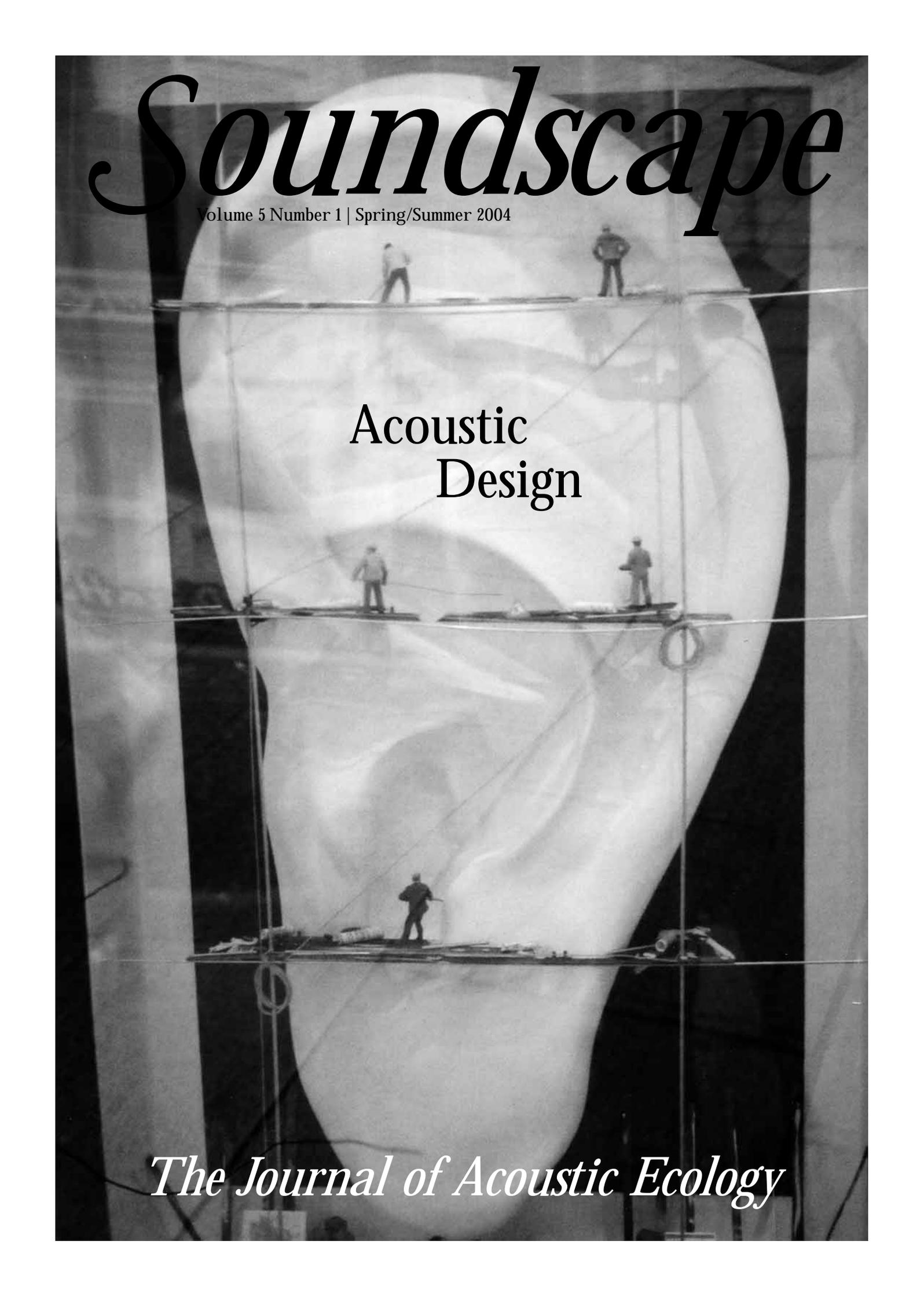


# *Soundscape*



Volume 5 Number 1 | Spring/Summer 2004

## Acoustic Design

*The Journal of Acoustic Ecology*

*Soundscape*  
*The Journal of Acoustic Ecology*

Volume 5 Number 1 | Spring/Summer 2004  
issn 1607-3304

*Soundscape* is a biannual English language publication of the World Forum for Acoustic Ecology (WFAE). It is conceived as a place of communication and discussion about interdisciplinary research and practice in the field of Acoustic Ecology, focussing on the inter-relationship between sound, nature, and society. The publication seeks to balance its content between scholarly writings, research, and an active engagement in current soundscape issues.

**Editorial Committee**

Harold Clark  
Gary Ferrington  
Nigel Frayne  
Katharine Norman  
Hildegard Westerkamp

**Contributors and**

**Contributing Correspondents**

Simo Alitalo, Francoise Acquier, Glenn Bach, Olivier Balay, Gary Ferrington, Nigel Frayne, Lisa Gasior, Steve Haas, Per Hedfors, David Hicks, Hartwig Hochmair, Greg Hooper, Brandon LaBelle, Annea Lockwood, Albert Mayr, Andra McCartney, Gérard Mermoz, Ian Stonehouse, Keiko Torigoe, Gregg Wagstaff

**Layout Design and Prepress:** Reanna Evoy  
**Original Design and Soundscape Logotype:** Robert MacNevin

**Printing:** Kinko's, Melbourne

**Front & Rear Cover Photo:**

Hildegard Westerkamp  
Images taken of a hearing aid shop's window display in Osnabrück, Germany  
**Ear Graphic p. 31:** Dirk Marwedel

**Membership Committee:** John Campbell - chair (AFAE and WFAE); Lorenz Schwarz (FKL); Darren Copeland (CASE); John Drever (UKISC); Outi Koivisto (FSAE); Nigel Frayne (WFAE board); Yoshio Tsuchida (JASE); Michelle Nagai (ASAE).

**Mailing List and Distribution**

**Melbourne:** John Campbell and Nigel Frayne  
The printing and distribution of this edition of the journal were made possible through membership contributions and donations.

Contents copyright © 2004, *Soundscape*. The authors retain copyright on each article. Republication rights must be negotiated with the author. Credit for previous publication in *Soundscape—The Journal of Acoustic Ecology* must be given. Photographers, artists, and illustrators retain copyright on their images.

Opinions expressed in *Soundscape—The Journal of Acoustic Ecology* are not necessarily those of the Editors.

## World Forum for Acoustic Ecology (WFAE)

The World Forum for Acoustic Ecology, founded in 1993, is an international association of affiliated organizations and individuals, who share a common concern for the state of the world's soundscapes. Our members represent a multi-disciplinary spectrum of individuals engaged in the study of the social, cultural, and ecological aspects of the sonic environment.

**Board Members of the WFAE and its Affiliates**

**World Forum for Acoustic Ecology (WFAE)**

Nigel Frayne: AFAE Rep. and Board Chair  
Andra McCartney: CASE Rep.  
Albert Mayr: FKL Rep.  
Simo Alitalo: FSAE Rep.  
Gregg Wagstaff: UKISC Rep.  
Keiko Torigoe: JASE Rep.  
Steven M. Miller: ASAE Rep.  
Gary Ferrington: Secretary and Webmaster  
Hildegard Westerkamp: Chair Journal Committee

**Canadian Association for Sound Ecology (CASE) Association Canadienne pour l'Écologie Sonore (ACÉS)**

Victoria Fenner: Interim President  
Nadene Thériault-Copeland: Treasurer  
Darren Copeland: Secretary  
Andra McCartney: WFAE representative  
R. Murray Schafer: Member at large  
Hildegard Westerkamp: Member at large  
Tim Wilson: Member at large

**United Kingdom & Ireland Soundscape Community (UKISC)**

Management committee:  
Isobel Clouter, John Drever,  
Rahma Khazam, Thomas Lindner,  
Pedro Rebelo, Gregg Wagstaff

**Australian Forum for Acoustic Ecology (AFAE)**

Greg Hooper: President  
Nigel Frayne: Vice President  
Helen Dilkes: Treasurer  
John Campbell: Secretary

**Forum Klanglandschaft (FKL)**

Gabriele Proy: President  
Lorenz Schwarz: General Manager and Webmaster  
Günther Olias: Co-ordinator Germany  
Albert Mayr: Co-ordinator Italy  
Dina Schwarz: Co-ordinator Austria

**American Society for Acoustic Ecology (ASAE)**

Jim Cummings: President and Webmaster  
Steven M. Miller: Vice President and WFAE Representative  
Dave Aftandilian: Communications/Publications Coordinator  
Michelle Nagai: Treasurer and Membership Coordinator  
Glenn Bach: Secretary and Regional Coordinator

**Suomen Akustisen Ekologian Seura (Finnish Society for Acoustic Ecology—FSAE)**

Tero Hyvärinen: Chairperson  
Simo Alitalo: Vice-chair  
Outi Koivisto: Secretary/Treasurer  
Petri Kuljuntausta: Member-at-large  
Helmi Järviluoma: Deputy Member  
Ari Koivuniemi: Deputy Member

**Japanese Association for Sound Ecology (JASE)**

Keiko Torigoe: Chairperson  
Shinichiro Iwamiya: Member at large  
Yoshio Tsuchida: Member at large  
Tadahiko Imada: Member at large

## Contributions

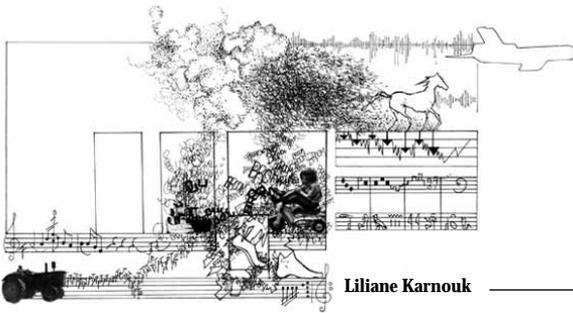
Ideas for journal themes, proposals for new sections, as well as visual materials, are welcomed. You may submit either a proposal or a complete manuscript of a potential article to *Soundscape*. The Editorial Committee would generally prefer to communicate with you beforehand regarding your ideas for an article, or receive a proposal, or an abstract. Please also download our Guide to Contributors: Instructions for the Preparation of Materials for Submission to *Soundscape* (PDF) on the WFAE Website at: <http://www.wfae.net>

