THE ROLE OF SOUND ARCHIVES IN SOUNDSCAPE RESEARCH

I Clouter British Library Sound Archive

Abstract

The beginning of the soundscape movement was marked by a series of sound recording projects that sought to document the acoustic environment through qualitative and quantitative analysis. The current collection of soundscape recordings in the British Library Sound Archive have been selected as representative examples of the development of the field of soundscape study. However the advent of recording begins much earlier and the range of recordings attributable to soundscape research is extremely varied and cross-disciplinary. This paper seeks to promote discussion on the role of the sound archive in the growing field of acoustic environmental research and how it can respond to the rapidly changing acoustic environment.

EARLY RECORDING: Qualitative and quantitative nature of sound recording

In May 1908 Percy Grainger published a report in the Journal of the Folk Song Society[1] on the use of the phonograph as a tool for collecting folk-songs, and the new role of the sound recording in the analysis of traditional music. Grainger started using the phonograph to collect folk songs and music in North Lincolnshire in 1906 and was quickly converted to its use. He considered the phonograph a more accurate method for documenting sound than using the traditional method of written transcription of music. The new machine allowed access to both qualitative and quantitative information hitherto unavailable: aside from the ability to play the recording again and again for detailed analysis of rhythm and pitch, the qualitative aspects that the recording supplied allowed any listener to hear aspects of a sound recording that no other form of transcription could allow.

> ”To my mind the very greatest boon of the gramophone and phonograph is that they record not merely the tunes and words of fine folk-songs, but give an enduring picture of the live art and traditions of peasant and sailor singing and fiddling; together with a record of the dialects of different districts, and of such entertaining accessories as the vocal quality, singing habits, and other personal characteristics of singers. … I think that most folk-song enthusiasts … will surely welcome the ability of the phonograph to retain for future ages what is otherwise but a fleeting impression.” (Grainger, 1908: 150)

The move away from the written method of transcription to the exclusive use of the phonograph in song-collecting was not however an immediate one and the continued use of transcription as a favoured tool for musicologists illustrate this point. Perhaps this is due in part to the dominance in western culture of visual analysis and the tradition of print in dissemination of information attached to sound recordings. In keeping with this theory Percy Grainger bemoaned the fact that he felt there was a definite need for other inventions to supplement the gramophone and phonograph. He principally refers to the need for the invention of a machine that would:

> "record on paper (as the phonograph does on wax), all sounds played or sung into it, giving the number of vibrations of each note, precise rhythmic durations of notes and pauses, dynamics vowel-sounds and blends, etc. Such a machine producing a visible record on paper, together with the phonograph and gramophone preserving an audible record would surely afford ideal means for collecting the music and speech of the known world, providing also a basis for universal comparison." (Grainger, 1908: 152)

He may not have been aware of the invention of the phonautograph[2] in 1857, or subsequent developments, but Grainger hoped that a machine would eventually appear. Until such a time the need for a sound archive was clear.

> "Whenever such an invention does arrive it will, of course be able to note down from all gramophone and phonograph records that are in a good enough state of preservation. Therefore the careful taking and preserving of good gramophone and phonograph records is doubtless the best preparation for the advent of such a mechanical recorder-on-paper." (Grainger, 1908: 152-3)

Percy Grainger's predictions for the potential use of sound recordings in research in conjunction with visual representations of sound is one that can now easily be achieved by using audio tools[3] such as the downloadable visualization and analysis programmes: **Sonic Visualiser**; **Avisoft SASLab Lite**; **Raven Lite** and **Praat,**, which translate a phonographic record into a visual representation at the click of a mouse. Despite technological advances these visualisation tools cannot as yet provide automatic music transcription as Grainger may have hoped. Similarly the reverse action, the recreation of a complex acoustic environment, is very difficult to do accurately. A good sound recording allows auditory perspective of the acoustic environment, the sound of a curlew in the distance or a rush of wind through the trees, all these details are usually insignificant to the sound measuring tool yet they are so much a part of the human experience of the acoustic environment.

