to it, 'cos it makes a difference.[39]

This is one of the reasons why the tuning of the set can take several days. McNeal describes the process:

> You play and listen and lock it off and leave it, to rest your ears, and come back the next day with your ears fresh. And you can bet your last dollar you're going to hear something different from what you hear yesterday. After playing, playing, playing, your ears get muffled and brain get mix up.[40]

So he proceeds as follows:

> When you decide to do the thing right and proper. Take for example I build a system here now. I put in a system today. I don't start play it today. I start play tomorrow and maybe I don't finish until the next week Thursday, I might take some time in between still … After you deliver that system now, you have to follow up that system in a good month, at different different [sic] venues, you hear certain things, and then you know what to re-adjust.[41]

The business of fine-tuning clearly requires time to be devoted to it for a proper job to be done.

So audio engineers have to fine-tune their ears as much as they do the set. They do this by developing a sensitivity and sophistication to their listening, in short, professionalizing it. The value, depth and complexity of this type of listening is one of the critical points to emerge from their accounts. For Henry, this was what he learned from his teacher, John Jones: "One main thing that he did was to shape my whole listening."[42] This is indicated by the way in which they consider how the acuity of their listening expands what they can hear. When I asked McNeal if it was difficult to describe what he hears, he told me: "Yes it is, but because I have the electronics knowledge – *I can say things about the sound that a normal lay person wouldn't understand really*."[43] He went on to add: "Mostly when I'm doing any form of testing, it's with Wee-Pow, we are very close." Here McNeal is perhaps evoking Wee-Pow's authority and expertise as a guarantee of his own. This is because the technique of listening is notoriously subjective and evaluative. As he put it: "Everybody hear different things."[44] Also, as McNeal explained with respect to the selection of a particular speaker driver, "it's a little politics." This indicates that the kind of evaluation typical of the sociocultural vibrations of sounding (discussed below) is also involved. He went on to tell this story:

> I know about that [particular] speaker for fifteen or twenty years now, but they didn't hit the market. About five years ago I had a little friend who went to England, came back with four speakers, call me up, say Horace man, set up some speaker in a box so. And he tell me the name of the speaker and I tell "What you doing with that idiot speaker?" He say no man, it right now, and we set it up and hear it. And I call Wee-Pow same time … and he say the same thing me a say – it sound wicked. Now me hear it. Alright let me buy some and test it, these are the speakers of the moment.[45]

Certainly in assessing the performance of a particular piece of equipment, listening has a greater value compared to the written technical specifications. "The figures is really like a guideline, ' you are within that ballpark," McNeal told me. In trying to explain the Hertz of the crossover filter directing frequencies between the bass and the low mid speaker drivers, it was getting a little complicated. McNeal broke off:

> Most time you don't work directly at those frequencies. *You use your ears.* We find it out; we test certain equipments and find that what they say is not really what's there. It's mostly listening. Mostly listening.[46]

He went on with the following story to make this point about the importance

of a knowledge and understanding based on listening, compared with "the people who go straight after the book." He continued:

> Take for instance a man set up a system in the States and the set come here. That can't play here. That's living garbage. And you talk to them and they say they give this frequency to play the bass and that to play – and the frequency playing there. But what is that? That is not something we want to hear. You can't go in a dance and get a vibes off that … *it's about listening.*[47]

Furthermore, McNeal was very clear that, while frequency figures might be of use for other types of sonic engineering, for example for public address, this was not the case for the sound system:

> Don't follow the figure, use your ear, it don't stray too far from the figures really though. Sound system on the whole deal with your ears. A PA system will deal with numbers. But sound system strictly ears.[48]

So McNeal considers monitoring by ear as being the most sensitive way to appreciate the qualities of sounding.

Figure 3.3 Monitoring controls on DJ Squeeze's Skyy [sic] sound system truck, *Thunder*.

Other equipment besides the corporeal instrument of the engineer's ears – such as visual signal displays, including meter needles, amplitude bars, oscilloscopes and computer screens – may also be involved in monitoring. DJ Squeeze demonstrated to me how this equipment introduced the additional level of expertise of reading and interpreting such representations (Figure 3.3). Sitting in the back of a cab, Squeeze plugged in his laptop computer, and talked me through his tuning procedure:

> So what's the frequency low end I want to punch … the punch frequency on a mobile truck, its not stationary thing, you want the crowd to travel … 50 hertz you just want to bring it up a little bit … the high end frequency that damage … high end might want a little prettiness there … Stone Love now will play a lot of that low-end frequency … I'm going to show you, hear that slap, hear that slap, he will play that … that impact …[49]

As he made his adjustments via the laptop mouse, he told me what to listen for, at the same time pointing out what the sound looked like in its graphic representation on the computer screen.

EVALUATING

But what are the engineers listening for, exactly? When do they know the fine-tuning is complete? What are the particular sonic qualities the engineers are aiming to achieve? When fine-tuning the set, building it, and even designing it in the first place, their purpose is to achieve a particular range of sound qualities, such as a sounding "close-up" for example, as one engineer told me. This is an evaluative judgement; a matter of personal taste and training together with the changing values of a particular music scene. Questions about such evaluations cannot be answered in terms of monitoring alone. Nor can the hearing of the sensorimotor instrument of the ear provide the basis for understanding what the engineer is doing when fine-tuning the set. Indeed, this distinction between hearing and listening provides an example of the distinction between the *material* and *corporeal* vibrations of sounding, on the one hand, and its *sociocultural* vibrations on the other, as detailed in the previous chapter. As has been emphasised: "One main thing that he [Henry's teacher] did was to shape my whole listening."[50] From this point, a third procedure of *evaluating* is suggested as a fine-tuning procedure. This concerns the understanding, feeling and meaning commonly identified as social and cultural "factors." Evaluating certainly involves judgement and expertise that has to be acquired, by the audio engineers, in an apprenticeship tradition (described below). For example, this can include the engineers' evaluation

of the qualities of the output of the set; its meaning, effects and capacities to "excite" the crowd. These are the evaluations of listening, as distinct from those of mere hearing, transforming the audio engineer into a sonic body – a figure of sound triangulating the head, heart and hand of sounding, as is now discussed. The art of listening, to recognise it as such, requires a cultivation of abilities, dispositions and talents, for achieving an appreciation for the fine-grain detail and nuances of sound. This will be discussed in the next chapter.

Close-up
When talking about why he became an engineer, Henry told me: "What fascinated me was the drums. I used to tell my youths to listen, we don't really get back the *impact* from the drum" (emphasis added). His aim was to recover what the sound was "originally" in live performance, as he explains:

> I went in and out [of studios] and also I like to go where the bands play, listen the actual sound and try to mimic it with the system … like when you hear a band playing and yourself amongst the instrumentalists and listening and try to mimic that with the sound system [I want to be] in the middle of it, that is what I was trying to create … Our greatest effort was to try to get the sound to sound like the band sound originally.[51]

Henry goes on to describe the quality of this sound: "Not that far away sound, but *that close-up sound*, we try to get back that impact … try to get that closeness, not a distant sound (emphasis added)." It is of interest to note Henry's use of a spatial and mimetic metaphor of corporeal relationship for this auditory quality. Somewhat tongue-in-cheek, Henry gave the following reason to account for this auditory taste: "We're African, we used to beat the drums, so [it] cultural." For Henry, Jamaica's bass culture (discussed in the first chapter) together with the crowd's predilection for the lower frequencies, set the trend for others to follow, irrespective of their lack of African origins: "[I]t taking over now, other people realise it's better and join us with it. They realise it's better, they not inherit that, we inherit that …" So the idea of bodily proximity for describing the desired sound is coupled with that of the biology of authenticity of origins. Boasting, he adds: "We was at that end of the listening spectrum before the others." Henry feels vindicated that the kind of "close-up" sound "at the end of the listening spectrum" for which his audio engineering strived has now been achieved. "I reach it in a sense," he told me, and this is now the expected norm:

> [I]f you hear the set them now they are very close, very very close … But actually what it comes down to now, everyone get used to that kind of [close-up] sound,

so everybody is listening for that kind of sound now, which years ago when I was trying to explain it they couldn't understand, but now it kind of become the standard.[52]

So in this respect Henry considers himself, and should indeed be considered, as a pioneer of the Jamaican sound system sound.

McNeal had a different way of explaining what he was listening for, in the fine-tuning of the set. Being of a younger generation, McNeal had not had his teacher's exposure to live bands in the studio or on stage as a reference point. He explained that what he wanted to hear on the set was the "true music" available:

> By listening the record on an un-amplified system like a car radio or a little tape. Every hear them say true music is from a radio, a radio don't really amplify that much, don't have no heap of crossovers, no EQ, a radio station don't really carry those things.[53]

In order to facilitate this, McNeal told me, "When I tuning a sound there's certain records that I use … Stone Love tune … Ghost's *By Your Side* that have a lot of instruments and it's a well balanced tune, you hear everything." McNeal concluded:

> When I tune the sound now I listen for everything I know in the tune supposed to come out of my box. If I don't hear what I know in it I not stop tuning, turning, push down this, carry up this, until I hear what I want.[54]

Balance and bounce

Balance is another key concept that the engineers use to describe the aims and objective for their fine-tuning. As well as the range of music a Sound played, Henry uses the term *balance* to refer to the tuning of the set: "I put *balance* between the bass, the mid and the top," he told me. Stone Love Chief Engineer Horace McNeal continued his account, by saying the fine-tuning was complete when "That time now you know the system is well *balanced*."[55] From Henry's point of listening, balance was even more important than the actual power of the set: "Plenty of the sets that becomes number one weren't really heavy heavy set in this modern time between the 80s, they were *balanced*, they were balanced sets" (emphasis in original).[56] This concept of balance, as with "close-up," is a corporeal idea in so far as it refers to the sense of balance as a proprioceptive or internal self-sensing sense of its own orientation, coming from the vestibular canals, closely associated with the cochlea

of the ear and hearing.[57] The idea of balance also makes reference to harmony, visual symmetry and proportion (discussed in Chapter Seven), and therefore should also be considered as part of the sociocultural vibrations of sounding. So, while the power of the set is important, it is not more so than other considerations, according to Henry:

> In the whole business if you don't have a good sound, don't matter what record you play it won't work. You have to have it in combination. Can have the greatest selection but if you don't have a proper set, to bring it over, it won't work.[58]

This emphasis on balance might be expected if the set were considered as a conventional musical instrument, rather than the phonographic apparatus for playing already recorded music that it actually is. This fine-tuning of the set goes much further than such remedial work of replacing a faulty component, as Stone Love owner Wee-Pow explained:

> [With] the reproduction of the music, you want to, sometimes even enhance the music. If you go into the studio and make a music and when its really going to be mastered [i.e. given its final mix], to go on the record that engineer in that mastering room, going to give you a little fix-up – to make the record sound more *balanced*. So when it reach down back onto the sound system now, he can also enhance it, to make it sound more sweeter.[59]

When I asked him if this then was better than the original he said, "Yes, you can get carried away, make it sounding better." To achieve this, "we put it through our sweetening unit, what have you, do the little additional things," which in turn requires that "the tuning up on your system must be sounding proper." Audio engineers are very much concerned with this social and cultural dimension of sounding. As Henry put it: "To me the final product, the sound you want to hear [is] to excite people. To me that is the whole thing."

The term "bounce" is also commonly used to identify the combined sonic and social qualities of the session. Wee-Pow uses the term to describe how in a session "a man who have lesser equipment than you" can configure the lay-out of the speaker boxes so well that he can "bounce to kill you," that is, beat you at the competition. Bounce also describes the vibe of the session, Wee-Pow continued: "If the music not bounce right him can't find a girl." On the other hand, "If the music bounce right, it give him that push, 'cos everybody feel vibesey." This provides an example of the relationship between the different wavebands of sounding: the material vibrations of the music and the corporeal and sociocultural ones of feeling "vibesey."

DJ Squeeze emphasised that, for him, sonic engineering was a matter of personal taste, again associating sounding with its corporeal vibrations. He demonstrated to me how he used the crossovers and graphic equaliser on his sound system truck *Thunder* to "tune out" certain frequencies; not for any practical reason, such as blowing a piece of equipment, but simply because he didn't like them:

> I'm taking out a little of the harshness at 12.5 kilohertz. It's not comfortable it screeches in your ears, the one above that is smoother … there's a frequency about here, *is just my tuning* …There's another nasty frequency about here too … at 100 Hz, take it down just a little, a real little nasty bugger …[60]

And indeed, there were others that he wanted to hear more of: "[T]he high end might want a little prettiness there … 16 kilohertz give you that fine tingly top …" DJ Squeeze also boosted certain frequencies, according to the use: "[T]he punch frequency on a mobile truck … 50 Hertz you just want to bring it up a little bit …" Discussing one frequency he told me: "Not every sound man will say that, that *is my harmony with the sound*; what is comfortable for me is not necessarily comfortable for another person …"[61] This idea of the relationship between listener and sound expressed in Squeeze's apt phrase "my harmony with the sound" recognises how sounding, in this instance the fine-tuning of the set, is not only a corporeal but a sociocultural vibration. Most importantly this is done in such a way as not to call for any separation of the whole of the body–mind (as discussed in Chapter Seven).

Moreover, if the engineers fine-tune their sets to their own distinct and individual taste, it is not surprising that each set *sounds* different from others. Similarly, different recording studios, particularly the analogue ones, each have their own unique signature. This may not be apparent to the untrained ear, but to the expert it is clearly audible. As singer Beres Hammond claims, he can tell just by listening to a particular tune, at which of all the hundreds of studios in Kingston it had been recorded (as mentioned in respect of timbre in the previous chapter).[62] Even today, with mass-produced solid-state amplifiers, sound system sets are hardly any more off-the-peg pieces of equipment than in the early days when amplifier transformer coils were individually hand-wound. Vacuum tubes were, after all, always factory produced. Even where two sets share similar components, these are configured differently, and are also likely to be tuned-up differently. As McNeal put it: "There's no two systems sound alike. For some reason something is different. Even the simple wire you use with the speaker box can cause a difference."[63] He continued: "That's why I more believe in what I hear," rather than any technological specifications. Such

is the attention to detail that sound system audio engineering demands; only discriminating listening can be used for the job.

Power

The fine-tuning of a sound system is also very concerned with power, and the dynamics of the material vibrations of sounding, especially "at the end of the listening spectrum," as Henry put it. The sets have to be engineered to generate sound in sufficiently large volumes to give the bass frequencies their impact. Today, commercially available amplifiers power the sets: "QSC amps is the most popular brand now," McNeal told me, "from 750 to 5,000 watts each. Most sounds playing like about 19,000 watts." Henry confirmed this kind of figure: "Right now we're playing 15,000 watts." He went on to say that the issue of wattage, and therefore the volume of sound the set produced, was not an objective matter; rather, it changes over time and the expectations of the crowd. In the 1980s, he told me, "you would be surprised to know it was only 600 watts [laughter], 600 watts … two 600 watts on Gemini, people use to complain they feel the bass [laughter]." Henry continued:

> The body get used to it after a while, I think so, the whole thing you just get used to it, so it just get bigger and bigger and get used to it. I don't know how that works, but that's how it goes. If you play 10,000 watts and you play it and play it and play, after a while next man down the road come with 20,000. And him say: bwoy me light now, them gone to the 20,000 watts.[64]

The sheer power of the set in a dancehall session makes for an inescapable sonic experience, described as *sonic dominance*. This identifies the crowd's *intensive* experience of the *extensive* presence of the material vibrations of sound, as well as its corporeal and sociocultural vibrations. As already noted, this type of sonic power is power-with, rather than power-over, reflecting Henry's idea of "close-up" sound, with "impact," mentioned above, and detailed from the crowd's point of listening. One important issue for further discussion is the gendering of this sonic power, together with the engineer's embodied way of knowing, by which he understands it.[65]

The fine-tuned power of the sound system set gives it such capabilities that enable it to become a "sonic weapon," in the particular kind of session known as sound system "clash," where different sounds compete for the approbation of the crowd (described in Chapter Six). Here, sets literally become sonic war machines, in battles where size does very much matter. The terms the engineers use to describe amplifying power include "attack," "punch," "force" and "hit," which are all certainly distinctively male. Also the bass amplifying power that

a set delivers can be of decisive importance, giving the set the dynamic force to thump chests and cause trousers legs to flap. Henry completed his story, recounted above, about installing a slide switch to increase the bass output, with the punch-line: "Him slide the switch and the bass just swell, him win the session because of that, because of the sound *not because of the record*."[66]

Such sound system clashes have been a feature for the development of Dancehall culture since the 1960s when battles between the rival followers of Duke Reid and Coxonne Dodd's Trojan and Downbeat were commonplace.[67] Today there are numerous national and international sound system clashes drawing competitors from the USA, Canada, Japan, Italy, Germany and France, as well as the UK (as described in Chapter One). Such competitions are a very well established part of the Dancehall scene. For the last few years the World Cup Sound System Clash has been held in Ocean, in Hackney, East London, with the participation of BBC Radio Xfm, accompanying CD, and professional marketing and promotional campaigns (see Figure 6.3). At least one informed commentator has compiled a list of notable sound system clashes in the way others have done for highlights in a particular football team's career.[68] Of course, audio engineering can only tell part of the story of these clashes. Even the best engineered weapon has to be used properly; that is to say, the selector has to select the right tunes, and have suitable dubplate specials to fire off as "ammunition" at the opposition (as detailed in Chapter Seven).

In certain periods, the competition between sound systems has been so intense that it led to one sabotaging the other's equipment. According to Ragashanti,[69] a favourite trick with the Killamanjaro sound system in the 1980s was to stick pins through the speaker cables of their opponent's sound system.[70] Not only did this short out the amplifier, causing it to blow its fuses, but also it was very difficult to locate the pin to remove it. This led to armed guards being stationed along the entire length of the speaker cable run from the amplifier. Currently, McNeal's set configuration still has to compromise sound quality for practical and indeed political considerations. Better performance could be achieved with speaker cable runs shorter than the "twelve gauge cable flex, 140 feet" commonly used. But this would require the amplifiers to be next to the speaker stacks, away from the turntables in the well-supervised control booth. As McNeal told me: "They recommend you put the amp where the speakers are, but we don't do that, we cannot afford to do that 'cos have to have someone stationed there … things walk [i.e. get stolen] so we have everything right beside we." The dancehall also presents other dangers to the speakers, especially the tweeters at the very top of the speaker stacks. As McNeal told me, he used "cheap Motorola Poisons

to reduce replacement costs when they get bullet shots." In such a competitive context even the engineer's configuration of the different component of the set is considered as if it were military intelligence. In electronics generally the standard is for this wiring to be multi-coloured, to facilitate identification when making repairs. But for sound systems these wiring configurations are a closely guarded secret. This is evidenced by the fact that with the sets that McNeal builds, the wiring visible at the back of the amplifier rack is all the same colour. He told me that this was to prevent competitors from copying his configuration for their own sets. This recalls Stone Love owner Wee-Pow's use of a grill to cover the controls, to prevent any change to his fine-tuning of the set, mentioned above.

To conclude, it can be said that audio engineering is always more than a matter of sound alone. It is a highly complex business in a way that might not be automatically assumed of popular street culture. Though the engineers might be thought to be the crewmembers closest to the material waveband of soundings, as indeed they are, they are also obliged to triangulate these with the other wavebands of sounding (see Figure 4.2). Having devoted a considerable amount of attention to the entirely practical activities of manipulating and monitoring that the engineer's fine-tuning involves, what emerges is how the qualities of sound are interwoven with the issue of subjective evaluations and expert judgements of evaluating. From this, the next chapter investigates where the audio engineers' embodied understanding of these qualities comes from. How is such a sophisticated understanding of sound acquired; how is it engendered? While auditory propagation has to be sustained for each and every moment of sounding, it also has to be sustained through time, in the form of a living tradition. Historically, such embodied ways of knowing have to be handed down, from master to apprentice, through the generations. This is indeed found to be the case with the Stone Love Movement sound system.

Chapter Four

Learning to Listen

We have to learn to listen. In fact, listening is little short of a synonym for learning.[1] This is certainly the case with the audio engineers who – as sonic bodies themselves – have to be fine-tuned just like the sound system sets of equipment they design and maintain. A first point of interest is that it is listening to sound, that is, monitoring and evaluating, rather than manipulating it, that is the key to their learning. In Jamaica, the skills and techniques of sound system engineering have been passed from generation to generation, from master to pupil, through an apprenticeship tradition. Such embodied present-in-the-workshop craft learning is often kinaesthetic, that is, learning through movement. Its unique importance for imparting the craft knowledge for making the very finest of classical instruments has been widely acknowledged, with the violin workshop of Antonio Stradivarius being the most famous example.[2] A similarly important workshop tradition was also found in the popular culture of Dancehall. Following Stone Love owner Winston "Wee-Pow" Powell's recommendations, and those that they in turn recommended, it was not difficult to establish five generations of apprentices in a direct line from the person who invented the sound system technology as it is known today. This chapter describes how these skilled techniques are acquired in an apprenticeship tradition, and then uses this as a model for a research methodology as a practice of listening (Figure 4.1). Listening can be described as triangulating three elements: the listener as subject, the listened to, or sound effect, as subject and the practice of the whole relationship.

The youngest current Stone Love engineer is the fifth generation of engineering apprentices, starting with the inventor of the sound system set, Hedley Jones, 60 years ago. Indeed, the Jamaican audio engineers who designed and built the sound system sets were often one and the same as those who pioneered Reggae music techniques, such as dubbing itself. It also makes a
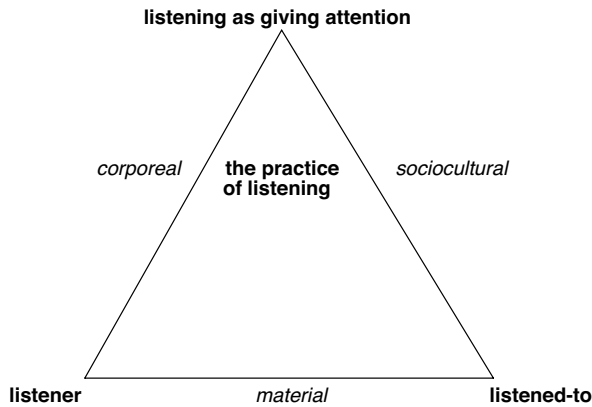
Figure 4.1 The practice of listening.

parallel between what a "prento" engineer has to learn and the learning to listen that is the key component for thinking through sound. Other sound systems, no doubt, have different lineages, but these all originate in the single person who could be described as the "father" of the sound system sound. Hedley Jones, born in 1917, was responsible for assembling the first sound system in the world in Jamaica, as Stolzoff (2002) acknowledges. Jones built Tom the Great Sebastian's amplifiers, the Downbeat sound system and the legendary Studio One itself, and was President of the Jamaican Federation of Musicians. His first achievement in electronic sound engineering was in 1940 when he designed and built a solid wooden body electric guitar, as narrated in his as yet unpublished autobiography *If I Knew Then What I Know Now What a Difference That Would Be*.[3] Then Jones furthered his electronic engineering skills and knowledge with his RAF training as a radar engineer during the Second World War:

> On May 8 of that year [1943] I made a decision to volunteer for war service in the British Royal Air force – RAF. I had aimed that if I survived the war, I would have become an electronic sound engineer of some reckoning; so I applied for the Radar engineering category as an optional trade …[4]

Jones gives the following account of his training and apprenticeship, at the very end of the war:

> … off to the number 12 Radio School in Swindon, Wales, we went for training in basic radar theory and practice. Another three months of intensive Equipment-training. After successfully sitting the various written and oral examinations, we

graduated from the number 3 Radio School in Cosford, Midlands, in June [1945] as radar engineers. Fifteen of the original 18 graduated …[5]

On the basis of this RAF experience, Jones gained the understanding of electromagnetic frequencies that provided the foundation for his designing and building the first sound system proper.[6]

Returning to Jamaica after the war, Jones continued to develop his electric guitar, supplying guitar conversions complete with amplifiers to the leading musicians of the day, Keith Stoddard, Sonny Bradshaw and Ernie Ranglin. But most importantly, he also states that he "originally trained six apprentices." Two of these have had a considerable influence on the subsequent development of the sound system in Jamaican and abroad. The third one of the six was:

Fred Stanford, Duke Reid's sound engineer for a decade. He emigrated with his family to the USA in 1962 taking the Jamaican sound system experience to the New York Borough of Brooklyn, from whence he launched the Jamaican contribution to the world of electronic sound reproduction.[7]

The forth of the six was "Jackie Eastwood: who served as Sir Coxonne Downbeat's sound engineer from 1956 onwards, still operates from his electronic repair establishment in Kingston."[8] Jones also had an influence on the next generation of engineers through his classes at Kingston Technical High School, from where one of his students became chief engineer for J.B.C. (the Jamaican Broadcasting Corporation, then Jamaica's only television station). Another of Hedley Jones's apprentices – the second generation – was his own son John, who followed his father's electronic interests. John in turn had his apprentices, including Denton Henry, making him a third generation engineer. Denton Henry, besides running his own electronic business in Kingston, currently occupies the crucial role of Chief Repair Engineer for Wee-Pow, owner of Stone Love.[9] Prior to this, Henry was sound engineer for the Gemini sound system, where he was responsible for some of the key technological innovations of the 1970s. Starting as a 17-year-old, Horace McNeal was one of Henry's apprentices for a period of some 15 years. This makes McNeal, today, the Stone Love Chief Engineer and Builder, the fourth generation of sonic engineers in a line going back to Hedley Jones.

LEARNING TO ENGINEER

Today in Jamaican inner city communities, having a traditional skill, craft or trade, such as carpentry, motor mechanics, welding, or bricklaying, is the preferred way of making a living.[10] Henry told me how learning the skill of electronics engineering was preferable to manual work: "And going along after school now, [I] needed a work, my mother sent me to do electrical work, wiring house and chopping wall, come home my hand blister. And I said no, I don't want this, me prefer the technician part."[11] Today the Jamaican value for such skilled trades bears comparison to Britain's several generations ago. Furthermore, mastering such skills fits well with the particular value of independence central to what is described as the Jamaican psyche.[12] A skilled trade offers the potential of self-employment as your own boss. In a society strongly demarcated along class lines, this is preferable as a means of employment within your own community, rather than working uptown, stereotypically for some exploitative middle class "brown" man.[13]

In the Jamaican context, the audio engineering apprenticeship operates as part of a web of social relationships based on trust, and the particular weight and significance the culture gives to this idea of respect. This recognises the importance of the apprentice's "personal" qualities, over and above the skills necessary for doing work. Learning to engineer is a matter of orientation, inclination, attitude, interest, creative talent, "natural" ability, vocational "calling," as well as personal taste, as DJ Squeeze emphasised. Indeed, apprenticeship learning can be described as a fine-tuning of the engineer, in the same way as he goes on to fine-tune the set. The engineers' own accounts of how they began to learn about electronics emphasises the importance of these personal inclinations. The idea of apprenticeship is also in common general usage in Jamaica, often abbreviated to the term *prento*[14] and generalised to any learning relationship based on respect.

Henry described how as a schoolboy at home he was always experimenting, practising and generally "mucking about" with electronics. Well before any apprenticeship was entered into, curiosity, exploration and experimentation helped Henry develop his interests.[15] He described how he and his friends began, in the 1960s when there was a local cinema:

> … And we get these little pieces of film that they cut off and throw away and thing, so we started experimenting with the film … So we go under [the house] there and black it up to get the place dark and start to show, you know use the sun light and a mirror and show the film with a magnifying glass and blow up the film trying to make a projector.[16]

Henry continued, "[We] went and get the necessary literature and read and read and read," to find out, for example, how to make a ratchet mechanism to move the film across the gate of their projector. He went on: "But then now we want the voice [laugh] so that was a part of it now that really got us into the sound part, that what got me into the technician business because we wanted to create a sound."[17] This took his interest to radio, from where Henry's attention shifted yet again: "You know by teenager, 18, 19, you know music start to get to you and we went over to the amplifier section because there was like two sound system on my road … We used to like listen them, so we get more into the sound." He continued:

> I knew transistors from that time, I could fix almost any transistor radio, 'cos I used to practise at home, 'cos I used to have friends who used to take … an American correspondence course. And we used to exchange books and thing, used to buy the *Practical Wireless*, *Practical Electronics*, those types of books, read them and practise, increase our knowledge about the whole thing.[18]

It was his practice and technical magazine reading with which Henry secured his apprenticeship: "We buy little things and practise and make me radio and thing, transmitters until one day," he continued,

> El Cid [a well established sound system of the period] had this man working for him and being as he knows I used to practise the thing he bring me to the man and say check this man, him want somebody to work. And I went by the same person's son that you ask me for, Mr Hedley Jones, [that is] John Jones. He was well established in building amplifiers. So I went there.[19]

Henry's apprenticeship to John Jones, Hedley's son, made him the third generation of audio engineers, after which Henry went on to establish the electronics firm that he still owns and operates, and that bears his name. It was here that Horace McNeal became the fourth in this generational line. McNeal told me that, from the early 1960s, his father, Eric, who was a carpenter and builder, also ran a sound system called Ska Rico. He continued:

> I find myself loving the technical part of the sound system. It was in the country really, any time my father's system go down with Denton, I more or less around him. From there I finish school, went to electronics school, the National Electronics School by Red Hills Road, from there I went onto Denton Electronics, that's where I get most of my experience and knowledge.[20]

McNeal explains how he had known Denton Henry all his life: "I know Denton from when I was a kid, his boss and him work for my Dad and his sound system, that's how I get to know Mr Denton, coming back long long long time."[21]

At the time of the research, McNeal had recently taken on a young assistant, Anthony Williams (a.k.a. MC Al Pacino) as his apprentice, making Anthony the fifth generation. "Al Pacino, he's the one I'm giving the baton to, to take it along," McNeal told me. "If him want to. Not force him."[22] McNeal continued: "He's my second [in command]. He's more interested. I have a lot more of guys working for me but them run away, what they're interested in is just the money. But he's interested in knowing."[23] Indeed, sound engineering does not lead to huge financial rewards, and, outside a limited expert circle, does not have great prestige. McNeal and Wee-Pow both continually referred to their "love" for the music as being the essential motive and inspiration for their work:

> You have to love the music. The word "love" [can be] define[d] differently. You have some people say them love it, but they not *really really* love it … sound business I born inna it, grow by it, live by it.[24]

McNeal would tell me how next time I came to interview him he would be building his best set yet, for his son and Al Pacino. But McNeal was also often ambivalent about this. At other times he would tell me he was about to give up on the engineering business, as he said once:

> Right now to tell you the honest truth don't love it no more. The people you have to deal with. The impetus is not there again. I done it because I have to do it. I still don't draw back; still do what I have to do. But that emphasis I usually have, don't really have that again.[25]

On another occasion he continued: "Sometime it get to me. 'Nuff of the time you lie down and relax, and phone ring, and sound broke down and rah rah, too much headache, and at the end of the day not see nothing (on) the bottom line."[26] Nevertheless, McNeal's ambivalence was usually resolved with a more philosophical and practical approach: "I don't know a next [i.e. another] thing. If sound business mash up, me don't know what me a start yet."[27] In other words, without his audio engineering he would not know what to do.

APPRENTICESHIP TRADITION

The Jamaican audio engineers' apprenticeship tradition can be distinguished from other types of learning. While Henry went straight from school and home experimentation to his apprenticeship, McNeal went to college first. This could indicate either McNeal coming from a slightly better-off home, or an increase in educational provision when he was growing up, a generation later than Henry. McNeal appeared to be in two minds with respect to the value of his college qualifications for sound system engineering. He told me:

> Really and truly I go to that college just for the paper, just for the paper. 'Cos what I learnt from the college totally different from what I see on the street. You get the basic training in electronics, like colour code components.[28]

This introduces the distinction between two different types of knowledge. At the bottom of the hierarchy is the practical *know-how*, or *savoir faire*, concerning what bodies do, as if they could be considered as without minds. On top there is the true knowledge of the mind separate from its embodiment – the *know-what*, formal theoretical knowledge, *episteme*, that in this instance can be "read" from the instruction manual circuit diagrams.[29] But then McNeal went on further to explain a more complex reciprocal relationship between these two types of knowledge, what he called "theory," and what he called "on the street" actual practice "knowledge." As he put it:

> [C]ollege is more like the theory; you learn the theory of the thing, which in the theory really helps on the street, actually. But the first hand knowledge of the equipments and the systems, without the theory you would be lost. You see the thing and say what is this? But because of the college you know exactly what it is, 'cos you already learned the theory from in the college. When you're there on the street now, you really come into the *real real* thing, because you have first hand knowledge of the equipments [sic], and how equipment can be blown … But when I actually come on the street now, that's where I get most of my knowledge …[30]

He gave this example:

> So you get this equipment and turn it on, but when you power it up there is no power, and the first thing they tell you to check is the cheater cord, which is the power cord, but when you go on the street you don't have no time for that … Sometimes the things you learn in college is just the basics, but when you go on the street you do the work different.[31]

His conclusion on the value of theory and practice was as follows:

> The theory is really the guideline, the foundation. Just like building a house, you get a plan to build, you dig the foundation and building up you know you're changing from the plan, but you still have the foundation that you have to go by.[32]

So while making the distinction between what he learned at college and the practical understanding he got "on the road," McNeal appreciated their different contributions to his engineering. Furthermore, there was a combining and mixing of both of these with his actual teaching from Henry, and the "book learning" of his own reading: "Yes I was directly apprenticed to Denton, I learnt from him, along with reading, he was a man who emphasise on reading. And I love read from when I was a youngster."[33] Besides "travelling all over, seeing all the different type of [speaker] boxes," he said, "[m]y real trade is as electronic engineer who repair and service electronic equipments, from that I gained all my knowledge and reading, that play a big part, reading, I read a lot."[34]

The relationship of an apprenticeship, between master and apprentice, while not necessarily of the kind that goes on in a classroom, is critical for the craft of sonic engineering. It is of interest to establish what exactly is involved. McNeal told me how he acted as Al Pacino's teacher:

> I give him books and tell him to buy books and read, have to do a lot of reading. Whenever I buy equipment and get the manual for it, I say read and understand. And when we are actually doing physical work now, practical work, I show him what he read and what is what.[35]

McNeal told me his own apprenticeship with Henry was mainly a matter of observation, rather than actual instruction:

> Little teaching more looking. I don't know about other parts of the world, but in Jamaica the bosses they hardly say anything to you, must always look and learn and I'm a very fast learner. That's basically how I get into this thing.[36]

It would appear from this that living craft traditions, such as that of the sound engineer in Jamaica, have a considerably more sophisticated approach to the learning process than they would normally be credited for. Such apprenticeship traditions as are found today in Jamaica date back at least to the craft guilds in medieval times and to oral traditions, which in some instances have survived for literally thousands of years.[37] In the midst of the Industrial Revolution's

displacement of craft production, the Victorian Arts and Crafts movement leader John Ruskin revived interest in apprenticeship. Apprenticeship has more recently been the subject of renewed research interest, notably in the work of Jean Lave (1988, 1990, 1993). Apprenticeship learning, according to Lave, is an example of "theory in practice" or "outdoor psychology." On the basis of her fieldwork on tailoring apprenticeships in Liberia, Lave tells us:

> Apprenticeship forms of learning are likely to be based on assumptions that knowing, thinking and understanding are generated in practice, in situations whose specific characteristics are part of practice as it unfolds … processes of learning and understanding are socially and culturally constituted …[38]

Lave goes on to specify her approach of "treating relations among person, activity, and situation, as they are *given* in social practice, itself viewed as a single encompassing theoretical unity."[39] Sound system engineering provides an excellent example to what Lave and Wenger describe in *Situated Learning: Legitimate Peripheral Participation* as a "community of practice," or CoP, of shared craft interests (Lave and Wenger 1991). In addition to Lave's pioneering work, Guile and Young (1998) also point out this key value of situated particular practice, as does Maxine Sheets-Johnstone (1999) in her philosophical exploration of the phenomenology of embodied movement. There is also the research on cognition itself as practice, what Varela (1999) terms "enaction." According to Edwin Hutchins's *Cognition in the Wild* (1995), besides being situated and embodied, cognition is also socially distributed (as discussed in Chapter Eight). These ideas have also received considerable attention in the philosophy of cognitive science with the concept of the "extended mind" (Clark and Chalmers 1998).[40] To use Gibson's term of *affordance* for the restrictions and potentials of an environment, the apprentice engineer is learning what to recognise in an "education of attention."[41] Most important, learning is not only the learning of skills and techniques, but also the learning-how-to-learn, that is, when and where – and how – to apply them (as discussed in the concluding chapter). This empha- sises the importance of the engineer's evaluations and expert judgement. It also indicates how the goal of fine-tuning has to be located outside their manipulating and monitoring practices – and pinpoints the distinction between the material and motor–corporeal aspects of sounding on the one hand, and the sensory–corporeal and sociocultural frequency bands of sounding on the other.

This approach to apprenticeship learning, as a way of understanding based in socially embodied practice, is entirely consistent with Ingold's (2000)

account of skilled practice detailed above. It also resonates with Bourdieu's (1977, 1990) concept of the *logic of practice*, as detailed below (in Chapter Seven). In these approaches, culture or knowledge is *not* an object or "thing" that can be transmitted or acquired by means of so-called internal "cognitive processes." As Ingold puts it, "skilled practice cannot be reduced to a formula."[42] This contrasts with the assumptions of most current pedagogical theory, founded precisely on the separations between mind, body and world. In this respect, the Jamaican audio engineering apprenticeship tradition provides a valuable example of the kind of social mechanism in which the specifically practical, embodied and personal character of knowledge and expertise can be maintained over decades. The apprenticeship tradition includes not only the corporeal vibrations of sounding in terms of embodied technique, but also sociocultural vibrations, in terms of values, attitudes and expert judgement (as explored in the final chapter). Richard Sennett's *The Craftsman* (2008) has been most valuable in drawing attention to the particular importance of these craft traditions.[43] One of Sennett's points especially relevant here is what he calls "material consciousness," as distinct from philosophising. As he tells us, "this is the craftsman's proper conscious domain, all his or her efforts to do good quality work depend on curiosity about the material to hand."[44] Certainly this type of awareness of material frequencies is very much what the engineer has to cultivate, and Sennett's theme of the values of craftsmanship is taken up in the concluding chapter.

Listening can never be innocent, naïve, conducted in ignorance or, as already noted, reduced to mere hearing. Listening requires attention, and is therefore likened to reading, including the reading of social, rather than literary, "texts." Listening requires a prior knowledge of the system of signification; though concerned with meaning, unlike reading, listening is not necessarily concerned with representation. The engineers' type of listening can be understood as an example of what the philosopher David Michael Levin (1989) has described as *skilful listening* (as distinct from attunement, everyday listening or "hearkening," as discussed below). It is the naturalist and the musician who cultivate skilful listening; the musician, as Levin tells us: "[a]llowing her body to become, itself, a medium, an instrument, for the resonance of sound, the musician can hear sounds, fields of sound, choirs of sound, that the rest of us will never hear."[45] As Pierre Bourdieu (1977) emphasises in describing the *habitus*, this kind of listening is socially constructed. However, as Bourdieu's term suggests, such practices have become habitual, taken for granted and thus they often go unnoticed. This also occurs with listening. As Csordas puts it, "[t]his somatic mode of attention recedes into the horizon, once the technique is mastered."[46]

Sterne's account of the characteristics of modern "audile technique" or "techniques for listening" in *The Audible Past* (2003) is very useful for understanding the practices of the sound system engineer. Though the techniques and technologies of viewing and visual apparatus have a substantial literature,[47] discussion of auditory techniques and technologies is comparatively thin.[48] Sterne's analysis of the auditory field is all the more pertinent on account of the clear differences between his research materials and my own. Sterne's focus is on the nineteenth-century adoption of auditory technologies such as the stethoscope, radio, telephone and gramophone. These are used primarily by emerging American middle-class professionals, such as doctors, telegraphers and new technology consumers. Participants in the Reggae and Dancehall sound system culture, by contrast, are predominantly working-class "massives." Another difference: Sterne's principle site for the production of sound is the recording studio, whereas with the sound system session, this is a locale for consumption as well as production, reception as well as transmission. And finally, Sterne discusses how audile technique "requires the sonic equivalent of private property,"[49] paving the way for its commodification. By contrast, the sound system session is a quintessential shared social event. Most of the downtown "street" dancehall sessions are not even "gated" (as detailed in Chapter One).

Sterne lists six audile techniques emerging from his historical analysis:

1 "Listening becomes a technical skill, a skill that can be developed and used toward instrumental ends," akin to the Gaze for visual modality of observing;
2 Listening is separated from other sensory activity and "once *separated*, it can be *intensified, focused and reconstructed*";
3 "Audile technique was not simply of acoustic space; it aimed to actively *transform acoustic space*";
4 Audile technique problematizes the content of acoustic space and sounds "become meaningful precisely for their *sonic characteristics*";
5 "Audile technique is premised on some form of physical distance and some *mediating practice or technology* whereby proximal sounds become indices of events otherwise absent to the other senses";
6 "Audile technique could come to hold a great deal of *symbolic currency*: virtuosity … could be a mark of distinction in modern life."[50]

Each of Sterne's audile techniques is fully in evidence from the interview material – with the exception of symbolic currency. The sound engineer really does not have a great deal of status outside the limited circle of sound system professionals, in the way the MC, selector and increasingly the videoman

do. The other five listening techniques very much describe how the sound engineer uses the technique of compensation to shape and control the sound of the set.

Such skilled practices are not of course restricted to listening and audio engineering. So it is not surprising that, when social anthropologist Tim Ingold makes his in-depth study of basket-making amongst the Telefolmin people of Central New Guinea, he comes up with very similar criteria to Sterne's. Ingold (2000) describes the "critical dimensions of any kind of skilled practice." He summarises them as follows:

> First, intentionality and functionality are immanent in the practice itself, rather than being prior properties, respectively, of an agent and an instrument. Secondly, skill is not an attribute of the individual body in isolation but of the whole system of relations constituted in the presence of the artisan in his or her environment. Thirdly, rather than representing the mere application of physical force, skill involves qualities of care, judgement and dexterity … Finally skilled workmanship serves not to execute a pre-existing design, but actually to generate the forms of artefacts.[51]

Each of these four dimensions of skilled practice has been in evidence in the preceding account. There is one further dimension: "it is not through transmission of formulae that skills are passed from generation to generation, but through practical hands-on experience." This is very much in evidence in the audio engineering apprenticeship tradition. Ingold's work is especially valuable in its emphasis of the relational qualities of the skilled practices of the audio engineers, and also each of the other crewmembers; as Ingold puts it, "the primary condition of involvement of the craftsman, [is] with his tools and raw materials, in an environment."[52] This triangulation of materials, instrument and agent resonates closely with the present formulation of the material, corporeal and sociocultural vibrations of sounding. What the engineers are listening for is to evaluate the complex triangulation, not only of sound itself, but the *timbre* of sounding.

A RESEARCH METHODOLOGY OF LISTENING

The auditory and oral cultures of Jamaica involve a considerable amount of listening, the sound system itself even more so again. After listening to some of the Stone Love sound engineers as they talk about what they do and how they learn what they do, we can now consider what might be able to learn from them. This is listening as a research methodology, applicable to other

areas that do not have sound as their particular concern. The reason for this is that listening has to be considered as a mode of attention, a way of "giving attention," as distinct from simply responding to a stimulus. Herein lies a difference between human and animal response, where only the former is expressed in the sociocultural waveband. It is an attitude and orientation, as a way of being-in-the-world, in Jamaican called "livity."[53] Furthermore, listening in this respect is not restricted to the auditory sensory modality, as Juhani Pallasmaa explores in *The Eyes of the Skin: Architecture and the Senses*. We can "listen with our eyes." To say so makes more explicit some of the key ideological manoeuvres that the default visual model is so often used to reinforce – the dichotomy between the subject of the viewer and the object of the viewed. Again, listening (and sound-making) make it more difficult to escape the actual, specific and particular nature of material expression, in the way the idea of the image often lends itself to an idealised immateriality.

It is most important to distinguish *listening* from *hearing*. Listening requires the receptive haptic activity of hearing, as with the selector's monitoring. This is often in a reciprocal relationship with active *kinetic* expression, as with manipulating (see Figure 4.6). But there is little that is automatic or natural about listening. Rather, listening provides a way of considering the relationship between the sociocultural and corporeal wavebands of sounding. It is not something done only with the ears, as might at first be assumed. Listening is an acquired, skilled practice, as Sterne, in *The Auditory Past* (2003), elaborates in convincing detail: "Listening is a directed, learned activity: it is a definite cultural practice. *Listening requires hearing but is not simply reducible to hearing*."[54] Listening is a mental, social and cultural process, a distinctive *technique* as such, that has to be distinguished from the physiological facility of hearing, as Barthes points out:

> *Hearing* is a physiological phenomenon; *listening* is a psychological act. It is possible to describe the physical conditions of hearing (its mechanisms) by recourse to the physiology of the ear; but listening cannot be defined only by its object or, one might say, its goal.[55]

Barthes goes on to describe several different types of listening, one of which is "*deciphering*; what the ear tries to intercept are certain *signs*. Here, no doubt, begins the human: I listen the way I read, i.e., according to certain codes" (Barthes 1976/1985: 245, emphasis in original). Though using the term hearing rather than listening, the art historian Ernest Gombrich makes this same point in his *Some Axioms, Musings and Hints on Hearing*, in

which he states: "1. Good hearing does not only depend on keen ears … 2. Hearing depends on knowledge."[56] Listening is a social, cultural and historical technique, rather than only a physiological one, as discussed in respect to the audio engineers' fine-tuning of the set (in the next chapter).

But listening also *depends on* hearing, reminding us of its affordances (discussed below) in the corporeal vibrations of sounding. This is what Thomas Csordas describes as a "somatic mode of attention," that he defines as: "culturally elaborated ways of attending with one's own body in surroundings that include the embodied presence of others."[57] This is a particular relationship between the listening subject and the object of their attention. It is a relationship of the body as a whole, rather than a particular sensory channel, auditory or otherwise. Indeed, listening implies a particular conception of embodiment, to be contrasted with the idea of viewing that has tended to be associated with disembodiment. When considered as an inflection of a reciprocal relationship with sound-making, as with the dancehall trope of call and response, rather than mechanically, only as a "passive" reception of sound, it is the place of listening to ask questions. As Connor (2001) points out, one of the important features of listening or hearing "is that it seems incomplete and interrogative; hearing provides intensity without specificity, which is why it has often been thought to be aligned more closely with feeling than with understanding …"[58] The relational qualities of listening are also expressed, especially in the liminal conditions of the dancehall session, in cooperation with the other senses.

As well as hearing, corporeal vibrations also include the contact or tactile sense of touch. This, too, is informed by sociocultural vibrations, giving touch and touching two faces, as it were. One is where the body is used as a threat, such as a source of power over another, as a weapon for striking a blow, inflicting injury and ultimately death. But most often the sociocultural vibrations of touching are associated with connection and presence, holding and being held, nurturing, caressing, stroking and sexual intimacies, associated with warmth, resonance, sympathetic vibration, entrainment, being in tune and so on. This connection and presence is also an important feature of the sociocultural waveband of sounding, particularly the voice, as discussed in respect to the MC's voicing (in Chapter Six). Sounding's sociocultural associations include tone, texture, timbre and a huge variety of qualities which, like sounds themselves, are most often referred to by citing instructions for their propagation, or recipes as it were, as with, for example, a "valve" sound, or a "vinyl" sound. In short, sounding never loses its embodied feel; it is medium of gesture, in which it presents itself, rather the re-presents something else. Thus the sociocultural vibrations of sounding and touching tend to emphasise

what is most often constructed as the opposite to the sociocultural – corporeal embodiment.

Listening undoubtedly emphasises the particular auditory sensory modality. But it can also do more than this. The idea of listening can also inform the *reciprocal* relationship between research, researched and the activity of researching, for which the call and response of antiphony provides a primary example (as detailed in Chapter Six). It also provides a way of generating research materials, as well as stimulating an understanding of the reflective character of the research process in which the subjects are also expert listeners. Listening as a research methodology also allows an exploratory questioning and a "sounding out" of the research materials. This is listening as a whole-mind-and-body activity, to gloss Idhe (2002). It comple-ments all the practices of sound-making or *sounding*, and far exceeds simply hearing (as discussed in Chapter Three). In this manner, listening is part of a reciprocal movement, breathing out and breathing in, as it were, or giving and receiving, as Marcel Mauss (1950) famously discusses in his anthropo-logical study of *The Gift*. The giving – or "paying" – of attention, is not only a reciprocal feature of listening; it is also a reciprocal feature for the mechanics of hearing (as mentioned in Chapter Three). Listening is not a "sitting back" but a "coming forward." This recalls the practice of bearing witness, where the embodied presence of another person listening and viewing, rather than any expressive action on their part, counts for something, as with the validation of a legal document, for example.[59] Listening also suggests the object of sound, in the way that hearing suggests noise, as does appreciating music.

The *relationship* between listening subject and object, or listener and listened-to, is quite different from the dichotomies of viewer and viewed, or reader and text, on which the major cultural and social scientific debates in recent decades have pivoted. The type of understanding achieved by each is quite distinct. Listening is about relationship, as *I–Thou*, rather than *I–It*, to use Martin Buber's (1959) terms. It is concerned with the embodied qualities of tone, texture and timbre, whose subtleties for the listening subject Jean-Luc Nancy (2007) explores (as discussed with respect to the MC's voicing in Chapter Six). Listening concerns participation, understanding and "making sense." Hans Kayser (1970) is keen to emphasise this with his adoption of the Greek word *akróasis* (ακροασιζ) as the title for his book. He contrasts this with the widespread privilege for the value of viewing, "reflected," so to say, by the fact that the term aesthetics come from the Greek word *aesthesis* (αισθεσιζ) for seeing or perceiving. Listening emphasises the sensual world of actual embodied presence, corporeal performance, matter, energies, inten-sities, relationships, flows and affects.[60] With listening, even when this is to a

recording, there is no separation in time and space between the subject and the object of sounding. Consequently, social, cultural and political theory have tended to give very little attention to the qualities of the sonic or haptic, compared to the vast literatures there are on visual cultures.[61] Indeed, it can be said that the Western philosophical tradition has tended to be much more comfortable contemplating visual objects in space, rather than listening to acoustic events in time.[62] Thus the relationships of listening may be contrasted with those of viewing, observing or reading, without compromising the co-operation and integration of the different sensory modalities that are critical to thinking through sounding.

Traditionally, this visual focus has been couched as abstract ideas of reflection or representation that are often considered to separate viewer and viewed (as discussed in Chapter Three). With viewing, and more particularly, with reading, the object is invariably a text or image produced in another time and place. Viewing and reading are believed to introduce the "critical distance" of interpretation, decoding, deciphering and hermeneutics across the "objective" divide between the spectator and the spectacle. The power in a visual relationship is always inclined towards the viewer, rather than being the kind of equal exchange between listener and performer that, for instance, Small's (1998) concept of musicking attempts to theorise. This visual relationship may be preoccupied with power, with its apotheosis in Jeremy Bentham's panopticon, about which Foucault (1977) remarked that mere viewing had become a medium for surveillance, manipulation and control. Or viewing may be consumed with desire, as in the idea of the *gaze*, beloved of psychoanalytically inspired film theorists.[63] One figure embodying a different aspect of viewing is Benjamin's *flâneur*. Casual and disinterested, he (for it is most often a man) strolls along the boulevards of inter-war Paris, gazing at life passing by and the riches displayed in the windows of the then novel department stores.[64] By contrast, listening relationships have a different feel. If this research were to suggest an alternative figure expressive of the attitudes attaching to listening, it would be the "bashment gals" (see Figure 5.9), the most regular and dedicated members of the crowd in the session. These dancehall followers certainly pay attention to how good they look with their costume, jewellery, makeup and hair, and their dance is explicitly sexual; but they are also completely involved and participating, immersed in the sound of the music, leading the dancing and indeed the vibe of the whole event.

In a scene where competition and rivalry between sound systems is central to Dancehall's "excitement," there are few who would dispute either Stone Love's unique position at the top, or its commercial success. One way that this is evidenced is the fact that Stone Love is the only Sound that does not take part

in the sound system "clashes" in which all other Sounds compete (as described Chapter Six). It should also be noted how the relationship of listening, while taking its cue from the material vibrations of sounding, is not restricted to what are conventionally considered as particular sensory modalities. In short, we can listen with our eyes, fingers, whole bodies or any sense organ, as well as with our ears (see Figure 1.10). So what is the instrument needed to conduct such listening? This has been described as the "third ear," which has a similar mystical ring to it as the third eye. Nietzsche mentions this organ in *Beyond Good and Evil*,[65] as has been taken up in Joachim-Ernst Berendt's *The Third Ear* (1992), an informative account of the ear as a "way to wisdom" based on Berendt's social anthropological research. Also, psychoanalyst Theodor Reik in *Listening with the Third Ear* (1948) describes how "one mind speaks to another beyond words and in silence."[66] As Bianca Theisen puts it: "The 'third ear' Nietzsche asks for would try to perceive this asemantic, rhythmic stratum as a scansion of language, a split between enunciation and énoncé; a rhythmic scansion to which our perception is usually oblivious because it rests upon it."[67] It is of interest to note how it is rhythm that comes into play as what is being heard with a subtle form of listening. Theisen continues: "Rhythm here could be defined as liminality: within the parameters of distinction theory it could be called form, that is, the fact *that* a distinction can be drawn." The "thirdness" of this quality of listening is a theme taken up in the concluding chapter.

Research relationships

The philosophical tradition of phenomenology, from Husserl and Merleau-Ponty onwards, has investigated the idea of a *relationship* of listening, which is useful for understanding research relationships. Listening could be described in phenomenological terms as *being-in-the-world*, intentionality, and an embodied connectedness and intertwining, or *chiasm*, as Merleau-Ponty (1962) called it, between listener and world. Don Ihde developed this approach first with his *Listening and Voice: A Phenomenology of Sound* (2002), and later, in what he calls "whole-body" perception. This term certainly describes the experience of *sonic dominance*. This is listening at very high volumes, with all sensory organs at the same time, effecting an apparently immediate translation into feeling and kinetic dance movement and a dissolving of the listening subject with his or her sensory environment. Furthermore, Michael David Levin in *The Listening Self* (1989) argues for a phenomenological "methodology of listening." The first stage of the orientation of listening Levin carefully describes as skilful listening, as the process of "our primordial *attunement*." Secondly, there is *everyday listening*, then

skilful listening, and finally what Levin calls *hearkening* (after Heidegger's term *das Horchen*). Hearkening requires "letting-go and letting-be … a distinctly spiritual accomplishment."[68] Though he uses the word "hearing" rather than "listening," Jacques Attali has similar intensions when he says at the start of the first chapter of *Noise* that the world "is for hearing. It is not legible, but audible."[69] More recently, listening has also been taken up as an issue of sociology,[70] philosophy[71] and modernity.[72]

But a hundred years before Husserl's phenomenology, listening was certainly recognised by the nineteenth-century German poet Johann Wolfgang von Goethe as an important part of what he called the "way of science." Goethe's scientific work is indeed now being reconsidered after years of neglect.[73] As Goethe puts it: "Our full attention must be focused on the task of *listening* to Nature to overhear the secret of her process, so that we neither frighten her off with coercive imperatives, not allow her whims to divert us from our goals."[74] While Goethe's language may appear a little quaint to contemporary ears, the quality of methodological relationship he describes is entirely in tune with the aspirations of the present research. For Goethe, this attentive listening is central to his particular scientific methodology which he describes as a *delicate empiricism* (*Zarte-empirie*). According to Goethe, "There is a delicate empiricism which makes itself utterly identical with its object …"[75] So what does this delicate empiricism mean for research practice? In the first place, whether cultural or natural phenomena, this idea of delicate empiricism indicates a complete immersion in the particular phenomenon and the processes of perceiving it. This is an acceptance of the phenomenon without judgement and a suspension of evaluation. The immersive aspect of this delicacy is also expressed, very powerfully, with the intensive corporeal and sensory engagement required by the *sonic dominance* of a session where the listener has little choice but to become "utterly identical with the object." This immersion can only occur by means of a complete familiarity with the entire world of the phenomenon of the session, that is the Dancehall scene.

Secondly, Goethe's delicate empiricism as applied to social phenomena can only be achieved on the basis of equality, that is, without the "coercive imperatives" typical of inequalities of power. For the present approach, the word "delicate" describes a non-interference with the phenomenon that serves to qualify the quantitative, objective, if not brutal, manipulation of "data" for which empiricism has come to stand. Listening emphasises the particular type of *relationship* that has to obtain in every social and cultural investigation between researcher and subject. This is a complex personal, social, cultural, political and economic relationship of which the key ingredients are trust and respect. These values are possibly the most salient of all in Jamaican

society as a whole, and on the Dancehall scene in particular, given its location in mainly poor communities. This idea of respect for the integrity of the whole is evident, for example, in the research approach whereby the investigation of the phenomenon takes place *in situ*, as distinct from intervening or manipulating the subject of the enquiry in any way, or experimentally isolating variables outside the context in which they are to be found. The idea of trust between researcher and subject is of course the "bottom line" of any social investigation. Often this is born out of the respect earned by an outside person, in my case a person of Jamaican ancestry coming from "foreign," but taking a serious professional interest in what they themselves took very seriously – their music.

As the research progresses, of course, the researcher becomes more knowledgeable. This trust is also earned by having sufficient knowing of the etiquette and social rules of the scene so as not to embarrass your hosts. Often the importance of such rules only becomes apparent when they are broken. For example, the rule: Don't take photographs without first asking permission from the most important person around. On one occasion I broke this very elementary rule because I failed to recognise the Don – he had virtually collapsed, drunk, behind the bar. I was fortunate that the penalty was only to have the film removed from the camera, unravelled and ritually stamped into the ground, rather than having the camera itself destroyed.[76] Generally, when researching in the ghettos of Kingston, the only way to proceed is to show complete respect to those who have earned the respect – and sometimes the fear – of the local community. This is of course the particular Don of the area, whose auspices then become your protection. He will often let everyone know this simply by allowing you to be seen with him, as was the case, for example, with Gilly Priest, who that night was the Security Chief for the Skateland Session, to whom I had been introduced by the right-hand man of Winston "Wee-Pow" Powell, owner of the Stone Love Sound System (Figure 4.2). Furthermore, one Don arranged for a public viewing of one of my films, so everyone in the community had the opportunity to know who I was and what I did.[77]

Thirdly, together with immersion and respect, the listening of a delicate empiricism also involves a sensitivity, appreciation and sensibility for the fine-grain detail of the phenomenon, with all its tones, inflections, nuances, subtleties and the minutiae of a Geertzian "thick" description (Geertz 1973). This, of course, also includes the research subjects' own understanding of what they are doing, as discussed below. There can be few fields of research more sensitive to the vicissitudes of changing style and fashion than the Jamaican Dancehall scene.[78] In short, a delicate empiricism requires skill, knowledge

Figure 4.2 Gilly Priest, Promoter and Head of Security, Skateland, Half Way Tree, Kingston.

and expertise on the part of the researcher. And this resonates with that of the subjects being researched, described for example as the audio engineer's "connoisseur's judgement" and the selector "reading the crowd." Indeed, the present approach extends two of the key procedures of the methodology of participant observation by taking them completely literally. One is a particular emphasis on an awareness of time,[79] as with the schedule of the session, and the other is the enumeration of frequencies of observed behaviours,[80] as with repeating and reiteration as a technique (the selector's techniques described in Chapter Five). While not a radical departure from a methodology based on observation, the idea of listening tends to encourage participation in the activities of the phenomenon being researched. The fact that the term *observation* alone does not place sufficient emphasis on the researcher's practical involvement is betrayed by the supplement of "participant." With a methodology of listening, I would suggest that participation is simply unavoidable, attesting to listening as a two-way reciprocal process.

