Designing Sound in Public Space in Australia: a comparative study based on the Australian Sound Design Project's online gallery and database

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The purpose of this paper is to articulate some of the ways in which Australian sound practitioners are already designing sound in the public domain so that current trends and practices can be examined, compared and contrasted. This paper interrogates the new hybrid art form, Public Sound Art, and the design processes associated with it as it occurs in public space in Australia. The right to quiet has been defined as a public commons (Franklin 1993). Public space in Australia is becoming increasingly sound designed. This article investigates the variety of approaches by sound artists and practitioners who have installed in public space through a representative sample of works drawn from the Australian Sound Design Project's online gallery and article, http://www.sounddesign.unimelb.edu.au, a site dedicated to the multimedia publishing of diverse sound designs installed in public space in Australia, as well as its international outreach *Hearing Plac*e. Works include permanent public and ephemeral sculptures, time-dense computerised sound installations, museum designs, exhibits in airports, art galleries, car parks, digital and interactive media exhibitions, and real-time virtual habitats on and off the Web. The degree of interactivity in the sound-designed artworks varies greatly from work to work. Stylistic features and design processes are identified in each work and compared and contrasted as a basis for examining the characteristics of the genre as a whole and its impact on the soundscape now and in the future.

1. INTRODUCTION

The design of sound in public space may be defined as all sound which is consciously arranged or displayed that has an auditory component intended for acoustic space where the public have access. Within this broad definition, which includes a vast array of sonic phenomena, belong a new range of exciting sound-designed artworks which have been collated, published and analysed through the Australian Sound Design Project, an Australian Research Council funded project which has established Australia's national website with an online gallery of over 139 works, refereed papers, a database, and search facilities. The following selected works, made in the last fourteen years, provide an excellent case study to introduce the concept of sounding artworks and designs in public space, a new field being collated for the first time in this project. The audiovisual sound gallery offers the analyst and theorist alike substantial new primary source material for further work in the field. The following representative sample of works will refer to the online resource, where it is possible to see and hear the works as well as read text, thus pioneering audible research. From the multi-media published artworks, various correlates, design features and analytical parameters can be identified. These important characteristics serve as the basis for historical, stylistic and artistic analyses, so that the repertoire can be more fully understood and Australia's innovative contribution in the field communicated internationally.

2. RESEARCH METHODOLOGY

An open call for works was made on the Web and brochures and questionnaires were sent out to over 850 artists and sound practitioners Australia wide. The criteria for acceptance were that the works be sound focused and that an artistic statement, biography, methodology, and analytical and technical description of up to two works be included. Publishable audiovisual materials were encouraged. The data collected from the Artist's questionnaires and materials are considered primary source material and intentionally reformed as little as possible. Follow-up e-mails, written correspondence and personal interviews have been carried out over a three and a half year period. This questionnaire is available as a PDF on the contribute page of the site, as is the diagram of the model of the site's design. A deed of intellectual property is signed before anything can be published on the site (http://www.sounddesign.unimelb.edu.au/site/contribute.htm).

Through this methodology sound in a variety of formats including MP3s, DATs, Aiffs, videos, diagrams, photos and images of all kinds have been converted to HTML on the online gallery as well as the text information about the works and artistic statements (see gallery in Browse for each work). A number of refereed papers, extensive bibliography, links, along with two comprehensive search engines complete the

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research tools published on the site. The Australian Sound Design Project website is a fully refereed site with board representation in every state. Every effort was made to encourage participation in all states despite the natural concentration of work around the dense metropolitan centres of Melbourne and Sydney. This Australia-wide website will now extend to its international phase for stage two, with several international publications and bodies interested including Radio ORF and WDR, Ircam, The online sound art museum Rome, international groups of the World Forum of Acoustic Ecology and the International Computer Music Association, and IASA, the International Association for Australian Studies and ISCM.

3. THE WORKS: CASE STUDY OF REPRESENTATIVE WORKS

Every place is an acoustic space. Theoretical discourses on the nature of space and public have been well established since classical times, but the contributions of Habermass, Bachelard and John Cage have reassessed the boundaries of the private and the public. Cage and Schaeffer in particular have pointed to the need to be fully cognisant of the acoustic features of every place we inhabit, of the planned or unplanned sounds wherever we are, whether outdoor or indoor, public or private. The sum total of the relationship of sound, noise and quiet, whether designed or not, forms the soundscape or acoustic environment. While research and discourse surrounding noise and the soundscape have been well under way for thirty years (Attali 1985; Franklin 2000; Schaeffer 2003), the place that designed sound has in the soundscape is only beginning to receive scholarly attention. This knowledge is essential to the future of Australia's soundscape, as the interfaces between design and acoustic space are already underway and are fully able to be experienced. Sound artists and acoustic designers are forming a contemporary layer to Australia's acoustic palimpsest which reaches back to the ancient sung land practices of indigenous peoples (Bandt 2001; Belfrage 2001). They are already redefining public acoustic space and, in so doing, laying the foundation for new principles, practices and sonic experiences of the future.