Early Sound Archives: Collection development

Sound archives have played an important role in the history of sound recording, providing preservation of, and access to, recordings for use in research, education, scientific study, broadcasting and publication. The many sections which now go to make up the modern sound archive reflect the growth of the number of disciplines which incorporate the use of sound recording in academic research. However the British Library Sound Archive was not developed to support a specific discipline. It began life as the British Institute for Recorded Sound (BIRS) in 1955 under the direction of Patrick Saul.

> 'When the BIRS was founded it announced "*it's acquisitions policy would be to eject nothing on aesthetic grounds' and that it 'wanted everything"*… the aim was to be comprehensive, just as the British Museum Library was comprehensive. "*We cannot tell just what will interest posterity; we ourselves should like to know the taste of the Ancient Greeks in light music as well as Olympian hymns. The only safe rule is to be omnivorous.*" (Day, 2001: 45)[4]

Although the collections policy is more refined today the collections remain broad in their remit "*documenting all aspects of life in the United Kingdom and serving all areas of interest*"[5]

I mention this now because the history of 'soundscape' research specifically attributed to the field of the study of the acoustic environment is a relatively new discipline. However so many recordings pertinent to the acoustic environment could be found in a modern day archive: dialects; cultural traditions; weather systems; sounds of society; sounds of nature; soundscape composition; earwitness accounts; environmental sound art and sculpture. In effect recordings which are location specific and pertinent to an acoustic identity of place.

However I would like for the purposes of this paper to concentrate on the 'soundscape' field study which utilizes the sound recording as part of the documentation of an environment.

Soundscape study recordings:

The acoustic environment presents a specific challenge to the sound-recordist in that it presents a wide field within which a recording can be made. The early method of recording onto a wax cylinder only allowed for a very close recording of a static subject. The expansion of the use of sound recording equipment developed with the microphone and the move away from the cylinder to the more mobile field equipment which allowed greater range in the field. As the possibilities of recording grew, the need for accurate documentation and classification of recordings also grew. Divergent practices were developed by different disciplines but for the purposes of soundscape research it is probably most appropriate to look at developments in the field of the natural sciences.

The first attempts to document the soundscape or acoustic environment were made by wildlife recordists as a part of their study of wildlife habitat. Their empirical approach to documentation of the sound recording, utilizing universal systems of classification and documentation, provide a useful starting point.

> *"The minimum data required are: name of recordist; recording speed and duration; locality; date; species name; type of sound; number of animals and sex if known,. The following further details are needed if the recordings are to have real scientific value: recording equipment; time of day; weather (especially temperature for insects and amphibians); habitat; associated behaviour and circumstances*." (Kettle, 2003: 162-176).

The sonogram is also frequently used by wildlife recordists for the purposes of the analysis of a short sample of a vocalisation, or to examine where within the spectrum of the acoustic environment the vocalisation appears and how it interacts with the sound around it. The wildlife recording has long been recognised as a valued source in scientific evaluation of the sonic environment and many of these qualities or quantifiable elements are transferrable to the documentation of the human experience of the acoustic environment.

The notable difference and perhaps the starting point of diversion of the soundscape study into the realm of the human experience of the acoustic environment as exacted by the 'World Soundscape Project team, led by Murray Schafer in the 1970's, is the inclusion of sound pressure level measurements of a source to examine the perceptual level of hearing. The standard measurement applied and used by most noise measuring equipment is the dB(A).

> "Since the only reason for measuring sound is related to its effect on people, it is logical to attempt to make measuring instruments respond in a similar manner to the human ear"
>
> "A frequency weighting was introduced in an attempt to measure noise in the same way that the ear perceives it and this is called the A weighting curve."
>
> (Parry and Tyler, 1999: 1.6.4.4 / 1.6.2)

Here it is the measured level of sound in relation to human perception that informs the 'soundscape' research recording.