By listening, the listener goes half-way to meet the listened, giving the other their attention, unlike simply hearing, overhearing, or eavesdropping, or indeed visual observation. Roland Barthes describes this as a particular

two-way type of listening, where listening is "not [to] what is said or emitted," but "… who speaks, who emits such listening is supposed to develop in an inter-subjective space, where 'I am listening' also means 'listen to me' …"[81] He goes on to elaborate this way of understanding listening as the basis of the relationship between subjects:

> The injunction to listen is the total interpellation of one subject by another: it places above everything else the quasi-physical contact of these subjects (by voice and ear): it creates transference: '*listen to me*' means *touch me, know that I exist*.[82]

In the present research context, these ideas are explored in the discussion of the 'call and response,' or antiphony, by which the MC encourages participation of the crowd in the session, as well as the MC's techniques for using their amplified voice as part of the auditory experience of the event (as discussed in Chapter Six). Louis Althusser's use of the idea of interpellation, or "hailing up," to describe how we recognise each other sonically also describes this auditory relationship.[83] This is called a "shout," a term in common usage on numerous Jamaican radio shows to describe precisely this process of recognition and identification over the airwaves. Althusser suggests that this sonically mediated ideology transforms individuals into subjects "by that very precise operation which I have called interpellation or hailing … along the lines of the most commonplace everyday police (or other) hailing: 'Hey, you there!'"[84] This is somewhat like the calling-into-being-through-sound that Levin identifies as "hearkening." We say, "It's me," and mean it; it, the sound of my voice, *is* indeed me. Sound gives us a particular material bodily identity, distinctive from that of our visual image.

Research materials

The second respect in which listening is important is as a source of research material. These include a large number of one-to-one research interviews, all sound-recorded and then transcribed, and some filmed on video. The subjects of these interviews include sound system owners, promoters, engineers, selectors, MCs, videomen, maintenance crews. This stage of my research took place on research trips to Jamaica between 2002 and 2004. Over this time there were also very significant periods of participant observation of all media of the practice and performance around the sound system, including attending sessions in downtown West Kingston, Mid town and Up town, as well as in the country, and club sessions at Cactus and Asylum (see Figure 1.3). Several dancehall sessions were recorded on video, and many provided opportunities for still photographs, providing the material for the book's figures.

Furthermore, there were visits to sound system speaker box carpenters and engineers' workshops over that period. Besides recording, note-taking took place at the time, written up into field notes directly afterwards. In addition to these primary sources, the research materials also include commercial products in the form of 12-inch and 7-inch vinyl singles and some LPs, music videos shown on local cable channels, and CDs by individual artists, compilations, and mix CDs from particular Sounds, DVDs of sessions, parties and concerts, as well as posters, flyers and advertisements. Such merchandise has a range of outlets, from Kingston's street vendors, often found outside petrol stations, to numerous websites devoted to selling the music and the scene, promoted by artists, record companies and the fans themselves.[85] Also there are the Dancehall fashion and accessory labels and Kingston boutiques such as *Ouch*.[86]

Listening is a key part of the practice of the research process itself: listening to recordings after interviews, while transcribing them; listening to the engineers fine-tuning a sound system set; listening to what they say about what they are hearing; listening to the auditory qualities of a session; and finally, listening to audience or reader comments on my presentation of these research findings. As with many varieties of ethnographic investigation, quite a substantial part of the research data in this study consists of such interview material. Listening carefully to what participants have to say about what they do, as well as observing this, provides the wealth of material for a Geertzian "thick" description. This detailed, fine-grained and nuanced understanding is particularly important for the present research, given its concerns with the practical embodied knowledge, understanding and judgements informing participants' skills and techniques. The present approach is also consistent with Clifford and Marcus's (1986) concept of anthropology as an activity of *writing*, though with a trope – listening – that is twice removed from the scriptural. It is auditory rather than visual, and, of course, listening rather than speaking. Further to such ethnomethodological approaches, the ethnographic methodology as practised by anthropologists[87] has informed the methodology of the participant observation, dating from the sociological classics of Whyte's *Street Corner Society* (1955) and Goffman's *Asylums* (1961). And this participant observation in turn has been used in much Cultural Studies research, initiated by Stuart Hall at the Birmingham Centre for Cultural Studies in the early 1970s. This concentrated on sub-cultures in particular, as with Dick Hebdige's *Subculture: the Meaning of Style* (1979), for example.

But this is not to suggest that participants' own accounts are exhaustive or definitive with respect to what they are doing, and this raises a series of important and interesting issues. Valuable though it is, what the participants

say cannot, of course, be considered as neutral information or entirely objective data. There are two reasons for this. The first is that it cannot be assumed that the researcher's listening is entirely value-free or without expectation. The researcher's listening can be motivated by what they want to hear, what they already know, their research questions, hypotheses and theoretical interests, their research access, their expectations and so on. Also the fact of recording the interviews, putting the subjects on the record, could affect what the subjects say. In this way, my listening as a researcher is informed by this local and personal understanding as well as by the theoretical issues and debates within which the research questions have been formulated. The second reason why listening to what participants have to say about what they are doing does not yield entirely neutral information (in the way that observation might be considered to do) is that participants may or may not be prepared to reveal what they know to the researcher. To take one example, the audio engineers might have a variety of motives for thinking or talking about what they do in the way that they do. The person they think they are talking to will certainly affect this. The audio engineers were certainly ready and pleased to talk with me, as someone taking an interest in what they do. Their services are in great demand within the limited circle of sound system owners, but outside this there is a general lack of recognition for their work. Used to their "back room," so to speak, on the sound system scene, they appreciated the attention. By contrast, the popular MCs and selectors are always in the limelight and have little time for interviews.

Furthermore, what sound crew might tell the researcher in one-to-one interviews might also be affected by them trying to impress me, or use me – to give themselves status on the scene. On one occasion, for example, I was encouraged by one engineer to ask another engineer – who I was due to interview next – what had happened at such and such a session and who first used such and such a piece of equipment. This was to make the point that the first engineer was responsible for the particular technical innovation in question. It would be surprising if engineers were without egos, especially in such a competitive scene, with its ritualised warfare of the sound system clashes that have been such a central feature from the very beginning in the 1950s (as described in Chapter Six). Taking a great deal of pride in their work, what they told me might also be motivated by a desire to distinguish themselves positively from other audio engineers. Again, as their interlocutor, I had the advantage of some understanding, but no involvement with rival sound systems. Also, what they told me could also be intended to have the effect of associating or disassociating themselves from other discourses on sound – such as the technological or professional one of the sound engineering

magazines they read. How and what the audio engineers say is imbricated in power relations. Even their language might be designed as a special code or argot designed to exclude certain groups by "baffling them with science," for example. These might include novice engineers, or women, or, most importantly, other competitors, as noted with respect to the deliberate absence of colour coding of the Stone Love amplifier wiring at Skateland, mentioned above. This is considered to have important competitive advantages – to prevent the opposition from being able to decipher the wiring configuration of the components at the back of the equipment rack. In this respect, what I was asking them to share with me was a form of secret, esoteric or even magical knowledge. As Alfred Gell (1992) highlights for artistic practice, the magic of technology and the technology of magic are often intertwined.

Another consideration regarding the listening the engineer has to do is that sound has a particularly limited descriptive vocabulary. Like smell and taste, sound is not easily represented. Engineers tend to talk about sound demonstratively, by pointing a sound out, and comparing it to others, as we will hear in more detail below. They refer to one sound in terms of another, saying: "like this … or needs to be more like that …" and so on. The other means they have for talking about sound is in practice. In this respect, the soundman speaks in the language of a recipe book. Without recourse to any description of the distinctive taste, smell or texture that makes the dish *what* it is an instruction manual (so called, it might be assumed to be a book for the hands rather than the mind) – tells you simply *how* something is made.[88] The engineers often describe sounds in terms of how they are made – "you hear what happens when I do this …" This is listening to what the audio engineers have to say about what they hear and what they do. Immediately there is a problem – because what and how the engineer hears is not directly accessible.

It also has to be added, however, that practitioners are not necessarily aware of what they are doing, or, if they are, are not necessarily able to express it verbally, as Bourdieu (1977) has noted (and as is discussed in terms of Polanyi's concept of *tacit* knowing in Chapter Seven). This does not, however, invalidate what they have to say. Any privileging of the audio engineers' discourse acknowledges the fact that sonic engineering has created the phonographic sound of Jamaican music as such. There is a pleasant irony in making improvisation key to the engineers' working practice. This is because Levi-Strauss (1962) considered the engineer to be the model for the modern creator of specialised tools for specialised purposes, to be distinguished from the primitive *bricoleur* jack-of-all-trades, grabbing whatever is needed from what lies to hand. The engineers' authority as authors, as it were, of the

Jamaican sound is without challenge, emphasising the importance of their *logic of practice*, to use Bourdieu's (1990) phrase.

Finally, it has to be said that in Jamaica there is also a particularly rich local dialect or patois to be listened to, infused with folkloric expressions and Rastafarian vocabulary and phraseology. Terms like "vibes" for ambience, "forward" meaning to move off, "overstand" for understand, "I-an-I" as a uniquely singular plural,[89] and "this 'ere time," emphasising the timelessness of the present moment, each have a tremendous expressive depth to them.[90] This energetic idiomatic vocabulary is yet another reason to be listening to the subjects of this research, as Wardle (2006) points out with respect to his inner-city Kingston research. Indeed, Rastafarian and other expressions provide an inspiration and, in some instances, as with "vibes," a confirmation of the conceptual vocabulary of the research framework. It also encourages one to pay particular care and attention to theoretical terms themselves. These are couched entirely in the auditory modality with, for example, such distinctions as standpoint rather than viewpoint or perspective, resonate rather than reflect, consider rather than appear, respect rather than regard, emphasise rather than highlight, in relation to rather than *vis-à-vis*, and so on. Furthermore, the recourse to etymology often achieves a conceptual clarity that is otherwise lacking. So the forms of vocabulary and structure of language can be treated as repositories, embodiments, or congealings of what are considered here to be non-conscious practical processes of giving meaning.[91]

Expert listeners

While any phenomenon, auditory or otherwise, can be listened to, listening, in the case of the session and the sound system, in addition, is a key component of the object of the investigation. This includes the skilled listening techniques the engineers use to fine-tune the audio output of the set. Denton Henry told me how the engineer to whom he was apprenticed "shape my whole listening."[92] This is what enabled him to learn how to make the adjustments to fine-tune the auditory output of the set. Henry was told: "If it don't sound right, use the condenser and the resistor to compensate to get the sound that *you* want to hear."[93] This listening requires a skill and an expertise that has to be acquired and developed, a far cry, so to speak, from merely having the physiological apparatus of the ear that enables hearing. Furthermore, there is the expert listening of the MC and the selector playing the music for the session (described in Chapters Five and Six), and the professional listening of the owner for the latest artistic talent and commercial opportunities. The crowd, too, has to learn to listen and to appreciate the sonic *dominance* of the session.

Listening to sound systems in dancehall sessions is a skilled technique that I myself have had to learn, which returns us from the researched to the researcher and the relationship of listening with which we started. In fact, the research could be said to have begun with an immersion in the phenomenon of the session for film-making purposes, over a period of about 15 years, beginning as research for making documentary and fiction films in the UK and Jamaica (as mentioned in the Introduction), rather than social scientific research as such. Subsequently there has been a continuing progressive attunement, refinement, and filtering-through – or, as the audio engineer would say, "fine-tuning" – of various research methodologies. This process of "making sense" has therefore been a cumulative one, starting with participant observation of the crowd, then talking with the audio engineers as prompted by my observation of their work at the Skateland session. This produced a wealth of research material from which was built a more systematic methodology for this study. One example:

> Firebrands of burning cardboard scour the beaten earth of the floor of the open-air dancehall for dropped jewellery. The dawn sun rises over the Caribbean Ocean and a gentle sea breeze rattles the palm tree fronds. The Stone Love crew, victorious from their clash with a rival earlier in the night, play the final mellow track of the session. The last of the exhausted exhilarated crowd straggle out to the neighbouring church for Sunday morning service …[94]

This experience attuned me to many of the issues explored in the present research, such as the relationship indicated here between the secular if not profane world of the dancehall session, and the spiritual world, discussed below.

Living in Kingston, while working at the University of the West Indies from 1996 to 2000, gave me numerous research opportunities, such as a visit to a Kumina session[95] "duty," as a session (see Figure 1.8) is called:

> What the drums say with the drummer's fingers hammering on the stretched goat's skin; what the drums say vibrating the parchment surface; what the drums say as the goat has its throat slit and the spirits take over; what the drums say as the possessed walk over burning coals and up the zinc walls of the small yard where I watch this Kumina duty in a poor suburb of Kingston …[96]

This Jamaican sojourn also gave me the time to build comparatively long-term research relationships and friendships in one particular inner-city community, Jones Town, where I initiated a video project for some of

the local young people. Understanding of the performance technique of each crewmember was further enriched by the theoretical consideration each was given as the findings were written up, chapter by chapter. Thus the crew's performance techniques gradually emerged as the embodiment of the relationship between the material, corporeal and sociocultural vibrations of sounding.

Furthermore, as the sound system crewmembers are themselves expert listeners, there is a homology between research subjects and the researcher as a social scientist. Indeed, many crewmembers, engineers and music producers would consider themselves in this manner – as scientists of sound. The tropes of "scientists of sound" and "dub scientists" have traditionally circulated on the Reggae scene with King Tubby's engineer and producer, Scientist (a.k.a. Hopeton Brown), and with Mad Professor (a.k.a. Neil Fraser) in the UK. Furthermore, the selector and the MC can be considered as adopting the role of experimental scientists in that they have to have complete control of the session in order to conduct and "guide" the crowd safely through the procession of the night. Their job is to "build the vibes" of the crowd in a manner made possible under the special quasi-experimental conditions of the *sonic dominance* that the session provides, reversing normal sensory standards of everyday life. In a Dancehall scene that thrives on novelty and innovation, there is an onus on MCs and selectors to be continually experimenting. This involves testing a fresh catch phrase with the crowd or trying out a new artist to make themselves stand out, stay "ahead of the game," in order simply to maintain their popularity. Likewise, the audio engineers are also continually experimenting with their fine-tuning of the sound of the set and introducing new sound f/x and so on.[97] Thus from a methodological standpoint, the sound system can be identified as an experimental apparatus or a *laboratory*.

Finally, it can be pointed out that the term "science" has two distinct meanings in Jamaican English. One is the contemporary electronic science of circuit diagrams and so on; the other is *obeah*, witchcraft, or black magic, informing African traditions, Haitian voodoo and the Pocomania and Kumina cults mentioned above. During the stringing-up of the set, I observed what could only be called a ritual practice on the part of the audio engineers, as described in the field notes, above. This consisted of washing the *inside* of the speakers with soap and water (see Figure 4.3). Also, the knobs and dials of the control panel were dusted down with a dry paintbrush (Figure 4.4). From this it can be said that they are equally comfortable with this African sense of science as with the modern Western one – the instruments of which, in this instance, included a soldering iron and replacement transistors, as required after the breakdown at the Skateland session (see Figure 2.6).

Figure 4.3 Venus Disco owner and a maintenance crewmember washing the inside of the bass bin, before the session, Skateland, Half Way Tree, Kingston.

Figure 4.4 Engineer Winston dusting down the controls with a dry paintbrush, Skateland, Half Way Tree, Kingston.

To conclude, it is important to note the emergent character of this theoretical framework described in the Introduction as *thinking through sound*. This is to assuage any impression that what is outlined in this chapter could ever have been articulated other than after a long-term immersion in the research materials, and at the conclusion of the research process. Each chapter describes the performance techniques of a particular crewmember as closely as possible, before attempting to identify any particular processes or relationships of relevance to the theoretical framework. The research can therefore be considered as an example of *grounded theory*.[98] It is *grounded* in the sense of being empirical, inductive, emergent and organically "grown" from a practical embodied engagement with the research process and materials. The sound system material has *not* been selected to provide evidence for a pre-existing theory, or an *a priori* category, or make predictions or test an already-established hypothesis. As well as being grounded, thinking through sounding also provides a dynamic conception of theory as *technique*, a practical process, or way of "making sense" of the research materials, rather than a "law of nature" as it might normally be conceived. This is *theory* in the sense used by David

Bohm, with the word theory being derived from the Greek *theoria*, meaning to view, with the same root as "theatre." Thus "theory is primarily a form of *insight*, i.e. a way of looking at the world, and not a form of *knowledge* of how the world is."[99] To give this a sonic turn, the auditory equivalent of "insight" could be Levin's (1989) term *hearkening*, which he identifies as the final stage of skilled methodology of listening, as mentioned above. Indeed, the difference in emphasis itself is noteworthy. Insight suggests a viewer's perspective into an object, an outsider penetrating the surface, as it were. On the other hand, *hearkening*, and even *attunement*, suggest a harmonious or sympathetic relationship between two equal parties: observer and observed. Theory, in this respect, is a *gestalt* pattern, or what Bateson (1979) calls a *metapattern*, made through the engaged process of perception, rather than anything existing before or after this engagement, isolated in the material itself. This is also theory in a sense that Goethe would have approved of, as a complete expression of the phenomenon. As quoted above: "There is a delicate empiricism which makes itself utterly identical with its object …" and Goethe continues by saying "… thereby becoming *true theory*."[100] In this respect, "true" theory emerges from an engagement with the phenomenon, an invitation that the *sonic dominance* of the dancehall session makes it virtually impossible to refuse. With this methodology of listening, attuned to the background of Jamaica's sonic culture, we can now turn to the phenomenon of the dancehall sound system session.

SONIC ENGINEERING

Sonic engineering – audio skills and techniques, the procedure of compensation and the apprenticeship tradition – can all be considered as evidence for how all three material, corporeal and sociocultural vibrations of sounding are mixed together in practice. Sonic engineering also recognises the subtleties and complexities of the relationships between instruments, techniques and media. In this, audio engineers, such as Wee-Pow, Denton Henry, Horace McNeal and DJ Squeeze can be described as "sonic bodies." They are themselves embodied as figures of sounding in, by and with their manipulating, monitoring and evaluating the vibrations of each of the three wavebands of sounding. With fine-tuning, the engineer is also in the middle with the "balance" of the set, responsible for the audio mix of its output. The engineers' compensation techniques are nothing if not a practice of middling: between the sound source of the record and the sound that the crowd hears, between the owner's investment and his returns, between the MC's ambitions and the Sound winning the clash, in the middle of the musical medium of

the phonographic apparatus. He is further in the middle temporally between monitoring and manipulating, as a recursive process, exercising his expertise to fine-tune the set.

These engineers are also further embodied in their relationships with other "bodies," including the ensemble of the crew with its *esprit de corps*, its *ethos*, and its corpus of work, as well as the multiple of many-who-are-one of the dancehall crowd. The engineer is further positioned as the corporeal mid-point between the material vibrations of the hardware of the equipment and the sociocultural "vibes" of crowd. This is especially evident under the psychological "pressure" of repairing a breakdown in a session. This identifies two facets of the corporeal vibrations of sounding, which again locates the engineer in a middle position. While *manipulating* concerns the motor features of the corporeal, *monitoring* relies on the sensory features of the corporeal vibrations of sounding, giving the engineer a sensorimotor range of frequencies on which to operate. But the sensory-corporeal, unlike the motor-corporeal, is also in relationship with the sociocultural vibrations of sounding for its evaluations. This again middles the engineer.

In Caribbean and West African mythology, the figures for middling and mixing are the Trickster, Anancy and the Shape-Shifter, capable of the "magic" of transforming their appearance and being in two places at the same time. As Henry Louis Gates (1988) points out, the Trickster figure of "the Signifying Monkey exists as the great trope of Afro-American discourse."[101] Going back to the founding principles of Western thought, in the Classical world, the mythological figures of mixing and mediation were Hermes, for the Greeks, and Mercury, for the Romans.[102] The person who is in the middle, between two, is the mediator, someone who bridges this divide, a catalyst to bring parties together, operating between their differences. Both sides can trust the mediator, as for example with Wee-Pow, between the police and the Sounds.[103] This idea of the "in-betweeness" of mixing is also expressed in the common-place Jamaican response to the greeting "How are you?" with the expression "betwixt and between." But this idea is far from being culture specific, as Connor (2002a) points out with the Yiddish expression *in mitten drinnen*, corresponding to the German *in mitten darin*, meaning "in the middle of it," or *in medias res* "in the middle of things," or "right in the middle."[104]

Amidst the communications revolution of the late nineteenth century, particularly that of wireless telegraphy, there was immense interest in "mediums" and "channelers." Taking the technologies of communication as a model, they were perhaps so-called as a connecting bridge between this world and the "other," the spirit world. The term "compensation" that the engineers use is also of interest. If this is a deficit for which they are compensating, it

could be said that they are striving for a perfect wholeness, or ideal sound, which, like "Africa" in the Rastafarian belief system, can never be actually attained. This relationship of "middling" is also the definitive characteristic of Heider's *medium* and Serres's *milieu* (mentioned in the previous chapter), and indeed, the plenitude of sonic dominance. Connor describes Serres's idea of mediation as being "that which stands, comes or moves between things otherwise separated or opposed."[105] Régis Debray continues on this line of thought, when he tells us in his *Media Manifestos* that he is "looking not for *that which is* behind, but *what takes place between*."[106] He continues: "It is in reality the intermediate spaces and time, the betweenness of two things or periods, the trough of the wave [*les entre-deux*], that are decisive."[107] This is being between and in the middle, middling, mingling, or, to coin a verb, "betweening."

To bring this chapter to a close, the manipulating, monitoring and evaluating features of the engineers' fine-tuning can be triangulated with the wavebands of sounding (Figure 4.6), as were the elements of propagation in Chapter Two (see Figure 2.1). The reciprocal relationship between manipulating and monitoring, such as with the engineers, is central to cybernetic theory, for instance. Cybernetic feedback requires two types of process: those concerning *monitoring*, information, perception and control; and those concerning *manipulating*, power, action and energy (Figure 4.5). The most basic cybernetic system is simply a sensor for variation or energy, linked to a control mechanism. First-order cybernetics[108] models this dynamic between energy and control in the simple feedback devices that allow self-correction or steering. The thermocouple in a thermostat, for example, can maintain a consistent room temperature. A steam engine governor, as shown with Clark Maxwell's mathematical analysis, maintains a constant speed across variations
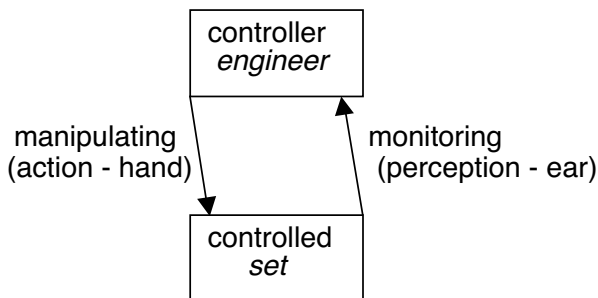

Figure 4.5 Manipulating and monitoring in a control system.[111]

of load.[109] Similarly, the engineers' control of the set's power outputs allows them to adjust its performance.[110]

This idea of the reciprocal relationship between manipulating and monitoring, that is central to the cybernetic model as well as the engineer's techniques, can also be found in the work of the little acknowledged German theoretical biologist Jakob von Uexküll.[112] Uexküll made what would now be called an ecological study of the relationships of organisms, insects and animals between each other and their habitat, or what he called their *Umwelt* (subjective world, but it might be better termed *distinctive* world, so as not to fall prey to subject–object dichotomy). In his delightful *Stroll Through the Worlds of Animals and Men: A Picture Book of Invisible Worlds* (1957), first published in 1934, von Uexküll tells us: "Figuratively speaking, every animal grasps its objects with two arms of a forceps, receptor, and effector,"[113] where the receptor monitors and the effector manipulates. He subsequently continues: "Behaviours are not mere movements or tropisms, but they consist of *perception* (*Merken*) and *operation* (*Wirken*); they are not mechanically regulated, but *meaningfully* organised.[114] The engineers' evaluation of the sound of the set would be an example of such meaningful organisation, made possible by their monitoring and manipulating.

Besides cybernetic feedback, another process useful for understanding the engineer's techniques, and his middling in particular, is that of *transduction*. This describes how *electromagnetic* signals with the electronic circuitry of the set are translated into the *electromechanical* vibrations of auditory sound waves to which the ears – and bodies – of the crowd are sensitive (as described in the previous chapter). The relationship of *transduction* can take place between different media, frequency bands, or milieux within which the set, for example, operates.[115] Transduction is always an analogue, a continuous proportional process (as discussed in the final chapter). As well as varying speaker crossovers, the engineers also manipulate these transduction processes by configuring the position of the speaker stacks to suit a particular site, for example.

These techniques could be describes as the *efficient* or moving cause of the Dancehall scene, which is itself the *final* cause or purpose, to use the distinctions of Aristotle's account of how things come into being.[116] Thinking through the sounding to the phenomenon of the sound system session raises two different types of questions. On the one hand, there are those questions concerning *how* things work, in answer to which the manufacturer's manual for a piece of equipment would be an example. These questions are intended to help build a *model* of the functioning of a sound system on the basis of the kind of laws of the natural sciences, describing general classes or types, such

as *the* sound system session would be said to be. This kind of explanation aims to be objective, concerning single variables and mechanical causes and their effects. It identifies, for instance, the *corporeal* skills and performance techniques of the crew as one central concern for the research. The crewmembers are therefore what Aristotle would call the *efficient* or moving cause of the phenomenon of the sound system scene (as the *final* cause or purpose).[117]

On the other hand, there are questions that ask *why*, and these are of a different *logical* type, as Bateson point out.[118] It is to find out why the sound system session operates in the way it does that the audio engineer's expertise at fine-tuning a set becomes critical.[119] This requires a *narrative* type of understanding that is concerned with unique instances, such as a particular set in a particular dancehall session. Vibrations provide a way of understanding how all media at every frequency are entirely dependant on such particular instances; the Dancehall scene, with its emphasis on style, fashion and originality, provides a striking example of how such issues involve evaluation and judgement. Questions are concerned with feeling, motivation, subjective meaning and taste, social significance and how activities "make sense" to their participants (in ways of which they are not necessarily themselves conscious), rather than evidence of any "natural law." This is the crew's skilled evaluations, expertise, connoisseurship and the logic of their practices by which they make sense of what they do.

One ambition for thinking through vibrations is to take a step towards resolving this dichotomy between these two types of question posed by the disciplines of the sciences and humanities. Both *how* and *why* questions should be considered as aspects of a single whole system, such as the dancehall sound system session, as is explored with the crowd's performance. Gibson's (1966, 1979) concept of an *affordance* is most useful in this respect, as affordances comprise both *constraints*, as "objective" causes and information concerning *how* and *what*, as well as *potentials* and possibilities as "subjective" motivations and meaning concerning *why* (as discussed in Chapter Seven). For Gibson, information and its meaning are never separated, but rather merge together in the organism's relationship with its environment, that is, in the perceptual *system*. By considering both *how* and *why* questions, thinking through vibrations also has the ambition to bridge theory and practice, on the basis for a research methodology that addresses being, doing, becoming or bearing "in mind" as well as "in body." This is intended to recognise what is often considered as an antinomy between body and mind as a productive relationship. Sonic bodies are at the heart of thinking through vibrations, as being both *sonic*, with the intelligence of the mind's ear and heart as much as its eye, and *embodied* in its practice, with the logic of the crew's style, skills and
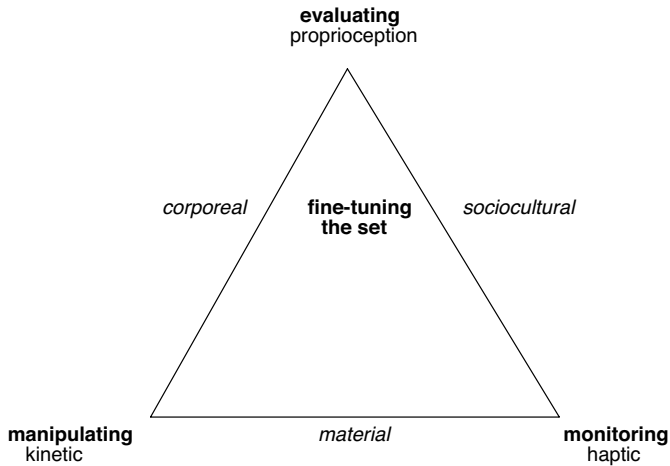
Figure 4.6 The triangulation of fine-tuning: manipulating, monitoring and evaluating.

performance techniques. The crew's *techniques* triangulate the *instruments* and *media* of the sounding of the session. These are reciprocal relationships that resonate in the methodology of listening outlined in the previous chapter. The set is considered *within* the session, and the session *within* the scene, rather than as isolated entities. So it is the different vibrating frequencies or wavebands of these media that now have to be addressed – in order to understand the materials, as it were, from which the crew shape their performance.

One of the points to emerge from this investigation of the audio engineers' techniques is that sound itself has particular values and significance. These need to be considered as demonstrative, gestural or expressive forms of communication as distinct from, and in addition to, the values ascribed to musical structures (investigated with the techniques of the selector in the next chapter). These auditory values of sound itself, such as its "impact," for example, are also distinct and different from those of reflection or representation, such as the meaning expressed with the MC's verbal performance (detailed in Chapter Seven). Furthermore, the material, corporeal and sociocultural vibrations of sounding are entirely critical, as the affordance for both music and speech, and much else besides. This does *not* make the audio engineer's skills and techniques any the less significant or important – or indeed any less rational – as is argued in the chapters that follow. What sounding does demand is a different way of understanding what rationality is – and what ways of knowing are – on the basis of thinking through vibrations. This is what allows the audio engineers, the crew and the crowd in the

session and other figures of sounding to touch and be touched in ways and with intensities difficult to imagine in any other medium. It is also this specifically sonic impulse that has inspired the creative aesthetic of dub music and indeed of bass culture, through what has been described as an excavation of sound.[120] Recognising the importance of the material medium of sounding, in relation to its corporeal and sociocultural vibrations, as they are embodied by the audio engineers' techniques, begins this investigation. It is indeed this concept of rationality without representation, or meaning outside discourse, embodied in the crew's ways of knowing, that is explored through the performance techniques of the selector, to which we now turn.

The Selector and the Corporeal Waveband

Chapter Five

Juggling

"Come in *my* selector" is the oft-heard call from the MC for the next riddim track to accompany their lyrical performance. The "selector" is so-named as the crewmember whose job it is to keep the rhythms rolling. This sonic body has to decide which music track to play at any particular moment. But when the selector is alone in front of the crowd, how do they know which track to play next? This apparently simple question takes us to the heart of the nature of the selector's skills. From the standpoint of the selector, one issue concerns their expertise, ways of knowing and decision-making. What is going on in their mind and body to arrive at the "correct" selection? Most important, how do they "know" which this is? A similar issue arose with the audio engineer's fine-tuning of the set, as to when they know this is complete. This is the issue of evaluation. From the standpoint of the crowd, on the other hand, there is a different question, following as the result of the selector's evaluations. For them, the selector is engaged in the *re*-performance of the music track, in the way that the phonographic equipment of the set re-presents the auditory vibrations of the original recording together with its studio postproduction. Both selector and set are re-presenting, rather than representing, in auditory and musical media. The selector's re-performance of the record in the dancehall session combines the tradition of interpretation, as with a classical musical score, together with that of improvisation, as in jazz, with the "rewinding" of the track or extemporising on top of it. Thus the selector's task is to create a value, excess, or surplus to replace the excitement and vibes of the recording artist's "live" performance. Returning us to the first issue, the only way the selector can do this is with their selection, that is, the combination or sequence of music tracks. Their performance skill is *about* music, rather than musical.

Throughout the session the selector stands within easy reach of the record boxes, turntables and the cross-faders of the mixing deck. His job is to segue from one record to the next with the f/x man, who feeds in yet another auditory layer of the sound effects (Figure 5.1). This provides the Sound's characteristic auditory signature in the mix with the music and the MC's chat. The selector can be described as a specialist in the *corporeal* vibrations of sounding, though of course not to the exclusion of the other two wavebands. While separate people can execute these roles, other performers, like DJ Squeeze, carry out all of them:

> I select myself; I play; I talk on the mic, everything. Its not like one time have one guy playing the music … I was playing and talking at the same time … "Here we go Peacemaker disco …" You're talking on the mic; you're selecting your records; you're playing two or three turntables …[1]

This is the norm on most other music scenes without the size and specialisation of the Jamaican sound systems, for example – as Constantinides (2002) points out, in reference to the Canadian Dancehall scene.

On the current Dancehall scene in Jamaica the importance of the selector's role is well recognised, although their auditory presence is restricted to their

Figure 5.1 F/x man, MC and selector (l to r) behind the desk at the Chuchu Benz session.

selection of music, unlike the MCs. Stone Love selectors such as Gee-Fuss and Rory are cult figures on the scene (Figures 5.2 and 5.3). Squiggy from Bass Odyssey and Ricky Trooper from Killamanjaro are two of the leading younger selectors. Reggae and dub in particular are often recognised as the "foundation riddim" on which many others, such as Reggaeton from Puerto Rico, or Kwaito from South Africa, as well as Trip Hop, Jungle and Dub Step in the UK, have been "built." By contrast, the music genre itself, as distinct from its recording artists and music scene, has received little research attention, with Campbell (1997), Marshall and Manuel (2006) and Veal (2007) as exceptions. Similarly, there has been scant research focusing on Jamaican selectors, despite this being the music scene which helped to establish this specific role. Selecting is indeed the key role for the entire "DJ culture" in which the DJ invariably does the selecting. Arising on the club scene internationally in the 1990s, this DJ culture has generated a considerable literature,[2] not to mention Broughton and Brewster's practical manual on the subject *How to DJ Properly* (2002). As Campbell (1997) states, "Probably one of the most important roles on a sound is that of the *selector*." This is because the selector is largely responsible for "building the vibes" of the session and steering the "groove" for the crowd in the musical procession of the evening, as discussed below.

Figure 5.2 Stone Love Calendar featuring selectors Slaughter, Gee-Fus and Swamp King the Animal.

Figure 5.3 Stone Love Movement's roster of selectors on their webpage.[3]

This chapter describes the selector's role and function in the dancehall session. This is a matter of intensities, as with auditory amplitudes, known as "building the vibes" of the session. It is also a matter of shaping and directing these vibes, using their musical selection to steer the crowd along the procession of the night until dawn. With the selector's re-performance as the phenomenon to be accounted for, the chapter then describes the performance techniques themselves. These are corporeal in that they are accomplished dextrously with the kinetics of arms and fingers. But their re-performance is also "deckstrous," in that it depends on turntables, cross-faders and so on. Furthermore, it is also a phonographically musical re-performance. This indicates the complete interdependence of the three wavebands of sounding, thereby helping to dissolve some of the traditional dichotomies, such as, for instance, that between world and body, as with the mechanical instrument of the turntable and the fleshly ones of selector's fingers.[4]

With the aim of providing nothing more than the most parsimonious account of the selector's re-performance techniques, it can be said that they require a *manipulating* of the sequence of musical material on record or CD. This sequencing or segueing between music items is done either by *cutting* – sampling, or selecting one particular music track or part of it – and/or by *mixing* a smooth transition between one selection and the next. Various additional sound f/x can also be included in the mix. Finally this selector's

segueing techniques can also include *repeating* the record played, or part of it, and feeding in echo reverb sound f/x in response to the crowd's requests for "pull-ups" and "rewinds." Besides manipulating the music, the selector also engages in *monitoring* or "reading" the vibes of the crowd, that is, the effects of their manipulations. The selector's third technique is that of *evaluating* what they monitor, for which they bring to bear their expertise, connoisseurship and "know how" to "make sense" of the feedback from the crowd. The subtleties of such judgements are most akin to the complexities of the timbre of sound. In terms of the propagation model, the selector's techniques of manipulating and monitoring musical and crowd vibes should be considered in the same manner as the audio engineer's techniques with the electromagnetic and electromechanical frequencies of the material waveband of sounding.

THE SELECTOR'S ROLE AND FUNCTION IN THE SESSION

The first thing to find out is what exactly goes on once the session gets underway at about midnight. The Skateland dancehall open-air venue, true to its name, was built as a roller skating ring, located at Half Way Tree in mid-town Kingston, between the uptown middle-class suburbs, and the downtown ghetto areas of West Kingston. Skateland is a closed dancehall venue at which the crowd are charged an entry price at the gate, as they would be for a club or concert.[5] With the particular session observed, promoter Stretch has four top sound systems on the bill, rather than just one, as is most often the case. These four Sounds are Stone Love, Metro Media, Young Fresh and Venus Love. Thus the event is configured as a series of sets, that is to say, as time slots, in which each Sound takes its turn to play. In addition to these observations, my interviews with Stone Love selectors, as well as DJ Squeeze (Figure 5.4), also interviewed about his audio engineering in the previous chapter, have provided invaluable additions to the research materials.[6]

Building the vibes
The crowd enjoys the particular intensity of being present at the event of the session, immersed in an embodied appreciation of the atmosphere or vibes and dynamic energies of sonic dominance (Henriques 2003). "Building the vibes" increases these intensities. As DJ Squeeze describes, the vibe of a good session is so powerful it quickly consumes newcomers:

> It passes on from the people who are there. You come in there and the people going "Wicked, boop-boop-boop." You kind of fit, or melt, right into it. You get right up

Figure 5.4 DJ Squeeze (left), owner and engineer, with his Skyy (sic) sound system sound truck, *Thunder*, and generator *Lightning* (far left).

to speed real fast. And you want your drink and you want to get into the thing. Real fast. In other words, *you coming to the fire you're going to get burnt* [laughter]. The fire is blazing already; you come into it and you going to get burnt.[7]

This idea of combustion and being consumed by fire, and repeating it for rhetorical effect, is a commonplace trope for the Jamaican biblical understanding of the fire of purification. For several years this has been the lyrical trope for artist DJ Capleton, a.k.a. the "Fire Man." The idea of leaping flames "spreading like wild fire" and "catching a vibe" also resonates with ideas of the contagion and infection of intensities that DJ Squeeze mentions above (in Chapter Four). Such phrases express something of the dynamics of auditory energies, in a way that a vocabulary of solid objects and linear cause and effect fail to do. The vibes that the selector (working together with the MC) has the responsibility for *building* are, of course, frequency vibrations. With the material vibrations of sounding, these auditory dynamics are located in the medium of air molecules (as discussed in Chapter Three). These include the particular sound frequencies of the bass-line of the music (measured in Hz and kHz), as well as the beats per minute of the tune's tempo.

The idea of *building* is itself also of interest, in that it suggests the physical substance, solidity and weight of the vibrations of sounding, as with *sonic dominance*. On the Reggae and Dancehall scene, sound has been made sufficiently thick and "massive" so as to become a construction material, whereby musicians can talk of "building a riddim track." Furthermore, the selector has to *tune into* the vibes of the crowd, with the aim of "exciting" the crowd, as the lingo goes. This is accomplished across all three wavebands of sounding, with the selector's musical choices and the crowd's dancing. The *groove* is another term used to describe the way in which the vibes of all these frequencies of sounding can come together in the rhythmic flow of a session, and other music events where there is *hook-up* between drum and bass players.[8] The *groove* of a piece of music indicates the mood and feel of a music track, rather than its more formal structure or genre. Describing the current popularity of Elephant Man, DJ Squeeze is quite critical. He describes the artist as "sitting on"[9] a particular "micro rhythm," where:

> … each one of those songs connect to another song. And what they do is sit on that. And you go to a dance now and that's all they want to play. Because all of that is on one level. And the DJs go to the studio and continue that level. You find that there is a sameness in all of it.[10]

The term "groove" is defined in terms of continuity and similarity, as when one music track is in the same groove as the previous one. This suggests a particular pleasure found in reiteration, repetition, the refrain and similitude (as discussed below), as distinct from that of originality and difference. The crowd's pleasure in the similitude of the groove helps to locate them, as listening subjects in the session. As with the spiral scratch on the vinyl, the groove provides a "home" that the crowd positively want to inhabit, rather than possibly escaping the rut of their working lives. It is familiarity that breeds not contempt, but contentment.

According to DJ Squeeze, such grooves and vibes are not unique to the session: "You get that vibe on the streets, in a market, some neighbourhoods, get it in incidents where a lot of people are." He continued:

> It's almost like mass hysteria. It's the same thing why dogs pack-attack one dog, it's a vibe that pass on. Its *something we don't really understand, but I know it exists*, where your whole body transmits an energy that connects to another person energy, so that in two twos [sic] everybody is doing the same thing without even realising they're doing the same thing.[11]

DJ Squeeze's particular formulation (emphasised) points out the important distinction between understanding-how and knowing-what, where it is implied that the latter is more fundamental than the former. His use of the single pronoun – in "I know" – can also be taken as an indication of the importance of embodied sensorimotor experience of which only the "I" is capable. According to DJ Squeeze, this same vibe is also to be found in church, whose importance for Jamaican sonic culture was noted in Chapter One. He goes on:

> It's the same thing why every say "hallelujah" and "praise the Lord" at the same time. And everyone feel that energy and that Holy Spirit and that energy passes on through from one person to another … If the Holy Spirit in the church already and everybody connected, there's nothing you can do to prevent that Holy Spirit from catch you.[12]

Squeeze calls this vibe "the rhythm of life." He told me, "The rhythm exists. It's a part of life, but a lot of people don't recognise it." Besides "building the vibes," this theme of the ritual and spiritual aspects of the session runs consistently through the research findings, and the crowd's experience of the session (Henriques 2007b).

Steering the crowd
The selector's major responsibility is to steer the crowd by giving a musical shape and direction to the evening as a whole along the groove of their musical "vibes." They are "choosing a circuit," as Chambers (1994: 52) puts it, in reference to personal listening on a Walkman. As the selector is working with the corporeal and sociocultural "vibes" of the crowd in the session, he has to win their respect, coaxing them along and getting them to participate. By contrast, the engineer working the electromagnetic frequencies of the material vibrations of the sounding set can afford more direct manipulation. Under the tutelage of the selector and the MC, the session is unified into a whole experience, with the narrative structure of a beginning, middle and end coming at dawn (Figure 5.5). The selector provides the musical frequencies of the particular tunes, as stepping-stones as it were, for this journey. Broughton and Brewster devote a chapter of *How to DJ Properly* (2002) to instructing the aspiring MC in "how to pace the night," describing four ways of "shaping your set." The typical *procession* of a session, as was certainly heard at Skateland, starts the evening with the back catalogue of classic golden oldies or "revival," then increases the "vibe" and intensity to a climax with the current hits at about 3 am. This is then brought down

Figure 5.5 Dawn, Sunday 18th August 2002, Skateland, Half-Way Tree, Kingston.

again at dawn, for example with Bob Marley tracks, for the crowd to depart in a mellow mood. This is the procession *within* a session, even though this takes the form of the group of dancers processing across the arena of the dance floor, as distinct from the procession *between* selector's sessions when the crowd travels from one to another (as described in Chapter Two). The selector's scheduling of the event shapes the evening in time, rather than in space, as a complement to the maintenance crew's staging. Scheduling and staging also embody the relationship between duration in time and location in space.[13]

With his Skyy sound system, DJ Squeeze also emphasised the responsibilities of the selector's position:

> You move through those rhythms, connect with the people, connect musically with them, it's almost like you become this puppeteer, you are in charge of music to the point where you almost dictate their every move, read their every move, musically. In other words, you take them through different emotions, get them to go crazy, calm them down, bring them up, get them screaming, get them shouting. It's a very big responsibility.[14]

This gives a simple three-part sequence of beginning, middle and end to

structure the whole night as a journey. While only the hard-core sound system followers will experience its entire length on a single night, for most of the crowd it will be sufficiently familiar for them to know where they are, so to speak, at whatever time they join the session. The selector's musical techniques described below, in conjunction with the lyrical ones of the MC (described in the next chapter), steer the musical course of the evening. The idea of procession brings out the ritual character of the event, in which ritualised movement is not so much a physical journey from place to place, but from one stage, or state of being, to another.[15] In this respect, the selector has a goal for the "vibes" of the crowd, in a similar way to the engineer's pursuit of the auditory quality of the set.

SKILLED PERFORMANCE TECHNIQUES

So what exactly does the selector have to do to "build the vibes" and steer the crowd? The various performance techniques described below are based on listening to and observing selectors on Jamaican sound systems over several years. It is also of interest to note that the particular techniques described here coincide almost entirely with those with which Constantinides (2002) chooses to describe Canadian sound system practices. The selector's skilled techniques, as with the crowd's, are to be located in the corporeal vibrations of sounding as *whole-body* techniques, to use Ihde's (2002) term, emphasising the integrated character of the sensory organism. More precisely, selecting is a manual practice, done with the instrument of the hands, the human animal's first and most important tool.[16] Instruction for such practices can be found in *manuals*, such as Broughton and Brewster's *How to DJ Properly* (2002). Selecting is a "hands-on" dextrous practice, with further extra-corporeal instruments such as the tone arm, stylus, mixing console with cross-faders and turntables or record decks, making it also "deckstrous." Such techniques with hands and fingers have their own rhythms and frequencies, which are generally faster than those on the slightly larger scale of the crowd's kinetic performance in dance. Instructively, DJ Squeeze employs an engineering metaphor to describe selecting, with the records as the "tools" the selector has to hand:

> The tunes that you have are the *tools* to achieve your goal to get the people in that rhythm of life. The tools enhance your performance … to carry them [the crowd] through different moods, different vibes, everything.[17]

This musical material can certainly be used very effectively, as DJ Squeeze

continues: "There's this beat, what you do is catch the wave and it passes on. It's like a spiralling effect. *You can do this just by your selection*."[18] The selector's practice is also a performance in the straightforward sense, unlike the audio engineer's, in that it is enacted in front of an audience, crowd or "massive," in the corporeal and sociocultural vibrations of the session. With a good selector there is often a clear kinetic flow, with the movement of their entire bodies to the music, as they dance on their spot behind the turntables. It is then evident that they have not so much "caught the vibe" but are carrying it, as can often be observed.[19]

Selecting is also performed in a third way, in that the selectors *perform* the musical material of the records they play. Bourriaud (2002b) calls this "performing the archive," which is certainly what the phonographic apparatus of the sound system set requires, or at least encourages. Brewster and Broughton put it as follows: "Out has gone the idea of introducing records and in has come the notion of *performing* them."[20] In this way, the selector makes a performance of already performed music, as does the Hip-Hop producer with their samples. This creates what Mudede (2003) describes as *meta-music* (discussed in the next chapter), further resonating with the set as a phonographic instrument for "reprocessing a product that has been processed already," as one engineer succinctly described it (in the previous chapter).

Manipulating

The selector's manipulation – what they do – can best be described in terms of their practice, together with the *instruments* that make their techniques possible (as discussed in Chapter Three). So a selector is only ever such as a selector-with-instrument; and his instrument is always an instrument-in-practice. The intimacies of this configuration of human–instrument relationship, following Mauss (1992) and Latour (1995), have to be explored in further research. In the session, the delicacies of the engineer's treatment of the equipment, such as using a dry paintbrush to remove specks of dust before the selector begins to play (see Figure 4.2), can be taken as indicating that the crew's relationship with their instruments is more than merely mechanical. By contrast, conventional approaches tend to make a hard and fast distinction between instruments as separate passive objects, awaiting the equally separate agency of their operator.[21] In the case of cutting, the selector's instruments include fingers and arm together with the stylus and turntable. For mixing, this practice is comprised of the selector's dexterity combined with the device of the cross-fader. Similarly, the selector is also always selector-with-materials; that is, the contents of their record box. The selector can thus be described,

like the audio engineer, as a figure of sounding, in the middle of its material, corporeal and sociocultural wavebands.

Cutting: "bass drop" and "the touch"
The selector has to decide which particular tune, or part of a tune, to include in the sequence of music played to the crowd (described in detail by Broughton and Brewster 2002). As Campbell states, "The selector is responsible for managing the turntables – *selecting* and playing the records & CDs."[22] A selector's choice is limited to the musical material they have carried to the dance, as well as what the Sound can afford to purchase in the way of the expensive *dubplate specials*.[23] The manipulative practice of cutting can be considered simply as the corporeal movement of taking out a record from the box, placing it on the turntable, and lowering the stylus into the groove. There are two aspects to it: one is positive, about what is included, the other negative, about all the other tunes excluded by being left in the box. This characteristic of exclusion, or subtraction, is shared in different ways with both the phonographic character of the sound system apparatus, which excludes "live" performance, and the genre of dub music in which most of the musical elements besides the rhythm and bass are removed. A different example of cutting is provided by the "bass drop," by which the selector or mixer, with the turn of a control switch, removes the lower frequencies from the music mix, leaving the mid and top. Furthermore, according to Constantinides:

> A variation of this technique is to "cut" or take away the music entirely using the mixer's fader, leaving the crowd in a state of greater suspense. The idea is then to reintroduce the bass or music at a moment of maximum tension, such as just before a verse begins. During this break in the song, the deejay [MC] can embellish the sense of tension with chatter and anticipate the striking return of the song to its full range.[24]

Constantinides goes on to make the point that this performance technique "is important because it is one of the first instances where the influence of the sound system was clearly heard on recorded media produced in the studio", that is to say, on the dub versions of tracks developed in the late 1960s and 1970s.

With "the touch," the subtractive technique of cutting is used at the more micro level of one particular section of a track, a riff, or a few bars. The selector simply lifts off the stylus from the record being played almost as soon as he's set it down, a technique that, according to my observations, reached a peak of popularity in about 2001. By giving the crowd only a little taste of a tune they already know,

the selector is blatantly using their familiarity with the tune as a tease. With the touch, the selector encourages crowd participation by flattering them to become accomplices, the "in-crowd" of those "in the know" – by completing the tune themselves and sometimes voicing it out loud. The selector's technique of the touch is an instance of the positive aesthetic value of what is subtracted or hidden, in the same way that areas of the body's skin teasingly only half-revealed have more sexual allure than if they were fully exposed (a technique *not* in evidence in the dancehall session). With the touch, the tune is positively defined by its absence, played just enough, but no more, to allow its recognition. Engineer and producer King Tubby, creator of the dub version, is credited for pioneering this classic *sound system* technique in the recording studio.[25]

In both session and studio, this recollection acts as a musical trigger for the memories, feelings and associations the crowd already holds. In this respect, the selector's touch is a musical synecdoche, a part that stands for the whole. Its particular pleasure is not only that of familiarity, accessing what has already been memorialised; there is an additional source of pleasure in the experience of *interiority*, or intimacy. These are feelings already embodied, present "on the inside" as it were, ready to be invoked, rather than provoked by an outside musical stimulus. This is the crowd's subjective experience of the music – as Self rather than Other. In this respect, the techniques of the touch and the rewind (discussed below) are symmetrical opposites. For the former, the pleasure is absence, whereas for the latter it is the cyclical alternating frequency of presence and absence. By contrast, when a stage artist or an MC invites their audience to complete the song by singing the chorus themselves, the touch becomes a technique of addition. This play of touch between connection and separation is a continuing theme of the research findings.

Mixing: "juggling"

The selector's primary job is to ensure the evening's smooth musical flow, making seamless segues between records, as Campbell notes: "A selector must also be skilled in making a smooth transition from one record to the next (*mixing*). These skills often take years to develop, but are done with such style and ease by the good selectors that they often go unnoticed."[26]

This is the second type of manipulating practice, of which there are several versions. One kind is *transition mixing*, which involves fading one tune down and bringing the next one up, and mixing the tail of one tune to the head of the next one, known on the Dancehall scene as "beat matching," "juggling" or a "version excursion."[27] "Juggling" is one of the ways in which the groove is estab- lished for the crowd in the session, and for the Dancehall scene more widely. The term suggests the manual dexterity of manipulation, to keep everything in

the air, as well the monitoring. It is also interesting to note that, in the lingo, the same term "juggling" is also used for making a living, "hustling" or "surviving" by drug dealing and other "moves" in the informal street economy.

For the selector, juggling requires matching the beats between the "riddim" tracks that are a distinctive feature of the Dancehall music scene. These "riddim" tracks are individually named, with same one being used by numerous different artists to accompany their own individual lyrics.[28] The selectors, and the radio DJs, make a point of playing a whole series of artists on the same riddim, as a way of building the affective intensities of the groove.[29] Sometimes, from the thousands of riddims produced every week from Kingston's hundreds of recording studio, there is often one that captures the vibe of the entire Dancehall scene, internationally, for a season. Recent examples include Damian Marley's *Jamrock* riddim in 2005, and Lenky Marsden's *Diwali* riddim in 2004. Others, such as Wayne Smith's *Under Mi Sleng Teng*, have been used in hundreds of versions by hundreds of artists over the decades.

With transitional mixing, the selector aims for a smooth, uninterrupted flow of the music from one track to the next. As Constantinides tells us: "This creates a continuous flow or 'groove' that extends the rhythm indefinitely. This is akin to American disco dance mixes whose non-stop groove is meant as a service to the dancers."[30] Continuities of musical flow increase the intensities of the crowd's experience (as with "version excursions", mentioned above), in a completely different way to interruptions and repetitions. Constantinides describes this:

> A good mixer must essentially make the chosen records flow into each other … beat-matching provides a smooth, almost imperceptible transition between songs, contributing to the establishment of a "vibe" or atmosphere … This intimate relation between mixing and song choice is perhaps the main reason that the mixer and selector roles often coincide with one individual. When this occurs, the label selector is the one that is applied.[31]

Prior to the introduction of two-turntable sound system equipment, there was always a silent pause between each track while the selector changed the record. The crowd stood still, as if to attention, or praying in a church, as one sound follower told me, adding to the ritual of the event.[32]

Secondly, there is *add-in mixing*, where some of the special sound f/x, or the MC's voice on the mic track, are fed into the on-going music mix. On most sound systems the f/x man is a separate crewmember, with their place on the other side of the MC to the selector, and with the role more or less of an assistant (see Figure 5.1). The f/x man with his console has access to a considerable number of sound effects, which he can layer-in on top of both

the music track in play, and the MC's voice track. "Back in the day," I was told by Stone Love engineer Denton Henry, these f/x had to be played-in from a record, rather than stored in computer memory.[33] These sound f/x are particularly evocative of the crowd's auditory experience of the selector session, and consequently studio-recorded and mixed music tracks have taken to incorporating these same f/x.[34] Their effect is so great that sets were built with three audio channels feeding three speaker columns, rather than the normal stereo two-channel configuration, according to Denton Henry. This was to achieve a panning, or travelling effect, with the sound circling around the crowd (as yet another instance of rhythmic cycles in the session).

In mixing these musical and crowd frequencies, the selector makes use of two particular technological instruments, both of them innovations of the mid-1970s according to Denton Henry.[35] One was the introduction of the second turntable, or record deck, that has remained the standard ever since. This second music source, in parallel to the first, significantly increases the selector's creative options. The cross-fader was the second major innovation. The function of this device is simply to mix the signal from two inputs, such as the two turntables, into a single output for amplification. With this assemblage of two turntables and cross-fader, the selector can manipulate musical frequencies with the techniques of cutting and mixing.

Repeating: "re-wind" and "pull-up"
The third manipulating practice is repeating. The "re-wind" or the "pull-up" is the selector's most trusted technique for building the vibes of the session with the crowd. The crowd often requests a record to be stopped and played again immediately, from the beginning, referred to as a "forward" or a "wheel." "Back to the top 'til the very last drop" is an oft-heard call over London's pirate radio airwaves as the MC demands callers' phone requests to start playing the record over again. These are instances of repeating at the frequency of the individual tune or record. The movement of repeating is cyclical, returning to the beginning each time, which cannot be enacted without cutting. Indeed, in the session, the only split second of silence (on contemporary two-turntable sets), is the moment of sensorimotor "processing" time for the selector to lift the tone arm off the vinyl and position it back at the beginning of the groove.[36] Given how important the continuities of mixing are for building the crowd vibes, the interruption of the flow of the session occasioned by the cut of repeating is evidence of the distinct and different intensifying value of this practice. It should also be remembered that repeating is entirely within the auditory character of the material vibrations of sounding, given its incessant need for propagation (as discussed in Chapter Three).

The idea of repeating is attractive for several reasons. One is that it offers an analysis based on movement and process, that is, the intensities, energies and dynamics, as well as the static structures. Another is that it allows an emphasis on auditory phenomena, characterised by their particularities and relationships, as well as on visual phenomena. Furthermore, it allows for an understanding of identity, continuity and the constitution of phenomena in terms of difference, variation and propagation, as well as similitude, consistency and being. Finally, repeating is what the body does in all its rhythms, cycles and pulses. The effect of repeating is most often to add additional force, intensity and emphasis to all kinds of movement, from the repeating drum pattern of the bass-line of a Reggae "riddim" track, to the repeated use of a particular phrase, a stock-in-trade of rhetorical techniques, as used for example by the MC in the session (as detailed in Chapter Six).

Repeating is also evident in the echo, delay and reverb type of sound f/x that the f/x man has at his disposal (as distinct from the add-in f/x discussed above). Reverb introduces an audio feedback loop whereby the set's output is played back into the music mix, with a time delay, exactly as a music producer does in the studio.[37] To describe reverb in terms of antiphony, reverb simultaneously mixes the music with itself, responding to its own call, while the call is still being made. Reverb is a special kind of repeating, enacting both cutting and mixing together. It can be described as the playing of the "original" almost simultaneously with its "copy," and is central to the music studio technique of dubbing (as discussed below). If improvisation is the reinvention of a different original in every performance, both musically and lyrically, then the rewind deploys this same technique in the material medium of the phonographic technology of the set, and the corporeal and sociocultural vibrations of the session.

A further instance of repeating is found within the music itself, in the repeating of certain riffs, musical or sung phrases, drum loops, break beats, sound effects and so on that have come to characterise Hip Hop as much as Dancehall music. Hip Hop music is generally credited with re-purposing phonographic technologies of the turntable to make them instruments of production, rather then reproduction. This allowed the selectors to break into the single vinyl spiral groove, cut out only the desired portion, and repeat "the best part of a great record" as 1980s Hip Hop pioneer Grandmaster Flash is quoted as saying.[38] Looping combines the sample with itself sequentially, rather than more or less simultaneously as with reverb, responding to its own call every time, as Schloss explains:

While looping may not change the *sound* of the music – its rhythm, melody, harmony, or timbre – it changes the entire sensibility with which this sound is

interpreted. Melodies become riffs. As the end of the phrase approaches, the listener begins to anticipate its beginning, in the best beats, in fact, a virtual call-and-response develops in which a break actually answers *itself* – the end of the break establishing a tension that is resolved by the return of its own beginning.[39]

And this technique of looping became an aesthetic form or principle with affects, according to Rose:

> Time suspension via rhythmic breaks – points at which the bass lines are isolated and suspended – are important clues in explaining sources of pleasure in black musics.[40]

The particular role repeating has in extending time is as explored in respect of the crowd in the session.[41] Furthermore, Eshun points this out in respect to echo and reverb in dub mixes:

> As soon as you have echo, listening has to completely change. Your ear has to chase the sound. Instead of the beat being this one event in time, it becomes this series of retreating echoes, like a tail of sound.[42]
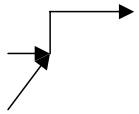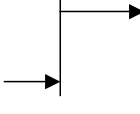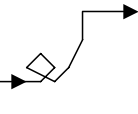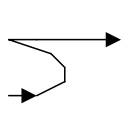
crewmember/ vibrations	MIX	CUT	MIX	CUT
	same	different	REPEATING	
f/x man material vibrations, auditory	f/x as layer on top of music	"bass drop"	reverb, echo: same sound added back in with delay	
selector corporeal, vibrations, aural: music rhythm	"juggling" between music tracks	selecting next record from those in box	looping	pull up, rewind, the record from top
MC sociocultural, oral, lyrics: prosody and message	vocal tone, timbre; flesh/ vowels; versioning	ridding the riddim; teeth/ consonants	rhyme call & response	rhetorical reiteration clash
patterns, intensities				

Figure 5.6 Auditory flows and the principles of cutting, mixing and repeating.