**Submissions:** Texts can be submitted for the following sections in the journal: *Feature Articles*; *Current Research*: a section devoted to a summary of current research within the field; *Dialogue*: an opportunity for editorial comment from readers; *Perspectives*: reports of events, conferences, installations etc.; *Sound Journals*: personal reflections on listening to the soundscape; *Soundwalks* from around the world; *Reviews*: of books, CDs, videos, web sites, and other media; *Students' and/or Children's writings*; *Quotes*: sound and listening related quotations from literature, articles, correspondence, etc.; *Announcements*: of events organized/sponsored by the WFAE Affiliates. **Please send correspondence and submissions to:** *Soundscape—The Journal of Acoustic Ecology*, School of Communication, Simon Fraser University, Burnaby, B.C. V5A 1S6 Canada. **NOTE: New E-mail Contacts.** (Please send your email submissions to the relevant address):

[soundscape-editor@wfae.net](mailto:soundscape-editor@wfae.net)  
[soundscape-news@wfae.net](mailto:soundscape-news@wfae.net)  
[soundscape-reviews@wfae.net](mailto:soundscape-reviews@wfae.net)  
[soundscape-technology@wfae.net](mailto:soundscape-technology@wfae.net)

**Submission deadline for next issue: October 1, 2004.**

**Theme: The Experience of Music in Daily Life.**



# Soundscape

## The Journal of Acoustic Ecology

Volume 5 Number 1 | Spring/Summer 2004

### Contents

Contribution Guidelines . . . . .	2
Editorial . . . . .	3
Report from the Chair . . . . .	4
Regional Activity Reports . . . . .	4
AFAE . . . . .	4
FSAE . . . . .	5
UKISC . . . . .	5
CASE/ACÉS . . . . .	5
FKL . . . . .	6
JASE . . . . .	6
ASAE . . . . .	7
Announcements . . . . .	7
Sound Journals . . . . .	8
Current Research . . . . .	9
FEATURE ARTICLES	
Discrete Mapping of Urban Soundscapes . . . . .	13
Acoustic Design in the Built Environment . . . . .	15
Active Acoustics: Defining One's Private Acoustic Environment . . . . .	20
Istanbul Sound Diary . . . . .	23
Soundwalks . . . . .	26
Reviews . . . . .	28
Dialogue . . . . .	31
Perspectives . . . . .	32
WFAE—Membership and Subscription Information . . . . .	35

### Editorial

With this issue we are returning to a smaller, financially more manageable size of *Soundscape*. But in order to do this and still bring you the same quality in content, we had to make a few changes. We limited our Announcements section to events directly connected to the WFAE and its Affiliates. Other announcements, as well as our Resources section and Sound Bites will now appear in our new online newsletter at [www.wfae.net/newsletter](http://www.wfae.net/newsletter). Please see back cover frame for more details.

Another and particularly positive change is the recent expansion of our editorial committee. Katharine Norman and Harold Clark, both residing in or near Vancouver, have joined us and have made the work on this issue less labour intensive, more interesting and enjoyable. A heartfelt welcome to both and we hope to work together for many more issues.

In the context of this issue's theme I want to go back to origins of acoustic design thinking as it occurred during the Seventies from the very start of my work with R. Murray Schafer and the World Soundscape Project.\* It was clear then that Bauhaus had had a strong influence on how Soundscape Studies and thus Acoustic Design emerged as fields of study and how they were defined. Two aspects attracted Schafer to Bauhaus: the interdisciplinary nature of its training and design practice, as well as the connection that was made between craftsmanship and artistic production, functionalism and creativity. But although Bauhaus may have had a strong influence on the early approaches towards soundscape studies and ideas of acoustic design, many of the outgrowths of its design have not necessarily produced positive results in the soundscape itself.

Although most likely not anticipated by Bauhaus designers, functionalism and efficiency in building design have been developed to great extremes during the twentieth century as banks and corporations have been erecting their tall towers all over the world. Thus, the resulting internationalism in urban design has not only created visual but also aural sameness:

same materials, same structures, same sounds. Sonically this translates, among other things, into electrical hums from artificial lighting and broadband sounds from air conditioning inside, and powerful broadband sounds from the buildings' exhaust systems outside. Bauhaus in its original intent wanted to highlight the essence of industrial functional design as a type of freeing from the clutter of ornamentation and overburdened tradition and thereby wanted to revitalize urban design. Its internationalism at that time felt like a liberation from bourgeois mannerisms in design, from stuffy parochialism and the limitations of "place".

But Soundscape Studies emerged at a time when beauty was no longer located in functionalism. Acoustic design in this context stands in direct opposition to corporate monolithic design of sameness. Rather, today's acoustic designers want to work from the specifics of place and culture, welcoming the varied possibilities that that entails. The quietest natural places and quietest social environments in the world as well as the busiest tropical forests and liveliest community soundscapes can give valuable cues for such acoustic design practices.

In this issue of *Soundscape* we present four feature articles, three current research projects, a sound journal and more, all dealing with some aspects of acoustic design. They offer a spectrum of current activities in this field as applied to urban environments, public buildings, parks and indoor places. None of this type of thinking and writing existed 30 years ago and it is with great pleasure that we give you this small but significant taste of acoustic design practices as they exist today.

**Hildegard Westerkamp**  
for the Editorial Committee

\*Some of this text is excerpted from my article "Bauhaus and Soundscape Studies—Exploring Connections and Differences" recently published in *Anthologie: Multisensuelles Design*, ed. Peter Luckner, Hochschule für Kunst und Design, Halle, Germany.

### — NOTE —

Announcements, Resources and Sound Bites can now be found in our new Online WFAE Newsletter:

<http://www.wfae.net/newsletter/>

Submissions should be sent to:  
[secretary@wfae.net](mailto:secretary@wfae.net)

# Report From The Chair

---

It is gratifying once again to read the reports from all of the affiliates and to note the strengthening bond between members as they initiate local activities. Many groups have elected new members to their executives which allows for fresh energy to filter through the organisations. The formation of the ASAE (see page 7) and their affiliation with the WFAE is particularly significant and has prompted me to consider various issues surrounding the general operation of the organisation and the board. I would like to congratulate the ASAE for all the work in establishing the organisation. On behalf of the WFAE board I welcome the ASAE as our newest Affiliate.

I have personally found the process of affiliation of the ASAE to be an interesting exercise as it has required me to reacquaint myself with the draft by-laws of the WFAE, which were adopted at the Stockholm conference back in 1998, six years ago. While there has been no imperative for the WFAE to deal with the issue of its own legal incorporation there are none-the-less issues regarding its structure and operation that may need to be reviewed.

The by-laws proposed a traditional executive structure of President, Vice-president, Treasurer and Secretary. So far this structure has not been adopted and in its place we have a Chair (myself) and a Secretary (Gary Ferrington). According to the by-laws the organisation is run by a General Secretary on behalf of the board. As Chair of the board I have been

effectively operating as a de facto General Secretary with the assistance of the journal and membership committees. Together with Peter Grant (in Vancouver) I have also been maintaining the financial records.

In order to create a more expansive dialogue on the board it may be more effective to separate the position of board Chair from these general secretarial tasks. This could be achieved either by appointing a new person or distributing some of the tasks within the board personnel. Alternatively, perhaps it is time to adopt the executive structure outlined in the draft by-laws and also sometime soon to formally ratify the by-laws. The draft by-laws are available for perusal on the WFAE website and members' comments and suggestions are welcomed.

The WFAE Board has officially endorsed two events next year, a Soundscape Symposium at Potsdam University hosted by FKL, April 22-24, and a Sound and Vibration Conference in Lisbon, in July 2005 (see Announcements on p. 7 for more details). It is hoped that these events will provide the membership with a chance to meet again and especially for the WFAE Board to get together to discuss and act on some of the issues raised above.

**Nigel Frayne**  
Chair, WFAE Board  
chair@wfae.net

## Regional Activity Reports

---

### Australian Forum for Acoustic Ecology (AFAE)

By Greg Hooper

The AFAE held its AGM in late October, 2003. Many thanks to John Campbell and Anthony Magen for their notes from the meeting. Whilst the AFAE is still primarily based in Melbourne, my appointment as the new President provides opportunities for new input to the organization and an expansion of AFAE activities into another city, Brisbane. Following the AGM Lawrence Harvey talked about the Spatial Information Architectural Laboratory (SIAL) in the School of Architecture and Design at RMIT University. Helen Dilkes discussed her work, in association with Resonant Designs (Nigel Frayne), for LaTrobe University's Australian Institute of Primary Care Centre for Development and Innovation in Health, at Monash Medical Centre. The project *Sounds in Health* deals with patients in palliative care and explores listening and responding to a variety of sounds. Paul Roquet, a graduate student from California, spoke of his ongoing study of current soundscapes in the Cook Islands, Fiji, New Zealand and Australia. On a personal note, as the new President, I would like to thank the outgoing President, Nigel Frayne, and all the other people who have helped set up the acoustic ecology forum within Australia. It is a real pleasure to be associated with such interesting (and welcoming) people.

I would also like to highlight some issues for the AFAE membership in 2004 (for which preliminary discussions have already begun). Firstly, it is important that the AFAE both represents and facilitates the interests of its members. Thus we need to

improve on and develop channels of communication that allow all members to be involved and to begin discussions on how to further their interests. As an academic with a background in both science and the arts, my preference is to seek funding for group projects involving AFAE members (and others). Interdisciplinary research is currently fashionable and AFAE members sit across many disciplines. A number of projects that members undertake individually could easily function as sub-tasks within those larger integrated projects that attract funding. The focus of AFAE activities this year will hopefully be on the development of projects that help bring together and fund the interests of the membership.