In an attempt to translate this information again into a visual aid, to document a wider acoustic profile, the area across which a specific sound can be heard, (ref. David Paquette), the World Soundscape project developed the 'isobel contour' maps, which Bruce Davis one of the founder members of the WSP team describes:

> "They are analagous to topographic or weather maps in that they take decibel readings of a selected location over a grid (from sometimes hundreds of collection points) and join points of equal sound pressure with 'isobel' lines: instantly comprehendible by anyone, especially politicians. In general, whatever we recorded on tape was, whenever possible, accompanied by sound level measurements so that we could in the future talk to the likes of engineers and administrators with some factual authority.
>
> The point of the exercise was to draw attention to the soundscape in a simple and arresting way. We were also trying to provide a data-based balance to the basically qualitative sound recordings themselves. We had only one sound level meter and so had to collect the data over a period of some hours, so it was not exactly scientific (this would technically require simultaneous readings at hundreds of locations) but this was hardly necessary to make our point, which was simply to invite a more careful and attentive approach to the sounds around us, and to consider the social and economic relations inherent in them."[9]
>
> *Bruce Davis (email 2008.02.05)*

As Bruce Davis remarked the WSP were aware that their approach did not equate to a scientific study which would require simultaneous recordings at multiple locations to be included as an ideal profile. At least they attempted to record the sound itself and include a measurement of the sound unlike the recent DEFRA noise maps[10] which were developed in response to the EU Directive 2002/49/E[11], relating to the assessment and management of environmental noise. The 'DEFRA noise maps' were constructed from traffic emissions calculations and bear little relation to the qualitative nature of an acoustic environment. The descriptions of sounds in many of these acoustic surveys are qualified as either under or above the 'annoyance threshold', here sound has little value until it reaches a level where it may be described as noise or unwanted sound. Quantitative measurements are not enough on their own to define a soundscape quality and thereby quality of life: sound level measurements cannot easily distinguish between the sound of a church bell and a car alarm, or the low-level hum of an extractor fan and the wind in the trees. This is not to denigrate the value of quantitative analysis of the sonic environment but to emphasise the fact that the combination of qualitative and quantitative research of the sonic environment is more appropriate to understanding the human experience of the soundscape.

Through the act of listening to a sound recording the qualitative nature of an acoustic environment can be experienced directly. Providing access to listen to recordings is one of the main roles of the sound archive in furthering soundscape research. The copy of the World Soundscape Project (WSP) European sound tapes[12] held in the British Library Sound Archive, provide a rich resource of recordings to illustrate the different emotional, psychological and physical responses that listening to a sound recording can elicit. The recordings of the acoustic environment of the Glass factory in Skruv, Sweden (WSP Reel 10), or the Pig slaughterhouse in Bissingen, Germany (WSP Reel 16), are two such examples which attest the impact of the qualitative nature of the sound recording.

Documenting culture: The comparison of different cultures' appreciations or understanding of acoustic environments was one of the objectives of the World Soundscape Project European tour. The comparative studies of five small European villages of similar size provided a range of interesting results which are all immediately accessible through the audition of the sound recordings. Although the sonic identity of each region is defined by its geography, weather system and the sounds of the different languages it is through continued listening to the tapes that much more information is revealed. The legacy of these tapes has been explored, in part, by the project 'Acoustic Environments in Change'[13] an international, multi-disciplinary project, studying the changes of soundscapes in six European villages. This possibility for multiple works to be conducted from a single resource is one of the characteristics of the sound recording.

Multiplicity of meaning: In the context of the 'soundscape' research field, which brings together so many different disciplines, the multiplicity of meaning inherent in a sound recording is one of the fascinating aspects of the study of sound. The obvious challenge that this creates to those seeking to classify the soundscape is one that archivists and those in the field regularly face. The following example of the documentation of the Japanese 100 soundscapes project by two different production companies is just one example of the different disciplinary approaches to the same space. The project was developed by the Japanese Soundscape Association in partnership with the Japanese Environment agency.