Thus repeating delays the inevitable passing of the musical moment, prolonging and stretching it out in time. Furthermore, as Doyle (2005) describes for pop music up to 1960, echo and reverb add a spatial dimension and a sense of place to musical sound.

Finally, we come to the rhythm, beat and bass-line within the music itself. This is nothing but a repeating intensity, an inflection, pulse, or emphasis in the continuous movement of the auditory frequency of the sound. This gives the sound heard by the crowd an asymmetry or unevenness, in the way it has texture, timbre and grain. Such repeating cycles occur irrespective of the materials or frequencies at which they are articulated, as Turetzky (2002) points out, but are most effective in "the lower frequencies," to use Ellison's (1947) phrase (as discussed in Chapter Three). Certainly the entire configuration of the session is geared towards intensifying the visceral appreciation of the bass-line, as this is manipulated with the selector's cutting, mixing and repeating. The f/x man and the selector's practices are summarised in Figure 5.6, in comparison with those of the MC, described in the next chapter.

Monitoring: "reading the crowd"
The selector monitors the corporeal and sociocultural wavebands of sounding. Selectors are aware of the quality and volume of the sound that the set is generating – that is, until the set breaks down. Then he or she has to call on the expertise of the engineer, as happened at about 2 am during the Skateland session I observed.[43] So monitoring is evidently a corporeal and sensory faculty, in that it requires an auditory sensitivity dependent on the physiology of hearing. Indeed, the introduction of headphones on which the selector could monitor the music on the turntables before being heard by the crowd was another of the key technological innovations of the 1970s, I was told by audio engineer Horace McNeal.[44]

In addition, the selector's monitoring also includes the vibes of the crowd and their understanding of their music that ultimately identifies where a particular music track fits into the entire Dancehall scene and its history. So, monitoring also concerns the sociocultural waveband and has to be highly selective to give special attention to the particularly important features of the overall auditory scene. This is organised in *auditory Gestalts*, as visual scenes are widely recognised to be, as described in detail by Bregman (1990). This underlines the importance of the distinction between hearing and listening made in respect of the sound engineer's practices (discussed in the previous chapter) and the sociocultural and other vibrations of sounding (discussed in Chapter Three). But it also indicates some of the common features of flows at both the material and the sociocultural frequencies of sounding; that is, the

selector's practices of manipulating and monitoring and those of the sound engineer. It might be expected that selectors have to undergo a training process for acquiring their expertise, or connoisseur's judgement, in exactly the same manner as do the engineers. This is indeed the case, though in a less formal way than with the engineers' craft apprenticeship tradition. Very often a selector will have had a father, an elder brother or another family member in the sound system business, and have developed their musical ear from a very young age.

The key to the selector's applying their techniques correctly is their ability to "read" the vibes of the crowd itself, as their music, within the sociocultural vibrations of sounding. As DJ Squeeze puts it: "[You] *have to read your crowd*, read them and know what they want … read their every move."[45] His repeated use of the term "read" indicates how much this practice, like any education, has to be acquired. Similarly, Broughton and Brewster (2002) devote considerable attention to this question of "how to read a crowd." In addition, the selector has to develop a musical judgement, to know their musical material in order to match this to the crowd, according to Squeeze:

> The best thing for a DJ is *schooling*, a wide variety; listen to everything that you can play. I used to go out with the most amount of boxes, seven of those. And someone will say to me how come you go out with so much tune? I want to make sure that when I catch the rhythm I have the *tools*.[46]

Squeeze goes on to complain that this schooling was currently not at a high standard:

> The DJs nowadays are not doing their *homework* to find out what is truly a good song, what makes a good song: content, sound, engineering, everything about it, the way its goes across, how does it feel when it play. …[47]

With this "reading," "schooling" and "homework," the selector's specialist musical judgement has to be developed in much the same way as the engineer fine-tunes their skilled listening. The selector's musical expertise is critical. All the selected records have their particular musical characteristics and qualities, such as tempo (fast/slow), artist (male/female, singer/MC), period (classic/contemporary), recording (commercial/special) and so on. Then the selector has to choose one *version* rather than another, or this *piece*, as a record is called, in comparison with that one. As Campbell puts it:

> The immense knowledge and skill required for this role (at least if you want to be considered any good) and the difficulty of this position is often under estimated.

> A good selector has to know hundreds of records and CDs (including the name of the artist and record/CD's location in the record box) off the top of his/her head.[48]

Furthermore, the selector's reading of the crowd is visual as well as aural. Besides considering all the noises, shouts and responses of the crowd as critical, the selector will also look up from the record box and turntables to "scope" the dance and other movements of the crowd. With the increasing importance of dance, the videoman, camera and projection screen are now what is expected of a dancehall session.

Given the realities of the social setting of a downtown session, the selector's reading is often more than only a matter of style, taste or aesthetic judgement. As Campbell indicates: "A bad selector … can be easily pointed out, and a displeased crowd will usually not hesitate to make their disapproval known (those who know what the *Shandi Bottle* routine is can attest to this)."[49] The Jamaican selector audience is notoriously vociferous, never hesitating to "fling bottle" (shandy, or anything else), at an artist or MC who does not meet their approval. The selector in a session is certainly more immediately vulnerable to the crowd's assessment of his or her work, compared to a radio DJ.[50] So the selector's mixing between the frequencies of the crowd vibes and those of the contents of their record box is not one between equal parts. The selector is always obliged to mix the music to the crowd, rather than vice versa, with the crowd calling the shots, or the tunes. Reading the intensities and *vibes* of the crowd correctly depends on a considerable amount of experience. This is to say that *monitoring* may be characterised as haptic, receptive, passive and subjective, operating in relation to *manipulating*, which is kinetic, active, instrumental and objective. This expresses the two sides of touch: actively touching and passively being touched, moving and feeling, kinetics and haptics, and the simultaneous separation of self and connection of other (as mentioned in Chapter Three). This gives some idea of the level of skill and expertise required for the selector's job.

Evaluating

Selectors will say they have to have the vibes for their performance, for it to "feel right" and for them to do a good job. This is rarely, if ever, a rational analysis, or necessarily even a conscious one, but rather often deeply embodied as professional instincts, intuition, taste, "hunches" and "gut feelings." This is what DJ Squeeze described, with reference to his fine-tuning of his set as "my harmony with the sound" (in Chapter Four). This requires the selector being on the beat, in the groove, riding the rhythm of the event. For Squeeze, this is a special skill, not something that anyone can do:

I think it's a gift, but a lot of people don't recognise it as a gift, a gift that you get to connect with people that way, a communication … Even now I recognise how powerful it is … And when you as a DJ can bring that energy out of people – you're gifted by playing popular music. A lot of the DJs don't realise they have that power. They take it for granted and say they mash up the place … But I realise that that is a gift and if harnessed properly you can bring good things with it.[51]

The "good" timing required is characteristically elusive, transitory and ephemeral, as is typical of auditory events.

To understand how the selectors' performance is so effective, as with the audio engineers, it is necessary to suggest that it requires *evaluating* as a third kind of practice. Evaluating couples techniques for manipulating – cutting, mixing and repeating – with those of monitoring. It is important to emphasise how the practice of evaluating is more than simply monitoring, in the way that listening is more than hearing, though the latter requires the former in each instance. That is to say, listening cannot occur without hearing; neither can evaluating take place without monitoring. While monitoring requires attention, evaluating requires *intention*. This is attention directed to a particular object, goal, purpose or destination, as with Husserl's concept of *intentionality*, which, as Butler (1990) emphasises, gives the meaningful content for all embodied relationships.

With evaluating, feed-forward is what counts. For monitoring, by contrast, it is the feedback from the crowd's response to the tune the selector has just selected that is most important. In a homeostatic system, where the goal is to maintain equilibrium, feedback and feed-forward amount to the same thing, and past and future are equivalent. This is not the case with the sound system session, where the selector aims to create a particular shape to the evening, steering the crowd along on a "musical journey," described as the *procession* of the night, above. The selector's evaluating is a skilled professional judgement, in the same way that the engineer's connoisseur's judgement is of the sound of the set.[52] The choice to place one tune on the turntable rather than another is the result of an almost infinitely long and complex chain of previous decisions. The results of this, at once the most central and most elusive of any kind of performance, can be called "style." This has been variously named as "swing," or "cool" in the USA,[53] "ginga" in Brazil,[54] or simply "attitude" on the UK Raga scene, and is often associated with a particular form of embodied movement.[55] The American folklorist Zora Neil Hurston (1934) describes such specifically African-American "characteristics of expression," and Henry Louis Gates (1988) accounts for them as rhetorical *signifyin(g)* tropes (as discussed in Chapter Six). In this way the actual manipulating action of cutting, mixing or

repeating and its monitoring is only the final product of the kind of practice of evaluative judgement that is common to the performance techniques of each of the crew (as detail in Chapter Seven).

There are several further issues to pursue from these findings. One would be an analysis of the playlists of a particular session. This would enable a more detailed understanding of the precise "flow" of the session, especially if this was correlated with an account of the crowd's activities and responses. Another would be to take the selector's cutting and mixing techniques as creative methods or cultural tropes that could be compared to others (as is undertaken in the next chapter). Thirdly, it is also possible to enquire more deeply into the nature of the selector's decision-making processes, that is, their ways of knowing. This is an important feature of their skilled re-performance that is also shared with other crewmembers, this issue being taken up in the concluding chapter.

Chapter Six

Cut, Mix 'n' Rewind

This chapter locates the selector's performance techniques of cutting, mixing and rewinding in the broader context of modernist performance and creative techniques, included in both avant-garde and popular traditions, as with Hip Hop "looping," for instance. Further to Dick Hebdige's classic study, *Cut 'n' Mix: Culture, Identity and Caribbean Music* (1987), the rewinding and repeating central to the selector's re-performance raises the key theoretical issue of repetition.[1] As would be expected, a model of periodic propagation in sounding literally revolves round repetition, as with the repeating frequencies of vibrations. This offers the opportunity to approach the concept of repetition, the refrain and reiteration – and specifically, repeating with difference, as with Reggae versioning – as the linchpin of progress, rather than its antithesis, as it has traditionally most often been considered.[2] Repetition is the engine for the propagation of affect, as this chapter explores.[3]

These considerations position the selector's performance as a typically modernist trope, but with a distinctive inflection "ina dancehall style." The selector's style, skills and performance techniques of cutting, mixing and rewinding can be considered as their distinctive "version" of the kind of the recursive testing and retesting of compensation that the audio engineers do (discussed in the previous chapter), and will be found in the repetitions of the MCs' rhetorical techniques (described in the next chapter). Selecting can be described as yet another triangulating technique amidst the three wavebands of sounding (Figure 6.1). Their juggling is a play of *both* same *and* different, in a system of analogue variation, as distinct from the famous Deriddan play of difference, or difference, in a diacritical system. Furthermore, their cutting, mixing and rewinding also resonates with the Reggae music producers' techniques in the recording studio. The selectors' re-wind can be considered

as a slow-motion version of the studio engineers' signature echo and reverb techniques. This broader context is useful in so far as it might go some way towards understanding how and why such apparently simple techniques can have such substantial effects and intense affects for the dancehall crowd. Such techniques can be likened to the way the reiteration of simple mathematical algorithms can generate patterns of very considerable complexity, subtlety and beauty, as for example with fractals.[4] These provide examples of how meaning can be patterned in ways that are not mimetic or discursive (as discussed in the concluding chapter). First to be considered are the different kinds of cutting.
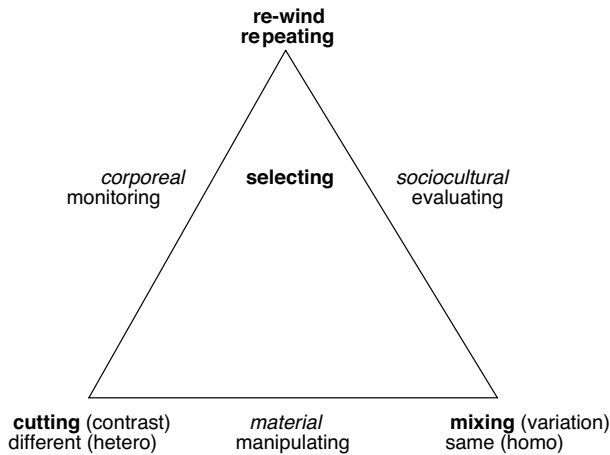

Figure 6.1 The triangulation of selecting: cutting, mixing and repeating.

CUT AND SPLICE

The selector's technique of cutting can be analytically isolated as a principle in the abstract, that is, cut off from mixing, in a way that never happens in actual practice. Cutting is the dynamic of separating, parting, dividing, tearing, fragmenting, disaggregating or splitting. Cutting creates divisions, differences and boundaries. It is an interruption, a discontinuity or a disintegration in the flow. Cutting has an edge. It is hard, sharp, dry and cold, as with teeth and bone, rather than the warm, soft, suturing fleshy surfaces of tongue and cheek (as discussed in relation to the MC's voicing in the next chapter). This raises the question of how cutting figures in the sociocultural vibrations of the sounding: its meaning and significance. As one of the selector's key practices for building the vibes of the session, it has several key characteristics.

Absent presence

In practice, cutting is *cutting-out*, ceasing or excluding. This idea of the presence of the tune, through its absence, is familiar from the consideration of phonographics (discussed in the previous chapter).[5] It is also the key trope of the influential Reggae Dub music genre, where only hints, snippets and snatches of the melody line and vocals remain, leaving only the rhythm of the drum and bass line (which are then often subject to reverb and echo effects). This can be considered as an aspect of the open inviting character of dub – as if the less space the music takes up, the more inviting it is for the listener to step inside and inhabit. This sound aesthetic of subtraction and the idea of absent presence also surfaces the idea of the ghostly effects and the ineffable traces of sounds heard in a dub mix. Cutting can be considered as a *subtraction* process, or even an erasure or deletion, as with selectors scratching out the artists name on the record label to thwart the competition. Furthermore, with dub versions, what is removed, that is, the vocals and melody, is what gives it its value. This aesthetic of subtraction, or lack, complements that of waste (discussed below). It also contrasts with the aesthetic of creating "someting outta nuttin," expressing the material lack of resources available in the poor ghetto areas in which Jamaican music often originates. The Dancehall scene expresses this visually with a "bling" style of materialistic extravagance and excesses, with chunky gold jewellery, dollar signs and outfits fashioned from furs and other exotic fabrics (see Figure 6.1).

Cutting marks what is in from what is out – text from context. Cutting makes the beginning and the end of the loop or the sample, giving it its duration – the edges of the frame, so to speak. Cutting is thus one type of framing device, which is critical for all cultural production, as Bourriaud points out in *Postproduction, Culture as Screenplay*:

> High culture relies on an ideology of framing and the pedestal, on the exact delineation of the object it promotes, enshrined in categories and regulated by codes of presentation. Low culture, conversely, develops in the exaltation of outer limits, bad taste, and transgression – which does not mean that it does not produce its own *framing system*.[6]

These issues of transgression and decency have certainly been central to the debates around Dancehall culture.

Cutting also has an important place outside the musical sphere as a key trope of modernist aesthetics. In his famous *The Work of Art in the Age of Mechanical Reproduction*, Benjamin shows how the cut destroys the integrity of the whole, by breaking it down into its parts:

The camera that presents the performance of the film actor to the public need not respect the performance as an integral whole. Guided by the cameraman, the camera continually changes its position with respect to the performance. The sequence of positional views which the editor composes from the material supplied him constitutes the completed film.[7]

Benjamin contrasts this distinctively modernist technique with those of older traditions:

The magician heals a sick person by the laying on of hands, the surgeon cuts into the patient's body. The magician maintains the natural distance between the patient and himself … The surgeon does exactly the reverse … the surgeon at the decisive moment abstains from facing the patient man to man; rather, it is through the operation that he penetrates into him. Magician and surgeon compare to the painter and the cameraman …[8]

Cutting is an invasive technique. It seeks a causal instrumental solution by means of a direct manipulation of the patient's body. This is so much in keeping with the allopathic medical tradition of Western science as prediction and control. By contrast, the holistic approach of Chinese traditional medicine, for instance, is concerned with the balance of the body's pulses and energies.

The trope of cutting has been central to the modernist idea of composition, by which its adherents could distinguish themselves from the proceeding romantic aesthetic of individual creativity and the Old World order, before the First World War. It embodies modernism's break with this past. Modernism, as with Italian Futurism, for example, often inspired the celebration of the machine. Cutting is carving and sculpting, rather than modelling or painting. As photographer Jane Bown expresses it: "Some photographers make pictures, but I try to find them."[9] Cutting has been used for making a deliberate decision, as with the *objet trouvé*. It can also be used as a technique for avoiding conscious choice, as with Tristan Tzara's "Cut Up" technique taken up by William S. Burroughs and Brion Gysin, and by John Cage with his chance composition technique inspired by the *I Ching*. Later, such methods entered popular music with David Bowie's 1972 album *The Rise and Fall of Ziggy Stardust and the Spiders from Mars*. Cutting as the sole basis for aesthetic evaluation may be considered either as mechanical reductionism, or as the opening up of the system to the creativity of that which lies outside its parameters – noise. The idea of chance or aleatoric (from the Latin *alea* for dice) musical composition in avant-garde traditions has also been influential.[10] Such compositional strategies certainly have the effect of removing responsibility

for creative evaluative proportional judgements from conscious awareness. This idea of the cut is further privileged as the basis for mathematical understanding by Spencer-Brown's concept of *severance*, which he describes as the primary act of commanding, naming, indicating or making a distinction.[11] "A universe comes into being when a space is severed or taken apart," he tells us.[12] The implications of this are taken up in the concluding chapter.

Turntablism

Cutting is also in evidence as a corporeal technique for manipulating records.[13] One of the origins of the selector's craft can be located in the cinema at the very beginning of the talkies, in the late 1930s in the USA, as cinema historian Emma Thompson (2002) has pointed out.[14] Prior to the technology of combined prints, with both image and soundtrack on the same roll of celluloid, the dialogue and sound effects were provided to the projectionist on 78 rpm records, to be played on projection equipment such as the Vitaphone projection system.[15] Before they reached the cinemas, these film soundtrack discs were compiled from voice recordings of the actors, together with
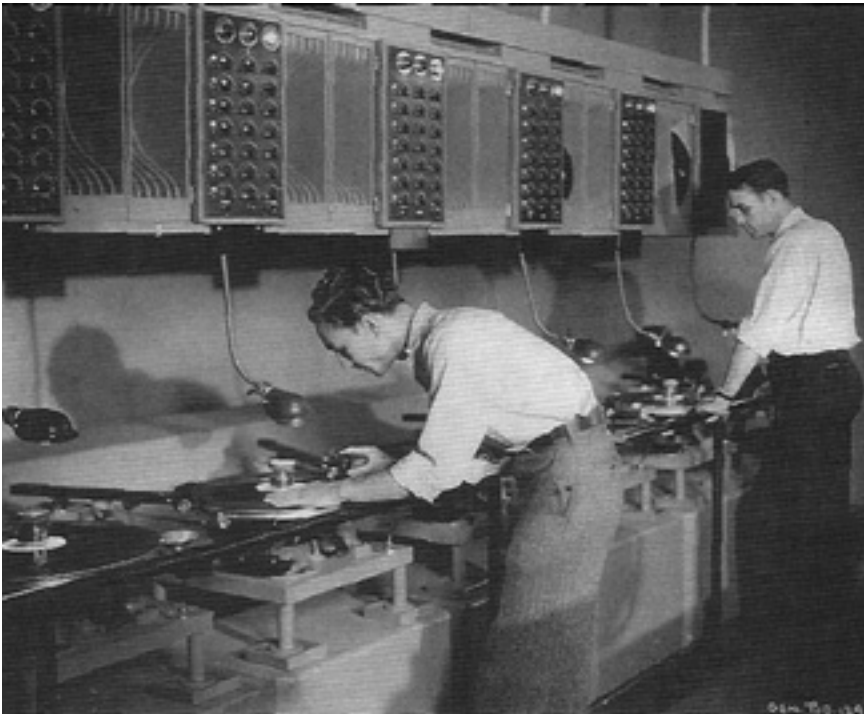

Figure 6.2 Film sound mixing in the Warner Bros. Studio, circa 1929.[17]

recordings of music, as well as numerous sound f/x, all on dozens of 78s.[16] The engineers, who selected which section of which record to play according to detailed cue sheets, could be cited as the very first selectors, pioneering their "deckstrous" skills (Figure 6.2).

The selector's juggling techniques of cutting and the "touch" transform the phonographic technology of turntable and stylus into something completely different. To say that an apparatus for sound reproduction becomes a musical instrument for sound production misses the point of what is going on in the session; this is the case, to an even greater extent, in Hip Hop scratching and turntablism. For Mudede (2003), "The line between electronic and live music is unbroken." It is this continuity that Hip Hop breaks:

> Hip Hop is organised around the act of *replaying* music; and it is this act, replaying, that marks the real rupture in the mode or method of production … Hip Hop is less "music," per se, and more "about music" – so radical is its difference from previous methods or modes of music production.[18]

Mudede continues by developing the concept of "repurposing": giving another function to a piece of equipment, often "against the grain" of the manufacturer's instructions. Such "redesigning through practice" is familiar to the sound system engineers who talk about the Jamaican tendency to "abuse" equipment, stretching it beyond its original capabilities (as discussed in Chapter Four). Mudede states:

> The turntable is a repurposed object. It is robbed of its initial essence. But the void is soon refilled by a new essence which finds it meaning, its place in the hip hop universe, in the service of the DJ … a turntable is forced … to make meta-music (music about music) instead of playing previously recorded music. A repurposed turntable brings out a turntable's turtableness.[19]

The selector's practice of *meta-music* renders the conventional distinctions between production and consumption, between production and reproduction, and between transmission and reception irrelevant (as discussed in Chapter Two). It is of interest to note how this repurposing, like the breakdown and abuse of equipment (as discussed in Chapter Four), often brings to the fore characteristics of the material vibrations of sounding that would otherwise be so integrated as habitual practices as to be rendered "transparent."

Sampling
On the Dancehall scene, one of the lyricists' stock phrases is: "make me

your selection." Hereby the boy asks the girl to choose him to dance with her, as part of the social life of the session for which it has always been important, as emphasised by Stone Love owner Wee-Pow. In this respect, cutting is central to the biological world of procreation, sexual selection and reproduction. It is very much in evidence on the Dancehall scene with the sexually explicit costumes (Figures 6.3 and 6.4), dance moves and lyrics – which disgust many middle-class Jamaicans as being simply profanities. Cutting also unstitches, as it were, the material vibrations of sounding – or what would conventionally be called the characteristics of a technology – in other ways. One of them is by becoming an "aesthetic principle" in its own right, with the new technology, what has been called re-mediation as Bolter and Grusin (1999) describe it. One example of this is Cutler's concept and practice of "plunderphonics":

> I am more interested in the way pop really starts to eat itself. Here together are cannibalism, laziness and the feeling that everything has already been originated so that it is enough now endlessly to reinterpret and rearrange it all. The old idea of originality in *production*, gives way to another (if one at all) of originality on *consumption*, in hearing.[20]

Furthermore, DJ Spooky (a.k.a. Paul Miller), constructing a genealogy of his

Figure 6.3 Dance crew at Passa Passa.[21]

own performance techniques, appeals to the American essayist Ralph Waldo Emerson as advocating the inescapable nature of re-using past materials:

> Our debt to tradition through reading and conversation is so massive, our protest [sic] so rare and insignificant – and this commonly on the ground of other reading or hearing – that in the large sense, one would say there is no pure originality. All minds quote. Old and new make the warp and woof of every moment. There is no thread that is not a twist of these two strands.[22]

And in respect to recording technologies, the technique of cutting offered the classical pianist Glenn Gould the opportunity to give up live concert recitals, which he did in 1964. Two years later Gould wrote: "[T]he public concert as we know it today would no longer exist a century hence … its function would have been entirely taken over by electronic media."[23] This was predicated on what Gould called "the splendid splice." As Eisenberg comments: "Gould did not use the splice, as most pianists must, mainly to correct mistakes. He used it to weld numerous takes, all correct, each different, into a structure that would stand up to repeated listening."[24] It is perhaps entirely typical of the modernist project that this idea of mechanical perfection overshadowed all other considerations, not least the embodied pleasures of the event of the concert. In this way, cutting may be identified as the creative principal across a wide range of traditions.

The link between the musical cut and sexual pleasure that is evident on the Dancehall scene, Mudede (2000) explores in relation to Hip Hop sampling and looping. Mudede associates the rupture of the cut with *rapture*, or what Kristeva calls *jouissance*. As one leading New York club DJ David Morales put it: "For me it's about sex. Absolutely. It's classic spiritual sex."[25] Mudede identifies "the rupture of the beat … [as] the moment when a song suddenly stops, collapses, or stutters." For Mudede, the "break" of the "break beat" or the loop is not the continuity of the loop itself (discussed in respect to repeating, below) but "the loop's sudden stop." Mudede continues:

> The rupture is erotic … the hole [or break] is "le petit mort," as the French, and later the Victorians ("the little death") called an orgasm; it is a sudden release from structure, from the body, from the burden of being, into pure and warm nothingness.[26]

And part of the pleasure of the break is our knowing it is only temporary, it is part of the loop, as Mudede continues: "But when the beat suddenly returns, we are back in motion, 'back to life,' as *Soul II Soul* put it." So one interpretation of DJ Squeeze's idea of the Rhythm of Life is as sexual vibe.

Figure 6.4 Dancehall Queen Stacey, left, Chuchu Benz session.

The practice of cutting and its association with sexual pleasure can therefore be described as a *control* process, as distinct from a *power* processes, identified in the electromagnetic frequencies of the set (in the previous chapter). At the same time, sexual pleasure also involves a complete loss of this control and release.[27] This control–release of the sexual cycle is also embodied in the procession of the session itself, reaching a climax of excitement at a particular hour, and so on. This dynamic is also evident in the night-into-day cycle of the experience of the crowd in the session, and the contrast between the normal life of work and the play of the special life of the session, that Bakhtin (1984) describes as *carnivalesque*. It is also interesting to note how entirely appropriate mechanisms of control and release appear for concepts of sexual attraction based on energetic flows and instinctual drives, as with Freud's libidinal theory.

MIXING

Besides cutting, the selectors also have another technique, mixing, similarly used for "building the vibes" of the crowd and the intensities of their musical experience of the session. Mixing does this as an additive power process, generating energies and operating in a similar manner to the technique with

the electromagnetic vibrations of the set (mentioned in the previous chapter). Mixing makes relationships by segueing, suturing, combining, amalgamating, aggregating and synthesising, in contrast to the caesuras of cutting. Mixing has a direction or grain to it. It is an additive process that is always more difficult to undo than it is to do in the first place, as with mixing sugar in a coffee for example, or recording two instruments onto a single audio track. Mixing concerns incremental change, the analogue process of gradually becoming different, with one small step proceeding from the previous one.[28] This has the character of an organic growth process of continuous *propagation*, in contrast to the mechanics of the production process of cutting, so celebrated by the early modernists (as mentioned above).[29] The French philosopher Jean-Luc Nancy uses the term *methexis* for this.[30] He contrasts methexis with mimesis to define it as "participation, contagion (contact), contamination, metonymic contiguity rather than metaphoric transference."[31] Such ideas of mixing and mingling have very ancient roots in Greek philosophy in the works of Anaxagoras and Empedocles, as Siegfried Zielinski discusses in *Deep Time of the Media*.[32]

Outside the sound system session itself, mixing can be identified as a practice operating in many other sections of the Dancehall scene. The re-purposing of the recording studio as an instrument for musical production could be said to be have been initiated by Jamaican music producers of the late 1960s such as King Tubby and Lee "Scratch" Perry (Figure 6.5). Using what were, even then, out-of-date two- and four-track mixing desks, the creative innovation in Jamaica was to use re-recording to subtract, rather than add, layers of musical material. The result is Dub music. Dubbing is both to copy, and to overlay by recording on top of what is already on the music track, that is, to *over-dub*.[33] Dubbing as a production technique is a reverse mixing of taking sound out, as Veal describes:

> [D]ub serves that moment in the dancehall when excess ornamentation is stripped away to emphasise the elemental power of the rhythm pattern to provoke more intense and erotically charged dancing, and to give the improviser [the MC] free rein to excite the crowd with his or her spontaneous virtuosity – in short the moment(s) when the dancehall "peaks."[34]

This technique remains profoundly influential on a range of popular genres to this day. Eshun describes this subtraction process as follows:

> With pioneer dub producer Lee "Scratch" Perry: "*Revolution Dub* (1975) is not so much produced as reduced by Perry …" In *The Return of the Super Ape* (1978) "The

Figure 6.5 Lee "Scratch" Perry's *Black Arc* recording studio, circa 1978.[38]

drum controls the heartbeat and the bass holds the space. I dub from inner to outer space. The sound that I get in the Black Ark Studio, I don't really get it out of no other studio. It was like a spacecraft. You could hear space in the tracks."[35]

The versioning or "re-licking" of the "foundation riddims," as the classic tracks of the 1960s and 1970s are known, affords them both their sameness and their difference, extending their life and the livelihood of generations of record producers through the decades. In this way, the Reggae musical practice of dub versioning can be considered as an example of what Bortoft (1996) calls *differencing*, or what Stuart Hall calls the *translation*, or diasporisation, or the creolising that can never locate, or recreate the original.[36] Like "home," the original of originals, so to say, this is something long left behind and irrevocably lost, we can only ever "know" through imaginative approximation – of the kind equally appropriate for utopias such as "Africa."[37]

Discussing the recording studio as a creative tool, musician and theorist Brian Eno identifies the unique creative technique that dub versioning exploits, in contrast to others:

[Reggae] is a very interesting music in that it's the first that didn't base itself around the standard approach of making work by addition … the contemporary studio

composer is like a painter who puts things on, puts things together, tries things out, and erases them. The condition of the Reggae composer is like that of the sculptor … music … is hacked away at – things are taken out, for long periods.[39]

In terms of abstract operations, dubbing is adding-with-subtracting, or mixing and cutting together, as distinct from the more normal additive mixing-with-mixing technique. Mudede (2003) considers dub as a link between traditional live musical production with musicians and the meta-music of Hip Hop, which, for him …

[p]resents significant theoretical problems; its mode of production is never as clear as hip-hop (the total break), but always in a dub haze of live instruments and electronic equipment. Nevertheless, dub is the only link (or, more closely, a ghost of a link) between hip-hop meta-music and instrument-based music.[40]

Of course, in practice, this "betwixt and between" state has been a source of creativity, rather than any kind of problem. Dub mixing is not a matter of purity but the fecund dirt of the material media of production. Finally, it should be noted that mixing and re-mixing are currently at the very centre of pop music production, with immensely successful producer-artists such as the Neptunes and self-styled "mixologists" such as DJ Spooky, Fat Boy Slim, 2ManyDJs and many others. Indeed, in recent years the technique of mixing has been taken to a new level with the technique of "bastard rock" or "mashing." This Internet phenomenon has developed with "crash-mix" software that forces two music tracks together. *Crash-mixing* can be described as a third type of mixing (discussed in relation to the sound system clash in the next chapter). DJ Danger Mouse's *The Grey Album*, which re-mixes the vocals from Jay-Z's *The Black Album* and the Beatles' *White Album*, was a celebrated example of this in 2004.[41]

By contrast, the idea of mixing as smooth transition lends itself to a consideration of the procession of the session, made up of the selector's performance techniques and a schedule of events, propagating the *duration* of the event as a whole, as distinct from the *location* of the event.[42] In shaping this passage of the crowd's experience, the selector's role can be considered as conductor, manager or producer. The creative role of such specifically modern figures lies in their function of coordinating and organising the work of others, as with the manager of an assembly line, for instance, or the complexities of industrial production procedures, with subroutines and multiple components. This may be contrasted with the traditional conception of creativity as traditional craftsmanship, or of the romantic idea of the artist. In a musical context, Attali

(1985) takes the role of the symphony orchestra conductor as the classical example of this organising figure that industrial production requires.[43] The selector occupies a similar position.

Conducting in the concert hall, and stage and film directing on the theatre and film set are specifically modern practices, as Bourriaud (2002) explores.[44] This is well recognised in the literature on the role of the MC, where he or she orchestrates and arranges musical elements created prior to their performance, rather than originating them. As Bourriaud points out:

> DJ culture denies the binary opposition between the proposal of the *transmitter* and the participation of the receiver at the heart of many debates on modern art. The work of the DJ consists in conceiving linkages through which the works flow into each other, representing at once a product, a tool and a medium. The producer is only a *transmitter* for the following producer …[45]

Constantinides makes a similar point describing the mediating role of the sound system, not only to diffuse the music, but also as "an intermediate level between production and reception, a sub-framework on which the music is presented … [W]hat is especially unique about the Jamaican sound system is its creative role in the Jamaican musical complex."[46] So does Lawrence Lessig in *Remix* (2009), with his distinction between Read-Only and the new digitally enabled Read/Write culture with its mash-up of producer and consumer. This mix of production and consumption is also at the heart, as it were, of Hall's (1980) *circuit of culture* (discussed in Chapter Two). This indicates how considering the event of the session in terms of its continual *propagation* can be more useful than seeing it in terms of the traditional distinctions between production and consumption. In practice they are invariably entwined and combined.

This widespread adoption of the mixing technique, however, does not, according to Weheliye, prevent it from having specifically African origins:

> The "mix," as it appears in black cultural production throughout the twentieth century, highlights the amalgamations of its components, or rather the processes of this (re)combination, as much as it accentuates the individual parts from which it springs. As a result this "mix" provides us with a model of modern black temporality and cultural practice rooted in and routed through the sonic.[47]

This African route and root of the sonic is so fundamental to Western popular musical culture that it could be taken as defining the entire field. The selector's mixing from one track into another is only one example of a procedure

that finds innumerable applications in music production. The mixing desk is the principle instrument of the recording studio, whereby the producer has independent control of up to 128 individual music tracks. In pop music, this has been used to engineer rich and complex musical arrangements, as with 1960s Beatles' music producer George Martin, and Phil Spector's "wall of sound" technique. This idea of the flow of the mix is certainly consistent with Serres's conception of the milieu and indeed what he calls his "philosophy of mingled bodies" that *The Five Senses* (2008) develops.[48]

Cut 'n' Mix

In practice, cutting is invariably coupled together with mixing, to the extent that one would be incomplete without the other, as with the reciprocating periodic movement of breathing out and in, or complementary energies such as yin and yang, or the rhythm of control and release. This is entirely indicative of auditory relationships, as Hebdige reminded us with his *Cut 'n' Mix: Culture, Identity and Caribbean Music* (1987). The selector takes the record out of the box, places it on the turntable, lowers the tone arm, cues it up via the headphones, and fades it into the sequence of previously played records. The selector's choice does not become a selection until it is inserted into the flow of the mix. A *piece* cannot be taken out of one context without it being put into another. Cutting and mixing always go hand in hand, coupled together, or are *partnered*, to use a Jamaican expression.[49] The cutting to select one record can only take place in the mix provided as a pretext by the previous selection. And that can only occur within the already established context of the groove, as discussed above. Thus cutting and mixing recedes recursively to the start of the session, and by extension into the memories of the previous sessions attended by the crowd – and by further extension into the Dancehall scene and culture. An event is always already *rhythmed*, as Lefebvre (2004) might put it.

   Cutting and mixing are also entirely central to popular musical culture. For Hebdige the cut and mix identifies the present era of popular music: "Cut 'n' Mix is the music and the style of the 1980s just as rock 'n' roll and rhythm 'n' blues formed the bedrock for the musics and styles that have made such an impact on our culture since the 1950s."[50] Cox and Warner, in an introduction to their popular music reader, put it as follows:

> DJ Culture has worked with two essential concepts: *the cut* and *the mix*. To record is to cut, to separate the sonic signifier (the "sample") from the original context or meaning that it might be free to function otherwise. To mix is to reinscribe, to place the floating sample into a new chain of signification.[51]

Cox and Warner then go on to characterise the mix as a postmodern trope, compared to the cut as a modernist trope, as indicated above:

> The mix is the *postmodern* moment, in which the most disparate of sounds can be spliced together and made to flow. It is exemplified in those musics of flow: disco, House, and Techno. But the mix is made possible by the cut, that *modernist* moment in which sound is lifted and allowed to become something else, or is fractured so that it trips and stumbles around the beat. Its forms are Hip-Hop (particularly in its turntablist guise), dub, drum 'n' bass, and contemporary experimentalist DJs such as Christian Marclay, Philip Jeck, Marina Rosenfield, and Erik M.[52]

Against this it can be suggested that both cutting and mixing together constitute a modernist trope, with digital replication perhaps as the postmodernist one.

The technique of the cut that Benjamin (1970) identified, as discussed above, comes together with the mixing. Indeed, cutting and mixing, or selecting and re-combining, are two favoured principles of both modernist and Africanist art and aesthetics, the former certainly being either inspired by, or stealing from the latter.[53] And this interest in the pre-modern and cutting and mixing has also been in evidence in the social science of anthropology, and Levi-Strauss's Structuralism in particular.[54] His aptly titled *The Savage Mind* describes the process of *bricolage* as a characteristic of the pre-modern mind, in contrast to modern rational scientific thinking in which the engineer is engaged. A *bricoleur* improvises in order to tackle a task, cutting and mixing together whatever is to hand, in a manner that has also been very much in evidence in the style and fashion of the Dancehall scene. He or she works with what is readily-to-hand, to use Heidegger's phrase (mentioned in Chapter Seven). The same "cut 'n' mix" attitude is true of the sub-culture of Punk in early 1980s Britain that Hebdige describes in terms of *bricolage* as the "science of the concrete,"[55] and which remains a reference on the Dancehall scene up to the present (Figure 6.6). This is what distinguishes *bricolage* as an embodied practical technique, rather than an abstract mental process.

This conception of what could be termed a subaltern creativity – a making from what's immediately available – also extends to the kind of materials that might otherwise be cast off and thrown on the scrap heap. Mudede (2000) associates this with Hip Hop's affection for error, as a particular type of waste:

> Not in the decadent sense, meaning it doesn't throw away or waste as the rich do, but the very opposite: It subsists on waste. It's formed from the waste that falls from the abundant tables of the prosperous post-modern city. Tricia Rose puts it this

way: "Worked out on the rusting core as a playground, hip-hop transforms stray technological parts intended for the cultural and industrial trash heaps into sources of pleasure and power." Hip hop is made up of discarded bits and pieces (or beats and pieces, as Coldcut would have it) and so sees and expresses beauty in small, glimpsed, broken parts.[56]

Besides Hip Hop, this idea of making creative use of waste also occurs with the Trinidad musical instrument of the steel pan, and more polemically with the human wastage of the gangster lifestyle summed up in the phrase "born fi dead" (i.e. born to be killed) described by Gunst (1995) in her book of that title. In theory, this idea is captured in Serres's (1982) discussion of the parasite (from Greek "*para*," next too, and "*sitos*," food – figuratively, one who eats the food from the next person's table). As Serres puts it:

> The parasite gets power less because it occupies the centre than because he fills the environment … the parasite is everywhere. Its voice expands, filling the space, wherever he is and where ever he goes. Voice, wind, sound, noise.[57]

As well as waste, cutting and mixing can also be considered as the kind of excess that can be described as a surplus, an instance of what Bataille describes as *The Accursed Share* (1988). This is the non-recoupable part of an economy that necessarily has to be spent either on spectacular luxury or on violent war. It is these two sides of excess, as waste and surplus, that make *style*, as captured in the idiomatic "every spoil is a style" mentioned in the introduction.

Cutting and mixing is also very much in evidence with the fine art techniques of collage developed by Braque and Picasso, or in cinema, as seen in Eisenstein's technique of film montage. Bourriaud's discussion of the modernist aesthetic is most relevant here, though the material he discusses is from fine art rather than music. "The art of the twentieth century is an art of *montage* (the succession of images) and *detourage* (the superimposition of images)," Bourriaud tells us.[58] This gave modernism its sense of freedom, excitement and power, wrote Guy Debord in 1956, in *Methods of Detournement*: "Any elements, no matter where they are taken from, can serve in making new combinations … Anything can be used."[59] Finally Bourriaud contends that cutting and mixing are central to the process of modernist creativity itself, adding that "Duchamp … completes the definition of the term *creation*: to create is to insert an object into a new scenario, to consider it as a character in a narrative."[60] In several respects, modernism is the story that Duchamp began with his urinal, *The Fountain*, in the scenario of a New

York gallery in 1917, which has continued to repeat itself, in different versions, through 1960s Pop art, and in the late twentieth century with conceptual art.

The important point to make from this is that cutting and mixing operations are indicative of the axes of a *communication* system, rather than being a specifically linguistic communication system, as is usually assumed to be the case (Figure 6.6). Wilden (1972) is emphatic on this point:

> *Metaphor and metonymy are not linguistic processes: they are communicational processes*. Selection from the code and combination in the message must and do occur in any communications system whatsoever, whether in the genetic code of the DNA molecule, or in the organism, or in the life processes of bacteria, or in a social system … All communication in systems of communication – ecosystems – involves an axis of selection and an axis of combination.[61]

Identifying selecting and combining, or cutting and mixing, as elemental procedures suggests that both non-representational communication systems, like the sound system, and representational ones, such as the language system, have the same elements to their operations.[62] These operations apply to all communications systems, including those *without* the signification, representation or mimesis, such as a hug, gesture,[63] viral contagion,[64] the transmission of genetic information, or indeed the engineer's fine-tuning of the set. The selector's techniques of cutting and mixing may therefore be considered as those of the language user – albeit with musical units, rather than representational ones, more commonly associated with meaning.

The selector's techniques of cutting and mixing, it is argued here, make use of elemental communication techniques that can be traced back at least to the distinction Locke makes between the association of ideas by *contiguity* and association by *similarity*, according to Wilden (1972: 37). The two operations of selecting and combining are certainly central to Freud's theory in *The Interpretation of Dreams* (1911), where in Chapter 6B he states: "[D]ream-displacement and dream-condensation are the two craftsmen to whom we may chiefly ascribe the structure of the dream." This was than given a "linguistic turn" by Jacques Lacan in terms of metaphor and metonymy.[65] Indeed, according to structural linguistics, the two most fundamental linguistic operations are *combination* and *selection*. This makes use of the distinction introduced by Roman Jakobson, in his seminal *Two Aspects of Language and Two Types of Aphasic Disturbances*. Here he states that: "… speech implies a *selection* of certain linguistic entities and their *combination* into linguistic units."[66] Mixing is the syntagmatic, metonymic or horizontal

axis of language that makes combinations between linguistic units that are all *present* and related contiguously.

Selecting, on the other hand, takes place in the paradigmatic, metaphoric or vertical relationship between units of language systems that are *absent*, existing only as the potentials that the linguistic system has to offer. Here each element is compared as similarities and differences with those elements with which it could be substituted, opening up a huge range of imaginative possibilities, as Gates (1998) emphasises in his account of *signify(ing)*. Such metaphorical relationships are discussed more specifically as analogical or proportional relationships (in Chapter Seven). Thus it can be said that such selecting and combining occurs virtually everywhere across the crew's skills and performance techniques: with each tuning of the power and control of the set by the audio engineer; with each of the selector's musical selections and the particular utterances of the MC, selecting and combining tongue and teeth, vowel and consonant, phrase and phrase. Each particular combination, that is to say, each mix, especially when strung along in a sequence, not only prescribes what is grammatically "correct," but also gives a unique "meaning" to the utterance, or musical sequence, or fine-tuning of the set.

Crewmember/ *waveband*	Communication Axis	
	METAPHOR paradigmatic	**METONYM** syntagmatic
engineer *corporeal*	monitoring ear	manipulating hand
set *material*	control transducer	power amplifier
session *sociocultural*	selecting groove	mixing intensities

Figure 6.6 Crewmembers, wavebands and the axes of communication.

Concluding this section, it can be said that mixing and cutting can be identified as elemental processes in both the selector's techniques and language use. This suggests that there are communication techniques, procedures or operations common to both non-representational communication systems, like the sound system, where meaning depends on the material vibrations themselves, and representational ones, such as the language system,

where meaning is defined diacritically only in relation to the units of the language. Reclaiming mixing and cutting as principles of a communication processes, in this way, helps to break the habitual association of these terms with representation and discursive systems – and these are the *only* way to understand meaning and rationality (as discussed in the concluding chapter). Indeed, this distinction is a very ancient one. In Freud's late philosophy, there are the two opposing instincts of Eros and Thanatos. This distinction took inspiration from even earlier sources, namely the pre-Socratic philosopher Empedocles, for whom the world was ruled by a continual play of two forces: Love and Strife – described here as mixing and cutting.[67] But it needs to be remembered that these two techniques never operate in isolation from each other, as emphasised at the beginning of this section. A cut is hardly a cut without a paste, or a splice, as the two procedures can only be separated in theory, analytically. To understand how in practice they flow together, we need to turn to the third of the selector's technique – repeating.

REWIND AND REPETITION

The apparently simple technique of repeating a section of the record, as with the selector's "pull-up," introduces a wealth of creative possibilities for musicians in performance, as well as producers who have realised "looping" with their computer composition software – or Baraka's (1969) idea of music as verb (discussed in Chapter Three). The Reggae music production techniques of both versioning and dubbing provide striking examples of both the creative and intensifying powers of repeating, reiterating and recursive practices. It is interesting to note how these were pioneered in the live sound system sessions themselves and then adopted as studio production techniques (as Veal emphasises[68]). Repeating is part and parcel of all performance techniques including musicking and sounding, as literally the form of practice: the honing of skills, and, as for instance with the audio engineer's compensation, trial and error.[69] The cyclical movement of repeating is also inseparable from the material vibrations of sounding with its rhythms, pulses, beats, waves, rotations, oscillations, vibrations and frequencies that occur throughout the session.

As with musicking, sounding, lighting, touching and selecting itself, *repeating* is a verb, a doing in the world, a becoming. Musically in dubbing this is often a reverberating echo gradually diminishing into silence. Either coming or going, *repeating is becoming different*. This literally reverberates through the dub, as Veal (2007) elaborates in rich depth and detail. A dub version aims to be different from the previous version, with an echo or resonance with what was. As Veal puts it: "Much of the [dub] genre's compositional tension

is generated through subversion of the listener's expectations, based on the vocal song with which they are previously familiar."[70] Dubbing makes a point of drawing attention to the characteristics of the material substance of its electronic medium, in a manner entirely consistent with Lastra's approach to sound recording as *representation*, rather than reproduction.[71] The analogue and valve technologies of the studios in 1960s Jamaica, from which the first dub versions emerged, appear to have provoked an aesthetic confrontation between electronic recording, or representing, and the material vibrations of sounding itself. In this respect, to dub is to make a simulacrum, as the copy for which there is no original (and the very opposite of Benjamin's idea of "aura"), and as celebrated by the 1960s Parisian Situationist theorists, to critique the obsessively image-based spectacle that they considered society as having become.[72]

Each dub, as with an analogue copy, inevitably introduces noise and distortions, making it less than the previous one, a deterioration of the original. But, most important, it also removes and takes out from the original, reducing it to its bare essentials (as Eshun 1998 noted). If cutting is a modernist mechanical production process, and mixing an "organic" propagation one, then digital cloning might be considered as a postmodern replication process (as discussed above). But it is interesting to note that the value of repeating does not disappear even with such digital technologies. These too have their own textures and timbres in which repeating also plays a part. The digital media theorist Manovich (2001) reduces repeating to a consequence of the physical limitations of the media itself, or bandwidth, as he states:

> The history of new media tells us that hardware limitations never go away: They disappear in one area only, to come back in another … Can the loop be a new narrative form appropriate for the computer age?[73]

So is the ubiquity of the practice of repeating to be reduced to physical constraints of the material vibrations of sounding as such? Such affordances, as restrictions, are part of the answer. So too are the memories of previous techniques that may congeal into sociocultural habits and preferences, in the way that aesthetic tastes linger over defunct production techniques – as how, for instance, the epicurean value of strawberry jam outlasts the necessity sugar for fruit preservation. Furthermore, the value of repeating also has to do with the practice of its doing; that is, our attention and participation in the musicking of the repeat. This is the potential, rather than the limitation of the affordances of the material vibrations of sounding.

The dub version is always a repeat and a fresh performance both at the

same time. The aim is not fidelity to any original, but variation, version, even aberration. In this respect, Dub, like Folk and Blues, takes its inspiration directly from oral traditions in which the work is always a live performance, rather than an artefact, text or score. The tradition of Jazz improvisation clearly partakes of this tradition, emphasising, as Baraka (1969) has discussed, the active process of propagation, rather than the reified object. Furthermore, as Sterne points out, there is a certain irony in the fact that the idea of fidelity to an original could only come about in conjunction with the technologies of sound reproduction.[74] The fidelity of "high fidelity" was in fact an artefact of the marketing of the first 78rpm gramophones:

> The very idea that a reproduced sound could be faithful to an original sound was an artefact of the culture and history of sound reproduction. Copies would not exist without reproduction, *but neither would their originals*. Sound fidelity was a story about sound reproduction that proved useful for selling machines.[75]

This studio production technique of "versioning" makes a dub version of a tune, and is as much re-mixing as it is mixing. Traditionally this second instrumental dub mix would be released as the B-side of the 7-inch single. This creative technique of making something different, allowing a becoming of difference, or simply to "try a t'ing," as would be said, is at the heart of the Jamaican sensibility. Reggae music techniques, such as dubbing and the dubplate specials, evidence a particular type of creativity that is founded on practices of echo, subtraction, re-production, re-vibration and re-activation. Furthermore, Eshun (1998) identifies the dubplate special as a key example of a contemporary kind of creativity.[76] A dubplate is a one-off single pressed on acetate (rather than vinyl), usually with bespoke lyrics mentioning the sound system that commissioned it. They are vital ammunition in a sound clash (as described in the next chapter).[77]

The creative practice of versioning goes against the traditional idea of originality in the work of art that Benjamin described as giving it its "aura," in his famous essay *The Work of Art in the Age of Mechanical Reproduction*.[78] As Eshun puts it:

> But of course as soon as you have the dubplate then that's all gone out the window. The dubplate is where you've got the reproductive process, the mechanical process of pressing vinyl onto the plate that's being played, and suddenly in the middle you've got a one-off mix … So *the dubplate means that the whole idea of the aura being over doesn't make sense, because the aura is reborn in the middle of industrial reproduction*.[79]

This provides an example of how it is in actual practices, often based on necessity, whereby new types of creativity come into being. Thus the dub version is a deeply layered whole, as Veal summarises:

> The version-encrusted song surface of the dub mix is simultaneously a signifier of the engineer's musical artistry, a visceral sonic signifier of the work's ritual history in the sound system, and (like torn layers of advertisements on a billboard) a signifier of the song's commodity history in which producers fought to sell consumers serially manipulated versions of old music with minor variations.[80]

Another example of the creativity of repeating is, of course, the selector's "re-wind." This is the action of lifting up the stylus from the groove of the record, which continues revolving, but without the stylus and in silence, before it is taken back to the beginning again. Rather than a going backwards, repeating goes forwards by suspending the auditory part of productive activity of musicking, which, *even without sound itself*, remains at the heart of the propagation of the event. The musicking continues, but within it there is an absence, a moment of silence.

Despite the creative value of repeating in practice, it has to be pointed out that the idea has received comparatively little theoretical attention, other than as the reiteration of mathematical algorithms. Otherwise reiteration has been dismissed simply as dull and boring, as a waste of effort, a standing still, simply going back to the beginning, as in the curse of Sisyphus or Nietzsche's eternal return. Deleuze and Guattari's treatment of repeating in terms of the refrain is an exception in this respect.[81] There are several grounds on which the idea of the positive value of repetition would appear to go against the grain, or even be considered an anathema, in a considerable amount of philosophy in the Western tradition.

One reason for the neglect of repeating is that it is redolent with a particular kind of pleasure. This is the pleasure of indolence, or simply laziness, stereotypically associated with the African peoples whose music makes a feature of repetitive rhythms and repetitions. Repeating rhythms and beats have the effect of refusing the passage of time, or rather of wilfully trying to suspend its progress, as the crowd has been described as doing.[82] This is literally a waste of time, which, in terms of the Protestant work ethic, is seen as an object, a valuable commodity that needs to be accumulated rather than squandered. In fact, through the cut of repetition, an entirely different sensibility and aesthetic value system from the dominant European one is expressed (as discussed above).[83] This broadly African musical sensibility can be described as having three key features. One is that it favours musicking as a collective

and a socially integrated production process, rather than an isolated, specialist production and product. Another is that rhythm and timbre provide the organising principle here, as against melody and harmony in the Western classical tradition. Thirdly, creativity is a live invention, usually a collectively improvised performance, as against an individually original composition produced prior to its interpretation in the performance.

Repeating has thus been heard as the antithesis to dominant Eurocentric ideas of what culture should be: linear and progressive. The German idealist philosopher Hegel (1770–1831) first articulated this view. James Snead, in his seminal essay *On Repetition in Black Culture* (1981), reverses Hegel, so to speak, arguing that cutting is equally the beginning, as well as end, of the cycle of the loop; the continuity as well the cessation. With examples from James Brown, Snead makes the crucial theoretical connection between repeating and cutting as follows:

> The 'cut' overtly insists on the repetitive nature of the music, by abruptly skipping it back to another beginning which we have already heard. Moreover, the greater the insistence on the pure beauty and value of repetition, the greater the awareness must also be that repetition takes place on a level not as musical development or progression, but on *the purest tonal and timbric level* …[84]

It is certainly beat and rhythm, rather than harmony and melody, which have defined popular music, from Jazz onwards. This is particularly the case with Reggae where the selector's and studio producer's technique of dubbing invented "a new language that relied as much on texture, timbre, and sound-space, as it did on the traditional musical parameters of pitch, melody and rhythm."[85] On the one side of the cut is the moment of return, going back to the beginning, and regression. On the other side is the moment of renewal, emergence and progression. This is the point, or meaning, of the line that the cut makes. Regression and progression occur at the same time, as indeed it might be simultaneously both sexual and sacred.[86] They also occur at the same time as part of, or from the point of view of, a single cycle, as with breathing out and breathing in.

The value of these two sides of cutting is not, of course, equally balanced, as Snead is keen to point out; rather, the great weight of European culture comes down on the side of progress:

> A culture based on the idea of the "cut" will always suffer in a society whose dominant idea is material progress … In European culture, the "goal" is always clear: that which always is being worked towards … Black culture, in the "cut,"

builds "accidents" into its *coverage*, almost as if to control their unpredictability. Itself a kind of cultural *coverage*, this magic of the "cut" attempts to confront accident and rupture not be covering them over, but by making room for them inside the system itself …[87]

Snead then identifies the theoretical grounding for this prejudice against repeating in the work of Hegel. At the height of European imperialism, Hegel's idealistic philosophy took the issue of repetition as the stick to beat non-European civilisation, so to say. Hegel's project, according to Snead was to measure European civilisation as superior to all others.[88] He did this by the benchmark of progress, against its opposite, which for Hegel was Africa. According to Hegel in *Die Vernunft in der Geschichte* (1955), Africa lacked everything that characterised European civilisation. The entire continent was without logic, lost in the immediacy of the moment, and thus, most damming of all, outside history:

> In this main portion of Africa there can really be no history. There is a succession of *accidents and surprises* …What we actually understand by "Africa" is that which is without history and resolution, which is *still* fully caught up in the natural spirit, and which here must be mentioned as being on the threshold of world history.[89]

It is not without irony, then, that the cut as repetition should have proved itself to be the keystone of the twentieth century's modernist culture.[90] Both avant-garde and popular, as well as musical and visual cultures, have drawn directly on African inspiration for their techniques of cutting and much else besides. Repeating makes a point of celebrating this specific antithesis to the prevailing values of accumulation and creative originality. Music well suits this purpose as the dynamic of the material vibrations of sounding make accumulation unnecessary. Judged by the global ubiquity of popular culture, Hegel's Eurocentrism has failed. Perhaps the pleasures of repetition, like many others, are all the more compulsive for being forbidden. Certainly the technique of repeating offers an important key for understanding the material, corporeal and sociocultural vibrations of sounding. Indeed, it is very much in evidence with the MC's rhetorical performance techniques, to which we turn next.

   To conclude, the selector's and audio engineer's performances may be compared. This chapter has described the selector's skills and techniques in terms of the three practices of manipulating, monitoring and evaluating, that were already identified in the previous chapter as crucial for the audio engineer. This is the case despite the fact that these two crewmembers operate with different media, instruments and techniques. The engineer's medium

is audio frequencies, the selector's is the musical beats in his record box; the engineer's instruments can be a soldering iron, the selector's a turntable and pick-up arm; the engineer's techniques include compensation, the selector's, "rewinds." With their *manipulating*, selectors control the music they play (rather than the engineer's audio frequencies); with their *monitoring* they "read" the vibes of the crowd (rather than the engineer's instruments); and with their *evaluating* they judge which record to play next (rather than when the set's tuning is complete).

To the extent that there are parallels between the selector's and engineer's performance, it is taken as evidence for the common characteristics of the different wavebands of sounding that the propagation model describes. This is the case, even though the two crewmembers use their techniques for very different kinds of practice. The selectors give a conventional "performance," in that it is staged in front of an audience, even though they themselves, like the MC, may not be actually visible to the crowd (as discussed in the next chapter). By contrast, the engineers work "behind the scenes" without this public exposure (unless the set breaks down). While these different emphases can be made between the concerns of the selector and those of the engineer, it is most important to remember that each of the crew's performance techniques have to be considered in respect of all three material, corporeal and sociocultural vibrations of sounding. Selectors' attention might be on their music, but by this token they could never be preoccupied exclusively with any one frequency of sounding, as each can only be heard in relation to the other two.

Part Three

The MC and the Sociocultural Waveband

Chapter Seven

Voicing

Booming out across the packed open-air dancefloor in the dark night of the session, the sonic body of the MC's voice, amplified thousands of times over, grabs the attention of the hundreds more sonic of bodies of the crowd. The MC is part of an oral tradition, in which their improvised performance embodies a *living* archive of techniques, rather than the more commonly conceived idea of an archive of materials, such as the selector's box of records. An aspiring MC has to learn and develop their techniques in exactly the same manner as the audio engineer, though without any formal apprenticeship system as such. With the aim of guiding the crowd through the procession of the event, along a path of affect, as it were, the MC's performance techniques are further honed as the crowd's champion in the improvised ritual lyrical battles of the sound system clash. This requires not only learning certain skills, but also when and where to apply them, what Bateson (1979) called deutro-learning, or learning how to learn. Most important, the practice of the MC's voicing techniques, like those of the engineer and selector, has to be identified as *evaluative judgement*. As with the expertise of the selector and engineer, this is at the heart of the MC's voicing techniques.