3.1. Design considerations for sounding artworks in public space

Sounding artworks and sound designs come in many forms, from permanent to temporary or ephemeral, and indoor, outdoor or virtual. The overriding determining factors are the choice of the site and the nature of the engagement between the artist and the hosting body, whether rooted in physical or virtual space. Within the parameters of the artwork brief, many important decisions have to be made which are common to all sounding artworks. These decisions relate to:

(1) the type and composition of the sound it contains (pitch/time, sonority/scale relationships),
(2) how the sound itself is installed into the acoustic space and context, its spatial dispersion, the durational programming of events,
(3) the degree of change from one day to another; this area has become much more complex over recent years with complex sensing system development softwares becoming readily available,
(4) the visual requirements of the environment, which can be as varied as complex sounding objects, kinetic machines, sculptural and multimedia installations, or they may be invisible complex spatial music installations where the array of speakers through the space is the only perceivable physical component; these may or may not be visible to the viewer,
(5) the role of the auditor/s, fixed or moving, free to determine direction, spatial position and time-lengths within the works,
(6) the degree of interactivity presented to the auditor, giving power to change the content or form of the sounding artwork itself; this raises the question who is the sound for and who is allowed to change and interact with it; the political relationships of the host, venue, artist and public can be powerful determinants in this respect and determine who the public is and many of the parameters and restrictions from the outset (see section 3.2),
(7) the relation of the designed sound to the ambient sound, and
(8) the dynamic intensity of sound flow and inclusion of silence.

Individual works have provided answers to the questions proposed as the design process is tailored to the specific site and events planned.

3.2. Contexts and examples: sites and solutions

All the examples in this paper are situated in the pubic domain, being defined as a place to which the public have access. Every space is political. The overriding determinant of sound art is the nature of the relationship between the site and the artist, and their knowledge and understanding of the space and intention. The choice of site defines major considerations, indoor/outdoor, permanent/temporary, the acoustic surfaces presented and the existing soundscape. The nature of the sound design invitation, whether event, exhibition, tender or commission, frames durational possibilities including the hours of opening as well as

influencing the type of public which may be attracted. To some extent, every sound work is site specific to the environment where it is located. But some artists have built these interfaces into their work more than others.

3.2.1. Roger Alsop / collaboration: Rice Paddies

In 2001, sound artist Roger Alsop in collaboration with a team of performance artists and musicians interrogated the idea of site as cultural paradigm by building two rice paddies, one in central urban Melbourne, outside the Melbourne Town Hall, the other in Footscray, a western suburb with a large Asian community. The idea came about from a phone call from instigators Jason Cross and Victoria Raywood, writer directors who asked Roger Alsop if he would be interested in putting a rice paddy in an urban place. 'This was extremely interesting as there were so many juxtapositions and contradictions in the idea' (Alsop 2004). The different demographics were built into the project as were the sounds of the physical environment, trams, buskers, audience members, and the effect of the buildings on the sounds used. Introduced sounds included recordings from parliament, shortly after the Tampa crisis, including Bob Brown's famous speech and the SBS World News played randomly, so that at no time was one language given prominence. These were played through a large megaphone to give the feeling of the indoctrinating voice. Incessant bird sounds were punctuated with musicians improvising with a rain tank, an Australian symbol which morphed into a Taiko drum at times. The decibel levels of this new layer of site exploration needed careful consideration. Alsop states:

> the intention was to impose the show on the place, despite the fact that both venues are commercial trading centres . . . At the same time it was considered that the performance should become a part of the place. Therefore amplitude levels were kept to about the same, or a bit louder than, the loudest environmental sounds. In the City Square this was the sound of trams measured at about three metres, about the same distance as a pedestrian on the kerb from a passing tram. In the Footscray Mall this was the sound of a passing truck at about 5 metres. When setting the levels for the amplification system a distance of about 1.5 metres from the speakers was used. This amplitude level was adjusted to suit the changes in ambient noise level and if it was significantly impacting on the vendors in the area.

3.2.2. Indoor temporary works

A large proportion of sounding artworks are indoor works occurring in galleries for three to six weeks. Les Gilbert and Gillian Chaplin's *Love is a Wonderful Thing* was commissioned for the Hearing Place Exhibition, 2003 at the Yarra Sculpture Gallery, City of Yarra. A mixed media collaborative work, it 'consisted of a matrix of sounding box-like assemblages, projection screens, video and photographs. Individual channels of sound were triggered on the listener's approach to each box through the listening eye' (Chaplin/Gilbert artistic statement). Each box also contained a concealed loudspeaker and a motion sensor, making public a collection of private thoughts and memories. The sound common to all the boxes was the female voice of Gillian singing the song *Love is a Wonderful Thing* with subtle variations. The pathways of the viewer/listeners caused these voices to intersect in a gentle spatial polyphony, modulated with other sounds from intriguing worldwide location video recordings

Figure 1. Roger Alsop and collaborators, *Rice Paddies*, 2001, with musicians Madeline Flynn, Tim Humphrey with performance artists Simon Woodward, Yumi Umiumare, Tony Yap and Jackie Smith (photo courtesy of the artists). The video can be seen and heard at http://www.sounddesign.unimelb.edu.au/web/alsop/rpH (video courtesy of Roger Alsop and the artists).