> "In order to preserve the natural and cultural heritages all around the country based on the concept of soundscape. The project encouraged individuals or groups of people throughout the country to recommend soundscapes which could be appreciated in specific localities and which the dwellers wish to preserve or to conserve for the next generation. From these recommended soundscapes, 100 were selected as the symbols of the richness and wide variety of Japanese nature and culture." (Torigoe, 2003)[14]

The proposed sites covered a variety of themes including natural soundscapes featuring wildlife and natural phenomena, alongside the sounds of society, the music of seasonal festivals and many more.

Two video collections were made of the sites by two very different companies:

The first collection that I received is organised according to regional distribution. Each video covers one or more Japanese prefectures (*Ken* in Japanese) starting in Hokkaido and finishing in Okinawa. The audio and visual documentation of each soundscape, includes audio commentary in Japanese: ***Oto to eizō ni yoru Nihon no oto fūkei 100-sen*****, Japan's sound scenery (top) 100 compilation: in sound and images**, produced by: Eizō Raiburarī [Image Library] (accession no: 1CV0003363 - 1CV0003382).

The second set is arranged according to theme: stillness; coolness; trade; celebrations; purity; scenic; imagination; longing; fragrant; and spiritual. This collection also includes maps in the booklet to illustrate regional distribution of each category. There is no audio commentary, only pure soundscape recordings with accompanying images.
***Nokoshitai Nihon no Oto,* 100 Japanese Sounds to Remember**, planned by the Japan Music Education Center in conjunction with the Environment Agency Air Quality Preservation Bureau, Lifestyle Environment Office (accession no. 1CV0003383 - 1CV0003392).

The British Library artist in residence, Chino Otsuka, who translated the titles of the second set for me, explained that the themes themselves were illustrative of some aspects of Japanese culture, which were almost untranslatable. The added complications inherent in individual cultural approaches to the nature of sound make a single universal classification system a complex thing to achieve, yet an interesting challenge. For the purposes of the Archival Sound Recordings project, which I will describe later, I devised a classification system for 'sounds of society' which would allow for sounds attributable to certain locations to be classified as such. The main difference between this type of system and the nomenclature applied to wildlife sound recordings is that these sounds are not necessarily caused by the named source but attributable to them. This is by no means a definitive or finite list but one that could be discussed in an appropriate forum.

Sound Archives – as centers for research

As the field of acoustic environmental research develops I believe that the Sound archive provides a useful centre for the cross-fertilization of ideas relating to this field that appear in so many different disciplines. In its infancy the field of ethnomusicology found the sound archive to be a useful center for research whilst awaiting academic support and recognition within the institutional structure which it now enjoys.

> "Sound archives, or centers of recorded collections like the sound archives in Vienna and Berlin in Europe or the Library of Congress in the USA, provided a base for the discipline of ethnomusicology before the institutional structure now provided by university departments. Archives provided support for the systematic collection, documentation and collection of sound recordings." [Choudhury, 1992: 365] [15]

Sound archives continue to preserve original recordings, such as those on wax cylinder and tape, in anticipation of future developments in technology which will allow for more detailed

analysis of sonic information extractable from a recording. I believe that developments of the analysis of those recordings in the context of what can be learned about the acoustic environment will advance in line with research on the influence of the acoustic environment on human perception.