Disembodied, the MC invisible in the darkness of the dancehall, this voicing is a paradigmatic expression of the *viva voce*, the living voice of the sounding of the word. Voicing mixes and mingles together meaning and feeling, intimacy and power, spirit and matter, and indeed speaker and listener, as no other kind of sounding can do. Adriana Cavarero draws out the episte-mological and ontological implications of these distinctive qualities in *For More Than One Voice: Toward a Philosophy of Vocal Expression*. As she puts it:

> [A] vocal phenomenology of uniqueness … indicates how the human condition of uniqueness resounds in the register of the voice … the voice shows that this

condition is essentially relational. The simple truth of the vocal, announced by voices even without the mediation of articulate speech, communicates the elementary givens of existence: uniqueness, relationality, sexual difference, and age – including the "change of voice" that, especially in men, signals the onset of puberty.[1]

Cavarero goes on to describe how this "uniqueness is epistemologically inappropriate" for the Western canon, in which "speech is separated from speakers and finds its home in thought …"[2] This is to say that the particular unique prosody of the utterances of speech is disembodied in the form of the language system. Thus speech "finds its home in a mental signified of which speech itself, in its sonorous materiality, would be the expression – its acoustic, audible sign. The voice thus gets thematized as the voice in general, a sonorous emission that neglects the vocal uniqueness of the one who emits it."[3] Fortunately, the impact and immersive intensity of the MC's voicing in the dancehall makes any philosophical erasure of uniqueness considerably more difficult to accomplish. A sound is, of course, always unique, in that it has to be locally situated, particularly embodied and variable over its temporal duration.

Figure 7.1 MC Sky Juice at Skateland, Saturday 17th August 2002. Note the money in his hand to give away for prizes, and his gold "bling."

The MC specialises in the *sociocultural* vibrations of sounding, in relation to the other two frequency bands. As Aristotle tells us: "Voice is a particular sound made by something with a soul; for nothing which does not have a soul has a voice."[4] The MC's vocal expression, literally the breath of their lungs, via the vocal cords, coming out of their mouth as sound, contributes a unique live element to the session's phonographic auditory production. Furthermore, the prosody of their vocal expression makes each MC distinctive. Richard Onians' investigation of the origins of European thought is useful on this point, explaining that the Greek word θυμός (*thymos*) for breath, is also that for wind, spirit, movement and anima. As he states: "[I breathe] means not merely 'I have received breath' and also 'I have breath' but also something like 'I have intelligence, wisdom' … consciousness and intelligence depend upon the breath and lungs … wisdom is 'breathed into' a man."[5] The MC's voicing can therefore be described as "phonovocal"; that is, sound speaking, as distinct from phono*graphic*, sound writing. In short, the MC becomes a "figure of speech" on account of their voicing.

In this way, the MC takes the vibes of the crowd "to another level," as is said, further than what the selector achieves with music and the audio engineer does with sounds. The Dancehall MC has indeed provided a unique contribution to the development of not only the genre of Reggae music, but also those of Hip Hop and Rap. Indeed, the word, as spoken or rapped rather than sung, has been the most important musical form for Western popular music since the early 1980s, with numerous local variants, becoming *the* global genre.[6] This chapter concerns the MC's practice of voicing – what he or she does by *speaking* through sounding, as distinct from the selector's musicking through sounding, or the thinking through sounding with which the chapter concludes. The MC's voicing, because of its linguistic concerns, has a particular involvement with the sociocultural waveband of sounding. But, as would be expected, the MC's skills and techniques are afforded by all three wavebands.

THE MC'S ROLE IN THE SESSION

The MC works in tandem with the selector, most often standing next to them behind the record decks, "hyping up the crowd" and "building the vibes" of the session. As Campbell (1997) tells us, "The MC is the selector's right hand man (and vice versa)." The MC can also perform the role of the selector (as discussed in the previous chapter). On a Jamaican sound system the one who speaks to the crowd is called the MC (Emcee, Master of Ceremonies or Mic Chatter), while in the UK the MC goes by the name of the DJ (disc jockey),

as they do with other musical genres (see Figure 7.1). The term DJ is also, of course, used for the radio DJ, as well as for the Reggae and Dancehall recording artists who speak, or "chat," rather than sing, their lyrics. As Constantinides says, "The added feature of talking over records by Jamaican deejays is what makes these sound system performances truly original."[7] Given the special role, function and qualities of the voice itself, the MC's "voicing" and performance has a unique place in the dancehall session as a whole. This is evidenced, for example, by the particular techniques the MC employs, such as call and response, and by the high status of the MC's role – though, as already noted, this is not over and above that of the selector.

The MC's performance has much in common with that of the selector, as described in the previous chapter. Both MC and selector share similar materials of the sounding of the session, similar performance techniques, such as cutting and repeating, and indeed the same aim of building the vibes of the crowd. During the 1960s the MC became centrally important in the development of Jamaican music, pioneered by Count Matchukie (a.k.a. Machuki) and King Stitt. MCing began and continues today as a live improvisation, talking over music, chatting or "toasting" to introduce a record, give information, or encourage the crowd.[8] But this was gradually developed with MCs such as U-Roy, Prince Buster, Big Youth and I-Roy for them to become recording artists in their own right. Another influence on MC technique outside Jamaica was radio DJing, as for example with Jimmy Savile in the UK.[9] Jamaicans who emigrated to America, such as Cool Herc, who settled in Brooklyn in the late 1970s and as a member of Grandmaster Flash's Furious Five, further developed Jamaican MCing into what became the rapping of Hip Hop music, as described by Rose (1996).

The MC's performance is improvised, "on the spot" and extemporised, meaning literally *ex tempora*, out of time, and emphasised by – what is often considered as a key quality – speed of delivery. Called "free-styling" in Hip Hop, this is a technique specific to the oral traditions used throughout history in numerous cultures across the world, including Calypso singing at Trinidad and Tobago Carnival,[10] much African music,[11] the Jazz tradition and the European Classical music tradition at least up until Mozart, who was famed for his improvisational techniques. The fluency of the lyrical flow of the MC's improvisations is an especially prized performance technique, for the MC in the session and the DJ recording artist in the studio. Indeed, the battle of the clash itself brings an additional nefarious vocabulary into play (as described below). In the 1990s, artist DJ Ninjaman became famous for his hugely exciting extemporising skills against rival DJs in the session, which, unfortunately for his career, was never considered to have been recaptured

in the recording studio. The rivalry between the veteran DJs Beenie Man and Bounty Killa, both in and outside their lyrical performances, has been a recognised feature of the Dancehall scene. Clearly this is not without its commercial value for raising "excitement" around the artists and their acts. Also, DJs and singers regularly make "PAs" (personal appearances) at sessions to "voice" their current hit over its backing track.

"Excitement" and Control

The MC's contribution to the success of the session is to "excite" the crowd, intensifying their musical experience, and encouraging them to enjoy themselves and participate in the dancing. The MC's job "is a very big responsibility," as DJ Squeeze described it:

> You can tell them to jump, lie down on the ground, put you hands in the air, clap you hands, everybody scream now. You tell them say "I am the king" and everyone say "I am the king." Say "I am the wickedest DJ" and they say "Squeeze is the wickedest DJ." In other words, it's almost like mass hysteria.[12]

The MC also has to be in control of the crowd, otherwise "you can have a dangerous situation," according to the late Louise Fraser Bennett of the Sound System Association of Jamaica:

> If the MC is not somebody positive in control of the crowd then the crowd will control the MC and you don't have any dance because the MC must be in control at all times, watch the crowd, watch the vibes, liquor consumption. The MC must be someone who is alert and knows what he's doing or you can have a dangerous situation …[13]

Evidently Bennett (Figure 7.2) was very much aware of the possible risks that the MC's power could be abused. She elaborates on the particular kind of power expressed through the MC's amplified voice, describing selector Rory, from Stone Love, as "a mastermind for the music." Bennett continued:

> That's why they say when you get the *instrument of authority* with the mic you must use it constructively … that goes right back to the point of the music being used as a weapon for or against the people.[14]

Furthermore, there is also a danger, as noted by Stone Love owner Wee-Pow, that the MC can use their power to turn the crowd against the police.[15] So the MC's vocal power can be used either as power-*with* (*puissance*) the crowd,

Figure 7.2 The late Louise Fraser Bennett, Press Secretary, Jamaican Sound System Association, outside their HQ, 2002

amplifying the positive vibes, as it were, or power-*over* (*pouvoire*) outsiders, encouraging the crowd's destructive or negative potential. But this is not a one-way process. In order to have any influence on the crowd, the MC has to earn their respect, to establish a rapport with them; otherwise they are just as vulnerable as the selector to the "fling bottle" techniques, that is, being pelted with bottles by the crowd (as described in the previous chapter). In recent years, Dancehall artists such as Beenie Man and Sizzla have met opposition from a different quarter, involving press criticism and protest over their anti-gay lyrics, to the extent that their 2004 tour to the UK was cancelled.[16] Tommydread's account mentions the selector's playing of Baby Cham's violently anti-gay *Burn Batty Boy*, for instance.[17] As well as reinforcing prejudice and negative attitudes, equally striking is how the dancehall session is more often a place where the norms of sexual orientation, for instance, are reversed.[18] However, for the most part the MCs, despite the aggressive and sexist lyrics, do not abuse their power.[19] There is also a softer, more persuasive approach based on the cultural vibes that has also remained current in the music.

"Guidance"

The MC's skill is to give "guidance" to the crowd. He or she conducts them along in the evening's procession, following the route of the musical groove on which they are steered by the selector. MCs frequently refer to this as a sonic journey from the beginning to the end of the evening. As they captain the voyage, their job is to steer the crowd up to "higher levels" of pleasure or consciousness and safely down again at the end of the session. This allows the crowd to go about their "normal" lives at dawn, and motivates them to return to the session on another night, for another journey. One particularly striking example of the imaginary sonic journey came over the airwaves from one of London's pirate radio station DJs, rather than from a session. For several years this particular radio personality has conducted his show within this trope of a sonic journey. With frequent catch phrases such as "all aboard" and "hold tight," in his radio patter he describes his show as a train onto which he invites his listeners along to join as passengers. When discussing which record he's going to play next, eliciting requests, dedications or rewinds, it is all in terms of that particular artist coming on board the train. This sonic journey is then virtually materialised, as it were, as he describes the towns, villages, roads and landmarks for an actual journey across a particular part of the island of Jamaica: "We're approaching … just left … look out for …" The sonic illusion has recently been completed with the DJ telling his audience first what the time is in London, and then what time it is in Jamaica. This time check is a good example of information that has little or no practical purpose, but an entirely imaginary one. It also indicates the distinction between the senses that is the *trompe d'oeil* and *déjà vu*, on the one side, and the *trompe d'oeur* and *déjà entendu* on the other. It is also worth mentioning that there are no trains in Jamaica; Hurricane Gilbert destroyed the last railway lines in 1987.

In this way, popular phrases and tropes of the dancehall itself, as with the term *vibes* for example, have occasioned a stimulus for thinking through sounding. In this instance, the idea of the sound system as a vehicle, and the crowd's "journey through sounding," provide an accurate description of what the Dancehall crowd come to the session to do, rather than being merely a fanciful metaphor. The MC guides the crowd in the corporeal vibrations of sounding, telling them what dance move to make, for instance (as described below). In addition, he or she also guides them in the sociocultural vibrations of sounding – that is, their sonic imagination, with the idea of guidance on a sonic journey embedded in the culture, lingo and argot of the event, as both earthly and spiritual, or sacred and profane (as discussed below). The MC's guidance also indicates the complementary relationship between force and reason, energy and information, or amplification and attenuation.

Furthermore, the dynamic of manipulating can be an energy process and power source to drive it along, with monitoring as a control mechanism to steer it along its path. The guidance of any vehicle requires power and control mechanisms as the two features of both first-order cybernetic systems.[20] Likewise the set has been described as requiring the engineers' power process of manipulation, together with their control process of monitoring (discussed in Chapter Four). This *leitmotif* of the "ship of sound" is also to be found in other popular musical genres and settings, such as George Clinton's central trope of the "mothership."[21] In short, the MC is certainly the captain of the ship of sound in the session.

Championing

The sound system clash provides a particularly rich phenomenon for investigating the MC's voicing. This is because such competitions between rival Sounds are the most highly wrought, and indeed sometimes overwrought and occasionally violent, of dancehall sessions. The single night of a clash can literally make or break a Sound's entire career. Led by the MC, a clash is a lyrical and musical battle between two Sounds, evidencing many of the key processes that the MC's performance requires. Such sessions demand the most from the skills of every crewmember, the selector and the audio engineer, as well as the MC. Here the term *champion*, in common usage in the lingo – "champion sound," for example – carries a biblical association as the battle between the representatives of the opposing armies, as with David and Goliath.[22] In the dancehall, these can degenerate into physical confrontations between the gangs of supporters, or followers, of different Sounds, often from different downtown areas, similar to football supporters in other cultures.

In the 1950s and 1960s, the early days of the Dancehall scene, this often ended up in street battles and physical fights with knives and other weapons (Bradley 2000; Stolzoff 2000). But usually the exchange between the MCs of each sound is a ritualised verbal form of combat, as found in numerous cultures across the globe, and is central to all oral traditions, provoking the continuing reiterations and re-inventions that keep the tradition alive (Ong 1982). In the days of 1960s Ska, one well-known example of such a lyrical battle was Prince Buster's hit *Blackhead Chineman*.[23] Currently such lyrical battles, often enacted over the pirate radio station airwaves, are at the heart of London's Grime scene.[24] Also I scripted this same trope as the dramatic climax of my film *Babymother*, where the lyrical battle is between the heroine babymother and her babyfather.[25] This is to be heard as a call and counter-call between the lyrics of two singers, rather than a call and response between MC and audience, though of course the two sets of followers are highly involved.

A clash reaches its cathartic moment in the musical climax at the very end of the evening. The MCs' verbal exchanges are accompanied by a musical interchange between the selectors on each sound, as with turntable battles in Hip Hop, but in the dancehall session there is more emphasis on music (as discussed in the previous chapter) than on the scratching techniques.

Interestingly, the winner of this ritualised conflict is decided entirely on the basis of the approbation of the crowd, the tunes the selectors play, and the wit, repartee, criticism, ritual insults and admonishments supplied by the MCs. The crowd makes its verdict clear by the amount of "noise," or "forwards" it makes at the end of each round. Commercially, the clash works as a promotional device for increasing the excitement and vibes in sessions, as a Dancehall scene is extremely competitive with respect to music, choreography, style and fashion. There are several national and international leagues for clashes, such as the UK Cup Clash, London, 3 April 2004 (Figure 7.3) and the World Cup Clash, Brooklyn, New York, 8 October 2005, with accompanying web fanzine accounts and commercial DVDs (see Figure 1.6).[26] By no means all sessions are clashes between two or more Sounds, as with the Skateland session. Indeed, according to Wee-Pow, both to emphasise its

Figure 7.3 Cover of promotional booklet for the UK Cup Clash, London. Note the country map outlines emphasising the international scope of the competition, right.

uniquely elevated position on the scene, and to discourage the violence that
they can provoke, Stone Love has declined to take part in clashes since the
mid-1990s.[27]

As Stone Love's abstinence from clashes prevented direct observation of
their crewmembers' techniques, this was taken as an opportunity to include
an additional type of research material in the investigation, that of a fanzine
account. Though a secondary source in relation to the phenomenon of the
event of the clash, such accounts provide evidence of both the popular interest
and the idiomatic concepts and vocabulary through which the participants
themselves describe their experience.[28] Taking the particular example of the
2005 world cup clash, report-author Tommydread gives the surprise result of
the final round as follows:

> It's almost impossible to believe, but internationally probably yet not too well-
> known sound system Sentinel sound from Stuttgart, Germany took the World
> clash trophy after a heavy battle with giants … Sentinel had a final one-on-one with
> Black Kat who had to appear without Squigy in a Best-of-11 Dub fi Dub round.
> *Congratulations from Claat.com to Sentinel for not only being the first German but
> also the first European sound to ever take the trophy*.[29]

Reading like a sports commentary, it is of interest to note the detail of the
information that Tommydread provides, literally a blow-by-blow, record-by-
record, "dub fi dub" account. Its online publication, on one of the hundreds of
Dancehall fanzine websites, indicates a currency of interest. Also noteworthy
is how the competition is international in scope as an indication of the spread
of the Dancehall scene. Finally, in this instance the winner was a German
rather than a Jamaican Sound. This might come as something of a surprise,
given Jamaica's reputation for chauvanism, even against other islands of the
Caribbean region. The fact that the predominantly Jamaican crowd's popular
vote can recognise a "foreign" Reggae sound system talent as surpassing the
"original" Jamaican one, can be taken as evidence for their respect of the
Germans' performance skills and techniques. On the basis of my observation
of Sentinel Sound at a very small up-country session in 2003, it would appear
that the Dancehall crowd has a full appreciation for others who demonstrate
their musical expertise.[30] Like any award, the World Cup clash will have
helped Sentinel's career on the international Dancehall circuit.

The terms flow and counter-flow, action, re-action or "counter-action"
are commonplace amongst the Dancehall scene's lingo and phrases. Against
the flow of one sound there is the counter-flow of the other combatant, the
"counter-action" of one against the "action" of the other, one musical flow

contra another, perhaps reversing it, depending on the crowd's approving "forwards," as is said, to which Tommydread's account refers to on numerous occasions. Such counter-actions can be contrasted with the MCs' lyrical technique of call and response, where the crowd literally follows the MC in a balanced reciprocating movement, as discussed above. Action and counter-action or "answer" are also often used to describe competitive exchanges in lyrics between DJs on stage, as well as on record, where one record provokes a lyrical response in the form of another, frequently by an artist of the other gender, or as a combination of singer and DJ on the same track.[31] Also, in a clash, the term "counter-action" can be used to describe the selector's playing of one "riddim" in answer to, or rather to go-one-better than or "trump" the one played by the competition (as Tommydread describes). This is a musical, that is to say, a rhythmic battle, as much as a lyrical one, exemplifying, once again, the particular value that Jamaican musical culture attaches to the sonic, as distinct from the lyrical, aspect of the music. This technique of counter-action expresses all three wavebands, material, corporeal and sociocultural, of the MCs' performance. Counter-action and counter-flow mounts flow against flow, sonic force against force, with the resulting friction, interruption, interference and turbulence, and indeed a clash between sounds, as the material vibrations of sounding.

This technique of action and counter-action is inherently dramatic. One Sound is rival, adversary or enemy of the other, with the MCs' argot often featuring challenges to the other who, in the phrase common on the Dancehall scene, "can't test we."[32] Jamaican culture is based on a code of respect – what Gray (2004) describes as "badness-honour" (or *izzat* as it is called in Islamic culture). This provides a value system in which a dramatic mountain can instantly be built out of a trivial molehill, so to speak.[33] The competition action of one Sound against the opposing one, that is to say, the Other Sound, is therefore the stuff of drama, as it is enacted on the sports field, stage, and of course in the Dancehall clash.[34] Such dramatic ritual as conflict may be contrasted with the idea of the dramatic ritual of the selector's and MC's guided procession described above. The selector's cutting down of one tune by another in a clash contrasts with the smooth mixing by which he or she guides the crowd along the procession of the night. As would be expected, both of these dramatic ritual processes operate hand in hand, in a complementary fashion. The dramatic conflict of the flow and counter-flow can also be considered as an example of the dialectical process, in which the antithesis counters the thesis, producing the transformation of the synthesis. The similarity of dramatic and rhetorical devices is of particular interest, as another example of how key principles of the communication process are

best understood in terms of the axes of communication, rather than uniquely linguistic devices (as discussed in the previous chapter).

In this way, the MC's performance in the sound system clash draws attention to movement as opposition and resistance, further to the swerve or the friction of matter that Lucretius identified (as discussed in Chapter Three). Indeed, an MC's "flow" is the key energetic movement of their performance, as with a person's "stride" or "rhythm" (discussed below). In the ritual battle of a clash, such interference is of course exactly what the rival MC aims to do. These actions create "turbulence" – all helping to build the vibes, as indeed is the case with the interference patterns of material frequencies, with standing waves and resonating frequencies. This distinction between flow and counter-flow may be compared to that between the flow of mixing and the interrupting counter-flow of a selection, with the break of cutting as the cessation of movement, and furthermore, as counter-flowing movement in the opposite direction. In the lyrical battle of the clash, as with any more prosaic argument, the energy and effort goes into the output of the lyrical flow, rather than the reception of what the other is saying. Indeed, in the mundane domestic version of such a heated exchange, one will often accuse the other of "not listening" to them. Such antagonistic linear movement takes place *against the other*, reciprocating linear movement *with the other*, and rotational movement *with itself*, on its own axis. The antagonistic musical and lyrical action and counter-action of the clash in particular, emphasise the flow, grain, texture, touch and directionality of sounding – in short, its materiality. Attack provokes counter-attack. By contrast, there is no friction between the socio-cultural vibrations of ideas as such, or at least only metaphorically speaking.

LYRICAL TECHNIQUES

If exciting, guiding and championing the crowd is what the MC does, the next question becomes *how* does the MC do this? This takes into account the different kinds of performance techniques that the MC has at their disposal as a "figure of speech."

Instructing the crowd
One way MCs use their voicing is as a medium for instruction, information, and advising the crowd, as well as providing social comment, topical jokes and gossip and making announcements, about the sound system's up and coming gigs, for example (see Figure 3.6). The significance and signification of the MC's voicing is made especially evident by the fact that it is the *spoken* word, rather than the *sung* lyric, with which he or she performs in relation to the

selector's music (as with Hip Hop rap). In the session, the MC often uses their voicing for entirely practical purposes. As Campbell describes:

> The MC may also make announcements of upcoming events, tell jokes, control the crowd in the case of a dispute, and in some cases even make political commentaries … He [the MC] is responsible for introducing the records being played ("intros") … The MC's duties at a dance are much like those of an MC at a live stage show.[35]

In addition, the MC can also conduct prize competitions for the best hairdo and so on, as DJ Skyjuice did at Skateland between 4 am and 5 am (see Figure 7.1).

DJ Squeeze makes the distinction between musical and vocal sounding when he says "sounds do *not* corrupt" – that is to say, they are natural in themselves, rather than inflected with value or meaning. He continues:

> The music – doh ray me – doesn't corrupt. It is pure in its form, it's what you use it to do, the message you put with it to send. It's the medium, then the messaging you put with it, then it connects that way.[36]

But this aspect of vocal power can have dangerous consequences, he continues:

> It depend what [message] you put with it [the music]. All of a sudden "put hands in the air and kill batty man" [male homosexual] becomes the norm because they are brainwashed. They caught the rhythm first, and the rhythm works for them.[37]

DJ Squeeze's remarks express the distance, or difference, between the MC's words and the selector's sounds, or the MC's lyrical instrument and the selector's musical one.[38]

Recently, with the craze for dancing sweeping the dancehalls, the MC also has the role of calling out the dance moves for the dancers in the crowd to follow; for example, as I filmed at Firelink's *Hot Monday*,[39] and observed at Chuchu Benz's August town session.[40] Another topic for the MC is often introducing and commenting on the music the selector is playing. Talking about the music, and any and everything else that comes into the MC's mind, serves to create a dimension for playfulness, criticism, comment and enjoyment that the crowd can then occupy. The Dancehall scene and session is spatially redolent; generated, for example, in the phonographic performance of the music, the acousmatic performance of the MC, and the spatial qualities of the musical genre of Dub itself (as discussed in the previous chapter). In the

MC's lyrical "flow" on the mic – their stream of words – they often boast about themselves and their lyrical skills. This self-reflection is often one of the key characteristics of their extemporised performance. (As with many traditions with pre-modern technologies, their form has been preserved as such, in this case in the recorded medium, without current functional purpose.) The MC's voicing-over the already-voiced record adds a live layer of expression on top of that of the music's phonographic re-production, to encourage the participation and embodiment of the crowd.

As well as an instructor, the MC can also be considered as a *conductor*, as with the phrase "conducting the choir" used to describe their performance (as discussed in relation to modernism in the previous chapter).[41] And the body that the MC carries along, or guides, is the multiple body of the crowd – the one who is many and the many who are one, for whose "safe passage" the MC is responsible along the journey of the night. In Jamaican common parlance, the religiously infused term "guidance" is often used for well-wishing on departure, as with "blessings" or "god willing." The MC's guidance of the crowd can be understood as a fine-tuning procedure with a feedback loop between monitoring and manipulating, not unlike the engineer fine-tuning the sound of the set (described in Chapter Four). The engineer has to "hit the right note," before moving on to the next one, though not in a specified order. But for the MC and the selector the issue of timing is most important. Each have to "read" the crowd, before deciding what lyrical remark to make and so on, inscribing them in the temporal cycle of the evening, where each tune, each lyric, follows on in sequence from the last one, as with steps on a journey.

The MC's exchanges with the crowd, and the instabilities of the vibes of a session, suggest how vibrations are infused with dynamics of particular movements and the contingencies of specific relationships. This is the kinetics of the pulses, oscillations and repeating frequencies that are commonly described in terms of the atmosphere, vibes and *ethos* of an event, as well as places or institutions. For the MC guiding the crowd, it requires particular and special skills that must be part of the single cycle of the event, until it ends at dawn; a cycle, of course, to be repeated with every event. As Lefebvre and Régulier point out, there is an intimate relationship between rhythms and rituals:

> Rituals have a double relationship with rhythms. Each ritualization creates its own time and its particular rhythm, that of gestures, of solemn words, of prescribed acts with a particular sequence; but also rituals and ritualizations intervene in daily time and puncture it. That happens more often during cyclical times, at fixed hours, dates and occasions.[42]

So the MC's guidance of the crowd identifies a further kind of movement to the dynamics of the periodic auditory propagation and kinetics of the crowd's dance. This is the movement of travel, the journey of the session, for which the sound system is the vehicle – driven by the MC. Sounds systems do travel, of course, in that they are peripatetic, seldom performing in the same place two nights running. But the journey the sound system makes has also to be considered as a journey of ritual transformation over thresholds and across boundaries, as Turner (1974) describes, and can also be seen as the drama of the hero's transformative journey, as Joseph Campbell (1949) describes in terms of narrative structure.

Oral traditions

While the material and corporeal power of the MC's voicing is amplified by the sound system set, the sociocultural vibrations of their voicing are also amplified in the session and the Dancehall scene. The human voice receives a particular respect and esteem within the strongly oral traditions of Jamaican culture (as described in Chapter One). Glossolalia, or speaking in tongues, as has been investigated by Csordas,[43] is a common feature of many Jamaican Baptist and Pentecostal Church services. So the *logos* of the MC's voice, as the sociocultural vibrations of sounding, is one of the features that makes for a close relationship between church hall and dancehall. Beckford (2006) investigates this linkage in his study *Jesus Dub*.[44] The special power and authority attached to the human voice has been explored to some small extent within psychoanalysis, with the idea of the auditory superego, as Isakower (1939) suggests. Furthermore, Julian Jaynes in *The Origin of Consciousness in the Breakdown of the Bicameral Mind* (1976) has explored auditory authority through his idea of the breakdown of the bicameral mind, in which early *Homo sapiens* heard the voices of his gods.[45] Outside actual dialogical interaction, the voice has remained outside the purview of conventional psychological science, as Lisa Blackman points out in *Hearing Voices* (2001).

In the oral context, the radio mic becomes an icon as an instrument of power, noted, for example, in how the mic figures in the design of the World Cup Clash DVD cover (see Figure 1.6). The MC in the dancehall session and the Preacher in the Jamaican Baptist church share a similar vocal style and authority, as indeed is the case with African-American styles of preaching and political speech-making. In this way, Bennett's identification of the microphone and authority, discussed above, is particularly telling. This is because the image of the mic invariably carries the biblical association of Judah's Rod of Correction and the value placed on respect for authority and firm discipline in both school and home life.[46] And this is affirmed by a moral values system with

clear demarcations between right and wrong, as expressed in both Rastafarian and Christian churches in Jamaica.[47] This raises a number of points with respect to the power of the MC's voicing, on top of the commanding power already identified in the material waveband of the vocal medium.

The auditory master

Another important feature of the MC's voicing is that it is more or less entirely disembodied from its source, or *acousmatic*, to use Michel Chion's term.[48] This is to say that the MCs, as the source of their voicings, although present and "live" in the session, are themselves not visible. The voice has been disembodied in its speaking, rather than its writing.[49] It would seem that this is the way the crowd chooses it to be, rather than having the MC in lights, as a stage artist would be. While the presence of video cameras and their lights is increasingly a feature of dancehall sessions, it is only occasionally that I have observed these being directed towards the MC. This seems to indicate a preference for mixing-in the MC's voice in the same purely auditory manner as the music itself. As with the MC's voicing, the selector's performance is also virtually entirely acousmatic.

The MC as an auditory master is a voice without a body. It was indeed this feature of recording technology that captured the public imagination with the invention of the phonograph, attributed to Thomas Edison in 1877. In his *Gramophone, Film, Typewriter*, Frederick Kittler gives a fascinating account of how the first use for phonographic voice recordings was to listen to the literally disembodied voices of the dead.[50] Such "ghost effects," as Rotman (2008) calls them, are of course only summoned up as an acousmatic absence of the person's living voice. This ghostly theme was also taken up in Jean Cocteau's film *Orpheus*, in which the hero listens for his instructions from the dead in radio broadcasts.[51] Also both the magic of the first phonographs, and members of non-literate societies first listening to a book being read, according to anthropologists, created the same amazed effect.[52] But once it became technically possible to record the trace of sound or image, why were they thought to be capable of making these connections between present and absent, even the chasm between life and death? It is only because the voice has once been embodied that it can subsequently be disembodied. This is why Little Nipper, the dog in the famous HMV brand logo, is listening so attentively to his master's voice – to the authority embodied in it.

According to Chion's (1994) pioneering account of the relationships between sound and image, the unseen speaking voice, like the MC in the session, plays a key role in cinema. The classic film examples of this are the voice of the Wizard in *The Wizard of Oz*, and Hal, the computer in *2001, A*

Space Odyssey, and more recently, the antagonist in *Phone Booth* (2002).[53] Chion personalises this invisible, or disembodied auditory presence as the *acousmêtre*, or auditory master, a term that would certainly be an appropriate way to describe the Dancehall MC:

> The *acousmêtre* is this acousmatic whose relationship to the screen involves a specific kind of ambiguity and oscillation … We may define it as neither inside nor outside the image. It is not inside, because the image of the voice's source – the body, the mouth – is not included. Nor is it outside, since it is not clearly positioned offscreen in an imaginary "wing," like a master of ceremonies or a witness, and it is implicated in the action, constantly about to be part of it …[54]

Chion then goes on to explain how "Fiction films tend to grant three powers and one gift to the *acousmêtre*."[55] What is interesting is how precisely these three powers are exactly those attributed to the MC in the darkened session:

> First the *acousmêtre* has the power of *seeing all*; second, the power of omniscience; and third, the *omnipotence* to act on the situation. Let us also add that in many cases there is also a gift of *ubiquity* – the *acousmêtre* seems to be able to be anywhere he or she wishes.[56]

These god-like powers of the MC's voicing of course resonate Jamaican oral traditions, as well as the commanding *ethos* of the voice itself. These qualities can now be explored in relation to the MC's performance techniques.

PERFORMANCE TROPES

As would be expected as a figure of speech, the MC in the session has a huge repertoire of stock phrases and sayings, ranging from the most up-to-date American and Jamaican slang, to Jamaican folk culture, proverbs and biblical sayings. Very often an MC, like their counterparts on the radio, have their own signature phrases such as, "Music to rock you mind body and soul …" Others are in widespread use by various MCs, such as, "From the top to the very last drop …" These are used for their rhetorical effects and affects, as distinct from the information they convey. Rhythmic energies flood the sound system. These range from the electromagnetic flows within the set, such as the forces of electrical currents and the amplitudes and other characteristics of electromagnetic signals, to the audio–cultural flows of the music, the musical flow of the selector's segueing from one track to the next, the

corporeal and kinetic flow of the crowd, and the socio-cultural flow of the MC's lyrics themselves.[57]

"Riding the riddim"
In the session, one example of the MC's vocal techniques is their "riding the riddim." This is to be "in sync," "on time," "in tune," or matching the prosodic delivery of their lyrics with both the rhythm of the music and the "vibes" of the crowd. The idea of "riddim," the term used for rhythm, conveys the idea of rhythm as energy, force or flow, as with the term "vibes." Movement often creates and expresses transformations, as evidenced in religious rituals, as well as the crowd's dance in the session. The propagation of sound begins with the vibration of air molecules and ends when these strike the eardrum. This is a reciprocating movement, as with the peaks and troughs of the sound waves themselves, and between source and listener, their energy both kinetic and haptic, is transmitted by the MC and received by the crowd. These musical rhythms, and in particular the "riddim" tracks, have a unique value on the Dancehall scene. This is evidenced by the fact that each "riddim" is known as such, named and frequently referred to, as with, for example, Tommydread's account of the clash. Uniquely on the Dancehall scene, numerous recording artists voice their different lyrics on the same "riddim," giving it a particular autonomous value.[58] While retaining the terminology of flows, it is possible to describe these varieties of flow as *laminar*, as with the calm, unified flow that a good selector achieves in the sequence of tunes played; *wave* flow, as with the undulation of tunes, as it were, by which the selector produces the shape of the procession of the evening; and *turbulence*, that spells trouble, or violent incidents in the dancehall.[59]

The idea of "riddim" also draws attention to the temporal variation or dynamics of auditory propagation in this way. One way this energy is expressed is as velocity, with an ultra-fast turnover of artists, fashions, music and dance styles and continual plundering from other "scenes" in order to re-create and re-invent itself, as do many other pop scenes. In this respect, a Sound could be termed a "homeodynamic," or far from equilibrium, rather than homeostatic system. Furthermore, the energetic forces of a rhythm are continually in danger of escaping control, of throwing the rider off, as it were. Its incessant character creates energetic demands that make rhythmic repetition, or looping, inevitable as a technique by which it can sustain itself. The particular "Dancehall" energy is one for which artists such as Elephant Man, a.k.a. "The Energy God," are renowned. This also emphasises the intimate connection between the personality, or *ethos*, of the performer and the materiality of their energetic force, discussed below. Furthermore, on the

Dancehall scene these energies tend always to be in chaotic and spontaneous surplus, necessarily, endemically and intrinsically excessive, as distinct from regular waves of rhythmic flows, or the smooth laminar flow of a groove. Instead, this energy flow is always trying to exceed itself, to make more of itself, to go where it has not gone before, to do the impossible, as seen, for example, in the on-stage antics of the Scare Dem crew.

Such unstable energies, or "turbulence," as it is known on the scene, can spill into physical violence, to the extent that the Elephant Man's notoriety has made it particularly difficult for him to tour outside Jamaica. Another currently popular artist has Turbulence as his stage name. On the scene, "turbulence" is said to occur when the MC does not properly control the session, which is when the wave pattern, or steady laminar flow, of crowd vibes could be said to break down into unpredictable and chaotic forms. Rising Dancehall artists are often associated with shootings and other violent incidents, as are those in Hip Hop, and the recent post-Garage Grime scene in East London.[60] Stone Love, for instance, tours only in the Midlands and the North of the UK, as they refuse to play in London on the grounds that they attract "too much of the violence."[61] In the context of the session, located in communities in which weapons are often carried as a matter of course, such ritual conflict can break down into actual physical violence between the different Sound's followers. The intrinsic intensity, excessiveness and otherness of these energies bring to mind Bataille's comment: "the sexual act is in time what the tiger is in space," as discussed in the *Accursed Share* (1988). This expresses the sheer energetic exuberance that is entirely surplus to the necessities of mere survival, based in abundance rather than lack. This Dionysian or carnivalesque aspect of the scene often involves blatant sexual display and incitements to violence and "gay-bashing," as mentioned above.[62]

Even in the normal practice of sonic engineering, for example, engineers like Horace McNeal talk about the "abuse" of equipment, stretching it over the limit, "Making it do what it not supposed to do" (as noted in Chapter Four). Whether by good fortune or necessity – as the mother of invention – it is often cultures that are without many resources, opportunities and material assets that are "blessed" with this particular kind of creative energy. This is another characteristic of the dynamic energies. They are incessantly making things different, "versioning," or "making something out of nothing." This was one of the catch phrases on the UK Ragga scene in the early 1990s.[63] A similar spirit is expressed in the plethora of names, nicknames, and monikers by which a single Grime artist will make him or herself known, eschewing the single focus of conventional music industry wisdom.

The term "riding" suggests that such rhythmic energies can be bridled to become safe and useful. This is the MC's job: monitoring, steering, directing and controlling these flows, in order to turn the dynamics of vibrations into a workable system – inimitably a sound system. The MC's performance techniques with the vibrations of the session may be compared to those of the engineer, manipulating and monitoring the material frequencies of the electromagnetic flows within the set by means of specifically calibrated gates and filters and so on. Also the selector performs in a similar manner, "reading" the vibes and manipulating them by cutting and mixing between the musical flows of the corporeal waveband of the session. A similar performance technique is also evident with the DJ recording artist, who, voicing a track in the recording studio, is often described as having to "sit down" the "riddim."

Stanley Burnshaw begins his seminal *The Seamless Web* with the statement: "Poetry begins with the body and ends with the body."[64] Along this line of thought, the Caribbean Nobel Laureate Derek Walcott theorises a progression of literary forms on this basis. According to Walcott, the first literature was sung song, from which poetry was derived, with the loss of song's musical character, from which prose was derived, with the loss of poetry's metre.[65] For Roland Barthes the fundamental importance of rhythm is as our entry point into the language system: "Without rhythm, no language is possible: the sign is based on an oscillation, that of the *marked* and the *non-marked*, which we call a paradigm."[66] Barthes also suggests that this rhythmic patterning changes the nature of the practice of listening: "By rhythm, too, listening ceases to be a purely supervisory activity and becomes creation."[67] Marked and unmarked, passive listening and active creation, rhythm, as with the embodiment of touching, is double-sided. There are two aspects to the rhythmic relationships: riding and being ridden, controlling and being controlled. One is the kinetic motor connection that we make with rhythms, and the other is the haptic sensory connection those rhythms make with us. "Riding" a rhythm tames its double-sided character. But most often, formalist approaches to linguistics have encouraged a forgetting of what, in the practice of embodied performance, is an intimate and complementary connection between sound and meaning; that is to say, signification with the prosody of language.

From this it can be said that the term "riding" also suggests that there is the frequency of regular reciprocal relationship with the "ridden." This can be conjugated in numerous ways: between power and control, musical medium and lyrical message, or phoneme and sememe, vowel and consonant, or form and matter.[68] The dynamic movement the MC rides evokes the ancient – and sometimes violent – tension characterised between the Greek

mythical figures of Apollo for control, and Dionysius for abandon.[69] So there is a complementary relationship between "rider" and "ridden," or control and energy, where it can be said that the "riddim" is the third term that makes this relationship possible (as detailed in the next chapter). Another way to understand these energies might be through Goethe's concept of the dynamic of *differencing*. This is the evolutionary process of the differentiation of organic forms identified by Goethe, whereby "It is only by always becoming other that it can remain itself".[70] This would appear a particularly appropriate formulation for the sound system and its crowd in a session, characterised as a *one-that-is-many* and a *many-who-are-one*: a unity of multiplicity.

In a similar manner to how repeating rhythms provide *temporal* patterns, channels provide *spatial* patterns and boundaries for the threshold crossing of liminal states, transitions and transgressions. The constraints of each of them concentrates, focuses and intensifies flows to increase pressures and energies, through the mechanisms of gates, bars, filters and other regulatory devices. This is the rhythmic connection between the rider and the ridden. This connection itself has a two-sided character.[71] One side is sacred, as expressed by DJ Squeeze's oft-used phrase to describe the flow of the Holy Spirit as the "Rhythm of Life." This is also evident, for example, in the way the supplicant in the Voodoo rites of the neighbouring Caribbean island of Haiti is said to be ridden by the spirit.[72] These are shown and commented on by anthropologist and dancer Maya Deren's (1983) appropriately named documentary film *Divine Horsemen*. The other side of rhythm is profane. In the dancehall session, such overt spirituality is reversed, domesticated and returned to the everyday world. This is a process of transformation or transduction between frequencies. The MC has to be the one on top, "in charge," riding the rhythm, "sitting" on it. And, as is frequently heard in the Dancehall lingo, to "ride" is used as a euphemism for sexual intercourse, as in such stock-in-trade lyrical phrases as "You want to ride with me?"[73] This relationship between sacred and profane worlds is an intimate one, as Beckford (2006) explores. It is presumably as a rider of the intensities of both these kinds of rhythms that a disc jockey is so named, guiding the crowd on a journey that is both pleasurable and spiritual.

Finally, it can be added that rhythms, besides requiring energetic expression through the material vibrations, also tend to express themselves in relation to other rhythms. This point is emphasised by Deleuze and Guattari in their discussion of milieu, rhythm and the refrain:

> The notion of milieu is not unitary: not only does the living thing continually pass from one milieu to another, but milieus pass into one another; they are essentially

communicating. The milieus are open to chaos, which threatens them with exhaustion or intrusions. *Rhythm is the milieus' answer to chaos.*[74]

In this manner, the event of the session can be understood as considered as a synchronisation of a broad range of rhythms and frequency vibrations, or as a combination of milieux, as well as an assemblage of component parts and performances. This range of frequencies varies from annual seasons for a particular session, through the procession of the evening, to auditory rhythms, and to the bass frequencies themselves. Besides these, the other "riddim" the MC also has to ride is, of course, the riddim of the vibes or mood of the crowd.

"Conducting choir"

According to Campbell, "conducting choir" is one of the key roles of the MC, defined as "Encouraging crowd participation in singing the popular tunes."[75] It includes a call from the MC and a response from the crowd, one against the other. The crowd's response can be kinetic as well as vocal, as with the ritualised routine of such children's games and songs as "Simon Says." This was seen at the Firelinks session where one of the MC's calls was for the "Ghetto Bicycle" dance, duly enacted by the line of dancers, led by the late Bogle, crouching down as if sitting a bicycle seat and steering imaginary handlebars (Figure 7.4). Such a reciprocal relationship of call and response, or antiphony, help to blur any hard and fast distinction between "performer" and "audience." Such tropes are of course central to many African musical performance traditions.[76] By "conducting choir," the MC is riding the vibes or rhythm of the social body of the crowd, propagated in the sociocultural vibrations of the session, as well as the corporeal riding of a particular individual "riddim" track. The MC conducting choir establishes a dialogical relationship with the crowd. This is power that each shares with the other, *puissance* – in contrast to the *pouvoire* of power where one attempts to control the other as an oppressive authority. Nevertheless, the threat of this second type of power has to be suspended, held in the background as it were, for the MC to maintain their authority. This is a central feature of the MC's role in a successful session. As Jamaican Sound System Association's Bennett stated above, "If the MC is not somebody positive in control of the crowd, then the crowd will control the MC."[77]

This term, "conducting choir," is also of particular interest in that it identifies the MC's role as specifically that of a conductor, as with the conductor of a symphony orchestra. Bourriaud (2002) identified this as a particular kind of creativity that emerged with Modernism. The selector's

Figure 7.4 The late Bogle dancing the "Ghetto Bicycle," at Firelinks, Hot Mondays, 15th September 2003. Note the punk safety pin design motif of his trouser fabric.

sequencing and re-contextualising the already existing cultural objects of music tracks, rather than "creating" them, was discussed as another example of this (in the previous chapter). Conducting choir to build the vibes with the crowd, the MC employs the same practice of repeating as the selectors, with their technique of the "re-wind" (described in the previous chapter). This technique evidences how the MC makes the connection between rhythms and repetition, in the way the selector does by eliciting a "re-wind" for the record. But with the MC calling for the crowd to respond by either repeating or answering his or her call, it is an embodied repetition of what the MC shouts out, and what the crowd shouts back, rather than the selector's mechanical replaying of a tune. Also it is a hierarchical relationship, in that it is only the MC who holds the microphone, and the many of the crowd have to become one and speak in unison to be heard.

The MC's "conducting choir" technique could be considered as an example of what Lefebvre calls the "rhythm of the self and rhythm of the other,"[78] also expressed, as these authors point out, in the distinction the French language makes between the informal *tu* and the formal *vous* pronouns. The repeating of call and response, the MC's call and the crowd's answer, creates an amplifying

circuit of repetition between them, as a substantial contribution to the vibes of the session. As interlocutor for the MC, the crowd occupies a special role in the session, not unlike that of the chorus in Classical Greek tragedy, whose role is to comment on the action. The crowd, rather than observing a spectacle, as an audience is considered to do, are on the dancefloor literally in the middle of the action. Their kinetic dance movement makes them actors in the scene, and their response to the MC's call expresses their comment on the action, as befits the role of a chorus. Both the crowd and the chorus are "the one that is many and the many that is one," as examined in detail elsewhere (Henriques 2007b).

"Toasting" and "tracing"

It is only a short step from the MC riding on and with their own musical rhythms, and achieving "forwards" for them, as Tommydread mentions, to riding *against* the rhythms of another MC, as the crowd's champion against the rival Sound. This makes the move from call and response to call and counter-call, or from using their lyrical improvisation to "big up" the crowd or lyrical prowess, to "diss" (disrespect) or "put down" the rival MC. As Tommydread writes, "Sentinel started a round by playing an unknown singer *dissing up* the competition, which the crowd liked," or "Immortal requested the audience to *boo* Mighty Crown …"[79] This is, of course, exactly how the pathetic intensities of repeating are used in a clash. The MC's lyrical performance plays an important part in these special sessions where two sound systems are in competition with each other for the crowd's approval. Accompanying the selector's choice of records, each MC trades ritual insults with the other, very often of a very personal nature. As an example, Tommydread begins his account of Round Two of the 2005 World Cup Clash (see Figure 1.6) by quoting Mighty Crown's mild insult of Black Kat: "Panther, you are the worst champion."[80] In a sound clash, one MC's character assassination of the other is *de rigeur*.

In a sound clash, "The MC's role becomes even more crucial," as Campbell puts it, compared with others sessions. He continues:

> [H]e/she is responsible for verbally ridiculing his opponents (the other sounds) by taunting them (this practice is called *toasting*), or telling embarrassing jokes which may be true or not true (also called "*drawing cards*").[81]

There is also what is called "tracing" in Jamaica. These insults concentrate on the MC's family, and his mother in particular. This technique is also used in other social settings besides the clash, is commonplace across the African diaspora, and is among those noted by 1930s folklorist and novelist Zora

Neal Hurston in her social anthropological account of cultural tropes.[82] More recently Gates describes it as:

> … [M]arking, loud-talking, testifying, calling out (of one's name), sounding, rapping, playing the dozens (a ritualized word game that consists of exchanging insults usually about the members of the opponent's family).[83]

Tracing or playing the dozens is therefore to be located in the pantheon of pathetic techniques; that is, evoking *pathos*. These rhetorical techniques Gates describes as such: "signifyin(g) is an African-American vernacular trope that is a figurative, metaphorical, rhetorical way of speaking, using *repetition with difference*."[84] This describes the MC's trickery, as much as that of his American brethren and sistren, as it were, indicating some of the resonances across the African diaspora. These insults can be considered as an instance of meta-communication, of the kind encountered with Mudede's concept of meta-music discussed in the previous chapter. In the same manner as the selector makes music out of already-made music, it could be said that the MC's "tracing" is making the relationship of speech out of speaking.

Each of the examples of the MC's vocal techniques described above contributes to the crowd's auditory experience of the sounding of the session, together with the selector's tunes, and innumerable other factors bearing on the crowd's experience of the session, such as their alcohol consumption (as mentioned by Frazer above). This is what the crowd monitors, and, in terms of their feedback to the MC, manipulates. Similarly the vibes of the crowd are what the MC, and the rest of the crew, monitor and try to manipulate. So the MC and the crowd, in a reiterative reciprocating fashion, each provide for the other material, corporeal and sociocultural vibrations on which to operate rhetorical techniques. Uniquely, with the clash, it is the crowd who has the last word.

PERSONALITY

The third way the MC is able to excite, guide and champion the crowd is through the tone, texture and qualities of their voicing. The MC's performance is specifically vocal, in the way that the selector's is dextrous. But there is a special intimacy and intensity to the corporeal vibrations of the MC's sounding, given its means of production, as it were, in the performer's vocal cords, as distinct from the selector's fingers. This can be described as the qualities of prosody, the distinctive touch of their voice.

Prosody: sounding and self

Very often, especially to the unfamiliar ear, the MC's voice completely dominates the sound of the session, drowning out the music. Often the MC's hoarse, rapid-fire shouts, exclamations and comments are further distorted by the electronics of the set and the shouting of the crowd, making it very difficult to make out many of the words being spoken, or even the sense of what is being said. But this is what allows the MC to perform their own fleshly embodiment, producing themselves as speakers – as we all do. This can be described as the "touch" of sound, as when we say we are "touched" by something someone says or does; that is, affected, or "moved" emotionally (to refer to the kinetic rather than the haptic medium of sound). This is the manner in which someone's tone of voice betrays their "real" feelings, or "true" character, as distinct from what they actually say. The poet and theorist Anne Carson (1995) shows the importance of these qualities in her exploration of the gendering of sound, to be located in this relationship of the speaker to the spoken. Their incontrovertible character could also be described by Jean-Paul Sartre's (2003) term "facticity." This is what is given and cannot be changed, such as the facts of when and where a person was born.

The distinctive qualities of the MC's voicing, its timbre, intonation, texture and auditory character, can be described as examples of the material waveband of sounding. As this is only ever transitory, their *means of propagation* are the corporeal instrument of the MC's vocal apparatus. It is these that offer consistency, or indeed personal identity. Prosodic propagation involves an entire range of bodily mechanics including vocal cords, lungs, chest, diaphragm, stomach, throat, nose, lips, tongue and teeth. The human voice is a wind instrument, its vibrating vocal cords akin to the reeds of saxophones and oboes. Speaking is a transduction process, whereby the mechanical vibrations of the vocal cords excite air molecules, to produce the sound frequencies we can hear. The manipulation of this propagation process is entirely responsible for the unique pitch, tone and timbre of an utterance, that is to say, the auditory qualities of every individual speaker. It is the prosodic production of a voice that gives the voice its characteristic richness and range of intonation, which of course has been fully exploited by stage artists such as DJ Buju Banton, who is known for his deep-pitched, gravelly delivery.

There is a particular intimacy and immediacy between a speaker and their own voice, to the extent that the sound of someone's voice can be a haptic sense, like a touch both separating and connecting the speaker and their world. Connor describes this most elegantly, as follows:

Nothing else about me defined me so intimately as my voice, precisely because

there is no other feature of my self whose nature it is thus to move from me to the world, and to move me into the world. If my voice is mine because it comes from me, it can only be known because it also goes from me. My voice is, literally, my way of taking leave of my senses. What I say goes.[85]

The apparently self-evident personality of our voice is expressed when we say "It's me" over the phone, or from behind a door, without visual contact with our interlocutor (as discussed in Chapter Three). Such touch or connection between sound and person is also expressed in numerous everyday phrases, as when we say someone is "in tune" with something that "rings a bell," or we describe a person's body as being "toned." Indeed, the gramophone had as its initial purpose listening to the voices of the dead, as has been noted.[86]

The acoustic instrument of the MC's voice is then treated in the same manner as the other analogue auditory sources, such as the indentations in the groove of the vinyl record; that is, they are transduced into electromagnetic signals and amplified by the set. And for the MC, as with any recording artist, this cannot be separated from the microphone technique, as discussed by Frith (1996: 188) and Connor (2000, 2001). Often what is notable about such techniques is how, the more skilled the execution, the more transparent and "natural" it appears to be for the audience. In this way, vocal production is an embodied procedure, practice and process, to the extent that the sound of a person's voice can be considered as the extended touch of their body.[87] Connor emphasises the intimate connection between voicing and touching by considering the mouth as primarily an organ of touch. He suggests:

> [At this] most active and exploratory portion of the skin, a primary association of hearing and touch is formed, not on the exterior skin, but in the interior skin of the mouth. For it is in the mouth that we form our first sounds, and may at first apprehend sound as a sort of plastic tangibility: the burring of the lips, the sibilant puffs of air between teeth and tongue, the uvular gulps and gurgles. Sound and touch meet, mingle and part, in the mouth.[88]

This describes the haptics of sound as embedded in the kinetics of its production, indicating the intimacies of these complementary and reciprocal features.[89] Derrida (2005), distinguishes two types of functioning of the mouth: "[O]rality and *buccality*, between *os* and *bucca*, the latter being more 'primitive' than the former. The mouth *speaks* but it does so *among other things*. It can also breathe, eat, spit. It has 'not always been speaking,' not always been an *oral* agency".[90] These two sides of the mouth, as it were, resonate with the corporeal and sociocultural wavebands of language respectively.

Along the entire chain of the propagation process it is the last two organs, tongue and teeth, that have particularly profound effects on the sound of the utterance. Connor makes the flesh and bone of tongue and teeth emblematic of the two sides of language: soft and hard, vowel and consonant,[91] periodicity and noise, self and other, when he writes:

> Teeth seem alien elements within the mouth … The teeth are the hard in the soft. They are the fundamental means of transforming the not-self into the self. Language is born, not with the accession to the symbolic order, but with the growth of the teeth. Adult words, as opposed to the toddler's shrieking, lisping and gurgling, can be formed in one's mouth only when there are teeth to capture them and chop them up.[92]

The mouth incorporates soft together with hard feelings, the flow with the assistance of the lips, the interruption of breath. The fleshly tongue mixes the vibrating breath of the lungs for the instrument of the teeth to cut, in a manner akin to the selector's technique of mixing and cutting. These corporeal mechanics make the mouth the MC's key instrument for manipulating the material of the auditory flow of their voicing. This is in a similar manner to how the engineer uses his soldering iron and variable controls to manipulate the electromagnetic performance of the set, and the selector the turntable, cross-fader and the amplifying power of the set.

The MC's voicing makes the crucial combination, or mix, between sound and self, or, to put it another way, between incorporation and inscription, or the corporeal and sociocultural wavebands of sounding. These corporeal and material aspects of language have tended to be relatively neglected by linguistics, in favour of the abstract rules of a language system. Barthes (1977), however, makes a point of contrasting this corporeality of an utterance (*La Parole*) with that of the formal system of *La Langue*, in his famous essay *The Grain of the Voice*. As Barthes tells us: "The breath is the *pneuma*, the soul swelling or breaking and any exclusive art of breathing is likely to be a secretly mystical art."[93] But for Barthes the lung is "a stupid organ" compared with the throat, which is a "place where the phonic metal hardens and is segmented, in the mask that *significance* explodes, bringing not the soul but *jouissance*."[94] This grain of the voice for Barthes originates not in prosodic production alone, but from …

> *The encounter between a language and a voice* … where the [voice] is in a dual posture, a dual production – of language and music … The "grain" of the voice is not – or is not merely – its timbre; the *significance* it opens cannot better be defined,

indeed, than by the very friction between the music and something else, which something else is the particular language.[95]

This grain, so characteristic of the voicing, can be considered as a feature of the material medium of voicing, as with the grain of a piece of wood, for example, but expressing this materiality in durations, rather than surfaces.

Prosody is always the particular instance of an utterance, its performance. "The spoken word is both meaning *and* sound," as Maiello (1995) insists in the context of psychotherapy. Against this, he continues, "We tend to consider the speaking voice and the sounds of the words as mere carriers of the verbal message, as a means but not as an end of discourse."[96] Most often it is only the content of *what* is spoken, rather than *how*, that is assumed to contain its signification: "The listener concerned with communication is usually more interested in the semantic aspect of words and in their ability to evoke images than in their *sound character*."[97] Zumthor makes a similar point about this material medium of language:

> The voice is more than speech. Its function is greater than that of conveying language. It does not convey language; rather language is conveyed through it, and the physical existence of *the voice hits us with the force of a material object. The voice is a thing*; its qualities can be described and measured – tone, timbre, range, height, register. Most civilisations have attached a symbolic value to each of these qualities.[98]

Prosody concerns what Zumthor calls this "thing" of the voice, the particulars of utterance, or the material vibrations of sounding, the life in the breath of sound, as it were. This is the manner in which the MC's tone of voice betrays their "real" feelings, or "true" character, in addition to what they actually say.

Voicing: sounding and other
The amplified voice of the MC is a major component of the auditory impact of the *sonic dominance* that the crowd continually monitors as part of their participation in the event. As the MCs themselves are sonically embodied, so is the crowd. The MC's voicing is part of this embodiment, with all the additional weight and authority that their vocal production receives from its transduction and amplification through the electronics of the set. Voicing makes an intimate connection between speaker and listener, like touching; at the same time it separates them, as in the speaker and their own voice. For the crowd, there is a touching intimacy to the MC's voice, even when this is the distorted noise that it can tend to be. The personal address and intimacy

of vocal performance in the dancehall session, as well as on stage, is of critical importance. His aim as a singer on stage, I was told by the leading Reggae balladeer Beres Hammond, was to make each member of the audience – especially the women – feel that he was singing *their* own song, especially for *them* alone.[99]

This inter-subjective relationship of voicing is explored by Roland Barthes, with the example of the telephone, as "the archetypal instrument of modern listening." A telephone conversation:

> [C]ollects the two partners into an ideal (and under certain circumstances, an intolerable) inter-subjectivity, because this instrument has abolished all senses except that of hearing: the order of listening which any telephonic communication inaugurates invites the Other to collect his whole body in his voice and announces that I am collecting all of myself in my ear … interpellation leads to an interlocution in which the listener's silence will be as active as the locutor's speech: *listening speaks, one might say …*[100]

Voicing is replete with such reciprocal qualities – between speaker and self, between selves, and between speaking and listening. Furthermore, in a Freudian perspective, the subject's imbrications in speaking and listening begin even before he or she is born, where a child has:

> … a history of the legends of parents, grandparents and the ancestors: the family *sounds* or *sayings*, this spoken or secret discourse, going on prior to the subject's arrival, within which he must find his way.[101]

The acousmatic listening in the session provides quite a unique example of this relationship between speaker and listener, as it is the sound itself that is listened to, rather than a human interlocutor – the "speaker" being the set's loudspeaker. This approach to the qualities of listening is a matter for phenomenological consideration (Idhe 1976, Levin 1989; and more recently Connor 2000 and Karpf 2006), as discussed in relation to the methodology of listening (in Chapter Four). The inter-subjectivity of the MC's voicing is a powerful example of what Jakobson (1960) describes as the "phatic" or "listen-to-me" aspect of communication, concerning the communication channel.[102]

Commanding

As a contrast with the soft fleshly intimacies of vocal propagation, another way in which the unique quality of the MC's voicing has to be understood

is by what it does. The MC's voicing affects the crowd. It is important to emphasise how this has to be understood in terms of the characteristics of the material and corporeal wavebands of auditory propagation, as distinct from how voicing may be used as a sociocultural medium of communication. One of the ways that MCs use their voicing is to command the crowd, to tell them what to do. This has become particularly evident in recent years with the increasing popularity of energetic dancing as part of the Dancehall scene, as observed at the Skateland session, in the Firelinks' Hot Monday session and as DJ Squeeze mentions above. The basic routine is for the MC to call out the move, such as "land da plane" (that is, mimic the gestures of airport runway traffic attendants) for the crowd to follow. In this instance, the MC's voice has to be considered as a medium of command, rather than one of communication.[103]

DJ Squeeze made reference to this ancient power of command when emphasising the power that the MC carries: "You can tell them to jump, lie down on the ground, put you hands in the air, clap you hands …" (as quoted above). In *Crowds and Power*, Elias Canetti (1960) emphasises the importance of this distinction between command and language, in the following:

> The first thing that strikes one about a command is that it initiates action … It is in the nature of a command to admit of no contradiction … *Commands are older than speech*. If this were not so, dogs could not understand them. Animals can be trained because they can be taught what is required of them without understanding speech …[104]

The voice itself bears its own message, besides anything that it may be used to say. This is a further aspect to Connor's comment: "What I say goes" (as quoted above). A command brooks no contradiction. It is not only what is being said, but how and who is doing the saying. Canetti develops this argument as follows:

> The original command results in *flight*. Flight is dictated to one animal by another stronger animal, by something *outside* itself. Flight only appears spontaneous; danger always has a shape and no animal flees unless it discerns it …[105]

This material presence of the voice makes an important contribution to the crowd's experience of the intensities of the session, where the touch of sound becomes the threat of a striking blow. This needs to be distinguished from any other effects or affects it might have. These are what the MC uses it to say as a medium of communication, or the feelings that their techniques might be

used to evoke, which are precisely the two aspects of the MC's performance, to be addressed below.