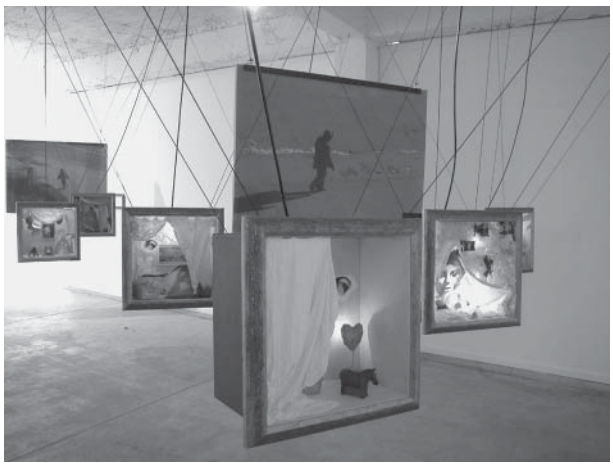

Figure 2. Gillian Chaplin and Les Gilbert, *Love is a Wonderful Thing*, 2003. Yarra Sculpture Gallery for the *Hearing Place* Exhibition of Sound Art (photo: courtesy of the artists).

projected on screens and on the back of the boxes. The audio and visual relationships were co-ordinated through subtle computer-controlled data, allowing compositional features to be unwittingly composed by the pathways of the viewer-listener through the exhibition space. 'The piece explored the relationships between a very private and intimate glimpse of interior vulnerability and the vastness of the urban landscape, both physical and environmental' (Chaplin/Gilbert).

This was one of two of the *Hearing Place* exhibitions and audiotheque of sound art and mixed media curated by the Australian Sound Design Project to coincide with the International Conference of the World Forum of Acoustic Ecology. The diversity of works exhibited can be seen and heard at http://www.sounddesign.unimelb.edu.au/site/news.htm

The audiotheque at the VCA gallery brought together some fifty-nine artists from thirteen countries with soundworks spanning classic electroacoustic and soundscape composition to pure unedited field recordings. Many of the works utilised 'binaural' recording techniques which when listened to with headphones, immerse the listener in a three-dimensional soundspace. Much thought was given to the spatial and temporal design of the audiotheque so that it would be a pleasant listening experience but be content rich. Over seven hours of audio were presented at a group listening station with seating positioned under eight sets of suspended headphones. This offered a chance for eight people to share a common listening sequence at the same time.

Figure 3. The Australian Sound Design Project, *Hearing Place*, International Audiotheque, March 2003 (photo: Iain Mott).

There was also an individual station that allowed the listener to select each track on demand. The audiotheque was accompanied by projected texts on each work and biographies of each artist. This curatorial decision allowed both group and individual use of the seven-hour long sequence, with many people returning several times, while others did quick searches to access their preferred listening choice on the individual station. Like many forms of sound art, the sound itself was the main focus, with an audio CD *Hearing Place* being published by Move Records of the best ten international works responding to place – a lasting record of the event. Composers include Samuel Pellman (USA), Christopher DeLaurenti (USA), Jon Drummond (Australia), Aaron Ximm (USA), Greg Hooper (Australia), Viv Corringham (United Kingdom), Pierre Thoma (Switzerland), Gabriele Proy (Austria), and Michelle Nagai (USA). The *Hearing Place* CD is available through Move Records at http://www.move.com.au/disc.cfm/3275

3.2.3. Durational aspects of sound design considered

Curating group shows of sound installations is challenging. Sound spills and acoustic spaces need to be shared. Isolating sound walls, grouping compatible works, designing the group spaces with the artists from the outset, using headphones, timers, interactive devices and creative scheduling are ways of avoiding common pitfalls. The gallery exhibition of sound art can be limiting due to the overriding politic of the gallery opening hours and the length of the show in days or weeks. When exhibitions are permanent, such as in museum situations, other questions come into play, such as how long is the durational design, and how much variety is there? Can the exhibition change or morph, is there interactivity? Or can the exhibition be responsive to the number and type of people present? Permanent exhibitions in the outdoors offer different environmental concerns such as changing light and temperature, exposure to physical contact, changing weather conditions and unpredictable people flow. The durational aspect of sound art may be intended to be short, as in the case of the radio broadcast, but it is interesting to see that most radio stations are documenting their programmes on the Internet for greater temporal and geographic dissemination. The Internet is a place where long- and short-term works can co-exist, but the quality of the sound heard and its dispersion have rarely been fully optimised. While the spatial features of sound art are often discussed as they are so easily perceivable, the temporal design is often much less obvious, as it demands substantial listening time and effort for it to be understood. Few people are trained to understand the depth of the more prolonged artworks or willing to dedicate enough time to understand the full potential of the works.