In addition there is a need to further develop the web presence of the AFAE. The internet is an excellent mechanism for presenting sound works to the broader community, for advertising individual member activities, and for attracting new members. It would be useful to offer online payment of membership fees, though not as an exclusive mechanism. It is also hoped that this year in Melbourne SIAL will host AFAE forums where people from within the acoustics industry and acoustic ecology can share their experiences with AFAE members and the general public. The AFAE began in Melbourne and that is its strongest base. However, it is hoped that a concert and seminar will also be organised in Queensland toward the end of 2004, to broader represent AFAE activities across Australia as a whole.

**Contact:**  
Greg Hooper: afae@wfae.net

## Finnish Society for Acoustic Ecology (FSAE)

By Simo Alitalo

Seed funding received for the *100 Finnish Soundscapes* initiative!

During the past few years the FSAE has been developing a large scale project to study, record and protect Finnish soundscapes. The original inspiration came from our Japanese colleagues and their *Conserving 100 Japanese Soundscapes* project.

*100 Finnish Soundscapes* is a kind of "competition" where members of the public can make proposals for what they think to be important soundscapes and give reasons and justify their choices. Our aim is to raise awareness of acoustic ecology, collect memories and recollections of past and present soundscapes, document and record them and think of ways of preserving endangered soundscapes. We have already negotiated a plan for cooperation with the Finnish Broadcasting Company (YLE) and the Finnish Literary Society.

For the past 2 years we have been applying for funds without success. This Autumn we held an intensive one-day fundraising seminar in Mellilä where members of the board rewrote the whole project and its budget. Recently we learned that we received 15,000 Euros seed funding from The Finnish Cultural Foundation to start our three year project!

**Contact:**

fsae@wfae.net

## United Kingdom and Ireland Soundscape Community (UKISC)

By Gregg Wagstaff

The UKISC's annual publication *Earshot* is currently at the layout stage and should be with its members soon. We are very grateful that Rahma Khazam continues the role of Chief Editor, assisted by Pedro Rebelo. *Earshot*<sup>4</sup> maintains the theme of *Time & Visibility: Essays on Sound and Architecture*, and includes interviews with Bernard Tschumi & Marcus Novack, and articles by Nicolas Schafer & Bernhard Leitner. Accompanying this *Earshot* will be a CD of *Architectural Soundmarks*. This is curated by John Drever and includes audio contributions by UKISC members, amongst others. We hope that a CD will be a regular inclusion to *Earshot* in the future.

There have been two additions to the UKISC management committee. More recently, Thomas Lindner (a *listening architect*) has joined us and will be assisting with the 'sonification' of *Earshot*<sup>5</sup>. This will likely be in a sound oriented PDF format that would not only allow audio to be embedded into written articles but permit contributions in *audio only*. Isobel Clouter (creator of several soundscape related radio programmes) is working tirelessly within the British Library towards setting up a dedicated soundscape archive. Isobel is also inputting a lot of time and energy into pushing forward the UKISC *100 UK Soundscapes* proposal.

Inspired by the SAJ and their *Conserving 100 Japanese Soundscapes*, we have been gradually forming our own proposals for a UK & Ireland wide project. Keiko Torigoe (JASE) has been of great assistance to us - *thank you Keiko*. Gregg Wagstaff

has recently met with Helmi Järviluoma (FSAE) to discuss their application for a similar project in Finland. This recognises that collaboration between WFAE affiliate groups would strengthen each other's proposals, especially within the EU. It is our hope that, in the light of the current EU wide noise-mapping program, a *100 UK Soundscapes* project would provide a more participatory, qualitative and grass roots response.

**Contact:**

ukisc@wfae.net

## The Canadian Association for Sound Ecology (CASE) Association Canadienne pour l'Écologie Sonore (ACÉS)

By Andra McCartney

CASE held its annual general meeting on Sunday Feb 22, 2004 in Toronto. At this meeting it was decided to elect Victoria Fenner as interim President for one year, replacing outgoing president Darren Copeland. CASE wishes to support the establishment of regional groups across the country, to build membership and create a stronger sense of community. There was a regional meeting in Montreal the previous week, which resulted in the establishment of a working group that will meet 3 or 4 times a year. CASE members decided to raise the membership fees by \$5, to \$40, and \$25 for students, starting September 1, 2004.

Hildegard Westerkamp reported on the *Soundscape Journal*, which will continue to publish two issues per year. The last two issues have been particularly large, effectively double issues. There has been some discussion on the WFAE list about moving Announcements, Sound Bites and Resources online (see back cover for details). It was suggested that fundraising for the Journal might be a good project for CASE.

The website for CASE has been moved offline so that it can be re-designed and made bilingual. This project will be done by Andra McCartney at Concordia University over the next several weeks, and the website will then be hosted at Concordia, in the department of Communication Studies. Tim Wilson agreed to receive and edit material on an ongoing basis to provide an online CASE newsletter.

CASE plans to hold a retreat at the Haliburton Forest, Ontario, at Thanksgiving, October 8-11 2004. CASE or WFAE members are invited to submit proposals for presentations or workshops. Submissions should be sent to: Canadian Association for Sound Ecology, 401 Richmond Street West #358, Toronto, ON M5V 3A8. Contact Nadene Thériault-Copeland for more information at nadene@ca.inter.net. For more details see page 7.

Website survey: *A Listener's Guide to Good Eating*. CASE will solicit anecdotal information for an online guide to ear-minded eating establishments. We will ask interested people about restaurants that provide both good food and good listening. This may mean a quiet restaurant, one that is willing to adjust the volume of music, one that has an interesting sound environment. The purpose is both to provide a public service, to raise awareness about the endemic noisiness of restaurants, and to provide a publicity point for CASE.

**Contact:**

case@wfae.net

# Regional Activity Reports (continued)

## Japanese Association for Sound Ecology (JASE)

by Keiko Torigoe

As the JASE is one of the operating divisions of the Soundscape Association of Japan (SAJ), our regional activity report of Japan brings you the activities of the SAJ.

On December 7, 2003 the SAJ celebrated its 10th anniversary in Miyashiro Hall at the University of the Sacred Heart in Tokyo by holding a special symposium entitled *Horizon of Soundscape 2003*. The symposium consisted of two parts. Part One was held in the morning, in which a keynote lecture was given by Koh Tanimura and a keynote report by Kozo Hiramatsu. Part Two, a series of panel discussions, was held in the afternoon.

Tanimura, the president of the SAJ, gave his lecture under the title of "The Ears of Janacek" and illustrated through the case study of Janacek's piano pieces how a piece of music can reveal its composer's daily soundscape. Tanimura concluded that the concept of soundscape study should be applied to the field of traditional musicology as well as to actual environments.

Hiramatsu, the secretary-general of the SAJ, gave an overview of the chronology of the SAJ and the history leading up to its establishment in 1993. Through the report, Hiramatsu discussed some basic administrative problems with which the SAJ had to deal during the last 10 years. He explained that "rhizome structure" is more suitable to the concept of soundscape, but that "tree structure" is easier to understand and to organize an association. This contradiction, however, has proven to be the most difficult administrative problem within the SAJ. For example, for the first several years, SAJ had two headquarters, one in Tokyo, and the other in Osaka. This system was good in terms of representing the two individual local cultures and of encouraging other local cultures to have their own headquarters. However, it caused various problems whenever the SAJ had to present a unified view to outside bodies. Therefore, we changed our system to having one headquarter only and to allow relatively independent power to the heads of each committee. But the result of that is that the heads, who are living all over Japan, tend to feel isolated.

Part Two, a series of panel discussions, was designed to discuss the impact and influences of the soundscape concept in Japan, focussing on the activities of individual members of the SAJ. For this purpose four panel discussions were held successively focusing on the following themes: 1) Art and Design, 2) Architecture and Community Design, 3) Environment, and 4) Education. Each of the four discussions was organized by one coordinator with three to four people to each panel. The panels, all of whom consisted of SAJ members, presented one specific project influenced by, based on, or related to the concept of soundscape. At the end of the day, a general discussion, in which the four coordinators became the panel, was held involving the audience.

On the previous day of the symposium, the SAJ also held a study meeting on "Soundscape of Tokyo and Edo focusing on the bells announcing the time".

At the end of this special symposium, we understood how wide a variety of projects had been realized for more than 10 years in Japan and to what extent they had been influenced by the concept of soundscape.

Finally, on April 9, 2004, the JASE held a mini-symposium as its first official event, *Divergent Research Activities in the Field of Soundscape*, at the Institute for South East Asian Studies, Kyoto

University. There were 1) six participants—one from New Zealand, two from Germany, three from Korea—all of whom were visiting Kyoto at that time in order to participate in the ICA (International Congress on Acoustics); 2) one scholar from Thailand, whom the JASE invited for the mini-symposium; and 3) several members of the JASE.

It was basically a closed meeting and the aim of the symposium was to exchange ideas and opinions on soundscape studies and to tighten the friendship between soundscape researchers from acoustics and non-acoustics fields. During the symposium, we had a variety of precious discussions on what "soundscape studies" means to the conventional sciences and research fields.

### Contact:

jase@wfae.net

## Forum Klanglandschaft (FKL)

By Albert Mayr

FKL is gathering momentum for the organization of the next biennial conference that is scheduled for April 22 – 24, 2005 in Potsdam, near Berlin. Günter Olias, co-ordinator of FKL's German section (recently turned 65, best wishes!) is preparing the ground in co-operation with the newly founded "Klangforum Brandenburg".

The Italian section has grown considerably after last year's conference in Meran, and some members suggested that an autonomous Italian affiliate should be formed. A lively electronic discussion followed this proposal but in the end the vast majority of the members opted for staying within FKL.

Member news: Gabriele Proy, our president, has been touring extensively last Fall, giving lectures on soundscape studies and soundscape composition and concerts in Sofia and Poznan, excellent occasions for informing about FKL, the WFAE and the Journal. An interesting project on city soundscapes has been proposed to the City Council of Vienna by the University and is presently being evaluated; if it is accepted, there will be strong involvement of FKL's Austrian section.