The most dramatic of actions is murder, and, as might be expected from the Dancehall scene, threats of violence and death get frequent lyrical mentions, particularly in the setting of the clash. Such an expectation comes from both the excesses and the extremes of the scene, as well as those of the social and cultural milieu of the inner-city ghettoes where the Sounds have their hard-core following. The term "murderation" is commonplace, and the lyrical trope of one Sound killing and burying the other in their grave is amongst the most common the MC employs. As Tommydread mentions, Mighty Crown playing Cocoa T's *Kill Them Now* track, and "Ring the alarm another sound is dying," is a dancehall anthem chorus. Also the name of one top Sound – Immortal – should be noted in this respect. The MC's exchanges verbalise, or rather "lyricise," the threat of violence, with which, as Canetti points out, a command is always laced. As he put it: "Beneath *all* commands glints the harshness of the death sentence."[106]

To dismiss such death threats as merely "rhetorical" or "ritual" as opposed to "real" underplays their importance, and indeed that of ritual violence.[107] The sound system clash provides an exemplary instance of the associations between repetition, rhythm and ritual. The ritualised musical battle between Sounds also provides evidence for Jacques Attali's (1985) suggestion that noise is the simulacrum of murder and music is the simulacrum of sacrifice. Certainly the noise levels in a clash can be particularly high. This would lend support to Attali's argument, as he goes on to claim:

> Noise is a weapon and music, primordially, is the formation, domestication and ritualization of the weapon as a simulacrum of ritual murder … music, prior to all commercial exchange, creates political order because it is a minor sacrifice. In the space of noise, it symbolically signifies the channelling and the imaginary, the ritualization of a murder substituted for the general violence …[108]

Furthermore, as a ritual fight to the (musical) death, to find the new champion Sound, the clash can be considered as another example of *repetition with difference*. With the crowd having the final say in every round, it is in fact a relatively democratic competition. In other traditions, such as that of royal lineage, such an eternal return is expressed in the saying, "The king is dead, long live the king." Now, with some understanding of the salience of the MC's performance, we can turn to how best these are to be understood.

Chapter Eight

Rhetoric and the Logic of Practice

The MCs' skilled voicing techniques contribute a distinctive discursive feature to the dancehall session. He or she is the auditory master of the sounding to the sonic bodies of the crowd. Also as a figure of speech, the MC's performance is deployed for representational forms of expression, to a much greater extent than the engineer's pre-performance sound or the re-performance selector's music. At the same time, the MC's voicing makes the embodied character of their performance escapable, not least because it is his or her vocal cords that are integral to their instrument. The challenge is therefore to understand the uniquely discursive feature of the MC's contribution to the session, but without diminishing the importance of the enunciation and prosody of the actual sound of their performative utterances.

To account for the MC's skilled performance, the ancient art of rhetoric is brought into play. This is found to be a more comprehensive and inclusive approach to the communication process than the conventional ideas of language as a formal system, where communication is restricted to the exchange of information. This chapter situates the MC's voicing, along with those of the rest of the crew, in the *sensus communis* of the dancehall session as a whole. This situatedness, *contra* abstract reason or logic, is described as having three components: right time or *kairos*, right place or *topos*, and right *action*. The theoretical framework in which such situated ways of knowing is then identified in Pierre Bourdieu's concept of the *logic of practice*, that is, distinct from the logic of theory. This leads finally to a discussion of the relationship between measure and value.

AN ANCIENT ART OF COMMUNICATION

Sonic dominance and the intensities of sensory experience together with the affective flows circulating in the dancehall call for a theory of communication that goes beyond the exchange of information and representation. The theory of rhetoric, provides possibly the most sophisticated account of the multi-dimensional communication process in which the MC is engaged. Rhetoric is usefully considered here as a theory of communication, rather than as a pejorative term to dismiss what someone says as "merely" rhetorical – being said "only for affect."[1] Rhetoric's concern with affective intensities and feelings give it a distinct and different emphasis to more contemporary approaches to communication, which have tended to focus on the formal structure of language, the exchange of information or message transmission. They have also tended to neglect communication processes other than those concerning representation, even where this is non-verbal.[2]

Consequently, in current research, the communication process itself has become divorced from the issue of attention, persuasion, the influence of the source of a message or its affective impact, which is left to psychologists to investigate.[3] Jakobson's (1960) emphasis on code, context, message and the contact between addresser and addressee is an exception.[4] For the most part, it has been either structuralist texts, or Shannon-Weaver's statistical probability-based Information Theory, that have come to dominate how communication is defined, certainly for the social sciences.[5] This mechanical or instrumental approach may be contrasted with MacKay's (1969) idea of communication as meaning and content, also developed at the Macy conference series in New York in the early 1950s.[6] While representation and the exchange of infor-mation has been described as one critical feature of the MC's performance as a figure of speech, as well as one important aspect of the communication process, this alone cannot do justice to the richness and sensory impact of the MC's voicing of the session, which includes not only meaning, but also feeling.

The art of rhetoric addresses the communication process to include subjective feelings and evaluations. It describes persuasion, that is, the listener's relationship with what they hear; believing something to be true, or being persuaded of it. There are three means of persuasion: *logos*, *pathos* and *ethos*.[7] This triad of rhetoric is introduced here to clarify the relationship between the MC's performance practices, on the one hand, and the wavebands of sounding on the other. The MC's instructing of the crowd, for instance, can be considered as exploiting the *logos* of language, that is, persuasion through reason. This can be associated with the *sociocultural* waveband of sounding. Similarly, the MC's performance tropes, such as call and response,

can be considered as expressing the *pathos*, or the pathetic effects of language, associated with the MC's skilled practices and the *corporeal* waveband. Finally, the MC's personality, expressed in the prosodic tone of their voicing, embodies their *ethos*, that is, their persuasion through personality, diffused in the *material* waveband (Figure 8.1). Such three-fold relationships have been much in evidence throughout the performance practices described so far, with for instance the engineer's manipulating, monitoring and evaluating, and the selector's cutting, mixing and repeating.

As might be expected, the rationalist emphasis of many Western approaches that the value of language is as *logos*, rather than *pathos*, this affective side of communication has tended to be ignored or disavowed. In this view, the emotional response that the rhetorical technique, such as for example repetition, engenders in the audience is a dangerous and negative phenomenon. Hegel was certainly averse to repetition and its affects, as discussed in Snead's (1982) critique (discussed in Chapter Six). The affective and persuasive power of the spoken word goes back to Aristotle's definition of rhetoric as "[T]he faculty of observing in any given case the available means of persuasion."[8] It was for using such techniques, for example, that Plato famously had poets banned from his Republic, on the grounds that they exploited the affects of the *pathos* of language, rather than the rationality, truth and reason of its *logos*.

The crowd in the dancehall provides a good example of the kind of social assembly of people, as a mass, collective, or multitude, that has traditionally been considered as antithetical to rationality. The association of rationality with individuality has positioned the crowd as the Other, or the antithesis
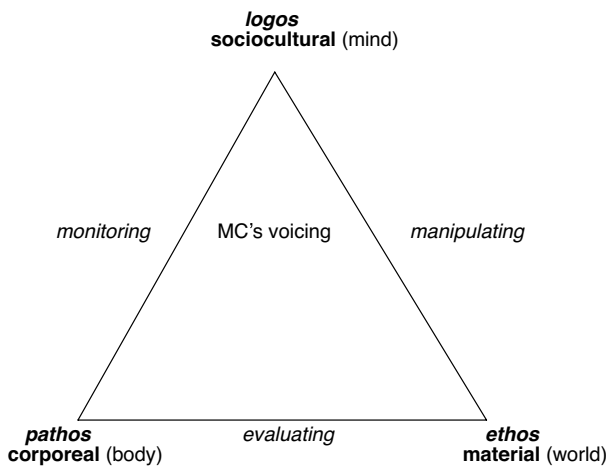
Figure 8.1 The rhetorical triangulation of voicing: *pathos*, *ethos* and *logos*.

of both – at least since Le Bon's famous study, *The Crowd* (1895), detailing its primitive, irrational and instinctive behaviour.[9] This fear of the dancehall crowd, and the worry that it cannot be controlled by the MC, gives reason to the middle-class Jamaican traditional distaste for popular culture. But elsewhere this prejudice against *pathos*, however, might be eroding. It certainly runs counter to what Derrida points out is the rhetorical aspect to the writing of all philosophy as well the current inclusion of affect on theoretical agendas.[10] The MC may be considered in this way not only as an acoustic master, but also as a "figure of speech," the phrase itself signifying a rhetorical turn. The value of the theory of rhetoric is to escape the conventional dichotomies by triangulating the relationship between mind, body and world, as discussed in the concluding chapter (see Figure 9.9). With the rhetoric of the MC's perfor-mance, we return to the initial theoretical framework of the investigation of the three elements of propagation and the three wavebands of sounding.

Ethos

The MC can also be considered as a figure of speech, as they are embodied in the *ethos* of the material waveband of the sounding expressed in their voicing. Starting with this, rather than with the *logos*, helps to ensure a material and embodied foundation to the investigation. With its distinctive qualities, amplified through the sound system set, each MC's *ethos* is what makes their voicing distinctive. The MC's prosody – their intonation, texture, timbre, feel, power and authority – describes their "tone of voice." The Greek word *ethos* (ἦθος) is generally considered to mean character or disposition. In his short story, *In the Country of the Blind*, HG Wells (1911) describes the inhabitants there: "intonation has long replaced expression with them, and touches gesture …" Intonation and touch have very different qualities to expression and even gesture, as these do not involve rationalisation or representation. In short, *ethos* is the uniquely recognisable "touch" of the voice.[11] This associates *ethos* with the timbre of sound waves themselves, that is, the *material* waveband and the dynamics of auditory propagation. The MC's acousmatic presence in the dancehall emphasises the importance of the material waveband for *ethos*, rather than the *corporeal* one that might be expected.

While *ethos* is helpful in identifying the importance of the auditory personality of the MC, even more relevant for the propagation of vibrations is the word's original meaning as a "starting point" or a "place for living," from *ethikos* (ἠθικός), or theory of meaning, from which the term "ethics" is derived (Hyde 2004). With *ethos*, the association of meaning with material embodiment makes it considerably more difficult to tell lies with the gesture of a hug, a kiss, or the tone of the speaking voice, than it is with the medium of

language. The *ethos* of non-representational communication, such as with the auditory mode of music, or the kinetic mode of dance, is that of the gesture (Rotman 2002a). With the movement of gesture, meaning is embodied in the act of communicating, rather than the *logos* of the medium of language. On the Dancehall scene, the MC's voicing is considered as very much an active practice, as with Small's concept of *musicking*, as in the phrase "voicing a tune," commonly used to describe a singer's studio recording performance. Here this has the additional resonance of the idea that he or she is articulating the tune from music into words, expressing a "riddim" vocally. It is these vocal qualities that give each particular moment of the event its own particular character, or its *vocality*.

The term "touch" is also used to describe the placing of the needle in the groove of the record for just a few beats, or the reprise of a record just played: "Mek we touch that one again." Touching, especially the touch of sounding, perhaps more than any of the other senses, establishes our simultaneous connection with, and separation from, the world and others in it.[12] This is expressed in the bifurcation between the "objective" material frequencies to which the crowd is exposed, and its "subjective" corporeal experience of them, through the bodily senses of its members. The crucial point here is to suggest that the qualities of the MC's voicing, that is, the material touch of a medium – for both the crowd and the MC – has to be considered as having both subjective and objective aspects. This is their corporeality and their sociocultural, or indeed kinetics and haptics, manipulating and monitoring. As Connor reminds us: "One apparent paradox of hearing is that it strikes us as at once intensely corporeal – sound literally moves, shakes and touches us – and mysteriously immaterial"[13]

This emphasis on the relationship between the objective and subjective aspects of sounding releases the idea of materiality from its traditional commitment to the idea of matter as merely formless, inanimate "stuff." In this view, the objectivity of matter is seen as passive, inert and separate; that is, standing exclusively on the other side of an unbridgeable chasm from the subject. In this widely shared binary view, objectivity is an irreconcilable opposite to subjectivity. In media theory, Kittler (1999), for example, uses such a concept of materiality of media for drawing attention to the instrumental role of the technological means of communication. This emphasis has a fascination, as with for example considering Nietzsche as the first philosopher to write on a typewriter. But this tells only one side of the story. Without the sociocultural and corporeal wavebands of sounding – its sense and meaning – this approach inevitably tends to encourage technological determinism, matched by its opposite of voluntarism.[14]

The *ethos* of communication can only be expressed in its instantiation, that is, in an actual utterance, as distinct from a language system, that is, as *Parole* rather *La Langue*, to use Saussure's terminology. In this way the *ethos* of communication may be compared to embodied knowledge and practical ways of knowing. Neither are articulated around the kind of divisions required by formal systems. Precisely because these are embodied, they are more evenly distributed – as the faculties with which everybody is born (though this does not prevent their ownership, as with slavery, indenture, or being hired out in wage labour). Most important, however, is the way in which the lack of division between knowing and the world removes any need to establish a relationship between them, as with the unbridgeable gap between signifier and signified, or representation and object, which requires some form of guarantee. According to Lacanian theory it is domination of the phallus that provides this.[15] Practical ways of knowing, on the other hand, are often part of a tradition, as for example with the audio engineers. These tend to determine practices, techniques, rituals and ways of doing things, rather than the rules to define knowledge itself (Sennett 2008). Thus the problem of when to apply a particular rule never arises.

Pathos

As the MC's voicing evidences, the *pathos* is an important element to the range of power and effects of their voicing. The pathetic trope of repetition is the stock-in-trade of the MC's lyrical performance: "From the top to the very last drop." The MC is thus a figure of speech in so far as he or she is defined by their *pathos*, that is, by the emotional affects of their performance techniques. For the MC, reiteration is a key rhetorical trope for intensifying the *pathetic* state – that is, the feeling and emotional response – of the crowd. With the more common usage of the word to refer to an object of pity, *pathos* is condemned by its association with the body. Indeed, *pathos* is most closely associated with the *corporeal* waveband of sounding, with all the cycles, beats and pulses that that embodiment entails (in the way that *ethos* is associated with the *material* waveband).

In this way, the MC's performance has a lot in common with those of orators throughout history: well-known examples of repeating a word or phrase include Winston Churchill's "We will fight them on the beaches …" and Martin Luther King's "I have a dream …" Poetic use of rhyme is another example of repeating, where semantic difference is married to phonetic similitude, making a word simultaneously both the same and different. Dancehall MCs, such as the veteran English Reggae DJ David Rodigan, and radio DJs from Jimmy Savile onwards, all tend to use their "signature" phrases over and

over again, thus creating their rhetorical identity. This is the rhyme of *pathos* as distinct from the reason of *logos*. The technique of repeating, in the same manner as the selector, increases the intensity of their performance, or the pathetic effects. Snead suggests: "Repetition in black culture finds its most characteristic shape in performance: rhythm in music and dance and language …"[16] From the present research, repetition can be considered as a characteristic of all performance, especially where this involves auditory propagation. This gives a technique of *repeating-with-mixing* for increasing the intensities of the prosodic flow of the MC's verbal delivery and its rhyme and rhythm,[17] emphasising continuity and similitude, as well as *repeating-with-cutting* that emphasises the difference and conflict for the drama of ritual combat. Thus, repeating closes the circle, resolving the distinction between same and different, at a particular moment.

As might be expected, the role of the voice in the Jamaican sensibility gives a particular value to rhetorical tropes. The MC uses rhetorical tropes and "linguafied" figures, such as call and response, frequent use of reiteration, repeating catch phrases, rhythmic accents and emphasis and so on, where they can "chat" or "lyrics" the crowd. In Jamaican English there is a verb *to lyrics*, meaning to persuade, serenade or seduce someone; that is, to win them over, simply with the power of words. The present participle *lyricing* also indicates the active, comprehensive and transformative power of the MC's voicing, that is to say their "gift," as in the "gift of the gab."[18] Gates (1988) captures this ritual and the rhetorical power of African-American language in his figure of the *signifyin(g) monkey*. This provides an excellent precedent for the contemporary usefulness of ancient ideas of rhetoric for the investigation of vernacular performance techniques. Carolyn Cooper (1993, 1994, 2004), in her pioneering studies of Reggae and Dancehall lyrics, also makes specific reference to the rhetorical power and complexy of language. The MC, like Caribbean folkloric Trickster, or Anancy Spider, uses the imaginative, the magical and the Bakhtinian *carnivalesque* power of language to turn things around, swap roles, make slaves masters for the day, and reverse meaning itself – as with such terms as "wicked," "black," "bad," "ill," and so on.[19]

Logos

The final way in which the MC can be described as a "figure of speech" is on the basis of their use of the *logos*, the third part of the rhetorical triad. This is the persuasion of reason, that is, the use of voicing as a medium of information whereby the MCs give the crowd information, instruct, guide and tell them what to do. The Greek word *logos* (λογος) was first used by the pre-Socratic philosopher Heraclitus of Ephesus (536BC – 470BC). It is a poly-semantic

term, most commonly translated as *word*,[20] as with the opening of St John's Gospel, "In the beginning was the word …" The Oxford English Dictionary defines *logos* as "word, speech, discourse, reason" and as the root of "logic". This describes the intimacy, intensity and intelligence of the MC's "lyricing" that associates it with the *sociocultural* waveband of sounding. *Logos* concerns what sound means in a signifying system; that is to say, the infinite potential of the imagination unbounded by any physical world. Scarry (1985) has explored this theme of the development of the imagination *contra* the actual world. Her research located this in the context of the extremes of pain experienced by torture victims, encouraging them, she argues, to escape into the refuge of the own minds. In this way the *logos* gives the MC the capacity to tell lies, exaggerate, embellish, extend, falsify and indeed to poke fun and to insult – fully exploited in the ritual verbal battle of the clash, for example. The lie, it could be said, gives birth to the possibility of drama and dramatic conflict. It is also important to note how the elementary procedures of the *logos*, as the medium of the language system the MC manipulates, are identical to those of the selector manipulating the flow of their musical sounds (detailed in Chapter Five). For the selector, these were the operations of *cutting* and *mixing*. The MC performs with the phonemic units of a language system, in a manner no doubt more easily recognisable to conventional linguistics than the selector's turntables. For the MC, cutting and mixing is, of course, the selecting and combining of phonemes that rise to the paradigmatic and syntagmatic axes of language, as identified by Jakobson (1956) and as discussed in Chapter Six.

Understanding the *logos* in triangulation with *ethos* and *pathos* has several important implications. One of these is that the *logos* always finds material and embodied expression. In relation to *ethos*, the *logos* is invariably embodied, particular and situated, as with each MC's distinctive and recognisable tone of voice. Furthermore, this is always enacted as an actual re-presentation, rather than a representation, as with auditory propagation itself. *Pathos* allows the *logos* its affect and subjective involvement, such as the engineer's evaluations in their fine-tuning of the set, as well as other qualitative judgements such as the re-cognition of proportional relationships, harmonies, octaves, value and ratios. By contrast, an isolated *logos* develops in a grotesquely deformed fashion. It is this myopic vision of the *logos* as only word or image that has oriented the path of the Western philosophical tradition. *Logos* without *ethos* remains disembodied as an abstract set of rules, codes or inscriptions separate and disconnected from the world. Of course, this is the version of the *logos* that as well suited to Cartesian dualism and the idea of the disembodied mind.

The *logos* without *pathos* is *logia* without *analogia*, that is, a world of isolated objects and objectivities outside relationships, as measured and

subject to calculations. When *logos* is translated as *word*, this lends support to the idea that communication should be concerned with language – but only as an abstract formal system, as distinct from actual utterances. The grammatical rules of a language or code combine equally abstract elements that have only a diactritical or binary identity in relation to other such elements. There, the mechanism, whether phonetic or graphic, is never more than signification's delivery vehicle; it is the means to the end of signification, as it were. This system is consequently at a different "level" to the actual world it describes, with the notable practical advantage of creating an "objective" or "pure" kind of knowledge independent of context, situation or circumstance. This can and has been exploited politically and ideologically by giving a special privilege and value to these formal epistemic systems of knowledge, as distinct from practical *ways of knowing*. These are often subaltern, local and indigenous, rather than metropolitan (Warren *et al.* 1995). This idea of objective knowledge, and consequently of knowledge as object, foregrounds a particular set of relationships whereby individuals are defined as rational subjects by their ideas that can then be owned, and, as intellectual property, licenced to corporations. Unlike practical embodied ways of knowing, knowledge is not evenly distributed, and is often used to reinforce hierarchies of power, as Foucault (1970, 1972) has explored at length.

WAYS OF KNOWING

The MC's performance described in term of rhetoric creates an impetus to consider not only communication, but also knowing as an activity, a practical process or a *way of doing things in the world*. This embraces knowledge as a process of knowing, in the manner that music is included in the fold of *musicking* and sound within that of *sounding*, in earlier chapters. It applies to both knowing-*what* and knowing-*how*. For the sound system crew it has been found that their ways of knowing are often social, non-conscious, situated and non-representational. They favour mixing, mingling and the triangulation of opposites as explored in terms of right place, right time and right action in what follows. Of course, this is an antithesis to the way knowledge has traditionally considered itself as being individual, conscious, abstract and representational, in short, reified as the noun of the object of knowledge.

Knowing and doing are most commonly contrasted as two rather different kinds of activity, one of the mind, the other of the world. Thought, thinking and knowledge are most often associated with a mind absorbed in contemplation, lost "in its own world," having withdrawn from the actual one. Here

the body is still and quiet, bent in repose, as with Rodin's famous sculpture *The Thinker*. The term *reflection* is often used as a synonym for this process of thinking itself, indicating its *modus operandi* involving images, schema and other representations. Action, activity, doing, performing and making things, on the other hand, are what bodies do out in the actual physical world. This takes place in the present rather than the past, without recourse to representation, and most often outside consciousness. Thus the distinction between knowing and doing can be considered as an expression of the traditional dichotomy between mind and body. The aim of this chapter is to use the performance techniques of the sound system crew to discuss the relationships and reciprocities between knowing and doing, as against their more commonplace characterisation as exclusive opposites.

The *logos*, *pathos* and *ethos* of the MC's voicing make his or her performance techniques uniquely discursive; those of the selector are dextrous; while the engineers' are auditory (Figure 8.1). A sound system can only operate effectively to the extent that the entire crew "knows what they are doing," which is how Stone Love Movement has sustained its position at the top of the Dancehall scene for over 30 years. As has been described, such ways of knowing turn out to be quite the opposite of the conventional Western philosophical or positivist scientific account of knowing or knowledge. Rather than aiming for abstraction or objectivity, the crew's way of knowing is concerned with what is best expressed idiomatically as "doing the right thing." They want to achieve an intense memorable experience for the crowd. In the rather different context of Buddhist philosophy, this would be described as "right action."[21] In practical terms, it might be described as acting in a way that is "appropriate" to the situation. As is often observed, with right action an event occurs with ease rather than with great effort, appearing to be "in the flow" rather than "against the grain" of ongoing events. With the selector, for instance, this idea of right action would find the answer to his or her most basic question: which track to play next?

To describe right action more precisely, it can be said that the crew's way of knowing, its connoisseurship, tends to be situated and particular. It has to be placed at the right *time* – "at the right moment." This describes the timeliness or *kairos* of the performance where the issue is timing, as distinct from being musically "in time."[22] The crew's performance also has to be at the right *place*, or "on the spot," that is, specifically embodied and located in a particular space, as well as specifically classed, raced and gendered. Such ways of knowing contrast with how thinking is most often characterised in the Western tradition, that is, as a generic or abstract set of rules that may be applied to numerous particular instances.[23] The third component of right action is right *thing*, which triangulates with right time and right place. Right

crewmember	TECHNIQUES	MEDIA	INSTRUMENTS
ENGINEER	**auditory**: manipulating, monitoring and evaluating	sound *material* aspect of sounding	set of equipment
SELECTOR	**dexterous**: cutting, mixing and rewinding	music *corporeal*	fingers, turntable etc
MC	**discursive**: *ethos, logos* and *pathos*	voice *sociocultural*	dancehall lingo

Figure 8.2 Crewmembers, techniques, media and instruments.

things tend to be *synthetic* rather than analytical, that is, "bringing things together" or mixing, as with the selector's music tracks. Again this contrasts with the emphasis of Western idea of thought almost exclusively as *analysis*, rather than synthesis. What makes a thing right is a qualitative *evaluation*, rather than a quantitative metric. This challenges the cornerstone of the Western canon, that is, the division between subjective and objective worlds (as discussed below). It is interesting to note how the situatedness in time and place of the crew's ways of knowing of right action and its synthetic and evaluative characteristics resonate with those of the auditory model. By contrast, the philosophical idea of thinking is equally well tuned-in to the traditional visual metaphors, used to emphasise abstraction, separation and objectivity. These ideas have little purchase on and in practice.

SITUATEDNESS

If describing the MC's voicing in terms of rhetoric locates *logos* in relation to *ethos* and *pathos*, then the MC's rhetorical performance as a whole has to be located within the totality of the dancehall setting. The MC's performance, as much as that of the rest of the crew, has to be temporally and spatially situated as part of an event. Situatedness can be described as presence in a particular expression. Traditionally this totality of the rhetorical situation was referred to as the *sensus communis*, or common sense, though this term has also been used to refer to "what everyone knows" – the shared values or prejudices of those present, as well an individual's faculty for combining of different sensory modalities (Schaeffer 1990). These are the distinctive material contingencies that afford the expression of a form or pattern – but this only exists in so far as it finds such expression, rather than as a Platonic abstract type or "pure" form. Creativity thus has to pass through the prism of the particular.[24]

The critical dimensions of the *timing* and *placing* are of the utmost importance for situating the selector's and MC's performances, as they are for many others. This situated characteristic of the logic of practice, it is interesting to note, resonates with the characteristic of auditory propagation described (in Chapter Two) as the vibrations in space and time of the material vibrations of sounding. There are always specific circumstances, contingencies and conjunctures, to use Hall's (1983) terms, for the logic of practice, as there are for politics or history. Sounding always has to find expression as an event of a specific duration, in a particular location, rather than being considered as an idea, enduring abstract principle, generic process, rule or law. To suggest that the crew's ways of knowing are specifically situated is not to make any more radical claim for it than has already been made for cognition itself, in the pioneering work of Jean Lave and her colleagues (Lave 1988, 1989, 1990, 1993; Chaiklin and Lave 1993). This has explored this theme of situated learning and cognition in practice in depth, with examples such as apprenticeship learning and mathematical skills (as mentioned in Chapter Four).

In fact, this idea of logic as a technique of situated and embodied practice also finds support from a range of current research, developing a conception of cognition as something that happens in action in the world, rather than in the mind. This includes Levin's (1989) phenomenological work on skilful listening, Sterne's (2002) historical account of the techniques of listening, and most recently Sennett's (2008) *The Craftsman*.[25] Also Ingold's (2000) social anthropological exploration of the skilled practices, not to mention Butler's (1990) conception of *performativity*, are most relevant (as discussed in Chapter Three). So in practice any form of thinking or calculating that a performer does is inseparable from their *doing* of it, similar to the way the performer's subjectivity and objectivity are considered inseparable.[26] Furthermore, there is Varela's (1979) concept of *enaction* in his *Ethical Know-How: Action, Wisdom, and Cognition*, Walkerdine's (1988) investigations of cognition and practice, and O'Regan and Noë's (2001) physiological investigation of perception as "exploratory activity." The framework for O'Regan and Noë's experimental approach develops Gibson's (1966, 1989) conception of *information pick-up* in an ecological system of perception.[27] In Gibson's framework, information and meaning arise at the same instant of exploratory activity, rather than there being any separation between stimulus and consequent cognitive processing, as is traditionally assumed. In short, there is simply no disjuncture between knowing, being and doing, or rather they are bound up together in the practice of becoming different.

Like the timbre or harmonics of auditory propagation itself, the crew's ways of knowing are concerned with qualities and evaluations, ways that are

invariably difficult to "pin down" or assign specific describable characteristics. To describe what they do calls for an auditory vocabulary of flows, pressures, volumes, amplitudes, frequencies, intensities, and the dynamics of kinetics and rhythms that animate, excite and "build the vibes" of the dancehall session. There are also the crew's senses, subjectivities, sensitivities and evaluations. Their shorthand for this, if they are asked, is to say that this is simply a matter of "feeling the vibes" – the beginning and end of their explanation. But for thinking through sounding, it is necessary to go further. In this respect, theory is not an end in itself, but as Hall (2007) puts it, a necessary detour: "by indirection, find direction out,"[28] to arrive at what he calls "the concrete in thought." The logic of this kind of thought is embedded and embodied in performance.

With respect to the timing, a further feature of the situated character of the crew's performance is how this is often embedded in a sequential order – or rather how their techniques make this apparent. While crewmembers' techniques continually articulate the relationships between the different wavebands of sounding, the engineer can only evaluate *after* they have monitored, and this is impossible before they have manipulated. Similarly, with the dextrous techniques of the selector, there is the *rewinding*, on the basis of their *cutting* and *mixing*. Furthermore, with the crowd's choreographic techniques there is the self-awareness of their *kinesthetics*, following the active expressive movement of their *kinetics* and the passive impressive movement of their *haptics* and what Maxine Sheets-Johnson calls a "kinetic bodily *logos*."[29] In this way, it can be said that relationships are not necessarily equal, but rather are based on the facts of our unique embodiment, giving us a particular stake, location and orientation in our world.[30]

Certainly the idea of the logic of practice is at variance with what the anthropological pioneers who first studied non-Western cultures at the beginning of the last century wanted to consider as evidence of rationality. They had little respect for anything other than the formal Western idea. In his folkloric encyclopaedia, *The Golden Bough*, Sir James Fraser discusses primitive thought as follows: "He reasons just as he digests his food, in complete ignorance of the intellectual and physiological processes which are essential to the one operation as to the other".[31] Since then, Levi-Strauss's (1962) concept of *bricolage* likened non-Western ways of thinking, not to physiological processes, but to those of the artisan who assembles together what is needed for the job in hand, with the tools and materials available. This is quite a different procedure to how a scientist discovers knowledge proper. In either case, any value for an embodied corporeal kind of rationality is completely beneath the privileged dominance of Western epistemological and scientific traditions.

One of the conclusions to be drawn from these fields of research is how practice is the creative key to all performance, especially musical improvisation and versioning. This aligns the idea of the logic of practice with the distaff tradition of Heraclitus, Goethe, Bergson and Bohm, for whom movement, variation and becoming provide the starting point. The centrality of movement comes very much to the fore in the examination of the crowd's performance practices and dancing, among other activities, following Sheets-Johnstone (2004). Also Aristotle's idea of movement brings with it ideas of personal relationship and evaluative judgement, so that space is considered as a vibrating medium, rather than an entirely empty void, across which action at a distance is impossible. According to Freenberg's account of Heidegger's (1998) reading of the *Physis*, Aristotle places movement at the heart of his entire philosophical system. For Heidegger, Freenberg writes:

> Aristotle's greatness lies in having placed movement, *kinesis*, at the centre of philosophical reflection. Movement in Aristotle's sense refers not just to change of place, but more generally to any kind of change from one state to another … *Bewegtheit* … movement, movedness, motility …[32]

But rather than those mechanical forces between objects, this kind of movement has particular qualities of relationship between persons:

> Aristotle does not share our idea of movement as a contingent interaction between a mutually indifferent cause and effect. Instead he understands movement through the concept of "*eros*," the desire which draws the moved being towards its object and in which it comes to rest.[33]

With the crowd's performance, particularly its intensive and affective qualities, movement as *eros* is taken quite literally, as Cupid's arrow. This lends support to this idea of movement as reciprocal meaning and motivation expressed in the lyrical phrase "I blessed my eyes on you" by which the lover describes first seeing their beloved. These are the *sociocultural* vibrations of sounding, as distinct from their materiality.[34] This is consistent with how Godwin (1987) discusses sound being of the ether, as the fifth element, with the word *ether* originally used to describe the air the Greek gods breathed on Mount Olympus. In order to suggest how these relationships are evidenced by sounding – rather than restricted to it – this chapter continues by considering how certain terms from ancient Greek philosophy can aid our understanding of embodied evaluations.

Again with respect to timing, one more feature of the situated nature of the crew's way of knowing is how their logic of practice has to be instantaneous.[35]

To achieve this, the crew's performance has to enter the realm of the imagination; they have to project themselves into the anticipated future of their performance, and the future action of the other players. Bourdieu emphasises this point:

> A player who is involved and caught up in the game adjusts not to what he sees but to what he *fore-sees*, sees in advance of the directly perceived present; he passes the ball not to the spot where his team-mate is but to the spot he will reach …[36]

This temporal dimension is also useful for marking the distinction between the selector's monitoring, based on feedback (as with the first-order cybernetic model of a homeostatic negative feedback system), and their evaluating, based on anticipation of the future yet to come, or feed-forward. As Bourdieu continues: "Only this kind of *acquired mastery*, functioning with the automatic reliability of an instinct, can make it possible to respond instantaneously to all the uncertain and ambiguous situations of practice."[37] This practical and applied mastery is, of course, what the "prento" audio engineers have to learn for their trade, in the case of Stone Love, through five generations of apprenticeship (described in Chapter Four).

In the terms of Greek philosophy, it was the concept of *mētis*, personified in Metis (Μῆτις), the goddess of wisdom, skill and craftiness, from which this idea of the logic of practice could be considered as being derived (though Bourdieu does not mention this). *Mētis* is the quality of responsiveness required in any live performance or competition. This is equally the case with a sound system crew going into the battle of a clash, as it is with an ancient charioteer. With reference to the latter, Homer in the *Iliad* gives a very precise account of this quality of knowing. Before his crucial race, Nestor has this to say to Antilochus:

> But, come my son, put in your heart *mētis*
> of every kind, so that the prizes may not elude your grasp.
> With *mētis* the woodcutter is far better than by force;
> with *mētis*, again, the helmsman on the wine-dark sea
> guides his swift ship in the blustering winds:
> with *mētis* the charioteer surpasses the charioteer.[38]

The way of knowing expressed through *mētis* is too subtle, situated and embodied to constitute a formal system of any kind, as Detienne and Vernant point out in *Cunning and Intelligence in Greek Culture and Society* (1978). They describe *mētis* as:

… a type of intelligence and of thought, a way of knowing; it implies a complex but very coherent body of mental attitudes and intellectual behaviours which combine flair, wisdom, forethought, subtlety of mind, deception, resourcefulness, vigilance, various skills and experience acquired over the years. It is applied in situations which are transient, shifting, disconcerting and ambiguous, situations which do not lend themselves to precise measurement, exact calculation or rigorous logic.[39]

This provides a quite excellent account of the sound crew's way of knowing.

Right time: *kairos*

The traditional theory of rhetoric, as might be expected, has a specific term for the timeliness of performance. This is *kairos* (καιρός).[40] When the crew's ways of knowing are characterised as being situated in *time*, this disposes them towards an understanding of rationality that includes the dynamic movement of duration, as does the propagation of sounding itself. Understanding the sonic logic of the crew's practice calls for an understanding not only *what* they do and *where* they do it, but also *when* to do it. As the time of timeliness, *kairos* may be contrasted with both *chronos* as abstract cyclical or clock time and with timelessness as eternity.[41] These three different senses of time are expressed in the figures of the ancient Greek gods *Kronos*, *Kairos* and *Aion* respectively.[42] Traditionally, *Kairos* has been depicted as a figure with wings on his heels and on his back, holding a pair of scales balanced on a knife-blade. But most expressive of the fleeting moment of *kairos*, he has plentiful hair on the front of his head, but is bald behind. As the epigram on the original fourth-century BC bronze by the famous sculptor Lysippus of Sicyon explains, this is "Because none whom I have once raced by on my winged feet will now, though he wishes it sore, take hold of me from behind."[43] Once again ancient philosophy offers a most nuanced understanding, here that of temporality.

The periodic movement intrinsic to audition propels the ideas of meaning away from the fixities of language systems, into not only the space, but also the time. This is also a journey from the Trivium to the four subjects of the Quadrivium. Starting from number in arithmetic, number extends into space with geometry, extends again into space and movement with astronomy, and finally into space, movement and time with music (Critchlow 1969). From the invariances of geometric ratios, number thus becomes increasingly dynamic as the variation of auditory propagation. The ratio of the temporal is always more than a sequential order, or linear progress. Temporality also expresses character or disposition, as with temperament, temperamental, "losing your temper," choosing the "right time" to do something, and the temple itself. In French the world *temps* means both time and weather.

The situated character of the crew's ways of knowing, as with the dynamics of an auditory event, is always in time as well as space (as was discussed in respect to the timing of the crew's situated ways of knowing and Bourdieu's idea of the player's imagined future). Bourdieu's anthropological researches are also most helpful for addressing the special importance of the crew's *kairos*. This can be defined as the timeliness of the opportune moment (Bizzell and Herzberg 2001).[44] The selector's judgement serves as an example of exactly the kind of timing that Bourdieu describes. As he explains:

> The pedagogy of the Sophists, forced, in order to realise its aim, to produce a system of rules, as grammars or rhetorics, came up against the problem of the rules defining the right way and the right moment – *kairos* – to apply the rules, or, as the phrase so aptly goes, to *put into practice* a repertoire of devices or techniques, in short, the whole art of performance …[45]

Indeed, *kairos* is critical to all live performance techniques, not only the selector's moment by moment decisions, as he or she rides the vibes of the crowd with their music. Moreover this concept of *kairos* proves to be extraordinarily fecund, with several different origins. Instructively, these are based on particular craft skills and techniques, not dissimilar in character from those of the selector. One is archery, where, according to White (1987), *kairos* …

> … refers to an opening or "opportunity" or more precisely, a long tunnel-like aperture through which the archer's arrow has to pass. Successful passage of a *kairos* requires, therefore, that the archer's arrow be fired not only accurately but with enough power for it to penetrate (White 1987: 13).[46]

From this, a second source for the term *kairos* is as "that part of the body where a weapon can penetrate to the life within."[47] A third source of *kairos* comes from the craft of weaving, in which "… there is the 'critical time' where the weaver must draw the yarn through a gap that momentarily opens in the warp of the cloth being woven."[48] Bringing these meanings together, according to White, makes *kairos* "a passing instant when an opening appears which must be driven through with force if success is to be achieved."[49] Evaluative judgements require precisely this single act of commitment, as against deferral, procrastination and the endless play of choice.

The practice of *kairos* couples the two opposite sides of the idea of an opening. On the one hand, there is the aspect of space, location, active force and cutting with the archer's shot – kinetics. On the other, there is the aspect of time, comparatively passive opportunity, duration and mixing with the

warp and woof of the weaver's fabric – haptics. As a practical craft activity taken as the basis for a theoretical concept, *kairos* might be contrasted with Levi-Strauss's idea of *bricolage*. Indicative of its context within the Structuralist paradigm, *bricolage* is defined entirely spatially, as a bringing together of what is near to hand, outside any conception of time or change. Cutting is a tearing apart, a dis-association (in Greek *diakrisis*), or analysis, or making different as against the combining together, association (*synkrisis*) of synthesis,[50] or bringing together. For the selector in the session, this enactment brings into proportional relationship two sides of cutting, around the idea of the mark. This is the mark in time as the rhythm, tempo or beat, as with "marking time," or "the nick of time," or temple (both as place of worship and weakest part of the skull), together with the mark in space, as in "wide of the mark," or "the strait and narrow." The selector's *kairos* is the rightness of a decision, for example, to play a particular tune at a particular moment (rather than matching a mix between music tracks beat for beat). Such "sound judgements" require the selector's awareness of the entire rhetorical scene, including the particular location and moment of the event, and indeed the entire Dancehall *scene*.[51] The style and fashions of the selector change notoriously rapidly, giving rise to one popular phrase *Up to the Time*, being used as an Elephant Man album title. Furthermore, in Jamaican English the word *previous* means prescient.

By way of contrast to a conventional semiotic analysis, *kairos* is a practical enactment of the particularity of each place and moment of the event. It is necessarily situated and embodied, as Debra Hawhee details in *Bodily Arts: Rhetoric and Athletics in Ancient Greece* (2004).[52] The practice of *kairos*, with its sense of time as *timeliness* or timing, can therefore be distinguished from the *timelessness* of the crowd's experience of the repeating rhythms of the session, mentioned above, and *linear* and *cyclical* senses of time.[53] *Kairos* propels us from number in space with mathematics and geometry, as the first two subjects of the Quadrivium, to number in time, with astronomy, and space and time, with music. As with the *sensus communis* of the rhetorical scene, *kairos* expresses the situated totality or wholeness of the rhetorical scene.

Right place: *topos*

In respect of the particular placing or location of the situated characteristics of the crew's techniques, it should be mentioned that these are located in the relationships *between* crewmembers, rather than "within" them as individuals, or their so-called cognitive processes. The Greek term for this sense of a particular place is *topos*, in contrast to the idea of abstract space, or *chora*

(Casey 1993; Rämö 2004). The MC and the selector have to work very closely together, to the extent that these roles are often embodied in a single person, as noted above. This draws attention to the mutual dependencies between all the crewmembers that can be considered as a corporeal expression of the relationship between the three vibrations of sounding. The MC cannot operate without the selector, for instance; neither can either of them operate without the engineer and maintenance crew to string up the set. The relationships between the crew can be described as a system of *affordances*, to use Gibson's (1979) term; that is, constraints and opportunities, rather than simply functional causes and effects (as described in Chapter Three). Each crewmember's performance is mutually dependent on the others' work, operating in the same space. A sound system crew shares a single operational space – literally with the MC and selector, where the turntable and mixing decks can be likened to the controls on a ship's bridge, the flight deck of an aircraft, or even that of a spacecraft, with the vibes of the crowd as the field to be traversed. This requires each of the crew's working practices to be *near-to-hand*, to employ Heidegger's expression,[54] with the relationship between hammer and hand as an example of simple technology.

The idea of being *near-to-hand* raises several points. One relates to the importance of the relationship betweens tool and tool-user; that is, that between objects and practices that leads Latour (1986), following Goody (1977), to consider tools as "congealed labour."[55] Secondly, it emphasises the importance of spatial proximities, as with Serres' idea of the parasite being literally that which is near to food. Thirdly, *near-to-hand* conjures the idea of tools as prosthetic extensions of the body, following Mauss's idea of the body itself as an instrument (mentioned in the next chapter). Fourthly, *near-to-hand* emphasises the importance of the relationship between the performer and their tools and materials, as with the selector's tunes in their record box and the instrument of the record deck, or the MC's repertoire of catch phrases and the instrument of the microphone, or the audio engineer's techniques for adjusting the auditory output of the set, such as repositioning the speaker stacks on the dancehall floor.

But, of course, as in an actual ship, not all a Sound's crewmembers are equal. In terms of status and social hierarchy, the MC and the selector share a similarly high level of respect; then the engineer, then the f/x man, with the maintenance crew at the bottom, as described elsewhere by Stone Love owner Wee-Pow.[56] Also there is a functional hierarchy, as distinct from one of status, between roles, as for example when the set breaks down. When this happens, the engineer suddenly becomes the most important person around, in the manner discussed by Latour (1986), as I observed during one dancehall

session.[57] As has been said: "Technology is the stuff that doesn't work yet."[58] This is to emphasise how the material vibration of sounding only draws attention to itself when it fails to function "transparently."

Thus the relationship between crewmembers is proportional and hierarchical, as with that between the vibrations of sounding, rather than one of equal exchange. There is always the kind of flow, grain, texture and orientation to it that we associate with "natural" or organic materials, such as wood, as distinct from artificial or "man-made" substances. The MC uses his or her technique to manipulate their vocal instrument, which in turn they use to manipulate the vibes of the crowd. There is a one-way directional and kinetic flow, grain and texture in the practice of these relationships, locating them in a heterogeneous embodied space, rather than a homogeneous and mechanical one. Relationships of a similar character were identified with the selector's selecting and combining axes of communication (in the previous chapter). Neither crewmembers, nor the different wavebands of sounding, can be considered to "exist" separately, but only as they partake of the whole. In this way Bourdieu's *The Logic of Practice* (1990) describes an intrinsically *socially distributed* process. In short, it takes place across relationships between individuals, rather than "within" them, as cognition has conventionally been located. Furthermore, Hutchins (1995) famously describes a different type of "crew" to that of the sound, investigating the operations required for the docking of a USA navy vessel. As with the sounding of the session, there is no single individual who has all the knowledge, experience and expertise to successfully complete the task single-handedly. Collectively, however, this is a regular accomplishment for the sound system crew.

Right action: event

Another striking feature of the logic of the crew's performance techniques as a systematic whole is that they perform a *synthesis* of bringing things together, as is typical of practice, mixing and mingling, segueing from one sequence to another, monitoring and manipulating analogue variation. Right action requires such a synthesis to triangulate right time with right place. This has to be distinguished from the separation of differences required of logical *analysis*. The crew's performance is a mixing as much as a cutting; it aggregates rather than disaggregates, as is exemplified in the selector "juggling" and other mixing techniques. Such a synthesis concerns complex events whose constituents are continuous, variable, parallel, simultaneous and "at the same moment," rather than discontinuous, different and ordered in a linear sequence. Musically, this is harmony rather than melody. The crew's performance techniques assemble a comprehensive range of embodied knowledge, tacit understanding, common

sense, folk wisdom, ritual and many other ways of knowing, with which the crew "make sense" of what they do as and by doing it. The logic of sound practice is invariably multiple, as with the practice of musicking – assembling together everything and everyone needed for an event. Indeed, the dancehall session often has the effect of gathering and connecting together people from different backgrounds, which is especially the case with the Sunday-night Rae Town dancehall sessions (mentioned in Chapter One). So the dancehall brings people together in the manner of that most ancient of institutions, the street market, but in an economy of pleasure and entertainment, rather than for the purpose of buying or exchanging goods.[59]

As a synthetic procedure, the logic of practice is not predicated on the separation of the knowing subject and object of knowledge that results in a "critical distance," as is often the case with the logic of theory. The logic of practice merges knower and known – a suture for the epistemological fissures at the foundation of the Western tradition. Thinking through the vibrations of sounding helps dissolve the gulf between viewer and viewed that the visual metaphor is invariably used to describe, and indeed to justify (as discussed in Chapter Three). In fact, the more the crew and crowd are "into the vibe," the more the *sonic dominance* erodes the boundaries between self, or other, and session, and the better the session is considered to be. The deeper they are bathed in "the heat of the moment" and enveloped in the flow and vibes of the session, the greater the evidence will be of the crew's evaluative judgements, or their *acquired mastery*, to which Bourdieu (1990) refers. The chemist and scientist-turned-philosopher Michael Polanyi developed a conception of "post-critical" thinking that is useful here. This takes *belief*, rather than *doubt*, as the basis of knowing. As Mullins describes: "'[P]ost-critical' thought aims to reverse the tendency of modern thought to disparage belief as merely subjective and to regard doubt as the royal road to knowledge. For Polanyi, the critical tradition beginning with Descartes, under-values belief and skill and the traditions that support them …"[60] It is precisely these skill traditions that this research has been exploring.

THE LOGIC OF PRACTICE

Having triangulated the MC's rhetoric to include *pathos* and *ethos* as well as *logos* and situated it in the time, place and event of the dancehall session, we can now begin to consider the nature of logic itself. The logic of *practice* is most often contrasted with that of *theory*, as with the distinction between know-how, *savoir-faire* or the knowing of doing on the one hand, and know-what, *connaissance* or the knowing of knowing, as it can be called, on

the other. The Western philosophical tradition is in no doubt whatsoever that self-conscious *connaissance* is infinitely more valuable as the proper subject of the *episteme*, than any other way of knowing could possible be. Know-how or *savoir-faire* tends to be disparaged as being corporeally contaminated. Such informal, idiomatic ways of knowing tend to be relegated to the merely vernacular, if not the vulgar, compared to the grand epistemological architecture of the *epistême* of pure abstractions: knowledge proper. This is the "know-what" of *connaissance*, which, interestingly, when morphed into the English noun *connoisseur*, includes precisely the practical expertise that the French word excludes. In practice, of course, the two are combined, as Mullens reminds us: "Knowing *that* and knowing *how* are always interwoven."[61] It is of course these "other" ways of knowing – as *savoir-faire*, different and subaltern – to which *Sonic Bodies* has given attention.

In doing so we join the company of Michael Polanyi (1958, 1966) when he describes "connoisseurship" and "tacit knowing," and Charles Sanders Peirce when he describes intuitive "abduction."[62] Also Jean Lave and Etienne Wenger's (1991) work on situated learning is most helpful, where they take skilled tailoring work in workshops in Monrovia, Liberia, as their research example. In addition, several of the key concepts for understanding the sound system crew come from Pierre Bourdieu's extensive study of the *Logic of Practice*. Bourdieu's (1990) book of this title is based on his research on the social and cultural practices in a Kabyle village in Algeria. It provides some very useful ways of considering the non-conscious character of the logic of sound practice.

By contrast with the logic of theory, that of practice tends to be non-representational. This is because the logic of practice does not make the kind of hard and fast absolute distinctions that the positivist scientific methodology demands, specifically between subjective and objective points of view. Against this, as with musicking and sounding, the logic of practice is relational. So if perceiver and perceived have not been separated on either side of an epistemological divide in the first place, there can be little need for ideas of reflection, "internal" images or connections between "outside" or "objective" worlds on one side of the divide, and "inside" and "subjective" worlds on the other. That is what Edward Reed dubbed the "two environments" assumption: "the idea that there are really two environments, a mental (subjective) world and a physical (objective) world."[63] This point was also taken up by *Gestalt* psychologist Fritz Heider's (1959) insistence on the importance of the relationship between medium and thing, rather than the traditional dichotomy between thing and thing, as it were (as discussed in Chapter Three).

Furthermore, the logic of sound practice tends not to be discursive or symbolic, or even gestural. As with musicking, the dynamics of sounding encourages a turn towards actions, rather than objects; here it turns us towards bodies-with-minds, rather than isolated minds. This is because thinking through sounding tends to erase the distinction between self and others (as mentioned above in respect of sonic dominance), in the same manner as it does those between knower and world. Indeed, such feelings of commonality, it might be assumed, are among the attractions that draw the crowd to the session, such that the term "vibes" describes the empathetic feeling of each person for the others there (though this is not to say that dancehall sessions are without violent incidents). Syntheses are invariably multiples, as with the dancehall crowd itself, described as a many-who-are-one and a one-who-is-many.[64] If, in the shared experience of the dancehall session, there is less separation between one and another, then the need for discursive or symbolic communication diminishes, each person "knowing" what others are "feeling," as when it is said, "I know what you mean." In addition, the sheer volume of sonic dominance makes oral communication difficult. So the account offered of this logic of sound practice suggests what could be described as an embodied "knowing" subject, that is, one that knows *how*, rather than *what*, but also reflexively knows *that* he or she knows, as for instance with a "knowing look."

In the dancehall session, there is invariably "just too much going on." There are so many variables relevant to the vibes of the crowd that the crew have to attend to, that they literally do not have the time for analysis and sequential procedures. As Bourdieu points out, besides their *acquired mastery*, performers simply do not have enough time for the conscious reflection of thinking:

> An agent who possesses a *practical mastery*, as art, whatever it may be, is capable of applying in his action the disposition which appears to him only in action … And he does so "on the spot", "in the twinkling of an eye", "in the heat of the moment", that is, in conditions which exclude distance, perspective, detachment and reflexion [sic].[65]

Furthermore, the *practical mastery* whose logic is of concern here is *sound* practice, in both senses of this word; that is, auditory and correct. With respect to what is considered correct, it is suggested here that thinking through sounding offers something of a "royal road," to borrow Freud's accolade for the access dreams give to the unconscious, for understanding how a wide range of practices work. This is not due to any kind of privilege for

sound, over and above vision, but rather on the grounds that the propagation of auditory vibrations might model those of the corporeal and sociocultural wavebands – from whose relationships an understanding of reciprocal meaningful communication could be built. With respect to audition, this practical mastery is embodied. This emphasis on corporeality and fleshly embodiment is also a component of Bourdieu's concepts of *habitus* as "A system of acquired dispositions functioning on the practical level as categories of perception and assessment …"[66] This idea is also expressed in Merleau-Ponty's (1962) concept of *being-in-the-world*, which thinking through sounding has been investigating as *doing*-in-the-world. But perhaps the most eloquent expression of these bodily qualities is the term "livity," or way of life (discussed above), as most often used in the Dancehall scene and elsewhere in Jamaica.

But even within the Western tradition, that has so favoured the logic of theory, there is also an alternative figure for understanding a different kind of logic. This is the craftsman. In the *Timaeus*, Plato describes this figure of the craftsman as the demiurge, or god, who created the universe. The Greeks gave the name *techné* for this art and craft, as distinct from, but not antagonistic towards, the *epistême* of knowledge proper. One return to this idea of the value of craft came with the Victorian Arts and Crafts Movement, whose leader, John Ruskin (1884), coined the phrase "head, hand and heart" to describe the "enminded," embodied and evaluative character of what is considered here as the logic of practice. Furthermore, it could be said that de Certeau's (1984) interest in the prosaic or quotidian crafting of everyday activities and cultural studies' investigation of the popular traditions, following Richard Hoggart, Raymond Williams and Stuart Hall.

Richard Sennett begins *The Craftsman* with a consideration of his teacher Hannah Arendt's understanding of *Homo faber* as men and women "making life in common".[67] Placing himself in the Pragmatist tradition, Sennett's investigation of material culture hinges on craftsmanship as "an enduring, basic human impulse, the desire to do a job well for its own sake." Sennett goes on to say how his book …

> … explores these dimensions of skill, commitment, and judgment in a particular way … [with a] focus on the intimate connection between hand and head. Every good craftsman conducts a dialogue between concrete practices and thinking … a rhythm between problem solving and problem finding … There is nothing inevitable about becoming skilled, just as there is nothing mindlessly mechanical about technique itself.[68]

Sennett's approach is very much in keeping with the present research, which, besides head and hand, also emphasises the heart, as with Ruskin, as the organ critical for embodied evaluation (as discussed below). One of his crucial points for the concerns of this chapter is the idea of reason itself, as described in one of the Enlightenment's founding text, Denis Diderot and Jean Le Rond D'Albert's *Encyclopédie* (1751–72). Contrary to the commonplace assumption that our Enlightenment inheritance largely concerns philosophical ideas, Sennett argues that the *Encyclopédie*'s major claim was "to assert that the craftsman's labours were icons of the Enlightenment."[69] The encyclopaedists did this "by putting manual pursuits on an equal footing with mental labours."[70] This is certainly consistent with the work's sub-title: *ou dictionnaire raisonné des sciences, des arts et des métiers (or Classified Dictionary of Sciences, Arts, and Trades)*, its profusion of engravings depicting the huge range of craft skills described, as well as Diderot's stated intention to write a book "for artisans to read [and] philosophers to think on useful lines." Diderot declares: "Artisans have believed themselves contemptible because people have looked down on them; let us teach them to have a better opinion of themselves …"[71] Sennett takes up this point:

> By restoring the manual labourer to something like his archaic Greek honour, the encyclopaedists mounted a challenge equal in force to Kant's attack on the traditional privilege but different in character: *useful labour rather than free reason challenges the past*.[72]

Sennett goes onto to describe how it was the craftsman's skills "beyond human verbal capacities to explain" (95), vigour and contentment that the encyclopaedists most admired and detailed through the pages of their "bible of craftsmanship" (91). For Sennett, craftsmanship offers an account of how practice necessarily involves what might be described as a wholesome triangulation of head, hand and heart, as pursued in the final chapter.

Contrasting with this logic of practice, the logic of theory tends to concern itself with classes of objects, abstract principles and laws. Conventional ideas of logic ask questions about *how* something works in the way it does, its general principles and so on, as has been key for the initial approach to how the sound system works, for example. But such questions do not address the situated character of performance of interest here. These require the *why* type of questions, concerning the unique particularities of a narrative. As Bateson (1979: 109–14) points out, a scientific law may tell us, for example, the temperature at which water boils, but not when or where the first boiling bubble will break:

> There is a deep gulf between statements about an identified individual and state-
> ments about a class. Such statements are of a *different logical type*, and prediction
> from one to the other is always unsure. The statement "The liquid is boiling" is a
> different logical type from the statement "That molecule will be the first to go."[73]

So this difference between law-governed regularities and particular instances
is one of *logical type*, as between a class and its members, or a name and the
object named, or indeed the general rule and the unique *contingencies*, as Hall
(2007) puts it in the cultural and political context. Thus the selector's expert
evaluations as to when to cut, mix or repeat a track raise the crucial question:
what determines when an evaluative judgement is correct? Bateson raises a
further implication of his distinction of logical types. This is the difference
between *how* the crew accomplish the specific technique itself (described in
the previous chapters), on the one hand, and the question of deciding *when*,
where and *why* to apply a particular technique on the other. Performance
techniques concern not only *what* to do, that is, cutting and mixing, but also,
most crucially, *when* to do them. With respect to skills learning, Bateson
describes this as *deutero-learning*, or *meta-learning*, as an action about the
action, for example, of cutting or mixing a music track (as with Mudede's
meta-music, described in Chapter Five). This is learning the context of
learning, or learning how to learn.[74]

Such situated contingencies, are, of course, the very stuff of live perfor-
mance in the dancehall session, as elsewhere. Each decision takes place at a
particular moment that may well be a unique coincidence of variables: never
having happened before, and maybe never happen again.[75] Actual practices
are often based in evaluating contingencies that are by definition transitory,
multiple and parallel, not unlike the "multi-sensory flux" described in Gibson's
(1979) ecological perception – and vastly too complicated for representa-
tions or logical calculation. The MC, for example, has to give attention to a
vast parallel array of variables, from the vibes of the crowd to rumours of a
police "lock-off" (close down) of the session. While the crew and the crowd's
experience of the sound system session have little to do with the kind of reflec-
tions or representations associated with the logic of theory, it does have a lot
to do with communication.

With the selector, for instance, their most crucial evaluations judge the
right moment to use a particular technique, such as the "pull-up" of a music
track. The audio engineers have to make a similar choice of the correct
electronic component of a particular value to substitute for another, for their
technique of compensation. For both the selector's juggling and the engineer's
fine-tuning, goals such as "balance" cannot be specified by, or within, the

technique itself. From this, the logic of practice may be contrasted with that of cybernetic systems in at least two respects.[76] One is that homeostatic negative feedback loops, such as a room thermostat, have only a single "value" of a certain temperature. The other is that in first-order cybernetics the setting of this temperature value is not something over which the system itself has any control. With the sound system, by contrast, it is the crew themselves who monitor and manipulate the evaluative criteria by which they perform, during the course of their performance.