Permanent works may offer the listener an extended opportunity to listen to the complexity of a work, but this depends on the form and function of the sound design. The opportunity may not be taken up if the viewer only experiences the work once for a short time, for example in the museum situation where works remain, but the visitor may move through quite fleetingly. In some cases, it may not be obvious that it is an introduced artwork. The experience of the auditory phenomenon may be a surprising feature, such as in Peter Mumme's design for the Cairns airport, a gentle soundscape experienced by a captive group of people assembled for another purpose, travelling to and from Cairns. His soundscape is spatially and temporally designed to track the movement of people arriving and alighting at the airport as they move through customs and collect their baggage. The speaker array on the following diagram shows the relationship of sounding points in relation to the user pathway. The entire compositional material is computer controlled to be synchronised with the airport flight schedule.

The speakers are flush to the wall and painted as part of the overall mural so they are integrated into the environment just as the sounds used in the soundscape are derived from the local environment – bird, water, and forest sounds which signify the identity of the place and things yet to come. For an audio example, see http://www.sounddesign.unimelb.edu.au/web/mumme/cairns2.mp3

Figure 5. Peter Mumme, *Cairns International Airport Sound Experience*, 1996 (speaker picture: courtesy of the artist).

3.3. Permanent outdoor sound art

Permanent outdoor sound art is one of the most difficult to execute. Nigel Helyer has a long track record in this field. His award-winning work *Meta-Diva* is an environmentally sensitive sound sculpture, designed for installation at the Werribee Park wetlands site. It comprises thirty individual units, each with a solar-powered digital audio 'voice' which emulates an element of the natural soundscape.

> Each unit contains a miniature digital audio chip, coupled to a digital timer, set individually so that each of the thirty

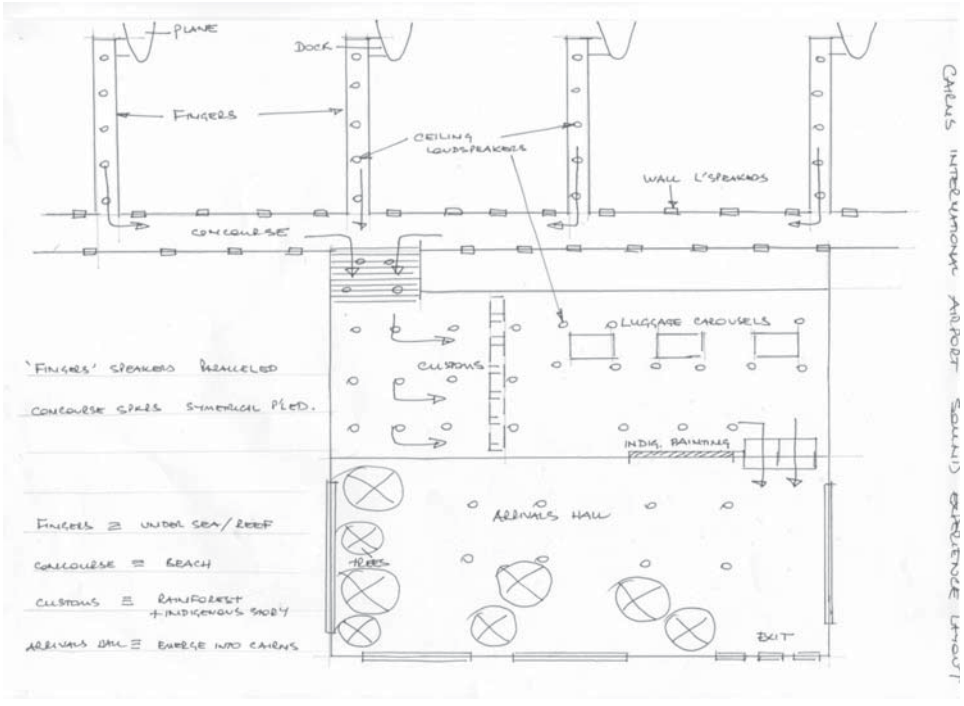

Figure 4. Peter Mumme, *Cairns International Airport Sound Experience*, 1996 (floor plan: courtesy of the artist).

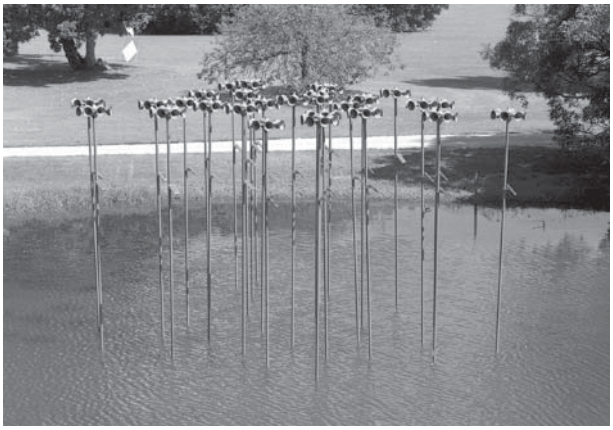

Figure 6. Nigel Helyer, *MetaDiva*, Werribee Park, 2002. Permanent outdoor sculpture and winner of the Helen Lempriere prize (photo: courtesy of the artist).