Francesco Michi's net-based environmental sound project "thebigear" has been going on for more than a year with over 100 contributions from three continents. Francesco and Massimo Liverani have completed the final editing resulting in a virtual 24 hour world-wide sound panorama. The project has been selected for the NET ART section at the "ciberart-bilbao" festival. More information: [www.aefb.org/thebigear](http://www.aefb.org/thebigear).

Antonello Colimberti has edited the book, *Ecologia della musica*, published by Donzelli, Rome, with contributions by Marcel Jousse, R. Murray Schafer, Marius Schneider, Steven Feld, Priscilla Ermel, Maria Anna Harley, Roberto Barbanti, Gernot Böhme, David Rothenberg, Arne Naess, Gregg Wagstaff, Bernie Krause, Albert Mayr.

The Municipality of Milan and Legambiente (Italy's environmental association) have published Antonio Arpini's new book, *Suoni e rumori della città- Il paesaggio sonoro e l'inquinamento acustico*, based on his teaching experiences at the University of Milan. Furthermore Antonio has held lectures on soundscape issues on the occasion of the arrival of the so-called "Green Train" (a well-known ecological initiative).

### Contact

fkl@wfae.net

## American Society for Acoustic Ecology (ASAE)

By Glenn Bach

[Ed. Note: The forming of the ASAE has been progressing rapidly and the WFAE welcomes the group officially as its 7th affiliate organisation.]

The United States affiliate of the WFAE is almost here. Jim Cummings got the ball rolling in early 2003, and by the end of that year there was a new website, listserv, and call for new members. The new organization, American Society for Acoustic Ecology (ASAE), recently elected a Board of Directors: Jim Cummings, President; Steven M. Miller, Vice President; Dave Aftandilian, Publications Coordinator; Gary Ferrington, Listserv Administrator; Michelle Nagai, Treasurer; and Glenn Bach, Secretary. The Board has opened a bank account and filed to become an official non-profit organization, and is finalizing by-laws for approval by its membership. We encourage U.S.-based members of the WFAE to contact us through the website, for we are now beginning to process memberships of U.S. members through the ASAE. Even if you have already paid your WFAE dues for 2004, we'd like to add you to our networking lists for the future.

With fifty-five listserv subscribers to date, we have seen quite a bit of activity on the regional level. Interested members are

planning face-to-face meetings in New York City, San Francisco Bay Area, Southern California, Chicago, Pacific Northwest, Southwest/Southern Rockies, and Colorado, with the New York group the first to commit to a first meeting in late April, 2004. The local groups will discuss the issues and goals specific to their region, plan soundwalks or workshops, and select a host or liaison to report back to the ASAE Board. When new members subscribe to the ASAE listserv, they are given information about their local chapter, if one exists. The local chapters can enter into partnerships with existing local sound-oriented groups—some overlap is inevitable, and we wish to encourage communication and cooperation, rather than competition, among new and pre-existing groups.

To subscribe to the ASAE listserv, send an e-mail to: [asaelist@yahoo.com](mailto:asaelist@yahoo.com). For more information about ASAE, including our mission statement and contact information for regional hosts, please visit our website: [www.acousticceology.org/asae](http://www.acousticceology.org/asae)

We are excited to see the affiliate off to such a healthy start, and we look forward to joining the other WFAE affiliates in the continuing engagement with the soundscape.

### Contact:

Glenn Bach: [gbach@csulb.edu](mailto:gbach@csulb.edu)

## Announcements

For more announcements see: <http://www.wfae.net/newsletter/>

### 12th International Congress on Sound and Vibration

Sponsor: The International Institute of Acoustics and Vibration (IIAV)  
July 10—14, 2005 // Lisbon, Portugal  
E-mail: [icsv12@ist.utl.pt](mailto:icsv12@ist.utl.pt).

It is anticipated that either a session or a separate symposium on acoustic ecology will be included. There is also the possibility that a small cultural event such as *Coimbra Vibra*, facilitated by Carlos Augusto last year, will be added (See detailed report [www.euphonium.pt/augusto/coimbra\\_vib.html](http://www.euphonium.pt/augusto/coimbra_vib.html)). Additional details will be published in the near future. Check the IIAV web site for updates [www.iiav.org/](http://www.iiav.org/).

### Soundscape Conference

April 22—24, 2005 // Potsdam, Germany  
Contact: Forum Klanglandschaft  
Web Site: <http://vereine.rol3.com/klanglandschaft/>  
Hammerstrasse 14, 4058 Basel, Switzerland  
Fax +41 61 691 0064 // Email: [l.schwarz@rol3.com](mailto:l.schwarz@rol3.com)

The WFAE affiliate Forum Klanglandschaft (FKL) in collaboration with Potsdam University, is planning a Soundscape Symposium with the theme *Sounds, Authority and Landscape—Pathways of the Soundscape Changing in one Region since the Beginning of Christianisation* (On the Way to a Brandenburg Soundscape Cartography—Sounding Testimonies of Authority and Impotence, of Awakening and Contemplation). Members of FKL and Klangforum Brandenburg, and soundscape interested students and colleagues of the Potsdam University, welcome conference participants to Potsdam in the year of the millennium of Brandenburg Christianisation. Additional details will be published in the near future.

### 2nd Haliburton Soundscape Retreat

October 8—11, 2004 // Haliburton Wildlife Reserve in Ontario, Canada  
Contact: The Canadian Association for Sound Ecology (CASE)  
c/o Musicworks 401 Richmond Street West #358  
Toronto, ON, M5V 3A8, Canada.  
E-mail: [naisa@soundtravels.ca](mailto:naisa@soundtravels.ca)

The retreat will consist of two daytime workshops (October 9 and 10) and evening sessions. Day One: *The Ecology in Sound Ecology*—a search for clearer ties between the study of acoustic environments and the study of ecology. Includes ear cleaning exercises and soundwalks around the Haliburton site with R. Murray Schafer and discussion sessions moderated by a group of researchers from the University of Concordia Communications department. Day Two: *Design of Acoustic Environments in Public Spaces*, lead by Australian guest Nigel Frayne, President of the WFAE. He will present a number of project examples from his work as an acoustic designer that integrate the discipline of acoustic design first formulated by the World Soundscape Project in the 1970's with the design of museums, zoos, and large public architectural projects. Evening sessions: participants will have an opportunity to present work they have carried out, detailing its relevance to sound ecology and soundscape research. Participants may also propose and discuss possible soundscape projects that can take place in the various regions of Canada in the years ahead.

### Registration fees (covers meals and accommodation):

\$195 (CDN) for CASE/WFAE members and \$225 for non-CASE/WFAE members. The non-CASE/WFAE rate provides participant with a one-year CASE or WFAE membership, which includes receiving two copies of *Soundscape — The Journal of Acoustic Ecology*.

# Sound Journals

## Acoustic Design in the Main Mall, Simon Fraser University

By David Hicks

*This Sound Journal was originally written as part of an assignment for Acoustic Dimensions of Communication, CMNS 259, at Simon Fraser University, Burnaby, B.C., Canada. This course is available both as a regular course taught on campus by Norbert Ruebsaat as well as through Distance Education taught by Robert MacNevin. <http://www.sfu.ca/cde/cp/042/cmns/cmns259.htm>*

**P**rologue. This is the difficulty in acoustic design, or in a broader sense, in architecture: the possibility that later additions to a carefully crafted environment will fail to take the original design fully into account: the mall, acoustically beautiful in my opinion, is destroyed by the constant hum/rumble of god-knows-what, coming from around and, seemingly behind, the theater (left of Mall, see photo). I used to like the way in which the acoustics of this place allowed one to hear so clearly every shoe squeak, and the high and clear tones of voices that ride the sheltered air. Yet at the same time, it softened voices, took off the sharp edge, smoothed them out and in a nice way. One could easily pinpoint the location of every source. I wonder now if people know that a voice spoken at the mouth of the covered mall is amplified and carried clearly into it? This place always feels thick and comforting to me due partly to the quality of light beneath the canopy, but also due to the acoustic quality of the space. But *that* noise is oppressive: I have to go check it out, figure out what it is.

**Searching for the Nasty Sound.** Walking up the top balcony (left of Mall) above the bookstore reveals a pleasing acoustic feature I hadn't noticed before. Don't know if it is by design, or a by-product of functionality, but the long concrete steps that run to each balcony, poured into a single piece about 12 feet long, sit over a hollow space, and they resonate in a pleasing, hollow almost wooden way when they are climbed. I spent some time



Photography by Sonja Ruebsaat

Main Mall, Simon Fraser University. Source of "the nasty sound" on rooftops, left of and underneath Mall in parking lot.

just clomping up the steps, enjoying the thump and examining the nature of the space beneath, thinking about the idea of a resonator box, impressed that concrete can sound so pleasant.

And now, here at the top of the balcony, I have located the sound. It's more than a single thing: a whole nasty mess of stacks and vents sticking out of the new pub building. Looking down below, I can see open mesh outside the theater windows, opening to the parking lot below. The annoying sound has many sources: a terrible rumbling is coming from the parking lot area; another, higher part of the hum, is coming from this smoky collection on top of the pub; but there is more.

I have come down to check out the open mesh that exposes the Mall to the parking lot: they have positioned ferns and Oregon grape here in planters. Although they are thriving, enjoying the updraft of CO<sub>2</sub> from below, and although one must applaud the use of native plants, I cannot help but note that the planting appears to be designed solely for the visual. It more or less hides the vents from sight, but does little to muffle the horrible rumble from below. I am considering what could have been done, what could yet be done: bamboo, perhaps, something with a rhizome that can live on top of mesh, with a high density of leaf, a nice evergreen buffer, a passable acoustic filter—perhaps it could go some way towards scrubbing the obviously toxic air that must waft up from the parking lot, and gather beneath the glass canopy of the Mall. It can't be a healthy atmosphere up there.