Sound archives - Future developments

The use of sound recordings in education has been the focus of the Archival Sound Recordings Project[16] (ASR) which is now in its second phase. Launched in 2006 this service enables access to a selection of digitised audio from the Sound Archives collections, available for download to the Higher and Further Education communities of the UK. There are six soundscape[17] collections included on this site: Soundscapes of Canada; The Sounds of Harris and Lewis; Sounding Dartmoor; Fog warning signals; Wildlife soundscapes and Industrial Mechanical Sounds preserved. The first phase of the project focused on the digitization, delivery processes, metadata and copyright issues related to making recordings available. The second phase of the ASR project is focusing on:

> "the development of materials and tools to improve user interaction with the content of the site including the development of Web 2.0 functionality such as semantic tagging and interactive book-marking. While the emphasis of ASR2 will continue to be on delivering materials for teaching, learning and research, it also intends to provide access to everyone, where possible, rather than exclusively to the Higher and Further Education sectors of the UK." (ASR, 2007)[18]

It is hoped that the ASR website will become the platform for digital access to sound archive material of the future and further engagement with the soundscape research community will be developed here.

Conclusion:

The very nature of sound and the act of listening belies a lack of physicality in the sense that a sound is something that is heard and invariably not seen, the only ability to grasp and retain sound in the immediacy of the moment in which it is experienced is through the act of recording and transferring something that was once intangible and existing only in the invisible realm of the acoustic into the physical world of sound recordings. The ability of the sound recording to preserve a moment in time is particularly pertinent to the acoustic environment which is itself in a constant state of flux. The sound archive can therefore provide an important record of acoustic environments where the soundscape is constantly changing, preserving those acoustic environments in sound for generations to come.

REFERENCES

1. P. Grainger, Collecting with the Phonograph: The old singers and the New Method, Journal of the Folk Song Society, No.12 Being the third part of Volume 3, 147-169 (May 1908)
2. T. L. Hankins and R. J. Silverman, Instruments and the imagination, Princeton University Press; New Ed edition (1999)
3. Archival Sound Recordings – Audio Tools web page: http://sounds.bl.uk/TextPage.aspx?page=audiotools (retrieved 21.02.2008)
4. T. Day, 'The National Sound Archive: The first fifty years', Aural History: Essays on recorded sound, 41-64. The British Library (2001)
5. The British Library Sound Archive: Collection development policy: http://www.bl.uk/collections/sound-archive/nsacoll.html (retrieved 21.02.2008)
6. Kettle R. Natural History. In: Lance D. (Ed), Sound Archives: A Guide to their Establishment and Development. International Association of Sound Archives, Special Publication No. 4: 162-176. (1983)
7. G. Parry and R. Tyler. 1.6.4.4 'Industrial noise – Weighting curves' Basic principles, Audio-engineer's reference book, ed. M. Talbot-Smith Focal Press, 2nd ed. (1999)
8. G. Parry and R. Tyler. R. 1.6.2 'Noise measurement – fundamental properties' Basic principles, Audio-engineer's reference book, ed. M. Talbot-Smith Focal Press, 2nd ed. (1999)
9. B. Davis (correspondence to Isobel Clouter - *email 2008.02.05)*
10. DEFRA noise maps http://www.noisemapping.org/ (retrieved 21.02.2008)
11. EU Directive 2002/49/E http://ec.europa.eu/environment/noise/directive.htm (retrieved 21.02.2008)
12. World Soundscape Project Tape index: http://www.sfu.ca/sonic-studio/srs/Eur.html (retrieved 21.02.2008)
13. Acoustic Environments in Change http://www.6villages.tpu.fi/ (retrieved 21.02.2008)
14. K. Torigoe (2003)
15. S. Choudhury, 'Preservation of the World's Music', in (Ed.) H. Myers, Ethnomusicology: An Introduction: 365-374. London: Macmillan (1992)
16. Archival Sound Recordings Project – about: http://sounds.bl.uk/TextPage.aspx?page=about (retrieved 21.02.2008)
17. Soundscape collections http://sounds.bl.uk/TextPage.aspx?page=backgroundSoundscapes (retrieved 21.02.2008)
18. ASR2 future project http://sounds.bl.uk/TextPage.aspx?page=projectinfo (retrieved 21.02.2008)