> units has a unique time signature. The audio chips contain short samples of natural history sounds, bird song, and insect song and frog voices. The combination of multiple sound sources, in conjunction with individual time signatures and the fluctuations of the solar power supply give the sound scape an un-cannily natural presence. Technically, this is a type of emergent behaviour in which, although we might recognise the repetition of individual sounds, the overall soundscape is in fact an infinite mix; somewhat akin to the always familiar, but never repeating sounds of a creek. In reality, the soundscape blends so seamlessly with the natural environment it is quite difficult to distinguish the artificial from the natural soundscape. The physical structure of the sculpture employs the metaphor of plant biology and the thirty units are grouped as if to form a bed of lotus plants. (Helyer, http://www.sounddesign.unimelb.edu.au/web/biogs/P000295b.htm)

The introduction of the cheap imported chirp sound of the chips is comical when heard in the setting of the rich Australian natural environment, yet the rhythmic fluctuations caused by the tiny solar panels make the work engaging. The physical elements of the design are elegant and the durable casing of the sound components requiring no power or maintenance is clever and practical. Interviews on the methodology, computer visualisations of the design and an on-site video can be accessed in the gallery entry for this work at http://www.sounddesign.unimelb.edu.au/web/biogs/gallery/P000295g.htm

3.4. Technology, systems development, interactivity

Most sound installations and sounding artworks are reliant on a barrage of technical apparatus, and the history of the genre maintains this close relationship between art and technology since Grainger's free music experiments, which started before the 1950s. Australian sound art has embraced the design of complex sound systems, spatial music systems and interactive immersive environments and has been a major player in the field since the CSIRAC, the Fairlight, 3 DIS, Schiemer's Audio Tool Box and Bencina's Audio Mulch, among others. The 3 DIS developed by Simon Veitch of Perceptive Systems in the 1980s, enabled an entire space to become a sounding and playable environment through the use of video surveillance cameras triggering MIDI information to ninety-nine sub areas of a given space. Several innovative performances and installations were created by the dancers Shona Innes, Jane Refshauge and Sylvia Staehli with composers Warren Burt and Ros Bandt. Five works were designed and presented at St Martin's Theatre in *Hear the Dance and See the Music*, March 1989. This set a precedent for many other art and technology residencies at major laboratories like the CSIRO, and industry partners such as LAKE.

Some artists have been able to develop their own systems, custom made for their artistic visions. Burt's *Aardvark*, Rainer Linz's systems for Stelarc and Jon Rose's interactive sound are notable examples. The works of Garth Paine, *Map 1&2* and *Gestation*, are extraordinary feats of contrapuntal spatial sound offering the audience the opportunity to sonically play the space they inhabit and make it their own, through whole-body conducting. *Gestation*, first shown at RMIT gallery in 2002, used David Rokeby's *Very Nervous System* video synthesis as a controller of the elaborate sound fields which provided data from which emergent digital embryos were generated in the next room. These visual outcomes were designed to be the by-product of the immersive interactive sound activity in the first room, the sound taking precedence over the eye, in reverse to commonly held digital art procedures which preference the screen over the ear. The absence of visual forms intensifies the experience. Contrastingly, Iain Mott has collaborated with sculptor Mark Raszewski over many years to create interactive sound sculptures which offer the auditor inventive interfaces to drive the sound, such as *The Talking Chair*, the *Squeezebox*, and the *Sound Mapping* mobile suitcases. A recent work, *Close*, incorporates video and binaural sound, while a future international project, *Chinese Whispers*, will use peer-to-peer networking to enable the sharing of spoken narratives between remote locations. The installations will each have a device such as a telephone for entering stories, loudspeakers and a computer connected to the Internet. Computers will be unobtrusive, if visible at all, and no monitor will be used. Text panels will describe the project and state the question. The loudspeakers in each installation space will play a constantly changing array of stories from around the country. On picking up the phone, the stories will stop and the participants will hear the question spoken in their local dialect over the phone and be prompted to

speak. They will then tell their story. Once they hang up, they will hear fragments of their own story over the loudspeakers and new interwoven narratives from around the country accompanied by pre-recorded environmental sounds corresponding to the origin of each voice. Eventually, these stories will run their course and new narratives from different locations will be introduced until another participant refreshes the cycle with a new story. Sounding artworks designed over multiple locations reflects an interest in public space in its global form. A demonstration of the audio and a full paper are available at http://www.reverberant.com/cw/cwmp3

A vast array of recording files can be automatically generated from a range of assigned highlight points so that the emergent counterpoint will change constantly according to Motts's spatial and durational presets. There are many possible outcomes, this fragment being a possible strand of a constantly changing working process and sonic outcome. Paine and Mott's works are elegantly designed from all points of view due to their multi-skilled backgrounds as composers, installation and visual artists, and their experience collaborating with other artists and with audiences. Both have developed original ways of integrating IT and coding skills for the service of their artistic visions. Paine's work *Reeds* is an environmentally sensitive work which uses real-time weather data to shape and sculpt the spatial and sonic outcomes. These were heard from sophisticated sculptural reed pods containing speakers floating on the lake in the Melbourne Botanical Gardens where the work was first commissioned for the Melbourne International festival (http://www.sounddesign.unimelb.edu.au/web/biogs/P000258b.htm). One is reminded of Les Gilbert's early installation at Southbank Boulevard, bordering the Yarra river, Melbourne, which also used a weather station to computer control elements of the sound events along the Boardwalk in its initial design. Les Gilbert has pioneered interactive museum design in Australia with a series of sound design companies and been a major seminal influence on other sound designers and artists, including Nigel Frayne, David Chesworth and Lawrence Harvey, all of whom had a chance to redesign the Boulevard following Gilbert. Computerised sound forms can be intricately programmed to give multiple outcomes of the same work from day to day, according to environmental and demographic conditions, and these features are being designed more and more into the sonic dispersion and replay. Gilbert's international sound designs are well known, and include the Osaka and Sydney Aquariums, (http://www.magian.com.au). From the outset, Gilbert used all kinds of weather-sensitive detectors and motion sensors to gather data from the changes which could be used to control changes in the designed