These evaluations are not necessarily open to conscious reflection, by contrast to how logic has traditionally has been understood to operate. Polanyi's (1958) term *tacit knowing* is particularly appropriate for the logic of sound practice, associating it with the tactile or haptic touch of sound, as evident with the *sonic dominance* of the session. Polanyi also uses the term *connoisseurship* to describe what he calls a way of knowing, rather than knowledge as such. Most important, this way of knowing does not involve representation: "Connoisseurship, like skill, can be communicated only by example, not precept …", he says.[77] This includes ideas of expert knowledge, experience, intuitions, guessing, "gut feelings" and other synthetic and parallel relationships as important features of the logic of sound practice. These have little to do with conscious or cognitive processes, logical calculation or rational analysis, as with the highly skilled craft of master violinmakers to which Polanyi's approach has been applied.[78]

In respect to the role of mind in skilled techniques, Michael Polanyi makes a second important point that many craft skills and techniques *cannot* be conscious processes. As he states, it is a "well-known fact *that the aim of a skilful performance is achieved by the observance of a set of rules which are not known as such to the person following them.*"[79] He goes on to explicate this in terms of a distinction between *focal* and *subsidiary* awareness, with the example of hammering in a nail: "I have a *subsidiary awareness* of the feeling in the palm of my hand which is merged into my *focal awareness* of my driving in the nail."[80] Polanyi emphasises how these two types of awareness are actually mutually exclusive, implying that the selector can never be consciously aware of the know-what of their doing at the same time as the know-how of their practice. The volume, range and complexity of variations are also simply too great to be "held in mind," obviating the need for conscious reflection, as mentioned above.

So the crew's performance routines, as a series or patterning of actions, are not a matter of the performer following any pre-existing plan, design, form, schema, map or interpretation of a score. Instead it is always a matter of improvisation, or *versioning*. In this respect the idea of "the original" can

practice
manipulating

repeating

material   *sociocultural*

cutting   mixing

measure   *corporeal*   **value**
monitoring   evaluating
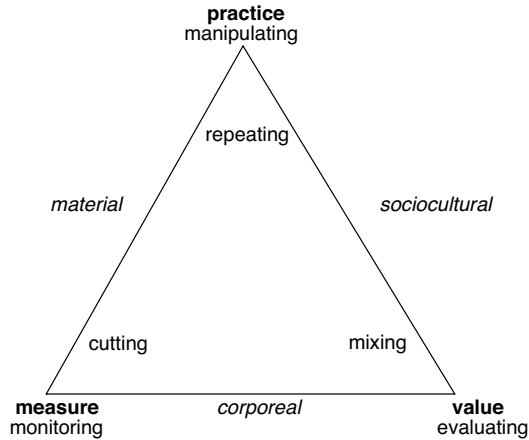
Figure 8.3 Triangulations of the selector's techniques with the wavebands of sounding.

only ever be exactly that, *an idea* – whose actual realisation requires the particularity of a specific performance (as discussed in relation to *dubplates* in Chapter Five). Commenting on Gibson's point that "a route involves a routine,"[81] Reed reminds us that "[a] routing is the organisation of the action, not a *representation* of the action."[82] In this way, Gibson's ecological approach to perceptual systems helps to make the important point that complex performances can be understood without recourse to ideas of reflection or representation or mental maps and the like. The selector's *cutting*, *mixing* and *repeating*, for instance, are part of their routine procedure, or sequence of actions, that takes them through their performance. This is what "makes it up" and also what they do – "making it up" as they go along, as with the DJ's extemporisation, or the studio producer's re-mixing a version. Indeed, it also underlines the close association between reflective representations and conscious awareness that often tends to be assumed. In her discussion of film music, Anahid Kassabian makes this point as follows:

> Somehow, "representation" and "meaning" come to be synonymous, and arguments that music is "nonrepresentable" are (implicitly, at least) understood as proving that music does not "mean" in any recognisable sense of the term.[83]

Necessarily without images, thinking through sounding raises questions about the different kinds of non-conscious awareness – such as those that inform practice.

MEASURE AND VALUE

The logic of practice describing the crew's skilled techniques finds a central place for *value* in a way that is completed excluded from the logic of theory. This is expressed as the crew's evaluations, expertise, connoisseurship and qualitative judgement, starting with the monitoring, manipulating and evaluating by which the engineer fine-tunes the sound system. Value challenges positivist definitions of knowledge as being objective. In practice, the evaluative element of the crew's ways of knowing cannot be isolated from the crew's performance techniques. This provides evidence for rather different conceptions of rationality and meaning than those most often assumed. These tend to be formal, explicit, abstract, systematic, representational and discursive and based on an analytical definition of logic in terms of self-consistency. The logic of theory is most often defined as not only context-free, but also without feeling, meaning and indeed content; that is, as entirely determined as elements of a formal diacritical system. Furthermore, within the prevailing philosophical dichotomies, such matters of taste and value are considered either as personal, particular and subjectively intimate, or, at the same time (in a contradictory fashion), as universal, general and objectively distanced matters of aesthetic appreciation, following Kant.[84] From the standpoint of theory, the crew's evaluations could therefore be described as rather "awkward customers."

The evaluations that the crew make follow on in sequence from their *monitoring*, that is, their measuring, metrics or quantification. Value can be equated with *listening*, measure with *hearing*, to make use of Barthes's distinction (described in Chapter Four). Furthermore, this monitoring is itself invariably in relation with and following on from their *manipulating*, as the primary ecological relationship between organism and environment described by Uexküll (1957) between effector and receptor. The crew's practical techniques for manipulating vibrations, whether in auditory, corporeal or sociocultural wavebands, *triangulate* measure and value. Triangulation in practice prevents the measure–value relationship from becoming oppositional or falling into dichotomy, as otherwise invariably happens.

It is indeed the marginalisation of any value for embodied practice, and then its removal from the calculations of what goes into formal knowledge systems, that has become one of the *epistême*'s principle characteristics. Consequently the relationship between value and measure is most often understood as one of opposition – as between quality as value and quantity as measure. On the one hand, there is measurement, quantification, calculation and science and arts, on the other intuition and "gut feeling." This polarised

relationship is also expressed in that between the instrumentalised *measure* of information as statistical probability in the Shannon–Weaver theory and the *value* of meaning in MacKay's alternative, as discussed in the previous chapter. Binary thinking proliferates with the fissure between fact and fiction, "exterior" and "interior" worlds, thinking and feeling, determinism and constructivisim, objectivity and subjectivity – and not least the 0 and 1 of binary code itself. Measure and value also divide between the many and the one, or the parts and the whole.

The divide between measure and value has often found expression in the polarity between nature and nurture, which, to an important extent, the ecological paradigm is committed to resolve. Together with musicking and sounding, the model of auditory propagation also features the way such ecologies are understood in terms of relationships. While the triangulation of measure and value may be entirely unproblematic in practice, as with the sound system crew, understanding their relationship in the theoretical realm of abstract ideas represents a much more substantial challenge. In several respects this goes against the analytical and reductionist grain of much of the Western canon. It is in this context that the non-dualistic logic and explicitly triadic semiology of Charles Sander Peirce becomes particularly useful (as is explored in the concluding chapter). This raises very fundamental issues concerning the nature of reason and meaning that are addressed in terms of what is described as a *sonic logos*.

Measure has always been the starting point for scientific methodology. In this respect the sound system has been described as what amounts to a distinctive configuration of vibrations, known as a *formant*, across a range frequencies, described as the material, corporeal and sociocultural wavebands. Inspired by Lefebvre (2004) and Bachelard's (2000) rhythm analysis and Whitehead's (1976) concept of vibrations, this is summarised in the Frequency Spectrogram that counts the repeating rates of everything and anything associated with a dancehall session.[85] The repeating frequency is the common measure for the numerous and various types of movement described so far, from the pitch of a note, to a dance rhythm, to the Dancehall seasonal cycle. These are transmitted and received on a broad range of instruments, from ear and eye to record deck and mobile phone, and across a range of amplitude, as discussed (in Chapter Two) in relation to the material waveband of sounding.

Measures of the frequency and amplitude of vibrations depict only one side of the story. What is missing is the *value* of these vibrations from the standpoint of the crew, crowd and other participants in the session. This includes how and what they feel in their sensory experience of the session, as

well as agents who are self-conscious of what they think about what they do. In their performance the crew recognise and make evaluations between one specific moment of their performance and the whole of the dancehall event, or their sense of timing of "the right moment" as to when to apply a particular technique. The evaluations of the logic of practice are concerned with both recognition and invention, versioning as well as originality. This involves issues of value, preference, taste and aesthetic judgement on the Dancehall scene, for which issues of "style and fashion," pleasure and appreciation, rather than functionality, are all-important. There is a rapid turnover of trends, with a premium on the "one-off" novelty, setting "the pattern," as it is said, for others to follow. This emphasises how a Sound has to be considered as a homeodynamic, rather homeostatic, system. It is not so much about balance, but about *turbulence*. By contrast to the monopoly of the perspectival single point of view, or the hegemony of the Signifier or the Phallus and regimes of sequential order, qualitative evaluations involve multiplicities, excesses and parallel processes, as Ettinger (2006) explores.

As with the haptic sense of touch itself, the relationships of value simultaneously make and break both connections and separations. It is a matter of taste that cannot be considered outside embodied subjectivity, unlike the "object" of the text from which the subjectivity of both author and reader has been excluded. Value is based on the mutual constitution of relationships of ratio and proportion, as distinct from these being separate entities engaged in relationship exchange. The *measure* of their work, on the other hand, has been counted as all the vibrations of various kinds, as with the mechanical movement of the wave of auditory propagation, the kinetics of the crew's skilled techniques or the choreography of the crowd. In short, the distinction between *value* and *measure* is that between vibrations as the feelings of "vibes" and those of wave mechanics.

Often crewmembers aim to create a new form of "excitement" that the crowd will notice, talk about, and bring their friends to enjoy at the next session. For the audio engineer this might be a novel sound f/x or jingle; for the selector, an exclusive *dubplate* or a rare "Golden Oldie," for instance. This special value for style, fashion and fine clothes is commonplace in many African cultures and their diaspora, as with the sartorial elegance of the Zairean Sapeurs, or Hip Hop bling.[86] Besides aesthetic values, such as the selector's decision as to which is the right tune to play next, in order to "build the vibes of the crowd," evaluative judgements are equally in evidence for many other matters, as with the MC's audience management in the session. Exactly how the MC tells the crowd that the police are about to "lock off" the dance (that is, to close it down), for example, can determine whether a session ends peacefully or in

a riot. Furthermore, on the Dancehall scene, such aesthetic judgements are never without commercial implications, to an extent that makes it impossible to separate art from commerce, as Veal (2007) details in respect to Reggae producers' dub versions.[87] In this way, the crew's skills and techniques provide ready evidence of how evaluative judgements can approach the ideal of the *good*, the *true* and the *beautiful* that Plato describes in the *Symposium*. Despite this, embodied ways of knowing have most often been dismissed as not being rational at all.

The crew's way of knowing is certainly performative and expressive rather than representational or inscriptive. Their techniques cannot be separated from their evaluations or "sound judgement," any more than they could be from the actual embodied performance of them. This is how they "make sense" of what they do, in the process of their doing it. Such evaluative ways of knowing are literally at the heart of the logic of sound practice, with this organ itself as the seat of imaginative judgement,[88] evoking the idea of an "intelligence of the heart."[89] This phrase is of interest for thinking through sounding, in its citing of the heart as the seat of the faculty of intelligence, rather than its more common association with the brain.

The crewmembers' evaluations are concerned with all the organs of the fully "enminded" whole body. This completely abandons what Polanyi called "the Pygmalion of the mind"[90] when this is considered as if separate from its embodiment. Such judgements are irrecoverably entangled with practice, within and between each action and the next, as it were. Down to the most microscopic small-scale detail, expert judgements are always nestling within the entire performance milieu infused with evaluations. Of course, these are expressed in the smooth continuous flow of live performance in which millions of micro-judgements are made that in practice are inseparable from the performance itself. Indeed, only the *analysis* of the performance creates any distance or distinction between evaluation and action. Breaking down these flows into their component parts, such as the audio engineer's monitoring, manipulating and evaluating, can only happen in theory. In practice, there is only their *synthesis* in movement. Once again, the inflections of the Jamaican vernacular provide supporting evidence, here with the term "overstanding" indicating the higher form of the usual understanding in Rastafarian philosophy, for instance.

In the Western philosophical tradition, Wittgenstein's (1953) concept of a *form of life* readily resonates with the practice of the dancehall session, and importantly involves evaluations. As he states, "the speaking of language is part of an activity, or of *a form of life*," where agreement is required "not only in definitions but also (queer as this may sound) in *judgements*."[91] Such forms

of life have been understood as being both historically and culturally specific, and at the same time common to all humankind.[92]

To conclude this section, it can be said that both measure and value are expressed in two of the ways in which number and counting are understood. Measure is the counting *of* something, as with objects in the actual world. Value is counting *for* something, as with the respect that lies at the foundation of Jamaican and many other street cultures. It has a subjective component. In the Marxist tradition, this would be Lukács's distinction between a class *in itself* and a class *for itself*.[93] Yet another way to understand this relationship between value and measure – as well as that between the ratio and variations of sonic logic and the diacritical differences of signification – is as a relationship of *affordance*, to use Gibson's (1979) term. Auditory propagation requires that the *value* of an energetic pattern, that is, its amplitude, frequency and timbre, be expressed through the *measure* of the material medium. Value and measure are as inseparable as wave and particle in the propagation of light.

Notwithstanding the excitement and turbulence of the Dancehall scene, the way the Ancients understood the relationship between measure and value was as harmony. The desire for harmony between measure and value dates back at least to the Pythagoreans, listening for the harmony of the spheres.[94] The concept of harmonics, from the Greek *harmonikos* pertaining to music, had a profound significance for the Pythagoreans, according to the German music scholar Hans Kayser (1970, 2006). These first philosophers in ancient Greece considered harmonics as the relationship between the "two fundamental boundaries within which it is permitted to be Man" (Kayser 1970: 116), that is to say, quantity and quality, or *cosmos* and *logos*; world and word. From this proportional relationship they developed "a science of *measure* (number) and *value* (tone) … the measure as a term for the order of things, value as a term for the law of things" (Kayser 1970: 25–6, emphasis in original). For Kayser, harmonics provide a way of understanding – and hearing – this proportional relationship:

> There must be a centre within us human beings where heart and reason join, some inseparable wholeness in the depths of our unconscious and subconscious out of whose *measure* and *value* that "wonderful thing" – beauty – springs forth.[95]

Kayser considers that, with harmonics, "[a] bridge between being and value, world and soul, matter and spirit was found."[96] He continues:

> In harmonics we recognise this centre in reference to the arts primarily as the value-form of "proportioning", and we see in the proportions of acoustical analysis

in the different arts, where the ides of harmonical proportion must naturally not be taken in the restricted musical sense but with its wider significant, as "right measure".[97]

As Kayser describes it, harmony is the resolution of the division between measure and value; that is, fact and fiction, or quantity and quality. This ratio breaks with the simple dyadic cause-and-effect logic of the mechanical world, to become open to the more subtle qualities of human communication embodying affect, subjectivity and meaning. Such triangulations of elements offer a different quality of relationship; for example, as the crew's evaluative techniques do for their monitoring and manipulating. Kayser (2006) also addresses in some detail this distinction between the *value* of "tone-numbers," or "tone-number ratios" of harmonics, on the one hand, and the *measure* of mathematical number on the other. As he puts it: "In contrast to the uniform mass of mathematical numbers, harmonics presents numbers evaluated in a non-uniform way, a sort of 'gestalt mathematics.' In harmonics, the number 5 is not just a row of 5 unities, but refers to a wholly new element which was not present in the numbers 1 through 4." This new element is evident in so far as it can be heard as the musical interval of a third. Kayser continues: "[T]hrough the application of value, harmonic numbers differ decisively from mathematical ones."[98]

The relationship between value and measure was also the concern of the pioneer of modern science, Francis Bacon. He begins *The Great Instauration* (1620) by stating his wish to restore "the commerce between the mind of man and the nature of things … to its perfect and original condition"[99] before the Fall from Grace.[100] Turning from the *value* of the mind in philosophy to the *measure* of wave mechanics, the subtle and complex nature of harmonics is also evident with the auditory concept of *timbre*, or "sound colour," that makes each sound distinctive (besides the loudness and pitch by which sounds also have to be defined), as for instance with the MC's voicing. The unique *value* of the timbre of any sound is derived from the *measure* of the irreducible simplicity of the sine wave (as discussed in Chapter Three). But this does *not* account for our subjective experience and feelings on hearing the voice of a loved one, for instance. Unfortunately for Western philosophy, this harmonic bridge between quality and quantity, or *value* and *measure*, evident in both wave mechanics and performance practice, has almost completely collapsed. This chasm opened up between the Pythagoreans themselves after the death of Pythagoras, their teacher. It resulted in a split between the *mathematikoi*, who were interested in investigating the material world, and the *akousma-tikoi* (or listeners, as discussed in relation to the term *acousmatic* in the

previous chapter), who they considered to be of a more mystical persuasion.[101] Aristotle, as the philosopher of the *measure* of the material world, later made a similar criticism of the *value* of Plato's idealism.

As well as a resonance between two tones, harmony is also most importantly a relationship between these and the third term of the listener. DJ Squeeze talked of his "harmony with the sound" when fine-tuning his set of equipment, for instance.[102] In this way, the relationship between measure and value also has to include the standpoint of the research itself, that is, the participant listener and observer. With this, the research can be conscious of itself as a particular way of knowing, that is, as an auditory epistemology, sonic metaphysics or ontology of sound. Such philosophical categories, however, do not sit entirely comfortably with the embodied traditions of craft practice and their situated, synthetic and tacit ways of knowing, described in the previous chapter. So the aim here is to describe what kind of knowing this constitutes, and how this differs from what knowledge is conventionally considered to be.

What relationality offers is a mode of understanding in terms of the variable and dynamic intensities of relationships themselves, as distinct from a world of stable, fixed and isolated objects. Relationships define identity in terms of patterns, vibrations, influences, resonances, synchronisations, transductions and the like, rather than borders, boundaries and self-consistency. In respect to the crewmembers' performance, this has the crucial effect of allowing an understanding of their performance techniques that is not obliged to respect the traditional dualism of mind and body, for example. Similarly, a relational approach is not restricted to the disciplinary boundaries between ways of performing, knowing and saying, that is, between practice, epistemology and communication. The model for this kind of relational understanding is, of course, that of sounding and the propagation of vibrations. This is just one example of how, beyond duality, relationality abounds. What was previously only thought might well be embodied in practice.

Chapter Nine

Conclusion: the Sonic Logos

The sound system crewmembers evidently make use of a sophisticated and subtle set of skilled techniques, as has been described in the preceding chapters. Often this has little to do with what can be written, represented or even communicated orally. Yet at the same time, the idea of the *sonic logos* is sourced from the vast reservoir of idiomatic language usage with which Jamaican auditory culture is so richly endowed. The sonic component of the *sonic logos* is expressed in the term "vibes," for instance. Such colloquialisms and even proverbs can often hide countervailing or even subversive ways of knowing, outside the rules of formal language systems that define "proper" usage.[1] These "vibes" also describe the mechanics of sound waves themselves, together with a range of auditory models and metaphors. In addition, rationality and the ways of knowing of the *sonic logos* are also captured in the term "reasoning," used to describe the shared social dialogue that is a key part of the Rastafarian system of beliefs and practices.[2]

So the value of the *sonic logos* does not originate in theory alone. Rather, it issues from the heart of sound crew's performance techniques, that is, the logic of their practice. Thinking through sound as *Sonic Bodies* began, this concluding chapter aims to take Bourdieu's logic further by considering the kind of reason that emerges from the relationship between two distinct senses of sound. One sense of sound is as the auditory sensory modality or practical activities of sounding. This is the periodic movement of compression waves through a material medium. It concerns *measure* as metrics and quantification. The other sense of sound is the way in which sound "makes sense," as it is said, or "getting a sense of" something, that is, "knowing" about it. This concerns sociocultural *values* and understanding, where measure describes

non-metric qualities, as with a "just measure," or indeed, a "sound judgement." With the *sonic logos* we move to and fro between the body of sound and its mindfulness, that is, between how the *sonic logos* might be "built" from the crew's ways of knowing and skilled techniques to understand how they "make sense" of what they do. It thus explores the *relationship*, connection and intertwining of body and mind together.

Against any *logos* that might be *sonic*, the conventional hierarchical privilege of mind over body is most often presided over by the "noble" reflective sense of vision and divisions between viewer and viewed, and so on. For Descartes's heirs, of course, body and mind have been two separate kinds of matter: one is thinking substance or *res cogitans*, or essence, the other is extended substance or *res extensa*. This philosophical fault line between mind and body runs between Plato's concern with spirit and Aristotle's with matter, through the Renaissance to the Enlightenment, as Richard Tarnas charts with remarkable elegance and erudition in *The Passion of the Western Mind* (1991).[3] The *sonic logos* is an attempt to articulate this relationship between the material and mental senses of sound. As with the periodic movement of sounding itself, the *sonic logos* is continually oscillating between the poles of the intelligible and the sensible, essence and existence, the implicit and the explicit and being and becoming. It claims that such relationships are best understood as a *triangulation*, that is, a *ratio* of the senses.[4]

Very often the privilege of the intelligible over the sensible requires the sacrifice of the qualities and values of our embodiment. This dominion of mind and text resides in – and relies upon – the separation of mind from body and distancing of both from the world. James Mensch, in his Heideggerian study of embodiment, criticises this as follows:

> It is not the case that if we wish to grasp the reality of the world as it is "in itself," we must abstract ourselves from our bodies. It is, in fact, through our bodies that we can grasp the world outside of ourselves *from within*. This is because the "within me" of my apprehension of the world is also part of the world outside me.[5]

This theme that reason must necessarily be isolated from the world has been central to the scientific revolution that the Renaissance installed. This is not to deny how hugely effective and convenient the abstractions of an incorporeal mind and the immateriality of text have been for monitoring and manipulating our environment. But the senses have to be severed on the altar of objectivity. In one remarkable passage published in 1661, Galileo Galilei describes this violence as nothing less than a rape. In praise of Copernicus and others, he writes:

I cannot find any bounds for my admiration, how that reason was able … to commit such *a rape on their senses*, as in despite thereof to make herself mistress of their credulity.[6]

This abandonment of the sensory world has also been criticised by many of those who have given attention to skilled practice. From the psychoanalytic field, Wilfred Bion adds: "Descartes himself in his concept of philosophical doubt failed to doubt the necessity of a thinker."[7] This is something that the *sonic logos* explores.

KNOW-WHAT AND *KNOW-HOW*

The *logos*, as formal knowledge or the *know-what* of the *theoria* of the *epistême*, as it is embodied in the example of the actual practice of the sound system crew, can be considered as it traditionally would be, in relation to two other ways of knowing, or *know-how*. One of these which has been a primary concern for *Sonic Bodies* has been the crewmember's performance skills. These should be considered as the craft activity of making, that is, *poiesis*, leading to *techné* as a way of knowing. The other is the acting in the world, that is, *praxis*, in which the wisdom and judgement of *phronēsis* emerge as a third way of knowing (Figure 9.1). *Phronēsis* is what something means, rather than simply the "bare facts" alone. The wisdom of *phronēsis* can also be described more idiomatically as *sound judgement*. As is often the case, the nomenclature of the sense of sound emphasises relationship and carries a positive evaluation of wholeness that is absent from that of vision, as with "sound as a bell" or "being of sound mind" and many other such phrases. Sound judgement suggests a manner or *way* of judging, rather than an auditory object as such, as with thinking through sounding as discussed in the Introduction.

The concept of *phronēsis* is not commonplace, even when it might be expected to be in relation to discussions of *techné*.[8] Even so, it has found application in a remarkably wide range of settings. These include pedagogy,[9] and medicine, where, according to Davis, "*Phronēsis* … offers a paradigm of clinical rationality."[10] Also is has been used in videogame learning where it has been equated with "street smarts."[11] Philosopher Alasdair MacIntyre also makes use of the concept in the Aristotelian context of the human virtues, in *After Virtue* (1981). But it is Bent Flyvbjerg who makes the most substantial claim for *phronēsis*, in *Making Social Science Matter* (2001), where he argues that this way of thinking, rather than the traditional scientific *epistême*, should form the basis of a new model of more relevant social sciences. He backs up

theoria
theoretical activity > scientific skills
episteme

ways of knowing

poiesis   *praxis*
making > skilfulness and proficiency   acting > wisdom and judgement
techné   ***phronēsis***
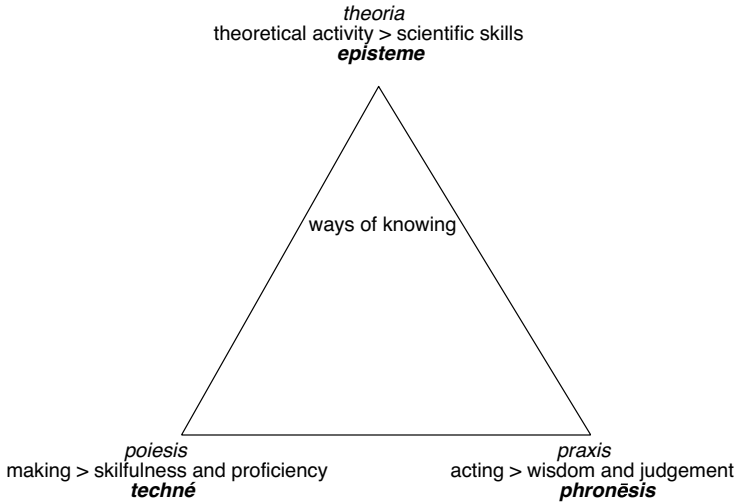
Figure 9.1 Ways of knowing: *epistême*, *techné* and *phronēsis*.[12]

this claim with studies of large-scale business management, megaprojects, urban design and planning.[13]

In the *Nichomachaean Ethics*, Aristotle describes *phronēsis* as a way of knowing that is distinct from – but articulated in relation to – both *epistême* as analytical or scientific knowledge, and *techné*, or practical craft. Unlike geometry or mathematics, Aristotle tells us, this way of knowing takes time to develop, because it is …

> … concerned with particulars as well as universals, and particulars become known from experience, but a young person lacks experience, since some length of time is needed to produce it.[14]

The sound engineers' *evaluating* after their manipulating and monitoring (described in Chapter Three), and their apprenticeship (described in Chapter Four), are exemplary of the development of *poiesis* from the craft skills of *techné*. Apprentice learning invariably requires the particularity of specific instances together with the embodied personal relationships that often occur in craft traditions, subaltern and popular cultures, contrasting with the aim of formal education systems to inculcate the abstract rules of epistemic knowledge. Besides *epistême* and *techné*, different again is this phronetic way of knowing. A prime example of *phronēsis* would be the way that Stone Love Movement boss Winston "WeePow" Powell has proved himself capable

theoria	*techné* and *phronēsis*
representation and mimesis as *either*: image, schema, maps, graphics, *or*: text, code, language system, signifier, symbol, index, digital, 0/1, structuralist binaries, diacritical difference ie discursive	**re-presentation**, expression, gesture, ratio, rhythm, routine, icon, sympathetic magic, analogue variations, becoming different ie recursive
Narcissus' reflections, ocularcentrism, shadows in Plato's cave, viewer/ viewed	**Echo's reverberations,** Gibson's multi sensory flux, Chion's *transsensory* perception echoes in the cave, emanations, listening
single perspective or POV, Alberti, excludes the viewer from the viewed, Newtonian mechanics	**multiple** perspective, Cubism, includes the perceiver in the perceived, *quantum* mechanics
linear, serial, successive, progressive, past behind - future ahead, teleology	**cyclical**, repetitions, harmonies, resonances, parallels, mixes, past beneath - future above, evolution
rationalism, cogito, abstraction, typologies, intrinsic self identity, separation of parts, analysis	**relationalism**, situated body-in-world, variations, oral traditions, extrinsic identity, ecosystems, connected whole, synthesis

Figure 9.2 The qualities of knowing.

of running his sound system for over 30 years amid one of the most volatile and violent street cultures anywhere in the world.[15] This would not have been possible without WeePow's practical wisdom that *phronēsis* describes (in addition to his specific management and business skills and his expert engineering and selecting techniques). This way of knowing tends to be more within the realm of consciousness compared to those of craft skills. It could include Bateson's (1979) idea of *deutero-learning* or learning how to learn (described in the previous chapter). Compared to *theoria*, both *techné* and *phronēsis* embody some common features concerning presentation rather than representation, for instance. These are listed in the right hand column of Figure 9.2 as a schematic suggestion of some of what *theoria* tends to exclude.

SOUNDING A CRITIQUE

One of the principle values of the *sonic logos* and the propagation model in which it is embodied is in providing a critique of the kinds of thinking, that is, *logos*, that has led to the numerous schisms, dichotomies and antitheses on which the *epistême* relies.[16] The *sonic logos* raises questions about representational meaning and linear causality. It asks whether meaning has to be restricted to image and text, whether causality can only be singular and

sequential, and if true knowledge exists only as abstraction. If the story of *Sonic Bodies* began by thinking through sound, it concludes by considering the *logos* in terms of relationships – ratio, proportion and triangulation. It is on the basis of the examination of the various sonic bodies of the crew that it now becomes possible to approach a tentative conclusion as to how meaning can be considered without recourse to representation, reflection and visual imagery. By contrast, the resonances, sympathies and attunements between sound and listener are suggestive of the rather different ways of knowing that are immediately and intimately particular, situated and embodied.

The comprehensive, reciprocal and multi-agent activities of musicking and sounding with which the book began are entirely consistent with a catholic character of ways of knowing. In so far as the *logos* is *sonic*, it is *haptic*, being concerned with hearing, listening and the reception of sound. But this is only one component of the periodic movement of sounding and thus should be considered as being triangulated with expressive *kinetic* movement together with the self-awareness of *proprioceptive* movement (Figure 9.3). Any *sonic logos* should in fact be considered as a specific example of what in actual practice should be termed a *kinetic logos*. Sound cannot be anything but a particular kind of periodic *motion*, variation and change (as discussed in relation to the *logos* of rhetoric in Chapter Eight). These dynamics are of the utmost importance, not only epistemologically, but also ontologically, as sounding is always about becoming, rather than being.

The *logos* is named as *sonic*, that is, indicatively auditory, as a gesture towards the multi-sensory flux that tends to be excluded by the dominance of

proprioceptive
self-impression

periodic movement

kinetic
expression, active, effector

haptic
impression, passive, receptor
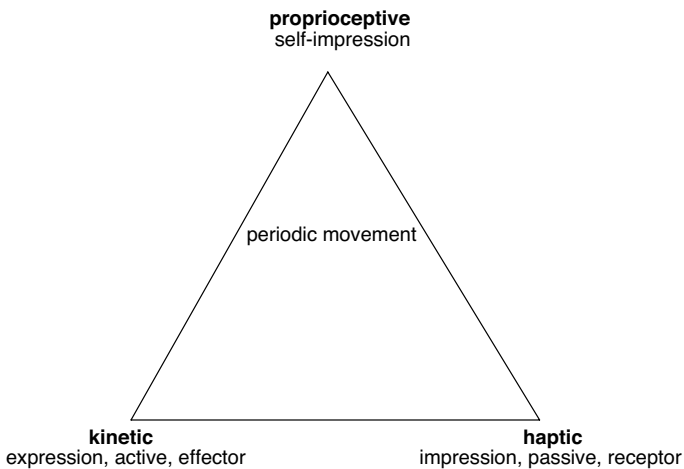
Figure 9.3 The dynamics of the *sonic logos*.

the single-sensory modality of the visual.[17] The *sonic logos* makes no claim for an alternative auditory regime, though with sonic dominance of the dancehall session, this can be the case. Instead, sensory modalities operate in relation to each other, as a matrix of interconnections, rather than separately as a hierarchy privileging one alone.[18] In the auditory world that the *sonic logos* opens up, Plato's cave is remarkable for its echo, rather than its shadows. It is Echo's rather than Narcissus' company we keep.[19] With echo, reverberation, harmonics and other features of the particularities of auditory propagation, the *sonic logos* commits itself to an epistemology that is a complete anathema to the traditional Western one of abstraction, as Cavarero (2005) explores (discussed in the previous chapter). The ways of knowing of the *sonic logos* are based on the kind of distinctiveness, multiplicity and variation to which the visual model is blind.

At least since the Pythagorean idea of "the music of the spheres," sound has often been taken as exemplifying relationships of connection, association and synthesis, that is, the whole, in the way the vision metaphor often illustrates separations. For the *sonic logos*, what the relationality of auditory propagation exemplifies is a matrix, medium or milieu of interconnectivity.[20] Here there is no permanent structure or order. Everything is next to everything else, as Serres (1984) explores with his concept of the parasite (discussed in Chapter Six). Everywhere is in the middle, *in media res*. All is in a process of becoming different. The flux abolishes separation. "All that's solid melts into air." But as Marx continues in *The Manifesto of the Communist Party* of 1848, "… and man is at last compelled to face with sober senses, his real conditions of life, and his *relations* with his kind" (emphasis added). Relations do not cause objects to evaporate; rather the opposite: relations are their lifeblood. The *sonic logos* makes the assumption that relationships are both continually in the process of becoming and always already made. It is connection rather than separation with which it begins and ends.

If there is no split between objects, or between "inside" and "outside" worlds, then these connections are "always on." Consequently, there is no need to devise mechanisms to communicate, connect or bridge the gap between one side of the divide and the other. This schism is an imaginative invention, calling forth all manner of reflections and schema to "represent" the exterior to the interior. This leads to interminable further and finer divisions of analysis, diacritical differences and endless play of signifiers. Against this, the *sonic logos* is concerned with the whole, rather than with separate parts, and synthesis rather than analysis. Presence, presentation and expression are key, rather than representation as either code or image. *Re*-presentation, as splitting the prefix from the verb makes evident, must always remain at once removed from the immediate, "the real thing" of the presentation itself. It is mediated rather than immediate,

a copy, a second attempt, following the "original." It is this bifurcation that the *sonic logos* attacks in the traditional idea of the *logos* of representation.[21]

From the starting point of relationality and connectivity, the challenge for the *sonic logos* is to understand separation, that is, when things break down and disconnections occur, as with the shorting-out of the power supply to the set of equipment in a dancehall session, for example.[22] This emphasis on relationality raises two complementary questions. One is how any kind of organisation is possible in the continually variable flux of relationships that is the fecundity of the *sonic logos*. This is answered in what follows here with a conception of patterning in time as *rhythmos* with routines, rhythms and cycles, as distinct from patterning in space with its symmetries, codes and schemas. Pattern in time concerns the inflection of repetition, in space the similitude of mimesis.

The other question for relationality is why, in the everyday world, separations are often more apparent than connective relationships. Moments of epiphany where the entirety of the connected whole is immediately apparent are unfortunately rare. The *sonic logos* suggests that this issue might be approached in terms of the concept of *remembering*, as an act of putting things back together, that is, of recognizing their connection. This is consistent with Plato's epistemology of amnesia, as echoed by Wordsworth's famous line: "Our birth is but a sleep and forgetting."[23] In this way connection is the reality and separation is the illusion that remembering dispels. Re-membering thus has its opposite in dis-membering, that is, tearing things apart. The issue remains one of connection *vis-à-vis* separation. More commonly the antithesis of remembering is considered to be forgetting. But this is to raise a very different issue, that of presence *vis-à-vis* absence. It is for this problem that re-presentation provides the solution.

With this emphasis on relations and connections, the *sonic logos* has a further challenge for the traditional representational *logos*. This is to push across the philosophical Rubicon that separates the objective rational territory of mind and measure from what might be considered the unknown – and possibly unknowable – land of the non-rational body of subjective value. Ideologically, this is, of course, one of the most heavily fortified of borders – between culture and nature, in short, between civilisation and barbarism. But the sound system crew – unburdened by such issues – can rely on their connoisseur's judgement and *evaluations*, following their manipulating and monitoring, that close the circle of the audio engineer's fine-tuning, for example. To listen in the way this requires is what it takes an apprenticeship to learn. So if the *logos* cannot address the issue of value, then it has little or nothing to contribute to an understanding of how the crew does what it is evidently able to do. It is not a question of trying to understand something in

order to be able to do it, but rather one of trying to understand *how* something is done. The performance is an improvisation rather than an interpretation of a previously written script. The *sonic logos* is rooted in what has traditionally been called the intelligence of the heart.[24] While often entirely unproblematic in practice, the only way the idea of the *sonic logos* might succeed against the philosophical fissure between body and mind is to adopt a guerrilla campaign, so to say, to avoid any battle of direct confrontation between the philosophical polarities of body and mind, or subjectivity and objectivity.[25]

Logos contra **word**

On the basis of its ways both of knowing and of sounding itself, the *sonic logos* offers a number of challenges to the conventional *logos* – and thereby to rationality itself. One challenge is the fact that the Greek term *logos* can be translated as meaning *reason*, or that which makes things as they are, equally accurately as its usual translation as *word*. This is in fact a more ancient idea of reason, more akin to the modern usage of "reasonable." The shift from *logos* as *word* to *logos* as *reason* can be understood as being a move from a position where the mind is privileged – as against the body – to one which embraces the sensations of embodied way of knowing, moving and doing in the world.[26] This idea of *logos* allows it a broader compass – to include not only rational calculation, but also having a reason or motive for an action. Importantly, this embraces the practice of doing and making, including the most important of all our crafts – "making sense." Thus, as reason of this kind, the *sonic logos* runs counter to its traditional more narrow definition in terms of logic, representation and the knowledge as *theoria* and *epistême*, often associated with representation – as either visual images, reflections, light and so on, or with word, code and text. This was the *logos* subjected to Derrida's (1974) famous critique of *logocentrism* – what he considers as the privilege of the presence of speech as the origin of writing.

Heidegger's understanding of the *logos* as the process of assembling things together to form a whole is very much in keeping with this conception of *logos* as reason. According to Freenberg, Heidegger puts this process of gathering together at the centre of rationality itself:

> "*Logos*", [Heidegger] claims, is derived from the word "*legein*" which means to lay out, harvest, or gather. "*Logos*" is the gathering together of the relationships that make things intelligible and the making manifest of the results of this gathering … Heidegger finds *logos* at work not only in theoretical knowledge, but also in circumspection, the basic familiarity with things that accompanies action …[27]

This translation of *logos* as a *practice* provides an important theoretical underpinning for thinking through sounding, which is also consistent with Plato's idea of god as craftsman, mentioned in the previous chapter. In fact, this idea of *logos* as gathering liberates reason from what is considered here to be the shackles of the disembodied mind. This reverses the direction taken by the dominant traditions of Western thought, where it is word, mind and abstract idea that offer an escape route from what is considered as the irredeemable weaknesses of the flesh, that is, the curse of the mortal coil.

The schism between spiritual and material orientations has been fundamental to the Western tradition, expressed, for example, in the divergence of Aristotelian from Platonic philosophy.[28] This continued as the polarisation of reason and faith, or, in St Augustine's terms, between *scientia* as knowledge as reason and *sapientia* as knowledge by divine grace or wisdom. The embodied character of human understanding is also expressed in our naming our species *homo sapiens sapiens*. The root of the Latin *sapientem* means "to taste, have taste," associating wisdom with the refinement of bodily sensation, rather than the mind as such. It is in this sense of the word that we are doubly wise. Michel Serres emphasises this point:

> We are too quick to forget that *homo sapiens* refers to those who act to sapidity, appreciate and seek it out, those for whom the sense of taste matters – savouring animals – before referring to judgement, intelligence or wisdom, before referring to talking man … *wisdom comes after taste, cannot arise without it but has forgotten this* …[29]

This "forgetting" of taste and the disparagement of sensation has had very considerable epistemological consequences. As Serres puts it: "Not only does sensation stand behind the knowledge that presumes to speak of it, but what is more, it finds itself ousted by what we know at any given point."[30] In very general terms, it can be said that the mainstream Western tradition has doubted, distrusted and disparaged any reliance on sensory experience as a reliable source of knowledge or understanding about the world. Consequently, the ways we "make sense" of what we do and our "common sense" itself (or the Aristotelian *sensus communis* that interprets all the other senses[31]) is left by the wayside of proper philosophical or scientific investigation. Against this, it can be argued that embodied sensation is necessary for each and every way of knowing.

It is our ability to savour food, Serres maintains, that distinguishes human from animal: "Sensation, it used to be said, inaugurates intelligence … without

taste, we risk abnegating our human state and returning to that of animals … *Animals wolf down their food, man tastes it.*"[32] The sound engineer's fine-tuning of the set, the selector's choice of music and the MC's judgement of the vibes of the crowd make each of them connoisseurs of sound. Taste allows discrimination, that is, fine-tuning. "The *logos* cannot express the attention we pay to the senses,"[33] Serres tells us. He continues: "Language has killed the senses … the word prohibits the senses … the speaking tongue kills the tasting tongue."[34] Contrary to sensory aesthetics being numbed by the anaesthetic of the word, taste as the basis of knowledge emphasises the value of our sensory embodiment. It is these sensitivities, fine-grain distinctions and cultivation of the auditory palates, that the apprenticeship tradition takes the time to practise, as detailed in Chapter Four.[35]

Logos contra representation

A second challenge the *sonic logos* mounts against the conventional idea of the *logos* is its independence from representation. It is sounding itself, the auditory without orality. One possible locus for a non-discursive, non-representational account of meaning would be as expressive gesture, an important area that has only recently begun to receive any theoretical attention.[36] Like music, a gesture expresses nothing other than itself. It does not point to an outside referent in the way a signifier refers to a signified, though, of course, there can also be gestural codes, as with sign language. Another non-discursive approach to meaning comes from the German musicologist Victor Zuckerkandl (1956). He developed a theory of musical meaning based on *analogue variation* where each sound is compared incrementally with every other sound, rather than the diacritical differences of a formal language system.[37] Digital code consists, of course, exclusively of binary bits, as with the digital sampling which converts a continuous varying audio signal into an encoded message, such as a CD recording. So the auditory dimension of the *logos* gives attention to under-standing reason in terms of *variation* and *whole* – to escape some of the assumptions the conventions of the visual image are most often used to support.

Unlike the static character often attributed to texts and images, the *sonic logos* is committed to the dynamics and variation of propagation. The periodic movement of the sonic bodies of the crew with their performance techniques and fine-tuning of auditory vibrations themselves are an example of this. Against traditional mind–body dualism, where a body is a solid thing, that is to say, specifically *not* a mind, when bodies are considered to include their voluntary movement, this allows them some of the qualities most often associated with minds and their imagination. For James Gibson (1979) it is the movement of the organism through its environment that is the linchpin of his

ecological psychology. The idea of *sonic bodies* suggests that the body is not without a mind, but, rather, it is "enminded." This relationship between bodies and motility can be recognised in terms of the mechanics of auditory propagation, where the periodic patterning of a vibrations requires the material of the medium for transmission; or the wave-particle quantum mechanics of light, or Bergson's philosophy of matter-energy. Following Samuel Alexander's formulation of time as the mind of space,[38] it could be said that *movement is the mind of the body*. This is consistent with Maxine Sheets-Johnstone's phenomenology of movement and her concept of a "kinetic bodily *logos*,"[39] whereby mind *is* movement. Furthermore, as with many other antitheses, mind–body dualism tends to dissolve when considered as part of a triad, as with mind–body–world. Such triangulations are discussed in the last part of this chapter.

Abandoning word and representation as the only legitimate sources of meaning leads the *sonic logos* to a further, more radical step of forsaking the linear causality of Aristotelian subject–predicate logic. This is often expressed in the "if … then …" structure of the syllogism and the linear logic of sequential singular cause and effect with which positivist science and much of the social sciences have been preoccupied. Classically, logic consisted of two operations: *deduction*, deriving implications from a premise; and *induction*, deriving general principles from examples. The American pragmatist philosopher Charles Sanders Peirce defined *induction* as that which "does nothing but determine a value, and *deduction* [as that which] merely evolves the necessary consequences of a pure hypothesis."[40] But Peirce's semiotics went much further than this, in a manner which is entirely consistent with the idea of meaning and rationality that the *sonic logos* is considered here as embodying.[41]

In addition to induction and deduction, Peirce introduced the logical operation of *abduction*. As Peirce puts it: "Abduction is the process of forming an explanatory hypothesis. It is the only logical operation that introduces any new idea …"[42] Abduction, then, is at the core of innovation, and therefore the kind of improvisation and versioning techniques dominating Reggae and other musical techniques, whose operation is largely outside conscious awareness. As Mullins (2002) points out, this is in fact closely allied to Polanyi's *tacit knowing*.[43] Most importantly, Peirce considers abduction to be central to the procedures of science, rather than dismissing it as merely practical know-how, as he adds:

> [Abduction] is the first step of scientific reasoning, as induction is the concluding step … Abduction seeks a theory. Induction seeks for facts. In abduction the

consideration of the facts suggests the hypothesis. In induction the study of the hypothesis suggests the experiments which bring to light the very facts to which the hypothesis had pointed.[44]

Against this, traditionally scientific endeavour has been characterised by patient deduction, rather than the imaginative leaps of abduction. Sebeok and Umiker-Sebeok (1983) explore this in respect to what is considered as the scientific methodology of Sherlock Holmes's detective work. They show how many of Sir Arthur Conan Doyle's stories about his detective hero turn on Holmes's use of abduction, formulating the initial hypothesis, rather than the gathering of deductive evidence. It is this logical operation of abduction with which the *sonic logos* has the most in common. Abduction undermines the idea that thinking always has to rely exclusively on dichotomies or codes, but without jettisoning the idea that these can often be useful. Thinking is no more restricted to binaries than written script is to visualisation.

What *Sonic Bodies* attempts to describe with the performance practices of the crew is a change from the idea of *logos* as word, to *logos* as sound, in a shift from *word* to *world*. This can also be described as moving from *logos* to *cosmos*, or from language or notation to gesture or pattern. For understanding the sound system crewmembers' skilled performance techniques, this sets in motion a series of decisive shifts in emphasis: from difference to relationality, from linear self-consistency to periodic variation, and from abstract structures to particular dynamics. This can also be articulated as the distinction between the eternal and the temporal, that is, being as unchanging archetype and abstract ideal of the mind's appreciation, on the one hand, and the becoming of the body's sensory experience of the variation and multiple vicissitudes of the material world.[45] The *sonic logos* carries with it the vibes and fast-moving energies of a popular culture of a street scene, smelling of sweat and a vernacular subaltern sensibility. This certainly contrasts with the dry-as-dust formal elitism of the academy and the discipline of the *epistême* of "knowledge" as such. While there may be a gulf between these two ways of knowing in terms of their social status, it is not the case that one is more sophisticated than the other, in terms of the fine detail of discrimination that each can make. MCing a dancehall session is certainly not any less rule-governed than the presenting of an academic conference paper.

LOGOS AS RATIO, PROPORTION AND PATTERNING

Outside representation as code, text, or sequential logic on the one hand, or graphic or image on the other, one place to locate the reason of the *sonic logos*

	logos **of ratio**	*logos* **of representation**
favoured sensory modality	*auditory*	*visual, graphic*
media	*sound, music*	*word, text*
state	*variation, change, becoming different (Heraclitus)*	*stability, continuity, permanence (Parmenides)*
mode	*relationship, whole, ecosystem*	*separation, parts, dichotomy eg mind/ body/ world*
meaning in found in	experience, presence, haecceity	code, re-presentation, structure
understanding	qualities, evaluation, subjectivities	quantities, logic, objectivities
reason	ratio, proportion	calculation, measure
preferred form of expression	spontaneous, improvisational, extemporisation	score, code, formal system
movement	periodic, dynamic, variation	linear, static, continuity
ordering	simultaneous, parallel, heterarchy, network, rhizome	linear, sequential, hierarchy
orientation	circulation, rotation, repetition	perpendicular, progress
identity	extrinsic, inclusive, both-and, becoming different	intrinsic, exclusive, either/ or, consistency
ontology	multiple and singular	singular
communication	expression, gesture, distinctive tone, analogue variation (MacKay)	representation, codes, binaries, diacritical difference, statistical probability, digital (Shannon-Weaver)
location	situated, particular, place, *topos*	abstract, general, space, *chora*
organising principle	whole, pattern, network	constituent parts, hierarchy
causality	relationality, coincidence, contingency	linear cause and effect
spatiality	depth, texture, presence, heterogeneities	distance, surface, horizon, homogeneities
point of view	multiple eg icon, Cubism	rectilinear perspective (Alberti, Brunelleschi)
mind	social and embodied	individual and disembodied
relationships	synthesis, mix, connection, association	analysis, cut, separation
geometry	triangulation (Plato, Peirce)	binary opposition, duality (Aristotle, Saussure)

Figure 9.4 The *logos* of ratio and representation.

is in ratio and proportion. This is simply a relationship between two or more things and these with the whole. The ratios of the *sonic logos* are recognised through pattern and rhythm, rather than schema and discourse. While the propagation of sounding always unfolds through time, its meaning is often about presence and the sensory experience of the moment, in the way that this is often contrasted with rational reflection. Instead, when the evaluations that characterise the crew's ways of knowing are combined with its synthetic and situated nature, then it is possible to approach the most comprehensive conception of knowing – as "making sense." It can also be added that understanding the ratio invariably takes place within the receptive and expressive flows of a multisensory matrix. The auditory sensory modality, with its particular sensitivity to such ratios, as for example with the musical octave, plays a leading part in this, rather than one of subservience in a hierarchy privileging the visual image. This is expressed in a schematic table (Figure 9.4).

Proportion became important as a key element in cultural and education systems of the Renaissance as a result of expanding mercantile capitalism's need for transactions between different systems of weights, measures and currencies, according to Baxandall (1972). This was called "the rule of three." In his exploration of the vanishing point in painting, Brian Rotman describes it thus: "[I]f the proportion of A to B is the same as that of C to D, and if A, B, C are given, then what is D?"[46] There are three characteristics of proportional relationships and ratios that need to be noted. The first is that, as with any kind of relationship, *proportion is not a physical thing*. Like the soul itself, it has no weight.[47] The insubstantial yet enduring character of relationships is also recognised in the way Bateson (1979) describes the relationship of difference in which information arises: "Difference is precisely *not* substance … It is *qualitative*, not *quantitative* … [It] is not located in time or space."[48] It can therefore be said that the cut makes a difference that is *the* difference; in the way Bateson defines information as "differences that make a difference,"[49] or "news of difference,"[50] where difference as "usually a ratio between similars."[51] In this respect, a *ratio* is *similarity* that makes the difference.

Rather than a thing in itself, a ratio is what goes on *between* things, as when two people are in "a relationship," as it is said. Though readily recognised in common parlance, the idea of relationality does throw up issues for the dominant Western philosophical tradition in which objects are defined *intrinsically*, rather than *extrinsically*, that is, in terms of their relationships. It is relationships that bridge and bind objects together across what would otherwise be considered as a gap, an empty space or a vacuum. But this is the vital point: what lies between is not an absence but a presence. "Nature

abhors a vacuum," as it is said. This is best described as a milieu or a medium, through which these relationships are expressed, as with sound waves propagating through the medium of the air, for instance. It is on this point that *Gestalt* psychologist Fritz Heider's essay *Thing and Medium* (1959) is pivotal (as discussed in Chapter Two). Also important to remember, as auditory propagation demonstrates, is that what passes through a medium is not an object, but a periodic patterning.[52] Indeed it is these vibrations that in an extrinsic and properly radical relational account constitute the objects in the first place.

Variation and value

The second feature of proportion is its concern for value, rather than measure. Ratio revolves round variation rather than difference. Traditionally it has been the practice of geometry that has expressed these relationships is the most sophisticated manner (Lawlor 1982).[53] To take a very simple example, imagine three pebbles on a beach, in the manner that Pythagoras did his mathematics using small stones – *calculus* in Latin, giving the word "calculation." Arranged in line, the three stones express one relationship. In a different configuration they can express another relationship, a triangle (Figure 9.5). Furthermore, it is not only the relationship between the points that has to be taken into account, but also the observer's relationship with them, that is, the embodied process of making sense.

This takes us to the third feature of proportion, that is, how it necessarily involves a subjective component. In the way that sounding expands the concept of sound to include its corporeal and sociocultural as well as its material wavebands, the idea of ratio includes in the equation the eye of the beholder, or the ear of the listener. It cannot "make sense" in any other way. In a similar manner to the assumed intrinsic definition of objects and the difference between them, the *sonic logos* emphasises the value and importance of the relationships between subjects and objects.

Figure 9.5 Relationships of line and triangle between three points.

When the crew's ways of knowing are characterised as being *synthetic* in character, this predisposes them to an understanding of rationality that resonates with the relationality of sounding itself. This mixing and mingling is to be heard between sounds themselves, as with harmonies at any one moment and the duration of melodies, as well as between sound-makers and listeners and listeners themselves. Sounding often connects us. Ratio involves the recognition of proportional relationships, qualitative evaluations and sound judgement, as discussed above. The significance of *ratio* for thinking through sounding is that it commits the relationship between objects to particular actual *embodiment*, in exactly the same way as *logos* as word did to *ethos* and *pathos*. By contrast to *ratio*, representation is defined by difference, in terms of diacritical difference, as defined in the abstract structures and the formalism of syncretic systems, such as discourse, inscription, narration or code with letters, words and other linguistic elements, or the DNA molecules of the genetic code. These can also be patterned as binary differences, as with digital 0 and 1 or the dramatic characterisation of good verses evil. The surfaces of vision and image are well suited to convey this kind of meaning.

The relationship of ratio is not restricted to any particular sense; it is *trans-sensorial* in the way Chion (1994) describes rhythm in film image and sound. The repetition of rhythmic patterning is ratio temporally with duration. Ratio is also expressed simultaneously, in a single moment of time, "all at once," as with harmonies, musical chords and the very widely recognised musical octave.[54] Nor is ratio restricted either to subjects or objects alone, but embraces both. It operates between subjectivities and objectivities, subjective sensation and experience as well as objective conditions, or internal and external worlds, not only the latter. This is born out by the importance of evaluation in the engineer's fine-tuning, for instance. In this way, the conceptualisation of rationality as embodied ratio is neither a construction, nor completely relativist, nor entirely biologically determined.[55] As Bohm puts it:

> In the ancient view, reason is seen as insight into a totality of ratio or proportion … the essential reason or ratio of a thing is then the totality of inner proportions in its structure, and in the process in which it forms, maintains itself, and ultimately dissolves …[56]

Bohm also makes the link between this idea of ratio and that of theory when he states: "Whenever we find a theoretical reason from something, we are exemplifying this notion of ratio." In short, a ratio is a qualitative relationship, concerning scale, orientation and symmetry, for instance, rather than quantitative measurement of height, breadth and depth.

In the Western tradition, the first formulation of this idea of ratio as the relationship between part and whole is attributed to the earliest of the Ancient Greek philosophers, Thales of Miletus (and later formalised by Euclid of Alexandria).[57] As Michel Serres (1995) describes, Thales arrived at this idea of consistent ratio by observation. He measured the length of the shadow cast by the Great Pyramid in Egypt:

> By comparing the shadow of the pyramid with that of a reference post and his own shadow, Thales expressed the invariance of similar forms over changes in scale. *His theorem therefore consists of the infinite progression or reduction of size while preserving the same ratio* … the theorem states a *logos* or identical relation, the invariance of the same form, be it on a giant or small scale, and vice versa …[58]

These ratios are more enduring than any material substance is capable of being. It is the ratio, rather than the most apparently permanent of objects, that in fact endures. Serres (1995) goes on to point out this irony in saying "only the softest lasts." As with the sundial, or gnomon, the idea of ratio concerns a rationality of proportional relationships, and has nothing to do with quantification, measurement or calculation.

One of the important points to note about these ratios is this. At the same time as it is only relationships that can endure, it is also the case that such ratios are only ever evident in so far as they are expressed through some particular instance, incarnation, material medium, *integumentum*, or cladding – that does *not* endure. This is to say that such ratios can only be expressed *analogously*.[59] The affordance the material offers – what could be described as the sociocultural frequency of a ratio – resonates with the sound wave model (described in Chapter Three). To be audible, a sound requires a particular situation and timing, as well as actual dynamic energy. This material aspect can then afford the corporeal and sociocultural vibrations of sounding, by which we feel and make sense of it. In this respect, the evaluative judgements involved in making sense of sounding serve as an example of the ratio between particular instances and abstract images or ideas, whereby these particularities *afford*, that is, offer constraints and possibilities, for the abstractions.

This relationship of affordance between material and other vibrations of sounding is distinct and different from suggesting, either that there are no abstractions, as a materialist reductionism would do, or that actual instances are nothing but the expression of the "pure" abstract idea, in the way Plato's philosophy is used to sanction such idealism. Neither can ratios take place

within only material vibrations, as might be assumed by the idea of "laws of nature," as if these were independent of our understanding of them. Nor do they occur within the sociocultural aspect alone, as "pure ideas," whatever they might be. A ratio is a relationship that can only occur between the material and the sociocultural wavebands of sounding, and this only in so far as it is recognised through the sense of the corporeal waveband. With a ratio, the distinction between these two portions can be contrasted with the way difference is conceived with reference to semiotic systems and the like. In that context, difference is diacritical difference, between the synchronic elements of the language system that distinguish a grammatical correct formulation from a mistaken one. The ratio between part and whole, on the other hand, would be more akin to analogue incremental variation.

Power and control

Finally, it can be added that the idea ratio of the *sonic logos* can be contrasted not only with word and representation, but also with control. This brings into play yet another of the ancient divisions at the root of the Western tradition, which Nietzsche, in *The Birth of Tragedy* (1956), identifies in Greek culture as the struggle between Apollo and Dionysus. *Logos* as word tends to consider itself to the exclusion of any other *logos*. Accordingly, to admit any value for embodiment and sensation is to run the risk of succumbing to the pleasures and Bacchanalian excesses of intoxication, for which the dancehall session provides an example. It was their skilled use of *pathos*, or emotional persuasion, for which Plato famously had poets banned from his Republic. It is grammar that holds the bars of reason in place. "Law in language and law in conduct" are closely connected, argues Donald Davie.[60] "Language does not merely reflect such changes; a change in language may precede the other changes, and even help bring them about".[61] Greek mythology gives a musical example of this polarisation (Connor 2004).[62] This was with the contest between Apollo who played the seven-string lyre, whose chords expressed the harmony of social organisation, and the satyr Marsyas who played the flute, expressing the single melody line of the individual. There is a lot at stake here. Marsyas won the popular vote of the musical competition. For this, Apollo extracted a terrible revenge. He had the satyr suffer the most painful of deaths, as depicted in Titian's *The Flaying of Marsyas*. Evidently the emotionality that reason represses returns all the more powerful as a result – the characteristic separation required for its analysis being expressed as dismemberment.

    As Spencer-Brown tells us with his concept of severance, mentioned in Chapter Six, a cut brings "[a] universe into being." It is an act of creation. Indeed, Spencer-Brown's performative concept of severance has been adopted

as the primary cognitive act by Verala (1979), developing his influential *autopoietic* theory, that is, the cybernetics of self-generating, as well as self-regulating, systems. But Spencer-Brown's cut could equally well be considered as a restriction and control, as the law of reason, in the manner of William Blake's Urizen, the demiurge expressing the underside of Enlightenment rationality, depicted with his dividers in *The Ancient of Days*. But where should the cut be made? Spencer-Brown does not tell us. But this is exactly the kind of decision the selector, for example, is making in their ongoing performance: when and where to "drop" the next track.

Further to the cut itself, proportion can be defined as the relationship between the part and the whole. If a straight line AB is imagined, one place to make the cut, to make the mark, could be in the middle at C, where AC = CB. The two lengths AC and CB would be equal and balanced, and each would be in the same proportional relationship of a half with the whole. This is stable but dull, on account of the fact that the two parts have similarity, but are without difference. This is an important point, as Robert Lawlor puts it:

> [W]ith equality there is no *difference*, and without difference there is no perceptual universe … In a static, equational statement one part nullifies the other. An asymmetrical division is needed in order to create the dynamics necessary for progression and extension from the Unity.[63]

Similarity and difference together, rather than the cut of severance alone, is what initiates the creative process, as with Lucretius' swerve.