Now, I am tracing the rumbling noise from below—the final component of the collective rumble and hum which is a

constant in the Mall. (Although this sound is one component only of the Mall soundscape, I am going on the theory that—from a solution oriented point of view—it is perhaps best to consider each sound source separately, examining it in its own environment, and perhaps address it there, not only recovering the originally intended soundscape of the Mall, but perhaps recovering the soundscape around the noise source itself.) So, I am descending down the stairs, into the bowels of this institutional beast. Here in the parking lot, it is a wholly different, awful scape. I notice on the way down that the noise is not only coming over the balcony and up the vents, it is also reverberating in the stairwells—so, bamboo over the vents wouldn't be enough; some sort of screen would have to be placed in front of the stairwells, where they face the Mall; planters might do there as well, nice to keep it green if possible; or perhaps glass blocks, something dense that allows light to pass through.

Farther down the stairs I have found the source of the densest part of the noise. It is almost unbearable here, as I am trying to listen, trying to open myself to the sound. There is a new loading bay, which feeds the new building, and for some reason, giant vents have been placed within the bay itself. The sound waves head straight into the opposite wall some 20 feet away, resonating loudly within this chamber. This is terrible placement, even from a strict engineering perspective: the designers of this addition haven't just ignored the acoustic intent of the Mall, they have increased the magnitude of an already unpleasant noise. Down here, it is a staccato metallic clack and a sharp hissing rush like a jet engine!

# Current Research

---

## Site Soundscapes—Landscape Architecture in the Light of Sound.

By Per Hedfors

The importance of sound, as a means to create wholesome and appealing environments, is becoming a central concern in city planning. Yet still, decibel readings from sound level meters are the primary means used to determine auditory experience. Instead, Hedfors contends, sound ought to be seen as a resource and an element of design in physical planning.

Recent research within landscape architecture involves consideration of acoustic issues. Per Hedfors — with a PhD in landscape architecture — introduces a new field of discussion to the profession with my thesis, “Site Soundscapes—Landscape Architecture in the Light of Sound”.

This research was based on the assumption that landscape architects work on projects in which acoustic aspects can be taken into consideration. In such projects activities are located within the landscape and specific sounds belong to specific activities. This research raised the possibility of the ‘orchestration’ of the soundscape as a new area of concern in the field of landscape architecture; that is, a new method of approaching an existing problem was suggested. Professionals can learn to recognise the auditory phenomena that are characteristic of a certain pattern of land use. Acoustic sources are obvious planning elements, which can be used as a starting point in the development process. And the effects on the soundscape can subsequently be evaluated according to various planning options.

In this approach, the landscape is understood as a space for sound sources and listeners, where the sounds are transferred and coloured, such that each site constitutes a specific soundscape—a *sonotope*. This raises questions about the landscape’s acoustic characteristics with respect to the physical layout, space, material and furnishing. Questions related to the planning process, land use and conflicts of interest are also raised, in addition to design issues such as space requirements and aesthetic considerations.

A prototype computer tool for use in landscape architecture was developed. This was intended to promote listening, as well as stimulate an appreciation of the soundscape approach in the processes of planning and design. The purpose was to illustrate auditory problems and raise the aural awareness of the practitioners, for example, whilst carrying out visits ‘on site’. The tool provided a means through which researchers, practitioners and members of the public could meet to facilitate a mutual exchange of ideas.

The design of this tool is based on the results of qualitative interviews in two urban settings. These settings are referred to as *reference objects*—the location, design, functions, building material, plant material and traffic conditions which have characteristics that practitioners can compare with their ongoing projects. One of the locations was a pasture on the outskirts of a city, while the other was a public garden, located towards the centre of the same city. The pasture’s *sonotope* was characterised by clear, distinct sounds, which were neither drowned out by sounds emitted a short distance away nor by those emitted at much greater distances. In contrast, the *sonotope* of the city garden was characterised by the sounds of its surroundings.

### Publication details

Available on the web at:

<http://diss-epsilon.slu.se/archive/00000325/>

Hedfors’ thesis consists of four papers and a CD entitled *Comparisons of Acoustic Images from Two Landscapes*.

**Paper 1:** “Soundscapes in Urban and Rural Planning and Design—a brief communication of a research project” with co-author Patrik Grahn, published in 1998 in R. Murray Schafer & Helmi Järviuoma (eds.), *Northern Soundscapes – Yearbook of Soundscape Studies*, vol. 1. Univ. of Tampere, Dept. of Folk Tradition, Publ. no. 27, pp. 67-82. ISSN 0357-0010.

**Paper 2:** “Site Interpretation by Skilled Listeners—methods for communicating soundscapes in landscape architecture and planning” with co-author Per G. Berg, was published in 2002 in Helmi Järviuoma & Gregg Wagstaff (eds.), *Soundscape Studies and Methods*. The Finnish Society for Ethnomusicology Publ. no. 9; Univ. of Turku, Dept. of Art, Literature and Music Series no. A51, pp. 91-114. ISBN 951-96171-5-9.

**Paper 3:** “The Sounds of Two Landscape Settings – auditory concepts for physical planning and design” with co-author Per G. Berg, published in 2003 in *Landscape Research*, vol. 28, no. 3, pp. 245-263. ([www.tandf.co.uk](http://www.tandf.co.uk)).

**Paper 4:** “An Audio-Visual Tool for Landscape Planning and Design – preliminary evaluation of an interactive CD prototype”, has not been published at this date.

### Distribution:

Swedish University of Agricultural Sciences  
Department of Landscape Planning Ultuna  
SE-750 07 UPPSALA, Sweden.

Hedfors, Per (2003) *Site Soundscapes: Landscape Architecture in the Light of Sound*. Doctoral dissertation.

ISSN 1401-6249 ISBN 91-576-6425-0

**Per Hedfors** has a PhD in Landscape Architecture. His research interests concern intersensory values within sustainable landscape and urban management. He is active as a lecturer on soundscape and environmental impact assessment (EIA), city planning, and sustainable development. In addition, he supervises students conducting their graduate research into landscape architecture, both in Sweden and abroad. As a former musician, he performed clarinet in several amateur ensembles.

E-mail: [per.hedfors@lpul.slu.se](mailto:per.hedfors@lpul.slu.se).

# Soundscaping the Paramount —

## A Research Project at the Famous Players Paramount Movie Theatre Montreal, Canada

By Lisa Gasior

For four and a half years, my employer was Famous Players, and the theatre where I worked remains one of the most successful in North America: the Famous Players Paramount in Montreal. While there are many interesting facts about the Paramount with regard to box office sales, image projection and architecture, I found myself interested in the sounds of the building; loud and quiet, man-made and mechanically generated, out in public and behind the scenes. In *Soundscaping the Paramount*, I wanted to take inventory of all the sounds that graced my ears on a weekly basis.

In a world that is arguably still dominated by visuals, the sounds of the Paramount are unique identifiers for its employees and visitors. Almost everyone who works there can most easily associate sounds with the building before objects, images or smells, for instance. Among those sounds there are the movie trailers that play on a loop in the lobbies, the endless drone of the video games at the arcade and, of course, the theatre sound systems—including one powerful IMAX system. All of these sounds merge in the reverberance of the historic Simpson building, a structure containing a cacophony of sounds, and in which the Paramount is housed.

### History & Background Information on the Paramount

On June 18, 1999, Famous Players opened the Paramount movie complex in the heart of downtown Montreal. It was the first movie “mega-complex” in the greater Montreal market and has ranked among the top ten highest box office grossing theatres in North America since it opened.

Occupying six floors in total, the Paramount’s auditoria are comprised of 12 conventional screens and one IMAX screen, with a total of 3,900 seats spread over three floors. In addition there are concession stands for snacks and drinks on the third, fourth, and fifth floors, as well as five specialty restaurants—all located on the third floor—and two licensed bars.

The Paramount is big and loud, full of bells and whistles of all kinds. Not only the theatre sound systems make it a sonically interesting place: its lobbies, corridors and projection booths also will tickle any sound enthusiast’s fancy. The *mélange* of frequencies in the mid to low range are very prominent, making the building a “happening place” to hang out with a microphone.

### Research Methods and Composition

In October and November 2002, I made numerous soundwalks around the building, which served as the basis of my research. On some of my walks, I recorded, using a pair of binaural microphones, and measured sound levels using an old Bruel & Kjaer decibel meter, both made available to me through Concordia University.

Besides measuring and documenting my findings, I intended to create a sound composition using the recordings that I gathered. I kept in mind Barry Truax’s comment (stated on his web page—<http://www.sfu.ca/~truax/scomp.html>) that although the “soundscape” composer can use minimal abstraction techniques or set out to manipulate the sounds, “the intent is always to reveal a deeper level of signification inherent within the sound, and to invoke the listener’s semantic associations without obliterating the sound’s recognizability.”



PARAMOUNT FAMOUS PLAYERS, used by permission

My finished piece is indeed inspired by Truax’s composition *Island*, in which the listener starts off at the shore of an island, walks around it and ends up on a different shore. In his work the sounds have been processed and pieced together but the idea of the trip around the island remains obvious to the listener.

I was also influenced by Hildegard Westerkamp’s work, finding harmony between staying true to the sounds and processing them for the piece. All of the pieces on her CD *Transformations* exemplify this attitude and belief. In the disc’s liner notes she writes that there is a dignity to the sounds that must be respected, and this is something that I also kept in mind for my own composition.

I did, however, come into direct conflict with Murray Schafer’s idea of “lo-fi” and “hi-fi” sound, notably expounded in his book *The Tuning of the World*. To Schafer, “Lo-fi” sound is the traditional definition of noise as being unwanted sound. Applied to soundscape composition, it can mean more than simply that; his definition would imply that anything in the soundscape that creates negative listening habits or non-listening behaviour should be deemed “lo-fi”. On the other hand, his definition of “hi-fi” sound is that which promotes active listening and even sonic delight—which he describes as the “soniferous garden.” The intent here is to maximize pleasing, informative sounds and to minimize unwanted or uninformative (e.g., flatline or broadband) sounds. Having recorded so many negative or unpleasant sounds at the Paramount, I found it difficult not to turn them into the crux of my finished piece. I felt that I was planting “lo-fi” sounds all over my piece, but these traditionally “unwanted” sounds were the ones which I found sonically “delightful”.