Figure 8. Les Gilbert, *SouthBank Promenade*, Melbourne, 1989 (photo: Ros Bandt).

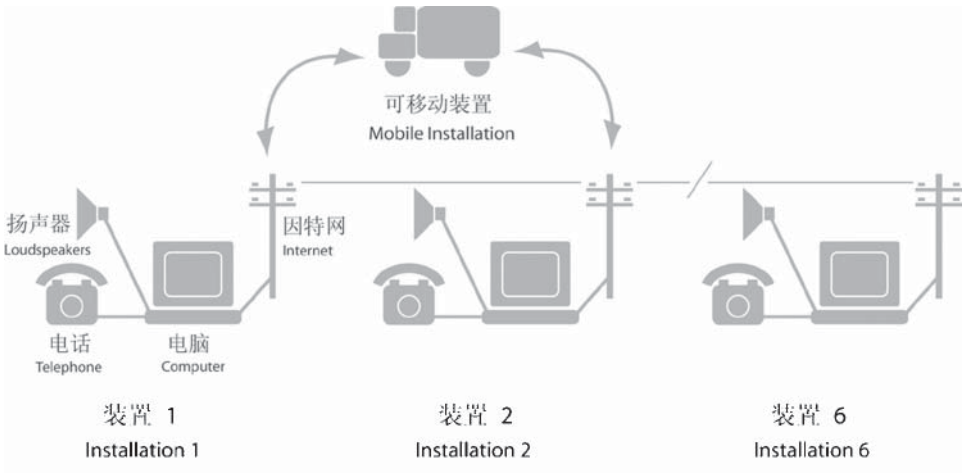

Figure 7. Iain Mott, *Chinese Whispers*, 2004–2005, future work in progress for China. Schematic diagram showing communication between installations (courtesy of the artist).

sound field. This innovative sonification of data has always been a signature of Gilbert's sound designs in public space. Beginning with Southbank Boulevard Boardwalk, sounds traverse the speakers installed in the handrails of the Boardwalk according to the direction of the wind, the weather, and the number of people present. The sonic outcomes will be quite different within a general composed sound field. Sound designs are rarely static and the longevity of sounding artworks is one of the most important issues for discussion by commissioners, designers and owners of these works.

A completely original sounding artwork which is at once a sound sculpture and an interactive musical instrument, is *Federation Bells*, at Birremung Marr, designed by the sculptor Anton Hassel and composer physicist, Neil McLachlan. It is a remarkable work from several points of view. The first and most obvious is that is of political significance, it being a gift of the state to the people to celebrate the centenary of Federation. The second is that the acoustic properties of the bell have been reassessed to create a new cross-cultural bell, including both Asian and European influences in its design. The third is that it is a programmable and playable musical instrument capable of automatically playing computer- generated compositions such as those by the seven composers commissioned for the opening, Broadstock, McLachlan, Boyd, McDermott, Koukias, Norman, and Paine. It has a playable keyboard interface which means one could theoretically perform and improvise with or through the bells in real time. Fourthly, it has a capacity to receive online compositions in the future as composers can compose sound structures for it from anywhere in the world. To date, these last two characteristics have yet to be realised.

The relationship of the sound to the site needs examination in all sounding artworks. At Birremung Marr, original bell tones created by two artists are introduced sounds and designed to be played at 8 a.m. and 5 p.m. daily. Many hours of silence occur when the piece becomes a beautiful static sculpture one can walk through. For several months it has not been sounding at all due to a maintenance problem, existing as a sculpture which is a poetic metaphor for sound that might be.

3.5. Community consultation and commission

A different approach is where the sounds of the community using the public space are integrated with the sound sources and merely woven together by the artist, such as in the case of *The Listening Place*, Alma Park, commissioned by the City of Port Phillip for the *Margins, Memories and Markers* project. In this work, stories collected in many different languages from users of the park are part of an hour-long composition

Figure 9. Hassel and McLachlan, *Federation Bells*, Birremung Marr, 2001 (photo courtesy of the artists). An audio example by Terry McDermott can be heard on the website (search Terry McDermott, under gallery for *Federation Bells*; mp3 courtesy of Terry Mc Dermott).

mixed with the ambient sound of the park as well as sounds referenced in the stories, such as dogs barking, trains, the beach, etc. The commissioning body, the Council, defined the demographic representation of the community content in this work rather than the artist, and several community workshops were held prior to the artist's engagement. Words for 'listen' in several languages were etched in bluestone, the idea of the sound artist, typeset by the visual artist and co-ordinator Julie Sheills, and with the seat realised by the Council and the artists. The instigation of the sounding artwork by the hosting body and the community itself ensures its relevance and longevity. It was very much a community team who executed the work and took ownership for it under the guidance of Ilka Tampke, the project manager.