There is one single point on the line AB that best expresses the idea of proportion. Famously, this is the Golden Mean, Golden Section or Phi (f), the relationship that has been the basis of architectural geometry since the time of the Ancient Greeks, inspiring Le Corbusier and artists such as Marcel Duchamp with the *Section d'Or* group.[64] What makes it unique and distinct from any other position on the line is that it expresses a relationship of both similarity and difference between the two parts and the whole. At this unique point of B where BC at 0.6180339… or $(1 + \sqrt{5})/2$ being the shorter length, when AB at 1 is the longer, the relationship between the smaller and larger portions is the same as that between the larger and the whole.[65] Thus the Golden Section turns a dyadic relationship between two lengths into a triadic one between these and a whole (Figure 9.6). The geometrical expression of this is AB : BC = AB : AC. Olson describes this as the relationship where "the whole to the longer equals the longer to the shorter … [and] the inverse … the shorter to the longer equals the longer to the whole … the Golden Section unifies parts and whole like no other proportion."[66] This is a unique expression
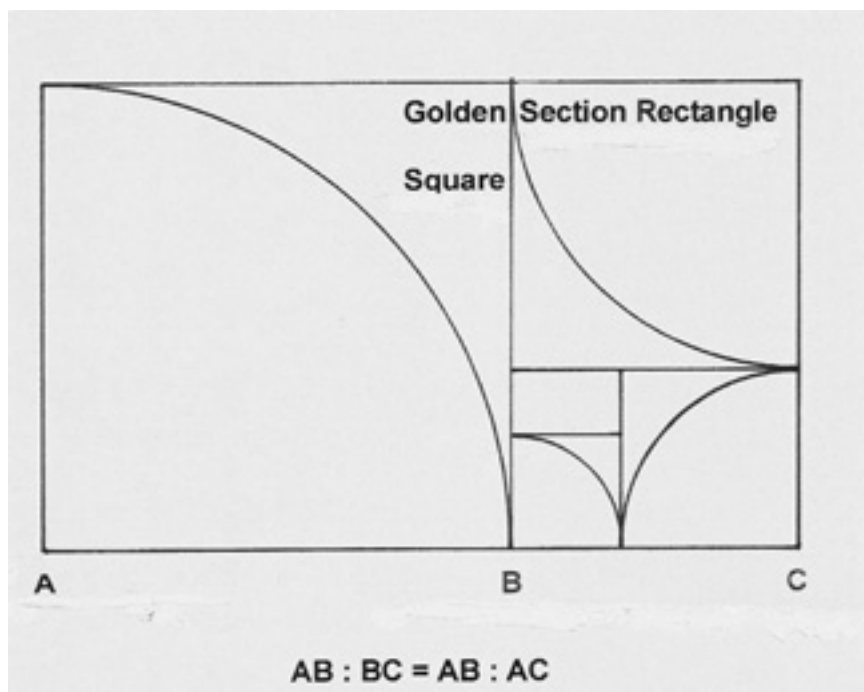
Figure 9.6 The Golden Section.[67]

of the proportional relationship between the two parts AB and BC, and a third AC, that is the whole. Thus the Golden Section can be considered the quintessential proportional relationship, or *ratio*. Musically it is best known as the proportional form of the octave,[68] rather than as the inflections of the Reggae beat explored here. A proportional ratio is a qualitative relationship of the parts *with the whole*, an incremental or analogue variation, as with a mix, rather than a diacritical difference, as with a cut.

Proportion and ratio can be considered as important examples of a more general idea of pattern. This can be understood as a relationship with a whole, either over time as with oscillations, periodic movement, vibrations, rhythms and melodies, as well as spatial patterning, such as symmetries and geometrical proportions and so on. At the beginning of the twentieth century, before the molecular paradigm took over biology, the discipline was concerned with the morphological structures of plants and animals. D'Arcy Thompson's *On Growth and Form* (1917) and Theodore Cook's *The Curves of Life* (1914) are two classic texts. In his study of possibly the most fundamental yet illusive of patterns, *Symmetry*, Hermann Weyl (1952) applied this approach to inorganic

and architectural forms. More recently architect Christopher Alexander (2004) has developed the influential conception of *pattern language*. In addition, Frederik Stjernfelt's *Diagrammatology* (2007) is most helpful for understanding the kinds of meaning that are not dependent upon representation, as based on Peirce's semiotics.[69] The *Gestalt* tradition (Ash 1998) also recognised the pattern of the whole as the objective source of meaning, rather than its individual parts. This has a substantial influence on psychology with the work of Kurt Lewin (1952, 2002) on field theory and Fritz Heider (1958), as discussed in relation to the idea of medium in Chapter Two.

Analogia

The reason of the *sonic logos* can also importantly be characterised as analogy. Rather than a relationship based on the perception of variation, as with proportion and ratio, analogy is a particular kind of *logic*. Analogia goes further to deduction, induction and also abduction, as Peirce states:

> Besides these three types of reasoning there is a fourth, *analogy*, which combines the characters of the three, yet cannot be adequately represented as composite.[70]

The idea of *analogia* is instructive for understanding the *sonic logos* in so far as it can be considered as the most general and inclusive form of reasoning from which more exact logics are derived. In short, analogia is the pool from which the more familiar forms of logic draw their rationality. Analogia is by definition *not* logia. The relationships of analogia are between one thing and another, on the basis of a single shared common feature, as with calling a sound system a "vehicle," for example. The figures of speech of metaphor, simile, synecdoche and analogy have a huge impact on our thinking and ways of knowing, as Lakoff and Johnson (1980) have explored.

With analogies, meaning is based on relationships of correspondence, mimesis and *similarities*, as with resonances, harmonies and symmetries, for instance. Barbara Maria Stafford (1999) provides a comprehensive account of analogy as traditional, that is, pre-modern ways of thinking. This consists of "the capacity to generalise to new objects from those already encountered … based on perceiving common traits and matching them according to a shared category … [that is] the creative and tentative weaving together of individuated phenomena." But this way of thinking, she continues, was …

> … supplanted by the elevation of atomistic difference: the obsession with unbridgeable imparity and the hieratic insistence on the insurmountable distance

between the material and spiritual realms … the seventeenth century changes everything, compulsively accentuating difference at the expense of alliances.[71]

Stafford's investigation is in fact restricted to *visual* analogy, making the point that this way of thinking is not dependent on the auditory faculty as such. So Stafford's ambition "to recuperate the lost link between visual images and concepts, the intuitive ways in which we think simply by visualizing"[72] can equally be applied to the present project: to establish the link between audition and conceptualisation and the intuitive ways we think simply by listening.

Thinking through the senses has often been considered as the basis for so-called pre-modern ways of knowing and conceptions of causation based on similarities, as with systems of sympathetic magic.[73] With analogical relationships there is a proportional correspondence between parts. Every increment counts as part of the whole, as with the analogue recordings of vinyl records still played on the sound systems, for example.[74] The ancient order was given in the proportional relationship between microcosm and macrocosm, ensuring order by correspondence in what in Greek and Medieval philosophy was the *scala naturae* or "the great chain of being." This idea of a relationship between things, even a correspondence of similarities, is also the basis for ancient theories of perception, notably Empedocles' conception of effluences[75] and also the Platonic idea of the correspondence between viewer and the image viewed, for example. Plotinus expresses this most succinctly: "Never did eye see the sun unless it had first become sunlike."[76] Perception is thus always a process of re-cognition, or re-calling what we already know, as with the musical octave, for instance, and as with Plato's theory of amnesia.

Analogical thinking is therefore a comparison of complete entities, as well as parts. As architect Keith Critchlow puts it: "Reasoning by *analogia* was then the Greek way of reasoning by whole rather than by parts,"[77] where the part would be the quantity of measure, and the whole the quality of tone or value. This idea of the whole suggests the kind of pattern or structure that cannot be reduced to the sum of its parts. This is the crux of *analogia*, as has been recognised in several distaff Western traditions, if not the reductionist mainstream. These include the concept of the whole developed in *Gestalt* theory, especially Heider's conception of the relationships between thing and medium, discussed in Chapter Two. In systems theory, Bateson provides a very useful definition of difference and information in which these are not fixed things, or objects, but a dynamic relationship.[78] He emphasises the importance of this non-material character of information-as-relationship: "Difference, being of the nature of relationship, is not located in time or space," he tells

us.[79] Furthermore, "Difference is *not* energy and usually contains no energy."[80] This resonates with Gibson's concept of ecological psychology, especially the key concept of *affordance* as being neither subjective nor objective, but both and neither.[81]

One way of comparing *analogia* with *logia* is in terms of the distinction between relationships of similarity and those of difference. With similarities the identity of an object is *extrinsic*, in its relationships and their variation; with difference the identity of an object is *intrinsic*, in its static self-consistency. This of course is traditional analytic philosophy's foundation on what Bertrand Russell called "self-evident logical principles."[82] Russell gives three examples: the law of identity, "whatever is, is"; the law of non-contradiction, "nothing can both be and not be" – that is, A and not A are mutually exclusive; and finally the law of the excluded middle, "everything must either be or not be." In short, the one is defined to the exclusion of the other. Indeed this is the way one particular kind of meaning is generated in the *either–or* diacritical differences of language systems – but not in the analogue variations of the sound of speech. The *sonic logos* requires another kind of understanding appropriate for the dynamics of periodic motion of vibrations, as distinct from the linear movement of objects.

TRIANGULATION

The third and final aspect of the reason of the *sonic logos* is expressed in the relationship of *triangulation* that has been so much in evidence throughout *Sonic Bodies*. Auditory propagation can be used to model a set of triadic relationships, as with melody, harmony and rhythm, for example, in the way its visual counterpart favours binaries, as with viewer and viewed, for instance. The importance of the relationship of triangulation has emerged throughout the investigation, as with the frequency, amplitude and timbre of sound, or indeed the three wavebands of sounding. It is also the relationship with which this conclusion draws to its end. Triangulation is one particular and distinct quality of relationship that may be contrasted with (but not opposed to) binary antitheses as another. The crew's numerous skilled techniques have been described in terms of numerous triangulations, as the *logos* of the MC's voicing is always triangulated with the *ethos* and *pathos*, that is, triangulated with the actual corporeal act of its enunciation.

It should be noted at the start that the shape of a triangle is only one way to express the *quality* of a relationship of threeness that is in no way restricted to the visual image as such. The triangle is merely a convenient diagram of threeness.[83] This quality of threeness can be equally well expressed in another

sensory modality as with the tactile impression of a triangle in the haptic medium, for example, or in the way a blind person develops a sense of space through touch, sound and other senses.[84] Also relationships can be expressed in the auditory medium, as with ratios of musical tones where 1:1 is a perfect harmony, 1:2 an octave, 3:2 a perfect fifth, 4:3 a perfect fourth, and so on. The quality of threeness can also be expressed outside any particular sensory modality, as for example in the everyday phrase "two's company, three's a crowd."

The great value of triangulation of relationships for the *sonic logos* is in helping avoid the danger of their being reduced to antitheses and dichotomies. In fact, triangulation is considered as the key quality for *sonic logos* dissolving or transcending dualistic thinking. The binary 0/1 is certainly not the only kind of relationship. Rather than occupying a position of dominance, the opposition of either/or has to be included within a range of numerous different qualities of relationships. While this runs against the grain of structuralism, the discursive turn and prevailing digital idealism, it resonates with ecological paradigms. Thus the triangulations that the *sonic logos* employs run against the grain of conventional epistemologies in which all but formal ways of knowing remain entirely unacknowledged, not to say repressed, as the supplement on which the conventional epistemology depends.

Triangulation is the entire basis of sounding, including the excluded middle of binary logic, as it were. But it is also important to note that sounding is not intrinsically any more triadic than any other sensory modality, medium or means of communication. They all are. The virtue of sounding is merely to allow convenient access to its component triadic elements, as against others such as the visual medium, which are already spoken for, or represented otherwise. The *sonic logos* triangulates the *measure* of the parts and value of the whole of sounding (Figure 9.7). To do this it draws on some of the triads of Charles Sanders Peirce, who developed an entire semiotics based on triangulation, between what he called Firstness, Secondness and Thirdness. This provides for a rather different understanding of meaning, compared to the more commonplace ideas of structural linguistics, which, in line with its visual metaphor, favours binary opposites, as with signifier and signified.

Triangulation is not only a property of triangles, and is certainly not restricted to the visual medium, as with "the rule of three" mentioned above. Instead, triangulation is considered here as a particular quality of relationship. Triangulation expresses the value and *quality* of threeness, as Critchlow in *The Platonic Tradition on the Nature of Proportion* (1994) describes the quality of numbers. As we have noted, this is readily recognised in the everyday understanding of group dynamics in the phrase "two's company, three's a crowd," for
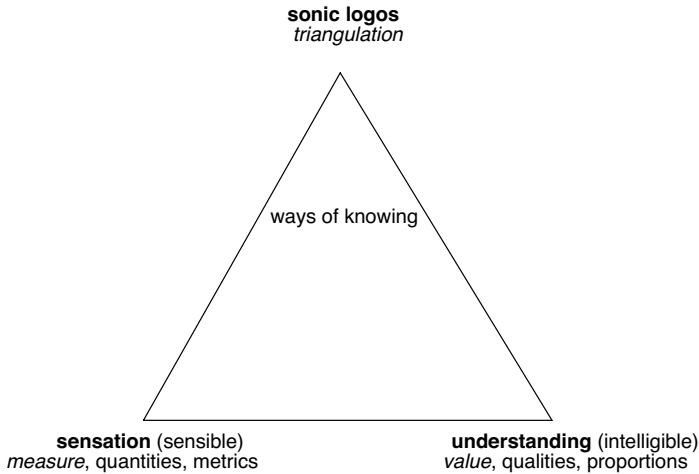
Figure 9.7 The ways of knowing of the *sonic logos*.

example. In this approach the distinct quality of a number could be likened to the distinct hue of a colour. This contrasts with the way number is most commonly used as the measure, that is, in counting the *quantity* of actual objects. But this forgets how traditionally each number from 1 to 9 has been considered to have a distinctive *symbolic* value as a specific type of relationality.[85] Geometry, the way Critchlow describes it as number is space, provides a very powerful way of expressing qualities of relationships as *proportions*, as was illustrated with the Golden Section, above.[86] It should be noted that the proportions of geometric figures have traditionally been constructed with only the instruments of compass and straight edge, without the ruler of measurement. Also geometric proportions are not restricted to the visual medium, but equally are embodied in sound, as with the octave, for instance, or haptically.[87]

Traditionally, the number 1 expresses the unity of the whole or monad, 2 the difference of the dyad, and 3 triangulation (Figure 9.8). It is important to note that the dyad can express both relationships of complementarity as well as those of antithesis or schism. The quality of the dyad is the principle of difference, multiplicity, or what Ettinger (2006) would call the "more than one." It is from here that the qualities of further numbers are issued. Difference as opposition is expressed between presence and absence, self and other, electrical polarities, or light and dark, for example. This kind of difference is also the foundation of philosophical logic, as with the law of the excluded middle, mentioned above. The binary of 0 and 1 is, of course, the foundation of information theory and the digital communications revolution.

	point	1	I	monad	whole	system and ecosystem, the virtual, unity, oneness, totality, potentialities, contains everything and all relationships, 1x1 = 1
	line	2	II	dyad	difference	from unity to multiplicity and difference. Dyad is Janus-faced, as BOTH either/ or: opposition, polarisation mutual destruction and dichotomy, AND both-and: complimentarity, co-existence, inter-dependence, yin yang
	surface	3	III	triad	triangulation	BOTH dynamic transformation transcending oppositions dialectics, thesis, antithesis, synthesis, AND resolution with beginning middle and end and completeness eg three in one Trinity

Figure 9.8 The qualities of the first three numbers.

At the same time, difference-as-opposition does not have a monopoly of dyadic relationality, though this is often precisely what it claims for itself. The dyads of yin and yang, or active and passive, left- and right-hand side in dorsoventral symmetry, for instance, express a reciprocal relationship of mutual dependence; one cannot exist without the other. This is also the case with the male and female sexual reproductive difference, though here it is very evident how such relationships are commandeered to service ideological and political ends favouring opposition. The visual split between viewer and viewed is another good example of this, as Ingold (2002) discusses.[88]

Triangulation is important in offering a challenge to the "divide and rule" strategy to which the dyad often succumbs.[89] The quality of threeness is most elegantly expressed in the geometry of a triangle.[90] This has its own entirely distinctive relationality as both transformation and resolution. This tends to transform and resolve relationships of *either/or* – as separations, antitheses, oppositions, binaries and dichotomies into *both–and* relationships – as ratio, analogia and proportions have each been ways of exploring the triangulation of the *sonic logos*. The mainstream philosophical bias in favour of dualism and binary thinking has been well documented.[91] The relationality of threeness thus provides a critique of "binary thinking" further to the particular dichotomies it has been designated to support. One of the most important of these is the dichotomy between the "internal" and "external" worlds that ecological psychology has been keen to undermine.[92] Equally critical is the division
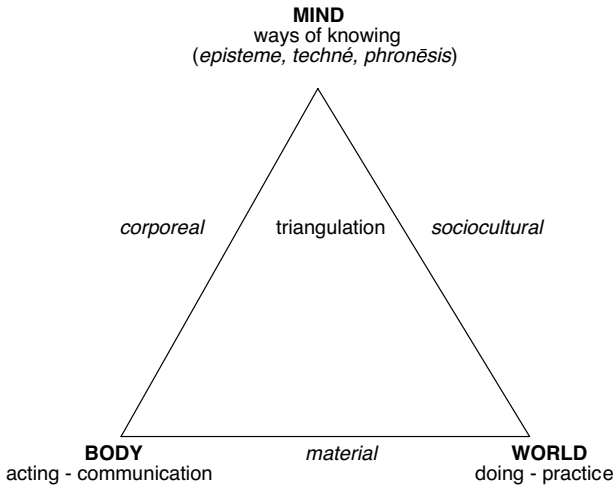
Figure 9.9 The triangulation of mind, body and world.

between subjectivity and objectivity. Pierre Bourdieu opens *The Logic of Practice* with this sentence: "Of all the oppositions that artificially divide social science, the most fundamental, and the most ruinous, is the one that is set up between subjectivism and objectivism."[93] One of the functions of this dichotomy is to underpin the traditional epistemological division between "pure" knowledge and its practical application, and indeed the division between theory and practice. With the crew's ways of knowing, this quality of threeness emerges as a process, rather than this embodied practice being repressed in favour of the dyad of "objective" and "subjective" elements. Such divisions would tend to ignore or dismiss the crew's skills and techniques as easy, automatic, natural and tied to the particular practices – rather than "proper" knowledge as such.

The distinctive character of three-fold relationships is the mixing, mingling and *synthesis* that they bring about. Triads combine and bring things together, as is expressed in the selector's performance in the *mixing* of music tracks. Dichotomies, on the other hand, indicate *analysis*, separation or division, and with the selector's *cutting* techniques which introduce a tension, energy and intensity, literally an "edge" to the performance. Evidently the selector makes use of both mixing and cutting in the same performance, most often with the third technique of repeating (as described in Chapter Five). So there are two examples of mixing in the selector's performance. One is the mixing of two tracks, where the third element is the selector's embodied practice of this

technique. The other is the mixing of this mixing, a meta-mixing as it were, with the other two elements of cutting and repeating. This mixing that the logic of practice embodies introduces the *third* term into the dyad, which, of course, is what entirely alters the quality of its relationships. This allows a resolution of what would otherwise remain irreconcilable opposites. Similarly, a third person can "defuse" tensions in the relationship between two people. The chasm of a binary – between mind and body, for instance – tends to dissolve in the face of a third term, namely, the world (Figure 9.9).

Often this third term is the medium through which those of the dyad are expressed, "overlooked" as the taken-for-granted rhetorical *sensus communis* of "what everyone knows," as Schaeffer (1990) discusses.[94] Very often what appear to be binary opposites are so only because they have repressed a third term, as the unacknowledged *supplement*, as Derrida (1974) might describe it. This leaves perfect abstract formal systems on the one side, and formless, inert, passive matter on the other, an unbridgeable gulf between them. Triangulations, by contrast, tend to resolve into proportional relationships, as with for example lighting as resolution of lighter and light, or touching that of toucher and touched (as discussed in Chapter Three). The third term has the effect of affording a complementary relationship, or analogical unity, between what would otherwise be logical opposites, as with cutting, mixing and repeating.

Triangulation, as with proportion, analogia and ratio, configures the relationship of the parts with the whole. This relationship between three elements, it is suggested here, is key to the crew's evaluations, continually in demand to adjust their technique as they monitor their ongoing sound system performance. With the *sonic logos*, meaning is expressed in a three-fold process where listener and listened-to are triangulated in the process of listening. As well as the dyad of viewer and viewed, there is the third process or technique of viewing, to use a visual example. There is a vast range of practical examples of threeness, as with the Sherlock Holmes story *The Sign of Three*, that Sebeka and Umiker-Sebeok (1983) explore.[95] "The rule of three" also describes narrative structures from folktales to film, as, for example, Christopher Booker discusses in *The Seven Basic Plots*.[96] There has even been a ballet based on triangles.[97]

Further to the triads of the crew's performance and the elements of sounding, there are several philosophical systems based on triangulation. Interestingly, these tend to be those that admit to the importance of practice.[98] Charles Saunders Peirce's semiotics, as a primary example, is replete with threes, not least his qualities of iconic firstness, indexical secondness and symbolic thirdness, a fact for which contemporary philosophers admit to

having no explanation whatsoever. *The Stanford Encyclopedia of Philosophy* describes this as "the overwhelming obtrusiveness in his philosophy of the number three," adding: "If Peirce had a general rationale for his triadism, Peirce scholars have not yet made it abundantly clear what this rationale might be."[99] Indeed, it should be noted that Peirce's triadic philosophy of communication goes against the grain of the dominant formalist dualism of linguistics; notably, de Saussure's signifier and signified, *La Langue* and *Parole*, and so on.[100]

The third triangulating element allows a proportional ratio between the other two elements to find expression, as with Plato's famous triad of the *good*, the *true* and the *beautiful*. Plato discusses this in the *Timaeus*:

> Two things cannot be rightly put together without a third; there must be some bond of union between them. And the fairest bond is that which makes the most complete fusion of itself and the things which it combines; and *proportion* is best adapted to effect such a union.[101]

In geometry, a square and circle would make up an example, whose irreconcilability is expressed in the phrase "squaring the circle." What then would be the third term in this instance? This could be the geometer or the entire process of geometry – all that is necessary for it to take place, in the manner of musicking (discussed in Chapter Two). So the special value of trichotomies is to turn the separation and antimony of dichotomies into a *system* of proportional relationships. The effect of such triadic relationships is to present the analysis in the form of a whole system, indeed a sound *system*. This prevents relationships from collapsing into the antimonies of "technological" and "social" factors, or content and form, or body and mind. Feenberg is helpful on this point:

> In Heidegger's account, Greek productionism [sic] is structured around "*emantia*," contraries. Contraries appear in relation to every aspect of *techné*, from the relation of essence to existence, matter to form, movement to rest, potentiality to actuality. But these Greek contraries *are not modern antinomies*. Each contrary implies its other and comes to rest in its other. Essence and existence cannot be thought separately, any more than can matter and form.[102]

But, as he goes on to point out, the time for this rapprochement has long passed:

> Modernity consists in the diremption [sic] of the contraries into opposing principles. Facts now stand opposed to values, and *techné* becomes technological,

the arbitrary imposition of a measure, a plan, and a goal on raw materials that have no *telos* and no inner tendencies of their own.[103]

Without triangulation, reason turns unreasonable; it becomes unreason, as Blake dubbed Urizen. This signals an impetus for investigating the logic of practice in terms of understanding the meaning of the part in relation to the whole, as distinct from much current research in computer-generated music composition; for example, where structure is reduced to the reiteration of algorithms to produce patterns and other emergent properties.[104]

The crew's embodied practices and techniques, and indeed those of the crowd, are what is required for them to "make sense" of themselves and their environment. This is a practice of making a relationship through their senses, between the material and the sociocultural vibrations of sounding. This suggests that the selector's style, skills and performance technique can be described as a matter of the *re-cognition* of the qualities of proportional relation-ships that are already there, rather than a matter of cognition, calculation or discovery. Proportional relationships are about recollecting, or *re-membering*; putting back together, rather than dis-membering or tearing apart. In the *Meno*, Plato uses this idea of recollection, or *anamnesis*, to distinguish belief from knowledge.[105] But with thinking through sounding, this is considered to occur instantly, in a single moment, outside linear or circular time, or rational calculations, as is required of any performance technique, such as those of the sound system crew. It is also of interest to note how the Dancehall scene's notorious preoccupation with novelty, and the rapid turnover of style and fashion, is here being used as evidence for a kind of creativity that is the very opposite of the modernist idea of individual invention. So when the audio engineers use the term "balance" to describe the sound of the set, this can be understood to refer not only to the proportional relationship between two parts, but also to how this is articulated through their embodied recognition of their relationship, or "accordance" with the sound.

In her discussion of Nietzsche's idea of the "third ear" (referred to in the methodology of listening, in Chapter Four), Bianca Theisen describes this quality of threeness. As Theisen puts it:

> Analogous to a "third ear" that would perceive a certain scansion, a logical third or *tertium dataur* would allow one to recognise the distinctions upon which cognition necessarily operates *as* distinction (that is, not as the distinction *true–false*, but as *distinction*).[106]

This "logical third" puts threeness at the heart of the matter of evaluation. This

is also the issue of style, as discussed in relation to the selector's performance, which it is interesting to note psychoanalytic theory has taken up in terms of "listening with the third ear."[107] For the most nuanced and subtle account of such qualities of threeness requires a return to ancient sources, that is, to the grammatical structure of language itself. Further to vocabulary, as with the Sapir–Whorf hypothesis, or the importance of metaphor, as with Lakoff and Johnson, it is the tenses of verbs that condition our thinking in the most fundamental fashion.[108] The ancient languages of Sanskrit and Greek, and their resonances in Modern Greek and French, include the middle, medium or third voice.[109] The voice, or *diathesis*, of a verb is a grammatical category in the same way as a tense. The middle voice may be contrasted with the active and passive voices with which we are more familiar. Rather, it is suggested here, it provides the most highly wrought elaboration of the relationship of threeness. In his *Introduction to Theoretical Linguistics*, Lyons (1969) describes the middle voice as when "the 'action' or 'state' affects the subject of the verb or his interests."[110] Examples of middle voice verbs would be *the book sells well*, or the French *le ciel se fait sombre* (the sky is becoming overcast), or the Jamaican saying "fire hafta bunn" (fire has to burn), as well as the many reflexive French verbs. Roland Barthes takes up this issue of the importance of voicing when he claims that "to write" is becoming a middle verb, rather than an active one: "The middle voice corresponds exactly to the modern state of the verb *to write*: to write today is to make oneself the centre of the action of speech, it is to effect writing by affecting oneself."[111] The third voice is literally in the middle of things, or the Jamaican expression "betwixt and between."

Finally, it should be noted that this quality of threeness is not restricted to matters of language or logic alone, but has also been evoked in René Girard's geometry of desire. Against the prevailing romantic notion of desire as a linear relationship between desiring subject and desired object, in *Deceit, Desire and the Novel* (1976) Girard elaborates a theory of "'Triangular' Desire" based on mimesis and mediation.[112] The themes of jealousy and envy in Cervantes', Proust's and Flaubert's fiction provide Girard with numerous examples. Such feelings "imply a third presence: object, subject and a third person toward whom the jealousy or envy is directed. These two 'voices' are therefore triangular …"[113] According to Girard, the role of the model or mediating person is invariably denied by the desiring subject: "[T]he jealous person easily convinces himself that his desire is spontaneous, in other words, that is it deeply rooted in the object and in this object alone."[114] As he continues, "triangular desire is the desire which transfigures its object."[115] The mimesis to which the triangulation of desire draws attention is increasingly in evidence across cyberspace with the burgeoning of social networking sites and viral

marketing – based almost entirely on third-party influence or recommen-
dation.[116] Despite this, the ideological momentum of binaries appears to
continue the repression of threeness.

Against binary imperatives, the fact that this quality of threeness finds
expression in both grammar and affect can be taken as an indication of the
deeply rooted nature of this relationship in our way of being-in-the-world.[117]
That this finds expression in the sounding of a street culture should therefore
not come as a surprise, as it is everywhere, but in many places – without the
immersive sensory intensities of the dancehall session – more easily repressed
in favour of binary opposition. Having addressed some of the triangulations
of the crew's skilled performance techniques in *Sonic Bodies*, the second
task for further research is to pursue such triangulations in relation to the
instruments of sensation, that is, the assemblage of corporeal and material
technologies of the sound system set of equipment and the dancehall crowd.
The third task is to describe the triangulation of performance techniques and
instruments with the material of the *acoustic space and time* generated in the
dancehall session. Here again the immersive intensities of the session itself
afford an understanding *outside* the conventions of linear visual perspective,
sequential time, the logic of cause and effect, and, of course, representation.

Last Word: Dubwise

Drawing *Sonic Bodies* to a close, we can listen for the echo of its findings. The distance travelled by thinking through the wavebands of sounding has been considerable: from a contemporary vernacular culture – the "vibes" of all-night dancehall sessions on the streets of downtown Kingston – to thoughts about classical Greek geometry, philosophy and grammar. This should not come as too much of a surprise.[1] The Caribbean is often considered a cauldron of cultures, whose particular history affords a reading of Homer while sucking on a mango in the shade of its tree, as Derek Walcott is fond of saying. But this creolising of the classics can also be used to provoke questions about the trajectory of European thought between the two social classes, epochs and oceans of the Aegean and the Caribbean. Very broadly, this can be described as a turning *away* from the techniques of embodied practice as a way of knowing ourselves in relation to – and as part of – the world. At the same time it is a turning *towards* an absorption in a disembodied mind, separate from both body and world. The sound system crew is an example of people doing what people have always done, and will always have to do, as long as we wish to enjoy the affective intensities of an embodied presence in the actual world, as distinct from its reflections. It is an indication of how wide the chasm between thinking and doing has become, that skilled techniques should be recognised as anything other than philosophy in practice.

   This is possibly the most important conclusion to be drawn from the research findings – the extent to which they emphasise the significance of evaluation in the crew's skilled techniques and performance. Those who propagate and listen to sounding embody certain ways of knowing, as with the expert judgement required for the engineers' fine-tuning of the set, for example. As with the rest of the crew, this revolves around proportional *analogue* relationships. Recognising these evaluations in theory – as distinct

from in practice, where they are going on literally every day all the time – has several repercussions. Thinking through sounding begins to appreciate what the crew recognise in their embodied practice – the proportional relationships between internal and external realities, subjective and objective worlds, qualities and quantities, minds and bodies, sender and receiver, and thought and affect. The crew's kind of *knowing* concerns more than simply the information with which digital communications flood us. The crew's techniques also embody "sound judgement," or even wisdom. Many Reggae music techniques, such as dubbing itself, have been pioneered by the same Jamaican audio engineers to whom this project has been listening. The privilege of sound and auditory communication, even more than music, and certainly more than conscious representation, is to be able to escape the stranglehold of language and diacritical systems of meaning. This may be how sounding sustains these embodied ways of knowing, in short, the wisdom of dub, its sounding wise – under the radar of what rationality is most often considered to be. The Reggae musical term "dubwise" can be used to express this quality of the dub sound (as "clockwise" describes that of clocks). The qualities of the crew's ratio of knowing recognise the rhythmic patterning of material vibrations – from where sound comes into play – as music.

As an experiment in thinking through sounding, *Sonic Bodies* should be considered as indicating some potential for such an approach. It has tried to use sound to make the habitual familiarity of the visual perspective a little strange; and to make an unseen auditory world slightly more familiar. Thinking through sound is precisely that, thinking *through* sound, as distinct from only thinking *about* sound. The emphasis on sounding has been intended as a way to recognise the importance of relationships, meaning and dynamics in each and every medium of communication, not only the auditory one. Certainly, thinking through sounding wants nothing to do with the privileging of one medium, or sensory modality, over any other one. Sonic dominance is not the revenge on centuries of visual dominance in Western thought. Instead its sounding offers a different starting point, *in medias res*, and in the middle of things what we find is movement.

Both the propagation of auditory waves, and listening to them, has to be described in terms of kinetics. It is this movement that is at the heart of the matter of sound, every sensory modality, and indeed the propagation model. If sounding provides the opportunity for touching and being touched by vibrations, the sound system is an apparatus for doing this. The value of the idea of these dynamic vibrations for the research has been to open up the investigation of the dancehall session as a whole *system*, rather than with other more static approaches in which it has tended to be compartmentalised

into bodily, social, cultural or technological "factors" or "levels of analysis." The idea that vibrations are propagated in three distinct material, corporeal and sociocultural wavebands, further opens up the systematic and relational aspects of sounding. It is in this way that an answer to the primary research question of how a sound system works has been attempted.

One of the possible criticisms of thinking through sounding, however, might be that the approach is reductionist, making everything vibrate, as it were. In a way, this is what it does do. But it should also be remembered that vibrations are not everything; their energy always needs a medium through which to diffuse. In short, vibrations require a material medium to express their kinetics. Thus there is a more equitable relationship between *energy* and matter than the traditional one between *form* and matter, where the former is imposed on the latter. Indeed, the relationships between vibrating frequencies are *affordances*, one affording potentials and constraints for another (as with the walls of a resonating chamber, for example) instead of linear causal determinants. These are proportional analogue relationships, or patterns, rather than binary action and reaction, or stimulus and response couplets. Also the necessarily particular and situated nature of vibrations in the actual world, rather than mathematical sine waves, means that they are always the subject of specific circumstances and contingencies, rather than lawful regularities or abstract absolute principles.

Another criticism of thinking through sounding might be that it makes vibrations inescapable, that they are to felt everywhere. Again, this might well be the case. In a way, this project does suggest a turn towards vibrations (if not the full circle of a revolution), against the previous discursive turn. The value of such cycles of interest – to use a vibrational term – comes with the issues and opportunities they throw up for further research and understanding. The question is not so much how do they work (as it has been with the sound system in this research) but simply what they produce. So the present kinetic shift can be described as an *analogical* turn, against the *diacritical* one privileging linguistic and digital systems. In short, its value is to reverse the emphasis from how bodies might express waves, to how waves express bodies.[2] This way of understanding meaning is not restricted to the representational, figurative or discursive. Thinking through the wavebands of the sounding of the dancehall session, for example, could be used to explore how places, bodies and events are dynamically constituted – both objectively and subjectively – as resonances, entrainments and syncopations. As a soundman would say: vibes rule.

Notes

NOTES TO PREAMBLE: THINKING THROUGH SOUND

1   This, of course, makes reference to the Bob Marley lyrics: "The one good thing about music/ When it hits, you feel no pain," from *Trenchtown Rock*, from the *African Herbsman* album, released in 1973 on the Trojan label.

2   Henriques 2003.

3   Playing music from mobile devices in public places, such as on a bus, often to the annoyance of other people, as Marshall 2010 discusses.

4   Bull 2007 and Kassabian 2002.

5   Attali 1979: 3.

6   Schafer 1977/1994, Truax 1985 and Corbin 1999. Also Back 2007.

7   Glenn Adamson makes a similar argument in his *Thinking Through Craft* (2007).

8   The embodied character of thinking is a theme Brian Rotman has pursued with the most abstract of thought systems, that is mathematics, as with his *Becoming Beside Ourselves: The Alphabet, Ghosts and Distributed Human Being* (2008). Other approaches to this issue of embodiment and meaning include George Lakoff and Mark Johnson (1980) *Metaphors We Live By* and Horst Ruthrof's *Semantics and the Body: Meaning from Frege to the Postmodern* (1997).

9   Thinking diagrammatically, according to Frederik Stjernfelt's *Diagrammatology* (2007), involves the the visualisation of relationships, rather than their appearances, and therefore should not be considered as representational.

10 This was a conversation in June 2004 that in fact took place on the beach at Frenchman's Cove, Portland, near the parish capital of Port Antonio.

11 Henriques 2007a.

12 In respect of materiality, Frederich Kittler's work has been important in promoting the study of media technologies, as with for example his *Gramophone, Film, Typewriter* (1999) and *Visual Media* (2009), also

Zielinski 1999 and 2006. In respect to corporeality an early important work is Elizabeth Grosz's *Volatile Bodies: Towards Corporeal Feminism* (1994), and more recently Ahmed (2002).

13 As with Goodman (2009).

14 Veal 2007: 51.

15 As with Bradley 2000 and Stolzoff 2000.

16 Constantinides 2002: 1.

17 Ettinger 2006.

18 Stanley-Niaah 2010

19 For example, Maxine Sheets-Johnstone's *The Corporeal Turn* (2009).

20 Gibson 1986: 263.

21 Rorty 1979: 239.

22 Bourdieu 1990.

23 Henriques 2003.

24 Christopher Small (1987) *Music of the Common Tongue: Survival and Celebration in Afro-American Music*, London: Calder.

25 Jay 1993.

26 For example, Berendt 1983.

27 Oram 1972.

28 For the former, Douglas Kahn's *Noise Water Meat: A History of Sound in the Arts* (1999). Andre Smirnov provides an authoritative account of the Russian musical avant-garde, for example http://asmir.theremin.ru/genz_e.htm/

29 Lévinas 1999.

30 In *The Use of Poetry and the Use of Criticism* (1933/1964) in his chapter on Matthew Arnold, Eliot describes the "auditory imagination" as "the feeling for syllable and rhythm, penetrating far below the conscious levels of thought and feeling, invigorating every word; sinking to the most primitive and forgotten, returning to the origin and bringing something back, seeking he beginning and the end" (pp 118–19).

NOTES TO CHAPTER 1: THE DANCEHALL SCENE

1 Some of the issue of the technological origins of the sound system is addressed in part in Chapter 3.

2 The term *Dancehall* denotes the particular current variant of Reggae, and is named after the *dancehall*, the open-air place of a session.

3 As discussed in Henriques 2007a.

4 The Rae Town sessions in downtown Old Kingston on Sunday nights have been known for this old-time music for many years.

5 Thanks to Vuraldo Barnett who described this to me as being similar to a "pardoner" micro-economic arrangement whereby each member takes it in turn to be the one to benefit from the contribution of the group as a whole (Wardle 2000).

6 Hope 2006b.

7 Stanley-Niaah 2004a and 2004b.

8 Interview with Mr Winston "Wee-Pow" Powell, 30 July 2002, at Stone Love HQ, Burlington Avenue, Kingston.

9 Map adapted from Skelton (1998), drawn by Linda Dawes, Department of International Studies, Nottingham Trent University.

10 This would be described as a particular *acoustic* space (McLuhan 1989) in the "ratio of sensation" (Carpenter and McLuhan 1960), or as a *soundscape* (Schafer 1977), also considered by Truax 1985 and Augoyard and Torgue 2005.

11 As discussed in White 1984, Ryman 1984, Lewin 2000 and 2005, and Bilby 2003 and 2005.

12 Wittgenstein 1953: 23.

13 Gray 2004: 129–30.

14 *Ibid.* pp. 120–51.

15 Brathwaite 1973.

16 Brathwaite 1984.

17 As explored in my documentary *Derek Walcott: Poet of the Island* (1992) BBC.

18 As Torres-Saíllant (1997) describes.

19 Scott 2000.

20 As Austin-Broos (1997) describes.

21 From *Another Life,* Walcott 1992: 294.

22 Chambers 2001: 204–5.

23 Quintero Rivera 1998: 14, translated and quoted in Torres-Saíllant 2006: 144.

24 Initiated between the wars by Beckwith's *Black Roadways: A Study in Jamaican Folk Life* in 1929, the stream includes journal articles such as Simpson's *Political Cultism in West Kingston* (1955), Edward Seaga's *Revival Cults of Jamaica* (1969) (before he was Jamaican Prime Minister, 1980 to 1989), Garth White's important *The Development of Jamaican Popular Music* (1984) as well as Cheryl Ryman's *Kumina – Stability and Change* (1984). Book-length studies include Edith Clarke's *My Mother Who Fathered Me* (1957), Nettleford's *Mirror Mirror* (1969), Huon Wardle's *An Ethnography of Cosmopolitanism in Kingston, Jamaica* (2000) and Olive Lewin's *Rock It Come Over* (2000), a comprehensive investigation of Jamaica's folk music and traditions, such as, for example, the John Canoe or Jonkunnu character, traditionally part of Jamaican Christmas festivities. In Jamaican literature too, Roger Mais's *Brother Man* (1954) and Orlando Patterson's *Children of Sisyphus* (1964) give fictional expression to poor and working-class Jamaican life.

25 Listen to http://www.rhythmweb.com/jamaica/, accessed 10 April 2007.

26 Consider, for example, Murrell *et al.*'s *Chanting Down Babylon* (1998) and Chevannes 1994 and 2006.

27   Consider Laduke 1986, Paul 2005 and Emery 2007.

28   Henriques 2007a.

29   As I found in a conversation with up-and-coming DJ Sanjay, September 2004; also Bilby 2003.

30   http://www.audiojunkies.com/blog/730/an-insiders-look-at-the-grateful-deads-wall-of-sound accessed 10 March 2008.

31   I would like to acknowledge the impetus to reconsider this idea of bass culture as being the talk by Linton Kwesi Johnson and Paul Gilroy at Goldsmiths Centre for Arts and Learning, *African Consciousness, Reggae and the Diaspora,* 20 November 2007.

32   Johnson (1980).

33   Chude-Sokei 1997: 4.

34   Gilroy 1987: 164.

35   Ellison's appreciation of music, jazz and technology has been comparatively well documented; as with, for example, Weheliye 2005 and Maxwell 2004.

36   There are very few women involved on the sound system scene. The late Louise Frazer Bennett, press secretary of the Jamaican Sound System Association, was an exception (Henriques 2007a).

37   Bull 2007.

38   See Sterne (2006).

39   Visit http://www.hyperdub.com/. *The Low End Theory* was also the title of A Tribe Called Quest's 1991 album.

40   Eshun 1998, Veal 2007.

41   Indeed, Roads (2002) develops a theory of musical sounds based on granules.

42   The French classical composer Claude Debussy is said to have made a similar such discover of new tonal and harmonic qualities on hearing a Javanese Gamelan ensemble at the Paris Exposition of 1889.

43   As discussed, for example, by Willis 1978, Attali 1985 and Shepherd and Wicke 1997.

44   Anderson 2000 discusses this.

45   As described by Fernando Henriques 1953.

46   Levi and Chevannes 1996, Clarke 2005.

47   Lacey 1977, Harriott 2000.

48   Gunst 1996 and Gray 2004.

49   Fernando Henriques 1953: 79–80.

50   *Ibid.*

51   I would like to thank my friend the film-maker John Akomfrah for pointing this out to me.

52   As described in the Introduction.

53   Lewin 2000, Stines 2004.

54   As I was informed by choreographer L'Antoinette Oshu Ide Stines.

55   One explanation for the open sexuality of many of the dances, and the

Dinki Mini in particular, suggests that this might be because they were danced at funerals and used to make the point that human procreative power is the only means by which death could be defeated (Lewin 2000). One of the many features of dancehall culture requiring further research is its distinctive aesthetic, often completely outside the dichotomy between sacred and profane at the heart of Western traditions.

56 As Cooper 1993 discusses.

57 Interview with Yvonne Iles Douglas, Kingston, 20 June 2004.

58 Crowd members' haptic appreciation and kinetic participation in the session opens up an area of current research, which is outside the scope the present project.

59 As discussed in Henriques 2008 and 2010.

60 As Wilden 1972 discusses.

61 R. Nave (2006) *HyperPhysics, Hearing*, http://hyperphysics.phy-astr.gsu.edu/hbase/hframe.html/

62 Source: Department of Otolaryngology, Communicative Sciences, Baylor College of Medicine.

63 This might appear to suggest that sounds are more dynamic than images. In fact vision requires the electromagnetic energy of light waves, in exactly the same way as hearing does auditory waves. Silence and darkness are equivalents in this respect, though of course sounds themselves don't have the permanence of visual objects, as with the discussion of Heider (1957) in the next chapter.

64 The metal coil of a "slinky" toy provides a useful model of compression waves: when a section of the coil is compressed, and then released, the intensity of a compression wave travels along its length.

65 As Turetzky 2002 explores.

66 As Marshall and Manuel 2006 describe.

67 As Veal 2007 describes.

68 The term *haptic* is used throughout as a counterpoint to *kinetic*, rather than – as is more commonly the case – as an opposite to visual modality (Paterson 2005a, 2005b). The conventional usage is not satisfactory because it makes a distinction between senses of bodily contact, such as hearing, touch, taste and smell, on the one hand, and visual perception considered to be "at a distance" on the other. As is explored in further research, all sensory modalities require a medium. The sense of touch is therefore termed *tactile*.

69 Derrida 2005: 47, also Manning 2007.

70 Visit for example http://www.geocities.com/londonmobs/ It is also interesting to note how quickly such "street" cultural activities are adopted by the mainstream, in this case a mobile telephone company to sell its product.

71 Previously (Henriques 2003) I contrasted the material aspect of sounding with an *ethereal* aspect, which I now considered to be included within the sociocultural waveband.

72 As discussed in Henriques 2007b.

73 Moreover is can be noted that the skilled practices of *manipulating*, *monitoring* and *evaluating* with which the engineers fine-tune the set, detailed in the next chapter, resonate with the *power*, *control* and *transduction* functions used to describe the electromagnetic and mechanical operation of the set of equipment itself (to be described in future research).

74 The concept of *affordance*, key to Gibson's (1979) ecological psychology, is a very useful one for characterising this "necessary, but not sufficient" kind of relationship between wavebands, as explored to some small extent in this chapter and elsewhere.

75 Denis Noble in *The Music of Life* (2006) makes this point with respect to systems biology.

76 Gray 2004: 109–10.

77 *Ibid.*

78 Chude-Sokei 1997a: 4, emphasis in original.

79 Weheliye 2003: 113.

80 Hebdige 1979: 38.

81 *Ibid.*, p. 39.

82 Gilroy 1987: 153–222.

83 *Ibid.,* p. 164.

84 *Ibid.,* p. 194.

85 This body of work includes Sigfried Giedion's *Mechanization Takes Command* (1948), Marshall McLuhan's *The Medium is the Massage* (1967), and Fredrick Kittler's *Gramophone, Film, Typewriter* (1999), that address those technologies in particular. Jonathan Crary, with *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (1992) and *Suspensions of Perception* (1999), has detailed the subtle and constitutive powers of technologies of visuality. With the cinematic medium there are also numerous accounts on the effects and affects of its technology, including Vivian Sobchack's (1992) *The Address of the Eye: A Phenomenology of Film Experience*, Mary Ann Doane's *The Emergence of Cinematic Time: Modernity, Contingency, the Archive* (2002), Siegfried Zielinski's *Audiovisions: Cinema and Television as Entr'actes in History* (1999), and Rachel Moore's *Savage Culture: Cinema as Modern Magic* (2000).

86 Mauss and Schlanger 2006: 83.

87 Pinch and Trocco 2002. Also of interest is the documentary, *Moog* (2003), dir. Hans Fjellestad, USA, distributors: Plexifilm, www.plexi.co.uk/

88 Bijker 1995: 274.

89 *Ibid.*, pp. 273–4.

90 Latour 2005: 9.

91 *Ibid.,* p. 35.

92 This has been applied to the sound system elsewhere (Henriques 2007b).

93 Small 1998: 8.

94 *Ibid.*, pp. 8–9.
 95 Also   http://sunsite.queensu.ca/memorypalace/parlour/Small02/   accessed
       19 September 2005.
 96 Baraka 1961: 174, emphasis in original.
 97 Mackey 1993: 266.
 98 As described in Henriques 2007a.
 99 Small 1998: 13.
100 Williams, cited in Sterne 2003: 219.
101 Wittgenstein 1953: 43.
102 *Ibid.*, p. 66.
103 Also considered by Highmore 2005.
104 Torres-Saíllant 2006: 33.
105 As discussed in Serres 1995.

NOTES TO CHAPTER 2: SOUND SYSTEMS

  1 Debates over technique and technology go back at least to Heidegger's
       critique of Aristotle (Feenberg 1999, 2005; Latour 1999). In this chapter the
       term is used descriptively, rather than as part of a theoretical analysis as in
       Chapter Eight and the conclusions.
  2 Onians (1951) analyses the importance of the breath in ancient Greek
       philosophy. Further, the phenomenologist Maxine Sheets-Johnstone takes
       up this theme of movement, displacing her predecessors' emphasis on
       perception, with her aptly titled *The Primacy of Movement* (1999), also
       Sheets-Johnstone (2009).
  3 Often the non-oppositional pairing of expression–reception is more useful
       than the dichotomy of active–passive, as is explored with the qualities of
       numbers in the conclusion.
  4 The concept of *affordance* is critical for the propagation model, as discussed
       at various points below. It is derived from James J. Gibson's (1966, 1979)
       ecological psychology.
  5 Affordances are relational without being necessarily equal and reciprocal.
       They form hierarchies, so, while we can't make a sound we can't hear, we can
       hear sounds we can't make, for instance.
  6 As described in Henriques 2007a. It is also of interest to point out in the
       context of the present chapter's attention to movement that this term also
       features in the name of the exemplary sound system itself.
  7 As described elsewhere (Henriques 2007a).
  8 From http://www.imexpages.com/stonelove/company_profile.htm accessed
       5 July 2005.
  9 From my documentary proposal *Touch the Groove, Catch the Vibe*, August 2005.
 10 Interview with Mr Winston "Wee-Pow" Powell, 30 July 2002, at Stone Love
       HQ, Burlington Avenue, Kingston.

11 http://www.jis.gov.jm/education/html/20040326t080000-0500_2100_
jis_toronto_launch_of__visiting_with_miss_lou_.asp accessed 12 March
2009.

12 Interview with Stone Love audio engineer Horace McNeal, at his workshop,
Torrington Avenue, Kingston, 18 September 2003, emphasis added.

13 This makes a sound system almost a textbook diagram, or a model of
itself, as with, for example Gunther von Hagens's *Körperwelten* "exploded"
body exhibition, London, 2003. Here we can enter into an artificial (that
is, non-naturally occurring) space in which the relationship between the
different organs is clearly visible.

14 Mauss and Schlanger 2006: 83.

15 As Giedion 1948 details.

16 This issues have been discussed by Ingold 2002, Feenberg 2005, Stiegler
1998, Serres 1995, Latour 1995, Leroi-Gourdon 1993.

17 Lastra 1992: 72.

18 As discussed in Henriques 2002.

19 Sound production and reception can only be separated by analysis, rather than
in practice, as with the usual dichotomies of production and consumption,
as discussed in Chapter Four. The crowd's participation in response to the
music and sound in the session is the subject of further research.

20 A similar fascination with sound, as against music, also occurs in the Anglo-
American avant-garde tradition with, for example, Luigi Russolo's noise
music and Pierre Schaeffer's *musique concrète*. Gérard Grisey applied these
ideas to musical composition itself, rather than noise or found sounds. As he
states, he is: "no longer composing with notes but with sounds" (*Les Espaces
Acoustiqes*, Musidisc France, 2001, sleeve notes, p 13).

21 As Doyle 2005 discusses.

22 As described elsewhere(Henriques 2009).

23 Vitruvius 1960: 138–9.

24 As discussed by Wilden 1972: 76–7.

25 O'Callaghan (2007: 72–92) gives a useful account of these audible qualities.

26 HyperPhysics http://hyperphysics.phy-astr.gsu.edu/Hbase/Sound/intens.
html#c4/

27 Interview with Dennis Rowe, Burgess Park, London, October 2005.

28 For this reason many domestic music systems only need a single bass
speaker, but retain stereo for the mid and top.

29 Also the impact of the sound is increased by the set splitting the electronic
frequency range, from top to sub-bass, into five discrete channels. With
such "active" systems each frequency is then amplified separately and linked
directly to a speaker specialising in only this frequency (as described in the
next chapter).

30 As Smith 1997 describes, see also http://hyperphysics.phy-astr.gsu.edu/
Hbase/sound/timbre.html accessed 15 April 2008.

31   As James 2003 describes.

32   Nancy 2007: 40, emphasis added.

33   *Ibid.*, p. 42. In fact the OED does not substantiate this claim, stating instead the origin of the word as being the French *timbre*, a small bell.

34   *Ibid.*, p. 43.

35   In further research, I am developing from this ideas of the reverberating "tympanic" self and the "echo subject" in relation to Lacoue-Labarthe (1998) and the work of psychoanalysts Esther Bick (1968) in England and Didier Anzieu (1989) in France.

36   Personal communication while he was composing some of the music tracks for my film *Babymother* (1998).

37   As described with the Frequency Spectrogram, Henriques 2010.

38   Heider 1959: 1, emphasis added.

39   Malle and Ickes 2000: 197.

40   As Berger and Luckmann 1966 discuss. Historically this construction approach was a reaction against the mechanical stimulus–response theory of behaviourism. It should also be pointed out that Heider's idea of the medium does not imply that the subject or organism is a passive recipient of vibrations. In fact the active projection that social construction implies is only called for in a theory where the subject is considered as passive, as has indeed traditionally been the case where there is a dichotomy between internal and external environments. With Gibson's (1966, 1979) ecological theory of perception systems, on the other hand, the organism is actively engaged in exploring their environment. Recognising the importance of embodied kinetic activity, projecting the body into the world as it were, this approach avoids any idea of a passive organism projecting "mental images" or other "constructions" onto an equally inert world. With the motile subject the "injection" is of variation, as with Gibson's "information pick-up," rather than an injection of sensory stimuli.

41   It is of interest to note how Dimock (1997) develops a resonance theory to explain the continuity of appeal of canonical literary texts.

42   As Heft 2001 discusses.

43   As Simondon 2002 has also explored.

44   Heider 1959: 7.

45   Malle and Ickes 2000: 197.

46   The importance of this distinction is developed elsewhere (Henriques 2010).

47   Appadurai 1986, 1995 and 1996.

48   Discussed in Henriques 2007b.

49   Conner 2001: 3.

50   Following Lastra 1992: 72.

51   Jean-Luc Nancy gives a most sympathetic account in *Listening* (2007); also Lacoue-Labarthe (1989).

52 A good example of such a way of moving would be what is described in Brazil as *la ginga*, Laplantine 2005.
53 It is most unfortunate that the space of this single volume does not allow for an account of the dancehall crowd.
54 As described in Sennett 2008.
55 Shannon and Weaver 1949; also Carey 1989.

NOTES TO CHAPTER 3: FINE-TUNING

1 Salewicz and Boot 2001: 28–9.
2 This raises important issues about the gendering of the engineers' ways of knowing sound.
3 As Cooper 2004 discusses.
4 See for example http://www.jamworldreggae.com/sounds/sounds.htm and http://www.bbc.co.uk/music/features/reggae/ and http://www.jahsonic.com/Reggae.html
5 As discussed by Chang and Chen 1998 and Barrow and Dalton 1997.
6 As discussed by Katz 2000, for example.
7 Stolzoff 2000: 41–8.
8 As Stolzoff 2000 and Veal 2007 describe.
9 Interview with Horace McNeal, 26 July 2002, at his workshop, Torrington Avenue, Kingston.
10 Interview with DJ "Squeeze," (a.k.a. Mr Lenworth Samuels), Kingston, 22 June 2004.
11 Interview with Horace McNeal, Kingston, 18 September 2003.
12 *Ibid.*
13 For the very best-quality domestic hi-fi, this separation of each frequency band, which then has its own dedicated amplifier and speakers, is called an "active" system.
14 *Ibid.*
15 *Ibid.*
16 Interview with Denton Henry, Kingston, 24 June 2004 (emphasis in original).
17 *Ibid.*
18 *Ibid.*
19 *Ibid.*
20 *Ibid.*
21 It is of interest to note that "juggling" is the term selectors use to describe their technique of seamlessly mixing between different versions of the same "riddim track" (described in the next chapter). The term is also used for any kind of informal money-making "hustle," including drug dealing.
22 *Ibid.*
23 Interview with Denton Henry, Kingston, 24 June 2004.

24 *Ibid.*

25 *Ibid.*

26 Video interview with Winston "Wee-Pow" Powell, 24 June 2004, at Stone Love HQ, Burlington Avenue, Kingston.

27 This is with the solid-state transistor amps that replaced valve, or tube, technology in the 1980s. Interview with Denton Henry, Kingston, 24 June 2004.

28 Bateson 1979: 102.

29 Interview with Denton Henry, Kingston, 24 June 2004.

30 Interview with Horace McNeal, 26 July 2002, at his workshop, Torrington Avenue, Kingston.

31 Ibid. (emphasis added).

32 Ibid. (emphasis added).

33 As Veal 2007 describes.

34 *Ibid.*, emphasis added.

35 Interview with Denton Henry, Kingston, 24 June 2004. The bass reflex speaker design has an open port below the bass speaker unit to project the sound, rather than the speaker being entirely enclosed in the more common "infinite baffle" design.

36 Interview with Stone Love engineer Mr Horace McNeal, 26 July 2002, at his workshop, Torrington Avenue, Kingston.

37 *Ibid.*

38 Interview with Horace McNeal, Kingston, 18 September 2003.

39 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.

40 Interview with Horace McNeal, Kingston, 18 September 2003.

41 *Ibid.*

42 Interview with Denton Henry, Kingston, 24 June 2004.

43 Interview with Horace McNeal, 18 September 2003, at his workshop, Torrington Avenue, Kingston.

44 *Ibid.*

45 *Ibid.*

46 *Ibid.*, emphasis added.

47 *Ibid.*, emphasis added.

48 *Ibid.*, emphasis added.

49 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.

50 Interview with Denton Henry, Kingston, 24 June 2004.

51 *Ibid.*

52 *Ibid*.

53 Interview with Horace McNeal, 18 September 2003, at his workshop, Torrington Avenue, Kingston.

54 *Ibid*.

55 Interview with Horace McNeal, Kingston, 18 September 2003.

56 Interview with Denton Henry, Kingston, 24 June 2004.

57 In certain societies balance is considered as the most important sense, in the way vision is in the Western world (Geurts 2002, discussed in Henriques 2003).

58 Ibid.

59 Interview with Winston "Wee-Pow" Powell, 30 July 2002, at Stone Love HQ, Burlington Avenue, Kingston, emphasis added.

60 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.

61 *Ibid.*, emphasis added.

62 Personal conversation, Kingston, circa 1997.

63 Interview with Horace McNeal, 18 September 2003, at his workshop, Torrington Avenue, Kingston

64 Interview with Denton Henry, Kingston, 24 June 2004.

65 The embodied character of crewmembers' ways of knowing means that this is necessarily gendered, raced, classed and so on. As males, their way of knowing must be male, rather than female. A female way of knowing sound is certainly embodied in the crowd and their active participation in the session, as with the call and response techniques described in Chapter Six. A full investigation of this "other half" of the session is required, but unfortunately lies outside the scope of this research project. It might be expected that gender would be one of the ways in which the reciprocal relationship between crew and crowd is played out. There are indeed several ways in which the session confounds commonplace conceptions of both gay and female power, as discussed elsewhere (Henriques 2007b).

66 Interview with Denton Henry, Kingston, 24 June 2004.

67 As Bradley 2000 and Stolzoff 2000 describe.

68 As Campbell 1997 describes. Also http://www.jamworldreggae.com/sounds/sounds.htm for Campbell's account: *Killamanjaro sound (from Jamaica) versus King Addies (Bklyn's #1 sound Killa) at Portmore (for sure!) in Jamaica* (1995). New York's number one clash sound, *King Addies with Baby Face and Tony Matterhorn*, was pitted against Jamaica's undisputed sound killa *Killamanjaro with Ricky Trooper and the Crew*. There was widespread controversy, with the world split 50/50 as to who was the better of the two, but this time *Killamanjaro* put an end to the confusion (by a slight margin though) … *Killamanjaro sound versus Silver Hawk (Jamaica)* (1987), dubbed forever as the dance that made the *"Hawk"* stop fly, this dance is a favourite among sound system tape collectors (cassette freaks) who were not fortunate enough to have been there in person. *Killamanajaro* – armed with the likes of *Ninja Man*, *the Late Great Early B*, *Professor Nuts*, *Junior Cat*, *Major Mackeral*, *Little John*, *and more* – put a murderation on

Silver Hawk that has perhaps never been repeated in another sound clash since then!