As in Truax’s *Island*, my piece, *Loud is Paramount*, takes the listener on a journey. It goes from places that the listener knows to the places that are unexplored by the public. In doing so, I wanted to take a path that is physically impossible: I wanted to take the listener from the lobby, into the movie theatre, through the window into the projection booth, and behind the scenes.

With the help of manager Antoine Zeind, I hooked up the Paramount's video projector in one of the 35mm theatres, so that it could play the sound of a film on which I worked as an employee. For the first part of my recording, I sat in the theatre, with the binaural microphones attached to my headphones. I then moved to the projection booth where I did a number of recordings, passing the microphones through the narrow window from the booth to the theatre. To do this, I attached the microphones to a plastic ruler—placed them about the same distance apart as they were on my head—which I taped to a pole (actually an unused pool cue). The final effect was to turn on the motor of the 35mm projector, to record its sounds as I passed the pool cue from the booth into the theatre and back.

When I performed the same experiment in the IMAX theatre, I made my most important discovery: the IMAX sub-bass rules the Paramount. The bass frequencies of my sound design were almost painful at times—beautifully painful. The incredible power was difficult to capture on minidisk as it was way out of its frequency range but, as will be shown, the facts speak for themselves.

### The IMAX Phenomenon

The Paramount's IMAX screen is 70 feet high and 80 feet wide, and the theatre seats 340 people (for full information on the movie theatre, visit their web page at [www.famousplayers.ca](http://www.famousplayers.ca)). To have successful sound playback in such an immense space, the set-up must be somewhat "spectacular!" Indeed, in the laser show that plays before all IMAX films, to introduce audiences to the technology, the voice-over boasts that the sound system has over 10,000 watts of power. But, as to the specifics—well, that's an IMAX secret.

The sub-bass is the chief instigator in rousing energy and vibrations in the building. It is comprised of eight units of subwoofers, placed facing each other. This packs quite a punch for the audience. In fact, it packs a punch for anyone in the building. Actually, at any given time, employees have even been able to identify specific parts in films, simply because they could feel the vibrations from the sub-bass throughout the building. At one point I asked a manager at the theatre if she had had the chance to see *Star Wars: Attack of the Clones* while it was playing on the IMAX screen. "I haven't seen any of it but I've felt parts of it," she responded.

And besides the sound system in the theatre, the IMAX projector has its own humidifier, cooling system and electrical room, all of which generate a great deal of noise.

### How Loud Is It?

On evenings when the attendance reaches 8,000 visitors, the building shakes—literally. There are spots in the building, mainly on the third floor, that jitter and react to heavy circulation as well as to vibrations activated by the IMAX sub-bass.

I measured the decibel levels of various locations, including the emergency exits, the theatres and the main lobby. I took readings using a sound level meter (an older Bruel & Kjaer model as well as a digital model) and compared dBA and dBC weighted readings, with interesting results. (dBA readings are weighted to approximate differing human response to "loudness" at various frequencies—to quote Barry Truax's simple definition from his book *Acoustic Communication*: "...the sensitivity of the A-scale progressively falls off for frequencies below 500 Hz, whereas the C-scale gives approximately equal weight to lower frequencies as it does to higher ones.") I took readings on different occasions—the average readings are shown in the following table.

What I found most fascinating was the often large difference between dBA and dBC readings. This is largely due to the effect

Location	dBA	dBC
Fire escape	55	85
IMAX projectionist's booth	75	80
Quiet main lobby on a Thursday night.	70	78
Noisy main lobby on a Saturday night.	80	87
Near the freight elevator on 4th floor during <i>Star Wars</i>	35	70
Same as above with a low frequency explosion occurring on screen.	47	80
In the IMAX theatre during <i>Star Wars</i> loud fight sequence.	between 82 and 89	Between 88 and 107 with an average of 94. Certain scenes reached 111 to 116.

of the IMAX sub-bass, but coupled with the bass set-up in the other 12 theatres, it makes for a symphony of lows inaudible to human ears, yet powerful.

### Discoveries in Other Areas

From the main entrance to the behind-the-scenes corridors, the Paramount is full of interesting sounds—in fact a sonic dream. Although much of the rumbling in my recordings was due to the immense sound that IMAX generates, there are many other factors that make the Paramount's particular soundscape unique.

The box office area in the main entrance is very reverberant, so the sounds of voices, music and the sounds of cash registers bounce all over the place, as the sounds reflect in the environment. The floor provides different types of sound reflection and absorption qualities, as there are sections made of concrete tile, plastic-fiberglass and metal. Footsteps on each of these different surfaces added tremendous "texture" to my recordings.

The fourth floor lobby—the centre of the building—is a sonic "mess" in some respects. Here, everything in the building from the three main floors can be heard converging—movie trailers blare from different screens, music and television sounds from the bar on the fifth floor seep downwards, and the arcade games of the third floor are all audible from below.

Also interesting are the emergency exit passages and walkways that encompass the full height of the building. They are like caverns, with staircases that vibrate in response to the sounds in the building. Besides the steel stairs, there are hard brick, stone and gyp rock surfaces on which the sounds can bounce around and rebound. And it is in these emergency exit walkways that the sounds of the downtown core enter the Paramount... sirens, car horns, motors, and the occasional riot.

The Paramount has a slogan—"Fun is Paramount." After listening to my recordings, I had to agree. The unmistakable drone and clatter of the projectors or the sub-bass and its rumblings make my recordings interesting—make them "fun". But allow me to add that loud is also Paramount—maybe I'll suggest this slogan to Famous Players!

### References

- Truax, Barry. *Acoustic Communication*. New Jersey: Ablex Publishing Corporation. 1984.
- Truax, Barry. "Models and Strategies for Acoustic Design." <http://www.sfu.ca/~truax/models.html> Date of Access: October 2002.
- Truax, Barry. "Soundscape Composition." <http://www.sfu.ca/~truax/scomp.html> Date of Access: October 2002.
- Westerkamp, Hildegard. *Transformations*. Empreintes DIGITales, Montreal 1996.

## Acknowledgments

Many thanks to Michel Potras, IMAX projectionist at the Paramount, Montréal, for providing me with a wealth of technical information.

**Lisa Gasior** has been hearing since birth but started listening about 4 years ago. She is finishing up her B.A. in Communications and Journalism with a minor in Electroacoustic Studies at Concordia University in Montreal. Her work includes numerous electroacoustic pieces, soundscape projects, and soundtracks for film and video. Lisa is a research assistant for Dr. Andra McCartney, a teacher's assistant in sound production at Concordia. She worked at the Paramount for over four years, most recently as assistant manager. Lisa hopes to pursue graduate studies, introduce others to the joys of listening and find beautiful soundscapes wherever she goes. [lisacgasior@aol.com](mailto:lisacgasior@aol.com)

---

## CRESSON

(Centre de recherche sur l'espace sonore et l'environnement urbain)

By Françoise Acquier

**C**resson is located in Grenoble, France. It is a research laboratory presently directed by Jean-Paul Thibaud. It focuses on the sonic space and the urban environment. The research facility was started around 1979 at the School of Architecture of Grenoble. The researchers attempt to cross acoustic/aesthetic and social approaches of sound.

In recent years, we started taking into account our experience on sound perception in order to enlarge our field of research to other senses: sight, smell and movement within the global theory of urban ambiances initiated 10 years ago by J-F. Augoyard.

Research on sound continues. Within the past months, through a policy of publications on CD (and soon available on the web) we have made available recordings of the 10 first years of research including topics like:

- sound effects in an urban environment
- perceptible construction of public space
- the role of sound sensations in social interactions
- sound identity of European cities
- ethnography of subways, ports and train stations
- everyday applications of acoustic and light metrology
- sonic culture in construction sites
- sound in housing design
- methods of representing sound and light qualities

These topics are directly concerned with acoustic ecology and we hope this is the beginning of a mutual enrichment with the Soundscape community.

A first English translation of the *Sound Effects Notebook* is in progress with the McGill University Press in Montreal, but French readers can already have access to the numerous printed publications of Cresson and to the theory of ambiances through a specific collection run by J-F. Augoyard at "A la croisée" edition.



Photography by Hildegard Westerkamp

### Some recent Cresson reports dealing with sound

- 2003—A l'écoute de l'hôpital, Leroux Martine.  
2003—Paroles urbaines. Etudes sur l'agglomération grenobloise (1996-2000) (Urban words. Studies on the city of Grenoble), Torgue Henry.  
<http://www.cresson.archi.fr/PUBRapport56.htm>  
2002—Vers une charte intersonique (Towards an intersonic charter), Leroux Martine, Amphoux Pascal, Bardyn Jean-Luc.  
<http://www.cresson.archi.fr/PUBRapport54.htm>  
1999—DAQUAR. Du Diagnostic Acoustique d'un Quartier à l'Urbanité Sonore, Balay Olivier.  
<http://www.cresson.archi.fr/PUBRapport52.htm>  
1999—Enquête par immersion interactive sur les procédures de maîtrise des ambiances sonores dans le projet architectural, Boyer Nicolas, Tixier Nicolas.  
<http://www.cresson.archi.fr/PUBRapport47.htm>

### Among the collection "Ambiances, Ambiance" at "A la croisée" edition.

- 2003—L'espace sonore de la ville au XIXème siècle (The sonic space of the city at the XIXème century), Balay Olivier.  
<http://www.cresson.archi.fr/PUBouvBALAY.htm>  
2002—Regards en action : ethnométh-odologie des espaces publics (Glances in action: ethnomethodology of public spaces), Thibaud Jean-Paul (Edition et présentation).