Figure 10. Ros Bandt, *The Listening Place*, 2003, Alma Park (photo: Ros Bandt).

4. COMPARISONS AND CONTRASTS

From the tables in the Appendix, the ten works discussed here can be compared and contrasted according to the eighteen common style features which reflect the hybridity of the art form. These include:

- the political, geographic and demographic settings (1–3),
- whether it is indoor or outdoor,
- temporary or permanent,
- environmentally sensitive,
- whether it is a collaborative process or not,
- the type of sound compositional processes, both micro and macro (5 & 6),
- the systems and technological elements engaged,
- the visual and multimedia components,
- the use of screens,
- the sound dispersion array,
- interactive features,
- online components,
- the presence of silence, and
- the design of listener pathways.

In this small case study of ten works, the artists have designed sound in public space in many different ways, from indoor, outdoor, temporary, permanent, small and large scale; some works have many forms such as *Federation Bells* and *Chinese Whispers*. Indeterminate and varied sonic outcomes are seen to be desirable and programmed in to many works. In some cases the visitor may be given the opportunity to play, intercept, change or make sound contributions for the designs. Some communities have defined their own sounding artworks. The tables make clear the variable solutions the artists have found in creating sounding artworks in public. Their attitudes to the listed style criteria can be compared and contrasted against specific design features. These decisions are critical in determining the identity of the works, their appearance, their sonic outcome and the experience of them for the listener. Australian sound art in public space bears the fruit of much artistic vision, creative solutions, clever systems design, and complex political agreements.

5. THE CASE STUDY IN RELATION TO THE WEBSITE

This is just a small sample, a thumbnail sketch of the myriad of exciting sounding artworks being designed in Australia today. The website has published over 130 works in multimedia objects, sound, video, visuals, text, artistic statements and quotes and diagrams to render the works as completely as possible, short of experiencing them in their actual acoustic domain. The works are as varied as the artists themselves. There are over seventy descriptors used by the artists to describe their practice, so soft have the boundaries become between sound space and physical space. The design parameters of this medium have been initially derived from compositional practices of music, sound and sculpture, but now practitioners are designing who may not have sound composition as their main concern, coming from contexts such as multimedia, architecture, set design, computer programming and auditory display. Sound design in public space is a completely interdisciplinary art form which possibly accounts for the lack of detailed research and analysis in the field. Few single disciplines embrace it. Analysis and theory must move to embrace these emergent hybrid forms as must the traditional disciplines of music and fine arts.

There is much work to be done and further analysis and interpretation will be facilitated through the powerful cross-referencing search engines on the Sound Design website. Using the two search engines on the site for all of the 130 works published in the online gallery, the following matches were found for the following key words:

Outdoor characteristics: 36 works
Indoor gallery installation: 42 works
Temporary: 65 works
Permanent: 23 works
Interactivity: 70 works
Original instruments: 9 works
Original programming: 5 works
Environmentally sensitive: 42 works
Collaborative works: 39 works
Commissioned works: 51 works
Community: 24 works
Visual components: 53 works
Sculptures: 68 works
Screens: 21 works
Mixed media: 7 works
Multi speakers: 8 works
Listener pathways: 75 works
Audience interactive: 34 works

Searches can be made on all seventy function descriptors. This is just an introductory sample of the kind of comparative data which can be sourced from the site. A hierarchy of stars gives preference to the most pertinent matches.

As has been shown, the website treats each work from a variety of perspectives including those of the creator (bio and aesthetic intention), the design criteria (text and diagrams), the electroacoustic tools and methodologies (text, visuals, video), the audible sound result (mp3 files and video clips), and the site context (maps and text). Together these elements communicate a sense of the work's identity through a variety of data modes encouraging multi-sensory perception of sound, its spatial design, its movement, and duration in the context of the site. Works can be experienced as designs in a specific acoustic space rendered

through the image, sound clips and video. Headphone listening is advised to catch the more subtle spatial characteristics of the sound designs.

These digital tools provide the perceiver with a variety of ways of coming to know the interactive soundworks through their own interactive discovery on the Web. This project has consulted the artist at every stage of the publishing process so the descriptors are in their authentic voices. This rarely happens in academic research where the writer's voice is the one that is heard, not the artist's. The fruits of the research are made in the public realm as soon as they are available with over 660,000 hits in the last year. The site and its information are free, accessible and empowering for the artists and interpreters who are part of it.

6. CONCLUSIONS

From this study it is clear that sound designs and artworks in public space are becoming more common, and it is important that we are aware of the way in which the soundscape evolves, planned or unplanned. It is helpful to see if the right to quiet is being considered and if the community is being consulted. It is interesting to see who steers the project and for what purpose, aesthetic, political or commercial. As soundscape studies are well advanced in other countries, Australia would do well to concentrate more attention on these areas. The present study has made a contribution by bringing sound designs in public space to the attention of the scholarly and general public alike through this free online audible research initiative.