69 Ragashanti (a.k.a. Kingsley Stewart) is a one-time sound system follower, U.W.I. (University of the West Indies) lecturer at Mona campus, and in 2008 a very popular radio talk show host.

70 See http://www.jamaica-gleaner.com/gleaner/20070128/ent/ent5.html accessed 8 December 2007.

NOTES TO CHAPTER 4: LEARNING TO LISTEN

1 My title for this chapter resonates with a classic of an earlier generation of cultural studies scholarship, Paul Willis's *Learning to Labour: how working class kids get working class jobs* (1977).

2 As Sennett 2008: 74–80 discusses.

3 Hedley Jones invented what he claims to be the first solid wood-bodied electric guitar in 1940. There had been Spanish-Electric guitars with pick-ups since the Gibson ES 150 of 1935, but the first solid wood-bodied model, the Fender Broadcaster, did not go into production until 1950; see also http://www.angelfire.com/music2/myguitar/page5.html, accessed 12 September 2009.

4 Hedley Jones, *If I Knew Then What I Know Now What a Difference That Would Be* (unpub., n.d.)

5 *Ibid.*

6 It might be assumed from this that sound system engineering could be described as having military origins, as is said of the World Wide Web and indeed cybernetic theory. However, in this instance, the relationship is more complicated. As Zielinski (1999) points out, radar technology owed a great deal to the development of television cathode ray tubes at the BBC before the Second World War.

7 Hedley Jones, *If I Knew Then What I Know Now What a Difference That Would Be* (unpub., n.d.)

8 *Ibid.*

9 I spent about eight hours at Mr Powell's home in Kingston on 24 June 2004, observing and filming the two of them installing some replacement equipment on one of his sets.

10 As Paul Willis described in the different British working class context in his ground-breaking *Learning to Labour* (1977).

11 Interview with Mr Denton Henry, Kingston, 24 June 2004.

12 As Jimmy Cliff puts it in his lyrics for *The Harder They Come*: "I'd rather be a free man in my grave/ Than living as a puppet or a slave."

13 In 1997, as part of U.W.I. research project with Tony Bogues, I conducted a series of interviews in Jones Town, an inner-city community in West Kingston. One of the striking findings was that, despite the tremendous

pride and sense of identity its residents had in their community, there was prejudice against that community from uptown Kingston. One technique to avoid this was to find an address outside Jones Town to give as a home address on job application forms.

14　As for example in my short fiction film *We the Ragamuffin* (1992).

15　This spirit of adventure in electronics recalls Ralph Ellison's sonic experiments. Ellison, in *High Fidelity,* writes: "I built half a dozen or more preamplifiers and record compensators before finding a commercial one that satisfied my ear, and finally, we acquired an arm, a magnetic cartridge and – glory of the house – a tape recorder" (Ellison 1955: 194).

16　Interview with Mr Denton Henry, Kingston, 24 June 2004.

17　*Ibid.*

18　*Ibid.*

19　*Ibid.*

20　Interview with Mr Horace McNeal, 26 July 2002, at his workshop, Torrington Avenue, Kingston.

21　*Ibid.*

22　Interview with Mr Horace McNeal, 21 June 2004, at his workshop, Torrington Avenue, Kingston.

23　Interview with Mr Horace McNeal, 18 September 2003, at his workshop, Torrington Avenue, Kingston.

24　Interview with Mr Horace McNeal, 26 July 2002, at his workshop, Torrington Avenue, Kingston, emphasis in original.

25　Interview with Mr Horace McNeal, 18 September 2003, at his workshop, Torrington Avenue, Kingston.

26　*Ibid.*

27　Interview with Mr Horace McNeal, 26 July 2002, at his workshop, Torrington Avenue, Kingston.

28　Interview with Mr Horace McNeal, 21 June 2004, at his workshop, Torrington Avenue, Kingston.

29　It is interesting to note that the MCs describe their monitoring as "reading the crowd," as discussed in Chapter Six.

30　Interview with Mr Horace McNeal, 21 June 2004, at his workshop, Torrington Avenue, Kingston.

31　*Ibid.*

32　*Ibid.*

33　*Ibid.*

34　Interview with Mr Horace McNeal, Kingston, 21 June 2004.

35　Interview with Mr Horace McNeal 18 September 2003, at his workshop, Torrington Avenue, Kingston.

36　Interview with Mr Horace McNeal, Kingston, 21 June 2004.

37　As Ong 1982 discusses.

38　Lave 1990: 310–11.

39 Lave 1993: 7, emphasis in original.
40 Also discussed by Rowlands 2010 and Menary 2010.
41 Gibson 1979: 254.
42 Ingold 2000: 353.
43 This appreciation is also becoming more widely acknowledged, as with, for example, Matthew Crawford (2010) *The Case for Working with Your Hands: Or Why Office Work Is Bad for Us and Fixing Things Feels Good*, London: Viking.
44 Sennett 2008: 120.
45 Levin 1989: 84.
46 Csordas 2002: 245.
47 As discussed in Benjamin 1936, Sobchack 1992, Buck-Morss 1994, Crary 1992 and 1999.
48 As discussed in Chion 1990, du Gay *et al.* 1997, Bull 2000, 2007, Mowatt 2002.
49 Sterne 2003: 159.
50 *Ibid.*, pp. 93–5.
51 Ingold 2000: 291.
52 *Ibid.*, p. 353.
53 In addition to it being an orientation, the methodology of listening also includes the counting of frequencies, as with the Frequency Spectrogram and the measuring of amplitudes (Henriques 2010).
54 Sterne 2003: 19, emphasis added.
55 Barthes 1985: 245.
56 As cited in Renier and Rubinstein 1986: 75. Gombrich made these remarks on the basis of his listening as a Monitoring Supervisor to radio broadcasts for the Government Monitoring Service at Evesham during the Second World War, see also http://www.gombrich.co.uk/showdis.php?id=10 accessed 30 August 2007.
57 Csordas 2002: 244.
58 Connor 2001: 2–3.
59 As described in Henriques 2003. Also, James Baldwin explores the importance of the witness in his *The Evidence of Things Not Seen* (1985), about the Wayne Winters child murders in Atlanta in the early 1980s. Baldwin told me in a BBC interview in 1984 that the writer's responsibility is to listen, and repeat back what they hear, no matter how others might respond to what they then read.
60 As Abram 1996 investigates.
61 One exception to this is the work of Paterson (2005) on haptic spaces; see also http://www.ggy.bris.ac.uk/postgraduates/ggmp/haptics/touch.html accessed 23 November 2007.
62 As discussed by, for example, Rorty 1979, Jay 1993 and Jacobs 2001.
63 As Mulvey 1975 explores.

64 Benjamin 1935 and 1936/1970: 174–6; see also http://www.thelemming.com/lemming/dissertation-web/home/flaneur.html, accessed 21 April 2006.
65 Part VIII, para 246.
66 Reik 1948: 144.
67 Theisen 1994: 86.
68 Levin 1989: 48.
69 Attali 1985: 3.
70 For example, Back 2007 and Bull 2007.
71 For example, Cavarero 2005, Dolar 2006, Nancy 2007, Casey 2007, Szendy 2008.
72 Lastra 2000, Thompson 2002, Erlmann 2004.
73 Bortoft 1996, Holdrege 2005.
74 Naydler 1996: 72, emphasis added; Miller 1988: 309).
75 Miller 1988: 309, quoted in Naydler 1996: 72.
76 I have reflected that the minute memory stick of a digital camera might not have served this ritual of destruction so well, possibly resulting in the loss of the entire camera.
77 This was *Babymother* in Jones Town, in 1996.
78 As Bakare-Yusuf 2006 discusses.
79 As Bruyn 1966 discusses.
80 As Zelditch 1962 discusses.
81 Barthes 1985: 246.
82 Barthes 1985: 251, emphasis in original.
83 Althusser 1971: 170–77.
84 *Ibid*., p. 174.
85 Such as for example http://www.beenieman.net/, http://myspace.com/beenieman, or http://www.capletonmusic.com/ [accessed 29 September 2007].
86 These commercial activities are described in Henriques 2007a.
87 As discussed by Hammersley and Atkinson 1983.
88 A musical score works in the same manner. The notation instructs the performer what to perform. This is a different type of "language" to the written description of the tempo marking.
89 As MacFarlane 1998 discusses.
90 As Cassidy 1961 and Pollard 1998 describe.
91 As Lakoff and Johnson 1980 explore.
92 Interview with Mr Denton Henry, Kingston, 24 June 2004.
93 *Ibid*.
94 From my documentary proposal *Catch the Vibes, Touch the Groove*, August 2003.
95 For which I would like to thank the choreographer L'Antionette Oshu Stines.
96 From my documentary proposal *Catch the Vibes, Touch the Groove*, August 2003.

97 Henriques 2006.
98 As Glaser and Strauss 1967 and Glaser 1992 describe.
99 Bohm 1980: 4, emphasis in original.
100 Miller 1988: 309, emphasis added, quoted in Naydler 1996: 72.
101 Gates 1988: 21.
102 As Brown 1969 and Serres 1972 discuss.
103 As described in Henriques 2007b.
104 This is the middle that is *not* excluded in the manner demanded by the logic of analytical philosophy, as discussed in the concluding chapter.
105 Connor 2002a: 1.
106 Debray 1996: 18, emphasis in original.
107 *Ibid*., pp. 11–12.
108 As distinct from Second- and Third-Order Cybernetics and Autopoietic Theory, discussed below.
109 As discussed in Bateson 1979: 103–9.
110 Women play a crucial role on the Dancehall scene in numerous important respects, but none, as far as I have found, have become sound system engineers. I therefore refer to engineers with the male pronoun.
111 Source: V. Turchin, F. Heylighen, C. Joslyn and J. Bollen (1996) "Control." In: F. Heylighen, C. Joslyn and V. Turchin (eds) *Principia Cybernetica Web*. Brussels: Principia Cybernetica. Available online at http://pespmc1.vub.ac.be/control [accessed 10 June 2007].
112 Ingold 2000: 172–8, Agamben 2004: 39–48.
113 von Uexküll 1957: 10.
114 von Uexküll 1982: 26, third emphasis added.
115 The concept of transduction is discussed by Simondon 1992, Deleuze and Guattari 1988 and Mackenzie 2002.
116 As Bodnar 2006 and Heft 2001 discuss.
117 As Bodnar 2006 discusses. Completing Aristotle's four causes, the music would be the *material* cause, shaped into a session as the *formal* cause.
118 As discussed in the concluding chapter.
119 I would like to thank Homi K. Bhabha for drawing my attention to this important distinction between the social sciences *model* and the humanities *narrative*.
120 By Eshun 1998.

NOTES TO CHAPTER 5: JUGGLING

1 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.
2 With, for example, Rose 1994, Poschardt 1998, Jackson 2004 and Reitvelt 1998.
3 From http://www.imexpages.com/stonelove/company_profile.htm [accessed 5 July 2005].

4 Heidegger's concept of "ready-to-hand" is discussed briefly in the concluding chapter, but this raises substantial issues on the relationship between the elements techniques and instruments in the triad of propagation, to be addressed in further research.

5 Other dances have free entry, for example Firelinks's Hot Monday, or Chuchu Benz's August Town dance, which I observed in 2004. In these the promoters make their money entirely from the bar sales.

6 As a teenager growing up in the 1970s and early 1980s, DJ Squeeze ran the very popular Peacemaker Sound System, one of the first with a following from both uptown and downtown. Since the mid-1990s he has owned and operated his mobile sound truck Skyy (sic) Sound System and since 2002 has been the owner and CEO of Magajamz Radio Station, http://www.jamaicaobserver.com/lifestyle/html/20031002T200000-0500_49836_OBS_DJ_SQUEEZE__A_LONG_ASSOCIATION_WITH_MUSIC.asp [accessed 10 March 200].

7 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004, emphasis added.

8 As described by Schloss 2004: 138–40, and Monson 1996: 56.

9 This trope of sitting on a riddim is explored in relation to the DJ techniques in the next chapter.

10 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.

11 *Ibid.*

12 *Ibid.*

13 As discussed in Henriques 2007b.

14 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.

15 As Turner 1976 discusses. The procession of the session, and the developmental changes that are made along the way, may be compared to the technological development of the sound system set, addressed in the previous chapter.

16 As discussed variously by Mauss 1936, Révész 1958 and Tallis 2003.

17 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004, emphasis added.

18 *Ibid*., emphasis added.

19 One particular session I remember in this respect was the selector and DJ on the Swatch International Sound System literally bouncing up and down with the rhythm of the music they were playing. This was at *Passa Passa*, Spanish Town Road, Kingston, on 23 June 2004. Unfortunately this was one of the few occasions where it was not possible for me to film or take stills.

20 Brewster and Broughton 1999: 14, emphasis added.

21 As discussed with audio engineers in respect of Ingold's (2000) account of skills and Lave's (1988) of learning, in the previous chapter. This theme of

the dynamic relationship between tool and user, following Mauss (1936), Simondon (2002) and Latour (2006), is explored with the example of the "technology" of the sound system set elsewhere.

22　Campbell 1997, emphasis added; for an expanded version, see http://www.jamworldreggae.com/sounds/sounds.htm [accessed 2 February 2006].

23　These specially commissioned voicings of a popular tune by a leading artist who "bigs up" the Sound by name are of particular value in sound clashes.

24　Constantinides 2002: 11.

25　As Veal 2007 describes.

26　Campbell 1997.

27　As detailed in Broughton and Brewster 2002.

28　As Marshall and Manuel 2006 describe.

29　The Easy Star All Stars' dub version of Pink Floyd's *Dark Side of the Moon*, *Dub Side of the Moon*, is one current example of the use of the dub technique, http://stores.musictoday.com/store/product.asp?band_id=130&dept_id=241&pf_id=ESCD12&sfid=7. Reggae music production pioneered the technique of *versioning* and the "dub version" (whereby only a hint of the original lyrics or melody remain, leaving the drum and bass, often extenuated with reverb).

30　Constantinides 2002: 11.

31　*Ibid*., p. 8.

32　This was Yvonne Iles Douglas, interviewed on 20 June 2004, in Kingston. In the UK, though not in Jamaica, some of these old-style single turntable Sounds, such as Jah Shaka, are still in regular operation. They tend to attract an English and European, rather than Jamaican, crowd.

33　Interview with Mr Denton Henry, Kingston, 24 June 2004.

34　One recent example of this is Damian 'Junior Gong' Marley's international hit, in the summer of 2005, *Welcome to Jamrock*.

35　Interview with Mr Denton Henry, Kingston, 24 June 2004.

36　This is the processing time of the apparatus of selector and set, as with the whirling disc symbol of computer processing time.

37　As detailed in Veal 2007.

38　Rose 1994: 73.

39　Schloss 2004: 138, emphasis added.

40　Rose 1994: 67.

41　Discussed in Henriques 2007b.

42　Eshun 1998: 64.

43　As Latour (1986) points out, with reference to the classroom equipment of a projector, the fragility of social and technological assemblages only tends to be revealed when they malfunction.

44　This is detailed in further research.

45　Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004, emphasis added.

46 *Ibid*., emphasis added.
47 *Ibid*., emphasis added.
48 Campbell 1997.
49 *Ibid*.
50 They have to elicit such audience responses by encouraging them to phone in, or at least make *drop calls*, to register their interest, and vote and so on.
51 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.
52 In the late 1920s with the first film soundtrack engineers (as an early example of turntablism discussed below), these evaluative judgements are presented as a *fait accompli* in the form of the set of instructions the cue sheet provides (Figure 5.6).
53 As Pountain and Robins 2000 discuss.
54 As discussed by Laplantine 2005.
55 As Gray 2004 explores.

NOTES TO CHAPTER 6: CUT, MIX 'N' REWIND

1 Deleuze and Guattari 1988, Deleuze 1994.
2 As with Snead 1981.
3 As with Henriques 2010.
4 As with Eglash 1999.
5 Also this idea puts me in mind of the television advert for the John West brand of tinned salmon, whose strap line was: "It's the fish John West rejects, that makes John West the best," accompanying a visual of the rejected other tins being swept off the table, presumably into the rubbish bin.
6 Bourriaud 2002: 35–6, emphasis in original.
7 Benjamin 1970: 231.
8 Benjamin 1970: 235.
9 *The Guardian Weekend*, 4 March 2006, p. 42.
10 With composers such as Witold Lutosławski, Karl Stockhausen, Pierre Boulez, John Cage and Charles Ives, for example.
11 http://www.enolagaia.com/GSB.html [accessed 6 November 2005].
12 Spencer-Brown 1972: xxix.
13 Consider Smith 2000.
14 Emma Thompson, keynote address at the ASCA *Sonic Interventions* Conference, Amsterdam, April 23 2005.
15 And before any sound was recorded, the projectionist provided sound effects live, with various tools and instruments for this purpose. Phrases such as "all bells and whistles" and "going like the clappers" originate from these technologies: Handzo 1985: 385–7.
16 Lastra 2000.
17 Picture credit: Warner Bros., a division of Time Warner Entertainment

Company, from James Lastra's *Sound Technology and the American Cinema: Perception, Representation, Modernity* (2000) p. 200.

18   Mudede 2003: Scratches 1 and 8, emphasis added.
19   Mudede 2003: Scratches 6, 7 and 11.
20   Cutler 1996: 361, emphasis in original.
21   Photo credit: Varun Baker.
22   Waldo Emerson, *Quotation and Originality* (1875), quoted in Miller 2004: 68.
23   Gould 1966/2005: 115.
24   Eisenberg 1987: 105.
25   Broughton and Brewster 2002: 135.
26   Mudede 2000: 3.
27   This distinction between the cycle of control and release is also of a different character to that between the control and power processes. Cutting is also equally important at the higher frequencies of the causal relationality of the material world (as noted in Chapter One), where the political strategy of "divide and rule" has been well tested.
28   Architect Christopher Alexander takes the principle of an organic incremental relationship between a building and its immediate environment as central to his design process, Alexander 1996, 2004.
29   This idea of growing difference through incremental change was highlighted in some of Goethe's thinking: "Whatever Nature undertakes, she can only accomplish it in a sequence. She never makes a leap. For example she could not produce a horse if it were not preceded by all the other animals on which she ascends to the horse's structure as if on rungs of a ladder." Goethe, *Conversations with Riemer* (1807), quoted in Naydler (1996: 58–9). This idea of change through difference can also be said to be elaborated in the geometric principle of gnomonic expansion: "A gnomon is any figure which, when added to the original figure, leaves the resultant figure similar to the original" (Lawlor 1982: 65). Gnomonic expansion provides for material change without any change in proportion. Goethe continues to use this idea as a way of understanding the whole, that expresses itself through the process of differentiation, that is, identity based in difference rather than similitude, as discussed in Chapter One. Further, I would like to consider Goethe's idea of the whole as prescient of more current ideas of "metastabilities" (Canguilhem 1992). Goethe continues: "Thus every one thing exists for the sake of all things and all for the sake of one, for the one is of course the all as well. Nature, despite her seeming diversity, is always a unity, a whole: and thus, when she manifests herself in any part of that whole, the rest must serve a basis for that particular manifestation, and the latter must have a relationship to the rest of the system." For further discussion, consider Bortoft 1996.
30   Though Nancy does not give a derivation, this is presumably from *methe*,

from the Sanskrit *mati*, for "measure", which the OED defines as "measure, proportion … moderation … respect … modesty."

31 Nancy 2007: 42.
32 Zielinski: 2006: 39–55.
33 Veal 2007: 62.
34 *Ibid.*, p. 2007: 63.
35 Eshun 1998: 63–5.
36 Stuart Hall, talk given at the launch of *Stuart Hall – Culture, Politics, Race and Diaspora*, (B. Meeks (ed.) 2007), Queen Mary University of London, 24 October 2007.
37 Henriques 2007b.
38 From Chris Salewicz, Adrian Boot, Harry N. Abrams (2001) *Reggae Explosion: The Story of Jamaican Music*. London: Virgin Publishing.
39 Eno 1979.
40 Mudede 2003: Scratch 20.
41 This mixing of commercially available records does of course lead us to consider legal problems over copyright, http://www.mtv.com/news/articles/1485693/20040311/jay_z.jhtml?headlines=true and http://observer.guardian.co.uk/print/0,3858,4874327-102280,00.html [accessed 24 November 2005].
42 Henriques 2007b.
43 Attali (1985) also uses the symphony orchestra as an example of how musical forms of organisation anticipate social forms of organisation, giving music what Attali considers its predictive capacity.
44 The word "conduct" has its etymological routes in Old French, *conduit*, and Latin *conductus*, meaning the action of conducting, steering, managing or leading along, as in the phrase "safe conduct." The word "duct" exists alone. as in "air duct", but as a suffix it has numerous prefixes such as in production, reduction, induction and deduction for example. The noun "conductor" applies equally to the directing of all types of flows which now include, for example, the flow of images in the video technologies that are a standard component of the dancehall session today.
45 Bourriaud 2002: 34.
46 Constantinides 2002: 13.
47 Weheliye 2005: 73.
48 The value for the mix was prefigured in ancient Greek philosophy with the term *epimeiktos* or "mixing in," required for both athletic combat and rhetorical argument, as Hawhee 2004: 28 describes with reference to the teaching of the sophist Protagoras.
49 Jamaican market traders, or *higglers*, often partner their wares, such as for example, thyme and scallion (spring onion), to increase sales.
50 Hebdige 1987: 10.
51 Cox and Warner 2005: 330, emphasis in original.

52   *Ibid.*, emphasis added.
53   Rubin 1984.
54   Levi-Strauss 1966.
55   Hebdige 1979: 102.
56   Mudede 2000: 1.
57   Serres 1982: 95–6.
58   Bourriaud: 2002: 36.
59   Quoted in Bourriaud 2002: 29.
60   Bourriaud 2002: 19, emphasis in original.
61   Wilden 1972: 351–2, emphasis added.
62   Though it can be noted that, for Structural Linguistics, this matter of representation is indefinitely differed, in so far as the relationship between signifier and signified is considered to be arbitrary, and signification is considered a property of the signifying system alone.
63   Rotman 2002a.
64   Goodman 2002.
65   Wilden 1968; Wilden 1972: 31–62.
66   Jakobson 1971: 58, emphasis added.
67   Parry 2005; Zielinski 2006: 39–55.
68   Veal 2007.
69   Rhythmic repetition is indeed central to numerous corporeal practices, such as for example military drill, as McNeill (1995) describes.
70   Veal 2007: 89.
71   Lastra 1992: 72. Currently "Glitch" music makes use of this aesthetic. Glitch is made entirely out the scratches, pops and hums of the electronic medium that would normally be minimised as noise and interference; listen, for example, to Fantasmagramma (Henriques 2002a).
72   Knabb 1981.
73   Manovich 2001: 316–17.
74   Consider Sterne (2003: 301–3) and Kittler (1999: 69) for a discussion of the significance of the HMV ("His Master's Voice") name and the logo of the "faithful" dog Little Nipper, cocking his ear to listen for proverbial voice of his master, quite possibly atop his coffin; also Sconce (2000).
75   *Ibid.*, p. 282, emphasis in original.
76   Veal 2007: 51–7.
77   For copyright reasons the World Clash sound cup, for example (Figure 6.3), makes the distinction between dubplates and commercially released records: "Each dubplate featured on this DVD set was specifically recorded by each artist for the use of the sounds in the events line-up. All recordings are one-of-a-kind and belong to the respective sound systems." For some examples of dubplates visit http://website.lineone.net/.webloc [accessed 27 May 2007].
78   Benjamin 1970: 223.
79   Eshun 1998: 188–9, emphasis added.

80 Veal 2007: 90.
81 Deleuze and Guattari 1988, Deleuze 1994.
82 Henriques 2007b.
83 Chernoff 1979.
84 Snead 1981: 150, emphasis added.
85 Veal 2007: 64.
86 Henriques 2007b.
87 Snead 1981: 150, emphasis in original.
88 Consider Torres-Saillant 2006: 73–5.
89 Hegel 1955, trans. Snead 1981: 146, emphasis in translation.
90 Rubin 1984.

NOTES TO CHAPTER 7: VOICING

1 Cavarero 2005: 7–8.
2 *Ibid.*, p. 9.
3 *Ibid*. The anathema of uniqueness for the Western canon of philosophy is also taken up by Iain McGilchrist: "[T]he analytic process cannot deal with uniqueness: there is an irresistible temptation for it to move from the uniqueness of something to its assumed non-existence" (McGilchrist 2009: 19). This is in the context of his subtle and comprehensive study of the divided brain, where analytic faculties are associated with the left hemisphere.
4 Aristotle, *De Anima, Books II and III* (1993: 32).
5 Onians 1988: 59.
6 Neate 2004.
7 Constantinides 2002: 13.
8 As discussed by Stolzoff 2000: 56, Barrow and Dalton 1997: 11, and Veal 2007.
9 Postchardt 1998.
10 http://www.visittnt.com/codn2k5/content.asp?s=5&p=5 [accessed 24 July 2006].
11 Chernoff 1979.
12 Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.
13 Interview with the late Ms Louise Frazer-Bennett, Jamaican Sound System Association, 26 July 2002.
14 *Ibid.*, emphasis added.
15 As discussed in Henriques 2007a.
16 See BBC reports and others at http://www.freemuse.org/sw7765.asp [accessed 12 January 2006]. See also Gary Younge's report, *Troubled Island*, http://www.guardian.co.uk/Columnists/Column/0,,1762156,00.html [accessed 2 July 2006].
17 "Batty boy" is slang for male homosexual.

18   As discussed in Henriques 2007b.

19   This is not to suggest that popular music cannot be used to inflict pain. It can, as Cloonan and Johnson (2002) discuss.

20   As discussed in Bateson 1979: 102; Wilden 1972: 141–6.

21   As Eshun 1998 discusses.

22   1 Samuel 17.

23   This track appeared on his album *I Feel the Spirit*, released in the UK in 1963.

24   View, for example, the DVD *Lords of the Mic*, Vol. 1, Hot Headz Promotions, 2004.

25   *Babymother* (1998), Formation Films, for Film Four.

26   http://www.claat.com/article/articleview/1032/1/25/ [accessed 8 February 2006].

27   Interview with Winston "Wee-Pow" Powell, 30 July 2002, at Stone Love HQ, Burlington Avenue, Kingston.

28   As distinct from how a researcher might describe a particular session, as with, for example, Stolzoff's account of a Stone Love clash in 1994 (2000: 212–24).

29   http://www.claat.com/article/articleview/1032/1/25/ [accessed 8 February 2006].

30   As discussed in Henriques 2008.

31   As with, for example, on the UK scene, Tippa Irie and Janet Lee Davis's *Baby I've Been Missing You*, released on the Fashion label in 1994.

32   This idea of testing is also central to the classical Aristotelian conception of the dramatic conflict, whereby the hero can only "find out what they are really made of" when challenged by adversity and adversaries. It is through this that they can achieve the purity worthy to receive the prize (Campbell 1947).

33   As discussed in Chapter Four in relation to research methodology.

34   One of Aristotle's principles of drama, that a dramatic character only reveals himself or herself through conflict, remains relevant for today's scriptwriters (Tierno 2002).

35   Campbell 1997: 199.

36   Interview with DJ "Squeeze," a.k.a. Mr Lenworth Samuels, Kingston, 22 June 2004.

37   *Ibid.*

38   It is of interest to note that to the extent that the MC makes meaning out of sound, he or she can be considered as making "meta-music," to use the distinction Mudede (2002) draws between traditional musical performance and that of the selector (as discussed in the previous chapter).

39   On 19 September 2003, this was held at Hagley Park Road Shopping Plaza, Kingston.

40   On 23 June 2004.

41 The suffix of the term "conducting" is also shared with "transducing," indicating a common root in the sense of "ducting" as carrying along, performing their job as Master of Ceremonies.

42 Lefebvre 1996: 234–5.

43 Csordas 2002: 74–80. It should be noted, however, that Csordas's explanation is entirely in terms of his theory of embodiment.

44 Also numerous artists have made this career transition, from profane Reggae to sacred Gospel musical worlds, for example the singers Judy Mowett and Mikey Spice; in the UK, DJ Pappa San has undergone a similar conversion. Other Reggae and Dancehall artists, like Lady Saw and Buju Banton, record occasional Christian tracks. There is also the strong Christian spiritual dimension to Rastafarianism that was revived by Garnet Silk, that since his death has been developed by Luciano and a host of others in this "cultural" tradition.

45 More recently this theme of our split brain been given a very substantial scholarly treatment with Iain McGilchrist's *The Master and His Emissary: The Divided Brain and the Making of the Western World* (2009).

46 Proverbs 29: 15: "The rod of correction imparts wisdom …"

47 It is interesting to note that the moral framework, expressed most forcefully in what are called "cultural" lyrics in Reggae music, is almost entirely absent in the popular culture of Hip Hop. Notwithstanding this, Gangster lyrics do of course also occur in Reggae and Dancehall.

48 Chion 1994: 128–31; 1999: 17–30. Chion's term draws on the Greek word for hearing. Indeed, it is said that certain Pythagorean followers were called *akousmatikoi*, the listeners, because they listened to their master from behind a screen, so as not to be visually distracted (Lippman 1963).

49 See Rotman 2002b.

50 See also Stern 2003.

51 *Orpheus* (1949), dir. Jean Cocteau, starring Jean Marais.

52 See Taussig 1993.

53 *Phone Booth* (2002), dir. Joel Schumacher, writer Larry Cohen and starring Colin Farrell.

54 Chion 1994: 129–30.

55 *Ibid.*

56 *Ibid.*, emphasis in original.

57 Further to this I go on to extend this claim (in the conclusions to this research) that these material processes, such as flow, identified in the sound system are quite ubiquitous and catholic, and operate across a wide variety of settings and disciplines, including for example in natural selection in evolutionary theory and the geological process of river erosion (DeLanda 1999: 25–99).

58 As Marshall and Manual 2006 describe.

59 As the recoding artist Turbulence exploits.

60 One such act reported in the press in 2000 and 2001 for its associations with violence was So Solid Crew: http://news.bbc.co.uk/1/hi/entertainment/music/1652598.stm [accessed 10 September 2007].

61 Personal conversation with Mr Winston "Wee-Pow" Powell, 24 June 2004, at Stone Love HQ, Burlington Avenue, Kingston.

62 Until 2007 homophobic lyrics such as Buju Banton's "Boom Bye Bye," Beenie Man's "Batty Man Fi Dead" and Spragga Benz's "Bun a Sadomite" were current on the Dancehall scene; as discussed in "Beenie Man, Sizzla and Capleton renounce homophobia" in the *Guardian*, 14 June 2007: http://music.guardian.co.uk/news/story/0,,2102953,00.html [accessed 20 December 2007]. See also Gary Younge's article, "Troubled Island" in the *Guardian*, 27 April 2006, retrieved 14 June 2006 from http://www.guardian.co.uk/Columnists/Column/0,,1762156,00.html/

63 See my short fiction film *We the Ragamuffin*, Rockstead Productions for Channel Four Television (1992).

64 Burnshaw 1970: 1.

65 Personal conversation during the course of making a BBC documentary with Walcott in St Lucia, January 1993. Rather than suggesting that high literature incorporates popular oral elements, this suggests evidence for the popular oral roots of classical literature, as proposed by Lord's account of Homer writing down the *Iliad* and *Odyssey* from what up until that point had been entirely oral, and necessarily extemporised, performances (Henriques 2003). Walcott's own Homeric epic *Omeros* certainly exploits Caribbean vernacular vocabulary and forms of speech.

66 Barthes 1985: 248–9, emphasis in original.

67 This follows from Barthes's statement that rhythm allowed proto-humans to enter humanity (discussed in Chapter Five).

68 As discussed in Fraser *et al.* 2005, Whitehead 1969. For Simondon's critique of hylomorphism consider Mackenzie 2002 and Thrift 2005.

69 As discussed in Henriques 2003.

70 Bortoft 1996: 263. A third is the idea of decomposition, whereby organic matter is understood as being spontaneously creative. Interestingly, to the orthodoxy of the sixteenth-century Italian church, this was a heresy in that it contradicted the absolute divine power of God as the sole creator.

71 This is without mentioning that every electromagnetic signal has a positive and negative "phase" corresponding to the trough and the peak of the wave. With a stereo amplifier, when one channel is "out of phase" with the other, then the two signals cancel each other out, rather than combine to increase the power of the signal and thereby the sound. This is an important consideration when stringing up the set, as Stone Love engineer Horace McNeal told me.

72 As Rouget 1985 and Browning 1998 discuss.

73 This is taken as evidence for what Jamaican middle-class media describe

as "slackness" or sexual promiscuity: Stanley-Niaah (2006). Also the openly sexual character of traditional folk dances and rhythms such as the Dinki-mini (Lewin 2000: 140–3) has been described as celebrating fertility rather than promiscuity; that is, procreation as the only way to overcome death. The Dinki-mini, traditionally danced at funerals, is enjoying a revival with the large number of funerals resulting from the violence in the downtown areas (my thanks to Clinton Hutton for this last point). In any event African diasporic belief systems tend not to make the same division as Western ones between sacred and profane (Crowley 1999).

74 Deleuze and Guattari, 1988: 313, emphasis added.
75 Campbell 1997.
76 As discussed by Chernoff 1979 and Bakare-Yusuf 2001.
77 Campbell 1997.
78 Lefebvre and Régulier 1996: 235.
79 http://www.claat.com/article/articleview/1032/1/25/ (emphasis added) [accessed 8 February 2006].
80 *Ibid.*
81 Campbell 1997.
82 Hurston 1934, also discussed by Thompson 1966 and 1984.
83 Gates 1988: 52; see also http://www.everything2.com/index.pl?node_id=837132 [accessed 10 September 2007].
84 *Ibid.*, p. 52, emphasis added.
85 Connor 2000: 7.
86 As discussed by Taussig 1993, Kittler 1999 and Sterne 2003.
87 Yampolsky 1993 explores this intimate relationship between body and voice in relation to film dubbing in Jorges Luis Borges's and Antonin Artaud's writings.
88 Connor 2000: 6.
89 It could be added that prosody bears a similar relationship to spoken language, as handwriting does to written language, whereby the embodied materiality of its production is a marker for the *ethos* of speaker and writer.
90 Derrida 2005: 20, emphasis in original.
91 In Powell's (1991) *Homer and the Origin of the Greek Alphabet* he discusses the evidence for his theory that the vowels, that previously the Greek alphabet had been without, were invented specifically to write down the sung lyrics of Homer's epics.
92 Connor 2000: 7, emphasis added.
93 Barthes 1977: 183.
94 *Ibid.*, p. 183.
95 *Ibid.*, pp. 181–5, emphasis in original.
96 Maiello 1995: 24, emphasis in original.
97 *Ibid.*, emphasis added.
98 Zumthor 1985, emphasis added.

99 Private conversation with Beres Hammond during the music production for *Babymother*, circa 1997. This distribution of feelings between performer and listener is also addressed by Eisenberg (1987), quoting an interview with a pianist: "'When I play a record,' she once told me, 'it's as though someone else were expressing my feelings. When I play the piano, it's as though I were expressing someone else's feelings" (Eisenberg 1987: 162).

100 Barthes 1985: 251–2, emphasis added.

101 Laplanche and Pontalis 1986: 18–19, quoted Mowitt 2002: 147, emphasis in original.

102 As discussed by Middleton 1990: 241.

103 This is a different point to the one made by linguistic philosopher Austin (1962) with his concept of the performative function of language. Here words change things, as with for example the words "I pronounce you man and wife," the saying of which actually makes them a married couple.

104 Canetti 1973: 351–2, emphasis added.

105 *Ibid.*, p. 352, emphasis in original.

106 *Ibid.*

107 As Girard 1972 discusses.

108 Attali 1985: 24–6, emphasis in original.

NOTES TO CHAPTER 8: RHETORIC AND THE LOGIC OF PRACTICE

1 In the ancient Greek tradition of learning, continued with the seven liberal arts in medieval universities, rhetoric, together with grammar and logic, formed the Trivium. This was studied first and took precedence over the other four liberal arts of the Quadrivium, that is, arithmetic, geometry, astronomy and music (Durkheim 1977; Bernstein 1990, 1996), foreshadowing the contemporary division between the arts and the sciences. The Trivium and Quadrivium were privileged over the seven practical or mechanical arts, including for example ship-building, agriculture and acting, that did not form part of the university syllabus (Ovitt 1986). So the comparison between the MC's performance and the pre- and re-performance of the engineer and the selector is one between the mechanical and the liberal arts (Stahl *et al.* 1977; Bogue 2003: 14–16; Critchlow 1998).

2 The discussion of the selector's performance skills explored metaphoric and metonymic aspects of non-representational communication systems (Figure 6.6).

3 As Heath *et al.* 2000 discuss.

4 Jakobson (1960) describes a further six constitutive factors for verbal communication, namely referential, expressive, conative, phatic, metalingual and poetic.

5 A similar kind of restriction occurs when the identity of a sound system is

assumed to reside in its set of equipment. In actual practice, Wee-Pow runs Stone Love as a franchise operation, with three "Stones Loves" and three sets on the road at any one time, as described elsewhere (Henriques 2007a). As in DJ culture, increasingly a Sound's identity rests with its selectors.

6 As Hayles 1999 and Hansen 2005 discuss; see also http://www.asc-cybernetics.org/foundations/history/MacySummary.htm [accessed 12 July 2009].

7 Herrick 1997, Bizzell and Herzberg 2001.

8 Aristotle's *The Art of Rhetoric* (1991), 1355b.

9 As discussed in Henriques 1984.

10 As discussed by Trembath 1989, Thrift 2004 and Clough 2007.

11 The issue of voice and personality was a research topic for British radio broadcasting between the wars, as with, for example, Pear (1931). I would like to thank my colleague Tim Crook for drawing my attention to this work.

12 Soesman 1990 gives a very useful account of Rudolph Steiner's theory of the 12 senses.

13 Connor 2001: 2–3.

14 As discussed by Zielinski 1999.

15 As Ettinger 2006 discusses.

16 Snead 1981: 150, as discussed in the previous chapter.

17 As Turetzky 2002 discusses.

18 As with Small's (1998) concept of musicking, or indeed that of sounding, this grammatical shift, following Baraka (1969), is quite pivotal (as discussed in Chapter Three).

19 Other Caribbean folkloric, African-inspired figures, such as Anancy and the Shape Shifter, are not characterised particularly by their lyrical prowess.

20 As Bohm 1980: 27–8 discusses.

21 As Verala 1999 discusses.

22 As Keil and Field 1994 discuss.

23 This is not the case in all philosophical traditions, of course, as for example with the Buddhist concept of "right action" which is always situation-specific and cannot be described as an abstract rule. The neuroscientist Francisco Varela gives a very useful account of this in *Ethical Know-How: Action, Wisdom, and Cognition* (1999).

24 This is discussed in Henriques (forthcoming) *Dancing by Numbers: Some thoughts on Performing Topology* (Colloquium, Goldsmiths, University of London, 22 March 2010, *Space & Society*).

25 Consider, for example, Matthew Crawford's *The Case for Working with Your Hands: Or Why Office Work Is Bad for Us and Fixing Things Feels Good* (2010).

26 As Auslander 1999 and 2008 discusses.

27 As Reed 1996 and Heft 2001 discuss.

28 Polonius to Reynaldo, *Hamlet*, ii. I. 64.

29   Sheets-Johnstone 1999: 510.
30   As Ahmed 2006 discusses.
31   Fraser 1922/1963: 11
32   Freenberg 2005: 28.
33   *Ibid.*, p. 29.
34   As Henriques 2003 discusses.
35   Malcolm Gladwell's *Blink* (2005) gives an accessible account of the instantaneous nature of many expert evaluations.
36   Bourdieu 1990: 81, emphasis added.
37   *Ibid.,* p. 104.
38   *Iliad* 23. 313–18, trans. Robert Fagles.
39   Detienne and Vernant 1978: 3–4.
40   As is discussed in Sipiora and Baumlin 2002.
41   As described by Rämö 2004.
42   Zielinski 2006: 28–30.
43   The epigram is by the poet Posidippos, added in the 3rd century BC: Hawhee (2004: 73)
44   That is in the way the modern science of cybernetics takes inspiration for its name from the Greek word *kybernetes* for helmsman (Heylighen 1993).
45   Bourdieu 1977: 20, emphasis in original.
46   White 1987: 13.
47   Onians 1951: 343.
48   *Ibid.* The idea of a "legal loophole" may also be derived from this.
49   *Ibid.*
50   As discussed by Critchlow 1994: 137.
51   In this respect the term *kairos* also has currency in a biblical context, where it has quite recently been taken up as the name of a liberation theology in South Africa, initially under Apartheid and continuing today. Here the central idea of appropriate timing is interpreted as "the appointed time." This idea is also to be found in Eastern traditions, such as the Vedic terms *Rtu* and *Rishi* meaning sage. This also resonates with the secular in the political slogans of the 1960s American Black Power movement, such as *Seize the Time*, Bobby Seal's book title; and the French Situationist's revolutionary question: "If not now, when?" (Dubord 1958).
52   Hawhee 2004: 65–85, provides a chapter devoted to Kairotic Bodies. She is also most useful on *mētis* and agonism or the productive struggle from which this way of knowing emerges.
53   As discussed by Henriques 2007b.
54   As discussed by Feenberg 2005.
55   As also discussed by Ingold 2000.
56   As discussed in Henriques 2007a.
57   At the Skateland venue, at Half Way Tree in mid-town Kingston, on Saturday 17 August 2002.

58 John Lanchester, "A Bigger Bang," *Observer Weekend*, November 4 2006, pp. 18–36.
59 As DeLanda 1997 discusses.
60 Mullins 2002: 211.
61 Mullens 2002: 207, emphasis added.
62 As Peirce 1976 and Mullins 2002 discuss.
63 Reed 1996: 6.
64 As discussed in Henriques 2007b.
65 Bourdieu 1990: 81, 91, emphasis in original.
66 Bourdieu 1990.
67 Sennett 2008: 6.
68 Sennett 2008: 9.
69 *Ibid.*, p.91; and as Pannabecker 1992 and 1994 also discusses.
70 Sennett 2008: 91.
71 Diderot, in the article *Art*, quoted in Denis Diderot and Charles Coulston Gillispie's (1959) *A Diderot Pictorial Encyclopedia of Trades and Industry*, vol. 1, p. x. New York: Dover Publications.
72 Sennett 2008: 93–4, emphasis added.
73 Bateson 1979: 42, emphasis in original.
74 As Bateson 1979: 133–4 and 1972: 133–49 discusses.
75 This was a theme explored in popular culture in the film *The Perfect Storm* (2000, directed by Wolfgang Peterson, script William D. Wittliff, novel Sebastian Junger, starring George Clooney) where a particular confluence of weather conditions produced an exceptionally powerful storm.
76 As discussed in Henriques 2006.
77 Polanyi 1958: 54.
78 As Witmer 1999 discusses.
79 Polanyi 1958: 49, emphasis in original.
80 *Ibid.*, p. 55, emphasis in original.
81 Gibson 1979: 76.
82 Reed 1988: 302, emphasis in original.
83 Kassabian 2001: 6.
84 As Zangwill 2007 discusses.
85 Henriques 2010.
86 As Bakare-Yusuf 2006 discusses. It is also interesting to note how even specific motifs and traits have travelled between continents, as Gates (1988) described with rhetorical figures of speech. Zora Heal Hurston (1934) identified similar connections between Africa and America with particular visual forms, such as a preference for asymmetry, as with a cap worn askew, or a single rolled up trouser leg, for instance.
87 As discussed in Henriques 2007a.
88 As Hillman 1992 discusses.
89 As Lawlor 1982 discusses.

90 Polanyi 1958: 5.
91 Wittgenstein 1953: 23, 242.
92 As Biletzki and Matar 2006 discuss.
93 Lukács 1971.
94 Godwin 1987.
95 Kayser 1970: 75, emphasis added.
96 *Ibid.*, p. 30.
97 Kayser 1970: 75.
98 Kayser 2006: 11.
99 Young, iv. 7, 27.
100 As Ovitt 1987 discusses.
101 As Lippman 1963: 191 discusses.
102 Talking about both musical and social harmony, this is in keeping with the lines Shakespeare gives to Ulysses: "Take but degree away, untune that string, / And, hark, what discord follows …" *Troilus and Cressida*, act 1, sc. 3, l. 109-10, which continues: "Force should be right; or rather, right and wrong, / Between whose endless jar justice resides …" (l. 116–17). Here the idea of "justice" is expressed in a manner entirely consistent with what the audio engineers do in the tuning of their sets. (I would like to thank my cousin Helen Holland for drawing my attention to this passage.)

NOTES TO CHAPTER 9: CONCLUSION: THE SONIC LOGOS

1 Among many other things, embodied linguistic memories can embrace contradiction, in the way the formal logic of the Western tradition finds impossible, as with "the more you look the less you see"; for example, as Pollard 1994 describes. Also a "memory gem" is the traditional term for the phrases Jamaican children are taught as rules for living (Watson 1999: 136).
2 This term was taken up in the title to the conference: *Caribbean Reasonings: Culture, Politics, Race and Diaspora: The Thought of Stuart Hall*, at University of the West Indies, Mona, 17–19 June 2004, some of whose proceedings were published as Meekes 2007.
3 More recently Iain McGilchrist's *The Master and His Emissary: The Divided Brain and the Making of the Western World* (2009) details what amounts to a neurophysiological underpinning to this division in the different structure and functions of the left and right hemispheres of the brain.
4 This differs with Marshall McLuhan's (1962) account of "the ratio of the senses," that is, as the re-ordering or recalibration of the hierarchy of the sensorium brought about by technological change, as Innis (1951) described.
5 Mensch 2009: 7–8, emphasis in original.
6 Galilei 1972: 69, emphasis added.

7   Bion 1977: 12.
8   As discussed in Hansen 2000 and Sennett 2008.
9   Discussed by Kristjansson 2007: 157–74, and Birmingham 2004.
10 Davis 1997: 173.
11 Zackariasson *et al.* 2006: 419.
12 This is based on a table from Rämö's 2004 translation of Ramirez 1995: 8.
13 As discussed by Priemus *et al.* 2008 and Flyvbjerg 2008.
14 *Nichomachean Ethics* 1142a.
15 As discussed in Henriques 2007a.
16 For example, Merleau-Ponty (1968) characterises the body–world relationships as an "intertwining," as discussed in Mensch 2009: 17–23. This furnishes a way of being, doing and understanding the world on the basis of our relationship in, with and as a part of it, that is, ecologically, as Jakob von Uexküll (1957) pioneered.
17 This ocularcentric focus of the Western tradition has been well documented, by for example Jay 1993, Rorty 1979 and Jacobs 2001.
18 Henriques 2003 and 2010.
19 The epistemological implications of audition and the voice in particular are now receiving more attention. Consider, for example, Dolar 2006, Nancy 2007, Szendy 2008 and, in the phenomenological tradition, Levin 1989 and Ihde 2007.
20 As discussed, for example, in Joscelyn Godwin's *Harmonies of Heaven and Earth* (1987) and Hans Kayser's *Akroasis: The Theory of World Harmonics* (1970); see also http://hanskayser.com/EZ/kayser2/kayser2/index.php [accessed 15 November 2007].
21 In retrospect, this anti-dualist theme has been the most consistent of all my theoretical interests: Adlam *et al.* 1977. It has, of course, also exorcised many others, such as Grosz 1994, for example.
22 This is described in some further research.
23 In his Ode *Intimations of Immortality from Recollections of Early Childhood* (1807).
24 As considered by Lawlor 1982 and Hillman 1992.
25 It is interesting to note that the first military campaign fought as a guerrilla war was that of the Jamaican Maroons (escaped, free-living, former slaves) against the British army in the Blue Mountains. The volcanic terrain of what is called the Cockpit Country gave the Maroons ample fire cover, camouflage and opportunity for ambush (Price 1996).
26 In the three Abrahamic religions of the book this is particularly significant, as the guarantor of the word is, of course, a monotheistic God. This raises the issue of whether it is God that creates the language system, or the language system that creates God, an issue which is unfortunately beyond the scope of this conclusion. These issues are discussed by Rotman 2000a, 2008 and also by Debray 2004.

27   Freenberg 2005: 31.

28   It should be noted that the present use of Plato's ideas runs counter to the
     conventional interpretations that would consider his work as idealist, that
     is, as being concerned with abstract types. This would be understood here
     as an Aristotelian reading, emphasising Plato's idealisms to contrast with his
     own concerns with the actual world (Tarnas 1990). Of greatest interest here
     is Plato's cosmology, as set out in the *Timaeus*. The translations that are most
     useful in this respect are those of Thomas Taylor (1995), a contemporary
     of William Blake. As the propagation model attempts to help establish, the
     movement of a wave can only find expression through a material *medium*. It
     is therefore important not to privilege either above the other.

29   Serres 2008: 153–4, emphasis added.

30   *Ibid.*, p. 128.

31   Aristotle, *De Anima*, II, 1–2.

32   Serres 2008: 154, emphasis added.

33   *Ibid.*, p. 183.

34   *Ibid.*, p. 186. Serres finds an eloquent metaphor for this idea in the medieval
     tapestry of *The Lady and the Unicorn*, the last panel of which can be inter-
     preted as a forsaking of the pleasures of the sensory world for language.

35   By contrast, Bourdieu uses taste to emphasise our social embodiment, with
     his account of the class basis of distinction, where taste is considered "as a
     sort of social orientation, a 'sense of one's place'." Bourdieu 1984: 466.

36   As discussed in Agamben 2000: 50–60, and in Rotman 2008: 33–54.

37   As discussed by Shepherd and Wicke 1997.

38   Alexander 1966, also Macey 1994.

39   Sheets-Johnstone 2009: 510.

40   Peirce 1931/1958: 5.171, emphasis added, cited in Mullins 2002: 199.

41   Indeed Peirce developed a triadic semiotics, as discussed below and in
     Everaert-Desmedt 2006 and Louis Hébert (dir.), *Signo* [online], Rimouski
     (Quebec), http://www.signosemio.com [accessed 20 May 2010].

42   *Ibid.*

43   As discussed in Polanyi 1969.

44   Peirce 7.218, cited in Mullins 2002: 200.

45   The turn from word to world is also that from the Trivium to the
     Quadrivium of the liberal arts of the medieval university syllabus (described
     above). As Basil Bernstein points out in his discussion of the organisation
     of knowledge: "The Trivium was studied first, the Quadrivium second.
     Word before world." He continues: "The Quadrivium signifies the *outer*. The
     Trivium is about the inner, the discursive constitution of the inner. Trivium:
     inner-person-sacred; Quadrivium: outer-social-profane" (Bernstein 1990:
     150–1, emphasis in original). Following Durkheim (1977), Bernstein
     identifies this dislocation between inner and outer as arising specifically
     from the amalgam of the Christian tradition with Greek thought on which

medieval philosophy and education was founded, by contrast to the tradi-
tions of Islam and Judaism which avoid such a split. In a way, what the *sonic
logos* discovers in this move from *word* to *world* in the liberal arts is that
this can only be made with a proper understanding of the mechanical arts,
as Sennett (2008) investigates (as discussed in Chapter Eight). The sound
crew's performance techniques are but one example of this.

46 Rotman 1987: 16.

47 The film *21 Grams* (2003, starring Sean Penn, dir. Alejandro González
Iñárritu) plays on the idea of the supposed weight of the soul, as an
American physician Dr Duncan McDougal tried to measure.

48 Bateson 1979: 98–100, emphasis in original.

49 *Ibid.*, p. 99.

50 *Ibid.*, p. 69.

51 *Ibid.*, p. 99.

52 As discussed in Henriques 2010.

53 This also makes the important point that relationship is nothing to do with
measurement, as geometry is practised with compass and straight edge
alone (Sutton 2009).

54 As discussed by Burns and Ward 1978 and 1982.

55 It is interesting to note how the language of instincts and drives still has
a currency with respect to specific performance, whereas with behaviour
more generally such explanations have been inscribed in the genetic code.

56 Bohm 1980: 26–7.

57 Euclid's *Elements*, Book 1, Proposition 26: "If two triangles have two angles
of the one respectively equal to two angles of the other, and the side of
the one equal to the side of the other similarly placed with respect to the
equal angles, the remaining sides and angles are respectively equal to one
another." See for example http://sunsite.ubc.ca/DigitalMathArchive/Euclid/
byrne.html [accessed 6 November 2006].

58 Serres 1995: 78–9, emphasis added.

59 As considered by Critchlow 1994.

60 Davie (1952: 99) sought to identify Ezra Pound's politics with his
abandonment of poetic syntax.

61 Davie 1952: 98.

62 Also consider Steven Connor's *Windbags and Skinsongs*, http://www.bbk.
ac.uk/english/skc/windbags/ [accessed 9 July 2009].

63 Lawlor 1982: 46–7.

64 As Kappraff 1990 discusses.

65 Olson 2006: 6 considers this.

66 Olson 2006: 6, 8.

67 Picture   source: http://photoinf.com/Golden_Mean/Volker_Muller/
Proportions_Golden_Section_or_Golden_Mean,_Modulor,_Square_Root_
of_Two,_Theorie_and_Construction/g_sub.gif

68   As discussed by Kappraff 1990.

69   Alfred Gell, in *The Art of Anthropology: Essays and Diagrams* (1999: 29–75), considers the role of diagrams in anthropology.

70   Charles Sanders Peirce, Carnegie Application (L75), NEM 4:38, 1902, emphasis added. Also Nicole Everaert-Desmedt (2006), Peirce's Semiotics, in Louis Hébert (dir.), *Signo* [online], Rimouski (Quebec), http://www.signosemio.com [accessed 20 May 2010].

71   Stafford 1999: 61.

72   *Ibid.*

73   As discussed, for example, by Taussig 1993.

74   It is of interest to note that, in geometry, proportional ratios are most often not whole numbers, but inexact or "irrational" numbers such as Pi (π) as 22/7.

75   As Long 1966 describes.

76   *Ennead* I.6 [1] On Beauty, para 9, trans. Stephen MacKenna.

77   Critchlow 1994: 139.

78   Bateson's (1979) conception of difference and indeed information as relational is consistent with that of MacKay (Hayles 1999: 56–7), *contra* the dominant Shannon–Weaver Information Theory model.

79   Bateson 1979: 98. This relational and dynamic approach is entirely consistent with the activities of assembling the Sound System Set described in Chapter Two.

80   *Ibid.*. p. 100, emphasis in original.

81   Consider Gibson (1979), also Edward S. Reed (1996a) *Encountering the World*: *Toward an Ecological Psychology*. New York: Oxford University Press.

82   Bertrand Russell (1912/1957) *The Problems of Philosophy*. Oxford: Oxford University Press, p. 72.

83   Indeed diagrams, as distinct from text or graphic representation, offer a specifically relational way of thinking, according to Frederik Stjernfelt's (2007) *Diagrammatology*, as developed from Peirce's semiology.

84   Hull 2001.

85   Bass 2001, Calter 2007.

86   Critchlow 1969.

87   Consider, for example, Paterson 2005.

88   As Ingold describes: "The primacy of vision cannot be held to account for the objectification of the world. Rather the reverse; it is through its co-option in the service of a peculiarly modern project of objectification that vision has been reduced to a faculty of pure, disinterested reflection, whose role is merely to deliver up 'things' to a transcendent consciousness" (Ingold 2002: 253).

89   One classic use of geometry to describe relationship is E. A. Abbott's *Flatland* (1884/1952).

90   Thus it is possible to distinguish, for example, the threeness from the

two-fold or bilateral symmetry of animal life forms, the five-fold symmetry of many flowers, or the six-fold symmetry of ice crystals, and so on. Other qualities of over-proportional relationships are expressed in the four-fold qualities of the geometry of a square, for example. The carbon atom, for instance, the basic building block of organic life forms, expresses a four-fold symmetry that maximises the number of connections, or chemical valances, with other atoms (Kappraff 1990).

91 Consider, for example, Grosz 1994.

92 Reed 1996a.

93 Bourdieu 1980: 25.

94 This is in respect to the Italian philosopher Giambattista Vico (1668–1744).

95 Besides the crew's performance techniques, there are numerous examples of triangulation in practice, and idiomatic phrases, such the idea of a story needing a beginning, middle and end, or the three requirements for a criminal conviction being motive, weapon and opportunity. It is as if three is the minimum number to "pin things down" or indeed to make them "stand up." It is also often three parameters that are required to describe things in the world, such as the height, width and depth of a physical object, the amplitude, frequency and timbre of a sound, or the melody, harmony and rhythm of music. Such threesomes give the impression of forming a complete whole, as with the head, heart and hand of the Arts and Crafts Movement, the mind, body and soul, or the Christian three-in-one mystery of the Holy Trinity.

96 Booker 2004: 229–35.

97 This is Oskar Schlemmer's *Triadic Ballet* of 1927; see http://artforum.com/video/mode=large&id=20468 [accessed 14 July 2010].

98 For example, Plato in the *Timaeus* discusses the third term, *being*, in relation to *same* and *different*, and *abiding* in relation to *going forth* and *returning*, as Critchlow (1994) explores. Such triadic relationships are often used to describe the serial movement of transformation and resolution, as with for example *thesis : antithesis : synthesis*, or *beginning : middle : end*. This serial movement of process and progress may be contrasted with the parallel or instantaneous quality of threeness. It is in fact this proportional relationship, with the hidden or ignored third term of the triad, such as repeating, or evaluating, that allows manipulating and monitoring their actual manifestation physical world.

99 Burch 2006.

100 As discussed in Eco and Sebeok 1983.

101 Plato, *Timaeus*, 31, trans. by Benjamin Jowett, emphasis added.

102 Feenberg 2005: 72, emphasis added.

103 *Ibid.*

104 Roads 2002 discusses this.

105 For Plato this is a recollecting of what the soul already knew before its

incarnation: "As the whole of nature is akin, and the soul has learned every-thing, nothing prevents a man, after recalling one thing only – a process men call learning – discovering everything else for himself, if he is brave and does not tire of the search, for searching and learning, are, as a whole, recollection (anamnesis)" (*Meno*, 81d).

106 Theisen 1994: 86, emphasis in original.
107 Considered by Reik 1948 and Lacoue-Labarthe 1998: 158–62.
108 Whorf 1956, Lakoff and Johnson 1980.
109 Kemmer 1993.
110 Lyons 1969: 373.
111 Barthes 1985: 18.
112 First published as *Mensonge romantique et vérité romanesque*, in 1961.
113 Girard 1976: 12.
114 *Ibid.*, also considered, for example, in Smith 1996.
115 *Ibid.*, p. 17.
116 This is more than a meeting of ideas, it is also one of people, in the way that Paypal and Facebook founder Peter Thiel had René Girard as his philo-sophical mentor while at Stanford University: Tom Hodgkinson, "With Friends Like These," *Guardian*, 14 January 2008, see http://www.guardian. co.uk/technology/2008/jan/14/facebook [accessed 31 July 2010].
117 As considered, for example, by Llewelyn 1991.

NOTES TO : LAST WORD: DUBWISE

1 The European tradition of classical music has famously renewed itself by delving into the pre-classical forms of folk music, as for example with Bela Bartok.
2 As explored elsewhere (Henriques 2008, 2009, 2010).

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