**To purchase contact:** [mandagot.alacroisee@wanadoo.fr](mailto:mandagot.alacroisee@wanadoo.fr)  
Françoise Acquier, Documentaliste  
Laboratoire Cresson, Ecole d'Architecture de Grenoble  
60 av de Constantine, BP 2636  
38036 Grenoble cedex 2, France  
Tel : 04 76 69 83 71  
E-Mail: [Francoise.Acquier@grenoble.archi.fr](mailto:Francoise.Acquier@grenoble.archi.fr)

# Discrete mapping of urban soundscapes

By Olivier Balaj  
Translated by Harry Forster

## Abstract

Since the introduction of the EU directive of June 25, 2002 there has been a profusion of research grants and public-sector spending on quantitative acoustic maps. But what are they going to be used for? Who is going to consult them? Will they serve as the basis for upgrading our urban soundscapes? There is every reason to doubt this. This article reports on work that could form the starting point of a vast research drive to build sound maps of a new sort, maps that are more descriptive and able to supplement the information provided by mapping of acoustic measurements.

**Keywords:** Sound design, cartography, time-based representation, geographical information system, architectural and urban atmospheres.

*Geography* “focuses on the entire globe, much as we might look at a complete body, but chorography looks at just one part of the Earth as if we were to cut off just an ear or an eye from a whole body and then describe it in detail”. (*Eustathe Commentaire à la Périégèse de Denys.*)<sup>1</sup>

Describing sounds rather than measuring acoustics  
What is the purpose of acoustic mapping? For which users is it designed? What uses and what sort of renewal of the urban soundscape does it target?

These are not naive questions. Never before have we devoted so much energy to mapping physical measurements of urban sound environments. Never before have we invested so much in building and purchasing powerful measuring devices and software to represent soundscapes in two and three dimensions.<sup>2</sup> But in all this movement—and this is one of the most striking features of the history of our representation of urban soundscapes since the end of the 19th century—three points are of particular note: we have stopped describing sound and now only measure its quantity; instead of taking account of the perceptible effects of sound material we now study its acoustic impact; and we have stopped creating paths for the circulation of sounds in space and started fitting sound insulation. The facts are well known in the face of urban noise, and driven by the fantasy of control, a negative attitude to noise has gradually supplanted an approach that paid attention to the sound culture of city-dwellers. Little by little this process has destroyed the intuitive links that developers created between the design of urban spaces and the framework in which we listen.<sup>3</sup> Yesterday’s architects and builders were anything but deaf. They listened to their surroundings and were fully aware of the sound sensibility of their time. But in recent years a sense of audible space seems to have disappeared from the know-how of those who produce our built-up spaces.

So what is the situation now? In the form in which acoustic impact studies are scheduled and carried out, in response to a “control” fantasy, they do not help developers to conceptualize the sound dimension of a city in a perceptible fashion. If, on the other hand, we posit that city sounds do not exist at the outset but are created by usage, that the sound matter of a neighbourhood or street is both given and to be obtained, we believe that we can restore a genuinely creative approach. In this framework we may be tempted to start listening to the sounds of urban cultures again, to describe their specific features, highlight their creative role in daily life and a sense of comfort. And, taking our lead from our predecessors’ creative attitude to sound, is it not possible to propose that in the act of construction the “expert”

descriptions should seek to link up with the sound culture of ordinary citizens, both actors and recipients in this process, with the general aim of improving city life?

All the work on sound phenomena done by CRESSON<sup>4</sup> since 1979 has tended towards this goal. I shall attempt to summarise it briefly. In yielding too readily to the conclusion that the urban sound environment was deteriorating developers forgot that sounds also help to disseminate information. On the contrary identifying, pinpointing and naming these phonic qualities provided us with a way of explaining and thinking our way through the sounds in a neighbourhood, street or housing unit. For many people avenues, courtyards and squares are lively sound spaces in which no noises are bothersome or worthy of condemnation. However, some sounds that attach local people to their neighbourhood or home fulfil a function that may seem pointless to the outside observer. This is why it is so important to acknowledge the special role and attachment that local people associate with sounds. This research has enabled us to gain an understanding of the way in which individuals manage to define sounds in their familiar territory and take a certain pleasure in identifying with them. It has also shown how this identification depends on the person(s) controlling, creating or developing the territory. Furthermore this knowledge can be mapped. Now that city councils are processing data and knowledge on behalf of national or European bodies—generally projecting national problems at a local level—it seemed important to rise above the current EU incentives and regulations on acoustic mapping and backtrack a little. We would rather see cities as places in which original sound information is produced and local know-how is given shape. On this basis we may inform our approach to acoustic development. As a complement to the mapping of acoustic measurements, we are consequently trying to chart the sound life of the city to open the way for a debate between all those involved in urban development.

## Exploring the sounding city

*The map is open. It can be connected in all its dimensions (...) We can draw it on a wall, conceive it as a work of art, build it as a political action or as a form of meditation.* (Deleuze and Guattari, *Rhizome*.)<sup>5</sup>

Why should an organisation responsible for managing a city go out of its way to base its sound rationale on a description of local particularities? Simply because there can be no universal model for explaining noises. Neighbourhoods with similar streets have different sound atmospheres. The type of social life that unfolds there and the requirements of local people vary so much that it is difficult to identify constant characteristics. To convince Lyon city council of the merits of an observatory of the

sound environment we studied three neighbourhoods near Place des Terreaux, in the first *arrondissement*: Rue Romarin, Rue Major Martin and Rue du Garet, and their immediate vicinity. In all three neighbourhoods our acoustic measurements revealed identical levels of sound intensity. But for local people all three streets had quite different atmospheres.

Changes in the way we use the city also raise questions about our sense of comfort. How can we treat the notion of comfort without taking into account local social and acoustic factors. Look for example at car traffic in cities. Car engines with their continuous, low-frequency, medium-intensity background noise tend to muffle sharper, human sounds, not to mention silence. But what is rightly perceived as negative noise may temporarily be seen as a positive factor if it partly conceals neighbourhood noise. It should now be clear why it is worth developing a tool to present qualitative sound dimensions and not just make do with quantitative maps.

It was at this point that we developed our sound bite (chorography) database ChAOS,<sup>6</sup> as the continuation of our initial work for the sound environment observatory in Lyon.<sup>7</sup> The database is still up and running now. One day it will help to reconstitute the history of our contemporary sound environment.

This action<sup>8</sup> started in 1992 when we undertook a programme to develop the qualitative representation of urban sound phenomena for operational purposes. In 1997 the Spatial Information Systems (SIS) team at Laboratoire d'Ingénierie des Systèmes d'Information (LISI), led by Robert Laurini, offered to take part in the programme and explore the possibilities of a geographical information system (GIS) giving us the benefit of the skills of its researchers, in particular Sylvie Servigne and Bruno Tellez. Collaboration started between CRESSON and LISI to explore three openings for a GIS: to organise the cartographic representation of the sound environment including qualitative data; to model the databases required for this representation, providing users with an instrument that would help them think about the local design of sound environment; and to define ways of representing data with maps, captions, graphical semiology, etc.

What was special about ChAOS was that its database was designed to distinguish the way local people perceive sounds from the reactions of informed observers (acousticians, sociologists, architects and planners) carrying out field surveys. We thought that when there was a clear discrepancy between the two perceptions this meant that some changes in the environment must be required. We started from the assumption that sounds are never "motionless", but constantly varying, and that our perception of sound is time-based. Just listening to the soundtrack of our daily life is enough to understand the phenomenon of sound qualification of passing time. But, at least until now, noise maps have always been static. That is why our GIS includes a temporal representation of sound signals, on the one hand, and road traffic, on the other, after counting. Users can thus get a grasp of the times at which a street or neighbourhood wakes up or goes to sleep. Furthermore he or she can monitor the density of sound signals by type. Coupled with an account of people's actual lives, these time charts are very expressive in graphic terms. Lastly scope for making sound recordings is another original feature of our sound-bite tool. The soundtrack plays back a record of the area under study. It is also a medium for the neighbourhood's sound memory, and in particular even the smallest activities going on there. It can thus serve as a starting point for imagining ways of reshaping the sound environment, proposing or correcting a particular acoustic space.

This GIS provides new ways of exploring and organising auditory journeys for its users. The map displayed on the computer

screen as exploration progresses, keeps track of the route taken. It is for instance possible to access a particularly remarkable sound situation after opening the menu to see how a bend in the street or the form of an alley can affect the quality of local life. The user will hear the sound of steps on a staircase or in a garden, gaining access to a fragment of narrative depicting daily life in that particular place.

Lastly the database enables users to explore various topics. They take the form of ready-made maps that can be called up, with a map of different categories of remarkable acoustic spaces, a map of dominant background sounds, a map of the various forms of social interaction identified, and a map of the locality's ordinary sound heritage. To this we might add a map summarising the built-up form of the streets, the type of ground surface, the slope of the thoroughfares, the presence of plants and wildlife and the time-based maps already mentioned. There is also a menu of acoustic measurements developed in partnership with the Building Science and Technology Centre (CSTB) in Grenoble and a set of files relating stories by local people. The whole system can be connected to the Greater Lyon GIS.

**Olivier Balaÿ** is a practising architect, has a doctorate in town planning, is a teacher at several schools of architecture and a researcher at CRESSON (Centre de recherche sur l'Espace Sonore et l'environnement urbain) UMR CNRS 1563, Grenoble School of Architecture.

**Harry Forster** is a British-born freelance translator who has been living in Grenoble, France, for over 20 years. His work ranges from current affairs to microelectronics, through food, travel and town planning.

#### Footnotes

1 C Müller *Géographi graeci minores* Vol. 2 Paris, Firmin Didot 1861, p. 212, 213. What is a chorograph? According to Ptolemy (90-168 AD), chorographs differ from geographers in that the latter consider the Earth to achieve an overall view whereas chorographs describe or delineate on a map particular regions or districts and describe all their particularities. Christian Jacob *Ecritures du monde* in *Cartes et figures de la terre*, Centre Georges Pompidou, CCI Paris 1980, p. 107 and 108.