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See website: http://www.sounddesign.unimelb.edu.au/bibliography

Visit the physical locations of the discussed sample of works in their acoustic setting if you can for exciting auditory and participatory spatial listening. If this is not possible, experience them audiovisually in the online gallery of *The Australian Sound Design* website at www.sounddesign.unimelb.edu.au. The soundscape is changing as more and more works are introduced, just as the ambient sound is changing according to changing lifestyle patterns. The introduction of all sound into the environment needs to be sensitively monitored by the artists and public alike. The right to quiet may need more attention. The soundscape of the future is being shaped wittingly and unwittingly by the attitudes and sonic additions of the present. As Murray Schaeffer advises, keep the ears open (Schaeffer 2003).

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The Australian Sound Design Project is at http://www.sounddesign.unimelb.edu.au. Over one hundred and thirty works have been published on the website, alphabetically accessible through a Browse page. Works can be called up by artists, site, title, events, organisations and function. The inclusion of a multimedia gallery for each work allows not only for text, image, diagrams and audio, but also the temporal audiovisual video to be experienced. Aspects of sound art, artists and works can be searched, and refereed theoretical and multimedia papers read (Carter, Belfrage, Burt, Bandt, Paine). Other extensive research tools include a searchable bibliography, (340 entries) and links to software, funding and organisations. If you have original sound works you would like to include on the site, visit the contribute page, http://www.sounddesign.unimelb.edu.au/site/contribute.html, or contact Dr Ros Bandt at the Australian Centre, the University of Melbourne.

Appendix. Comparative summary of sound design features in works discussed.

Part 1

Sound designed features	***Rice Paddies***	***Love is a . . .***	***Audiotheque***	***Cairns Airport***	***Meta Diva***
1. Commissioned	X	ASDP	ASDP		
2. Community consult.					
3. Site indoor/outdoor	O	I	I	I	O
4. Type of collaboration	Cross art form	Duet		Composer, computer engineer	
5. Macro form installation, I, performance, P	I, P	I	I	I	I
6. Micro, sound sources, soundscape, environmental, algorithmic, sampled, original, improvised, live performance, electronic	Env, s, o, elect, live perf, improvised	S,o, env,	Varied electronic soundscape, algorhithmic, sampled	Soundscape, electronic environmental, electronic	Found polychips on timers
7. Temporary or Permanent	T	T	T	P	P
8. Duration	3 weeks	3 weeks	2 weeks	24 hour	daytime
9. Systems	CD Radio, live	Computer programmed	Computer programmed	Computer programmed	Solar chips
10. Interactivity	Yes	Yes	Yes	Flight	Light
11. Environmentally sensitive	Yes	No	No	Plane sensitive	Yes
12. Mixed media	CD Radio	Assemblages Video	Touch screens, headphones	Murals	Sculpture
13. Visual sculptures	Tank, platform	assemblages	Headphone lounge	No, murals	Florettes in lake
14. Screens	No	Yes	Yes	No	No
15. Speaker arrays	Stereo	16 in sculptures	8 headphones suspended	Wall painted speakers throughout	Tiny in florettes
16. Internet				Yes	
17. Silence	No	Yes	Yes	Yes	Yes
18. Listener pathways free	Street	Free	Restricted	Guided	In lake

Part 2

Sound designed features	***Gestation***	***Chinese Whispers***	***Southbank Promenade***	***Federation Bells***	***The Listening Place***
1. Commissioned				State govt	City of Port Philip
2. Community consult.		Yes		Yes	Yes
3. Site indoor/outdoor	I	O	O	O	O
4. Type of collaboration		General public/visual artists			City of Port Philip
5. Macro form installation, performance	Audience interactive installation	Audience interactive installation	Installation	Inst, musical instrument 7 original compositions	Installation
6. Micro, sound sources, environmental, algorithmic, sampled, original, live performance, electronic	Algorithmic, samples, electronic, environmental	Audience interviews, algorithmic, environmental	Sampled, electronic environmental	Computer programmed acoustic bells	Community voices, environmental electronic
7. Temporary or Permanent	T	T	P	P	P
8. Duration	3 weeks RMIT	Variable	24 hour	2 performances per day 8 & 5	Daylight hours
9. Systems	VNS, video programming, algorithms	Internet computer-controlled realtime streaming	Computer-programmed random files	Timed performances, computer controlled	60 minute loop
10. Interactivity	Yes	Yes	Weather	Potential	No
11. Environmentally sensitive	No	Yes	Yes	No	No
12. Mixed media	Yes	Yes	No	No	No
13. Visual sculptures	No	Telephones/objects and texts created by visual artists	No	Yes	Yes
14. Screens	Yes	No	No	No	No
15. Speaker arrays	Quad	Multi –site	Boardwalk	No	Stereo in ground
16. Internet	–	Yes		Yes	No
17. Silence	Yes	Yes	Yes	Yes	Yes
18. Listener pathways	Free	Fixed	Free	Free	Seated