2 RAPIN Jean-Marie SIGAUR, *Système d'information géographique et acoustique urbaine*, CSTB, UJF, Grenoble 1999.

3 BALAÿ Olivier, *L'espace sonore de la ville au XIXème siècle*, (ed.) A la Croisée, Grenoble 2003.

4 AUGOYARD Jean-François, TORGUE Henri (with the team at CRESSON), *A l'écoute de l'environnement, Répertoire des effets sonores*, Marseille, Parenthèses, 1995, 174 p.

5 DELEUZE (G.) and GUATTARI (F.), *Rhizome* (ed.) De Minuit, Paris 1975.

6 BALAÿ Olivier, *SIG ChAOS, La représentation de l'environnement sonore à l'aide d'un système d'information géographique* (collaboration CRESSON-LISI-Laboratoire d'Ingénierie des systèmes d'information), 2 volumes and a CD-Rom, Contrat de Plan Etat / Région Rhône-Alpes / Agence des Villes, Lyon-Grenoble, October 1999. ChAOS = Chorographies pour l'Aménagement Sonore

7 BALAÿ Olivier, *Lyon prépare son observatoire de l'environnement sonore*. Quarterly review "Annales des ponts et chaussées" N° 88 *Observatoires locaux*, December 1998, p. 61 and following.

8 Cf. ARLAUD Blaise, BALAÿ Olivier, *A geographical information system of the qualitative sound environment* in SFA, I. INCE, INRETS, Proceedings Inter-Noise 2000, Nice, France, Paris, 2000, Published in abstracts and in CD Rom, August 2000.

# Acoustic Design in the Built Environment

By Nigel Frayne

*As predicted by Schafer, while the lessons of music may guide us, the art and science of acoustic design will be the process of applying a set of principles such that the by-product of our actions in the built environment may be turned to positive advantage.*<sup>1</sup>

## INTRODUCTION

The focus of this essay will be on the real world practice of an acoustic designer, myself, working with a science centre, a zoological garden and a centre for the moving image. Each of these public institutions resolved to give due consideration of their acoustic environment within the development of their public programmes, particularly as they were delivered by way of electroacoustic systems. In as much as these sites are components of our global soundscape it may be of interest to view them as designed elements which stand in relief to the ad hoc sonic by-products found in the wider built environment. The three settings presented are chosen for their apparent diverse requirements. Of particular interest is the inherent balance between technical and creative processes that have to be applied and the decision-making process of the acoustic designer.

## Music, Sound and Acoustic Design

Music, acoustic engineering, soundscape design, sound sculpture, sound composition, sound art, sound engineering and sound design. This plethora of terms has emerged from a need to define the finer points and approach of the broad range of people working with sound, what we might call sound practitioners. While these terms do provide some clarification there is also much confusion and cross pollination. For example 'sound design' has been adopted by a broad range of practitioners. There are those who design or craft a single sound, such as a phone ringing tone, warning signal or film sound effect. Sound design is also used to describe the creation of a sound track, perhaps for film or theatre, where the structure and movement of the sound is designed meaningfully into the 'dramascape'. Examples of this would include off screen effects (heard but not seen), artificial reverberation, panning effects across the soundstage as well as startling responses by way of abrupt changes in dynamic range or frequency. Sound design is even a title adopted by some music composers who wish to indicate that they are working with non-traditional instruments, particularly computer, electronic or machine produced sounds.

For many years I too worked under the title of sound designer. For me it described the activity of designing sound into a space where the creation of the content (the sound objects) was intrinsically mapped to the performance of the sound (the sounding space). The production of every sound (content) was deeply informed by the way in which it sounded (performed). For example, the voice of an actor reading the letter of an immigrant to Australia in a museum context would be designed to sound as real and natural as possible. The intent would be to create a sense of the presence of the person in the space, as equally intimate as the inner thoughts expressed in the letter. As such the desire would be for the loudspeaker delivery system and the recording process to be sonically 'invisible' or



Photography by Nigel Frayne

External view of East Atrium, ACMI, Federation Square, Melbourne

transparent. This would require a clean and dry (non-reverberant) recording, frequency equalisation to remove artefacts and colouration by the loudspeaker and perhaps DSP convolution to enhance the placement of the sound into the reverberant field of the exhibition space. Alternatively, the replay of a recording of a person such as, say, Winston Churchill would be more effectively exhibited as an historic artefact in its own right. Probably it would be delivered as a scratchy and 'un-natural' voice coming from a radio set dating from the 1940's.

An exhibition will probably include quite a number of individual examples like the ones described above and it is immediately apparent that they will need to be carefully designed into the space. Each sound object with its inherent performance characteristic and informational content will collaborate with its neighbouring sound into a wider general ambience or soundscape. All introduced sound will have to coexist with the given or analogue environment; building reverberation and echo, hum from air conditioner plants and other equipment, visitor activity, voices and so on. The process of achieving a coherent and functional ambience, the structuring of a multitude of existing and introduced sounds, is therefore probably better described as soundscape or acoustic design. Given the multiple uses (and abuses) of the term soundscape these days, my preference now is to use the term acoustic design.

The dryness of the term acoustic design may imply that it is purely a technical quantitative process. As we will see in the following three projects, however, it may not be the case that all acts of acoustic design in the built environment are the result of apparent dehumanisation or mechanisation.



Naturalistic habitat environment in the modern zoo, Elephants of Asia Exhibit, Singapore Zoological Gardens.

## ZOO EXHIBITS

The modern zoo exhibit is a far cry from the historic spectacle of exotic animals behind bars. As a designed precinct the underlying purpose of the public areas is to bring the visitor closer to the animals, both physically and with respect to deeper understanding of their original non-captive life. The way this is achieved is by removing barriers between visitors and the animals and presenting a microcosm of their original habitat. Mock rock, landscaping and indicative vegetation is introduced together with interpretive materials such as related objects, text panels, labels and possibly even art works.

Sound plays a role too. In fact there are a great number of interpretive elements which may rely on the acoustic medium. There may be public address systems for site wide information and announcements and/or large animal shows and small 'keeper talks'. Many newer exhibits will include an audiovisual theatre and other displays which incorporate sound—'push the button to hear the tiger growl', 'listen to our experts talk about the animals', or perhaps a video programme or computer interactive with sound reinforcement. Each of these elements will require a specific delivery system to be designed into the space which is explicitly tailored for the performance of that content. Voice programmes such as public address announcements or animal show presentations need a high intelligibility index and hence will require directional loudspeakers. A theatre may call for a surround sound system and a soundtrack which further extends the context of the exhibit. An ambient soundscape will have a diffuse sound field usually delivered by way of vast arrays of loudspeaker networks.

The combination of all of these sounding elements places a lot of pressure on the acoustic environment and therefore a global acoustic design is essential. We will recognise that this example of a zoo precinct can also be translated into our modern urban environment with its proliferation of electroacoustic and acoustic delivery systems generally occurring in an ad hoc fashion. At least within an institution like a zoo we have the potential for an overall level of control and, by good example, can perhaps provide visitors with a subtle message about conservation of the soundscape together with those messages on habitat destruction and animal extinction.

One treatment that has been adopted by a number of the better resourced zoos is the creation of ambient habitat soundscapes. Studies have shown that visitors respond more emotionally to an exhibit, they learn more about animal-environment interactions and have increased awareness of the natural environment

when ambient soundscapes are introduced.<sup>2</sup> While each project calls for individual approaches depending on the animal species lists, whether they are mixed environments or include elements of indigenous human culture, there is also a common methodology within the acoustic design, namely the creation of a texture composed of background, midground and foreground layers of authentic natural sounds.<sup>3</sup>

Inevitably there will be elements of the existing acoustic environment which are beyond the control of the acoustic designer whether it be the proximity of the airport in San Diego or the rattle of machine guns from defence exercise areas near the Singapore zoo. The introduction of habitat soundscapes into exhibits can help to alleviate such intrusions to some degree by masking these unwanted sounds (noise) while at the same time performing the desirable interpretive function of synchronising the acoustic space to the designed habitat. The Hamadryas Baboon Exhibit at Singapore requires the recreation of a sense of the acoustic environment of Ethiopia. The Lowland Gorilla Exhibit in San Diego requires the soundscape of the forests of Congo and the Elephants of Asia Exhibit features a rich forest ambience of South East Asia.

The interplay between content and performance is quite apparent within the composition of ambient habitat soundscapes. In general one can predict that there will be a universal hum of insect sounds occurring at a background level. However, this chorus may be interrupted from time to time within the midground zones of the exhibit depending on interaction with other elements such as the (sonic) presence of a predator. There will be birds which congregate in flocks in a single tree or midground area, solitary birds which move through their territory calling regularly to their distant mate, smaller groups of foraging birds chatting in almost inaudible (to humans) high frequencies and the occasional arrival of a raven or fishing eagle. All of these elements must be delivered within an unpredictable and yet totally believable naturalistic sonic environment.

Apart from the suspension of disbelief in visitors for effect there is also the issue of the captive animals themselves hearing and reacting to the sounds. I have heard of anecdotal examples, prompting debate in some circles, of researchers and field recordists using sound replay to attract or cause a reaction in wild birds particularly. In these cases the sounds used were specific calls of those species, not predators or other species, and there are arguments for and against their use. However, I am only aware of one study in which the effects of introduced sound on captive birds were studied for evidence of causing stress with the conclusion being negative for that species, Gouldian Finch.<sup>4</sup> Clearly, to be successful it is essential that the acoustic designer consider all aspects of both the existing as well as the introduced acoustic environment. This would include both the effects on visitors as well as for any other animals who may inhabit the precinct.

These ethical issues seem more acute in consideration of captive animals, however, without going so far as to suggest humans are in a captive situation, is it not reasonable to also apply the same requirements, of care and consideration, to the introduction of any sound into the environment? This basic concern clearly informs all decisions by the acoustic designer particularly when the acoustic space is put to a multitude of uses. For our example above, public address, interpretive sound, ambient habitat soundscapes and video soundtracks are naturally considered as elements within a larger global ecology that is the total zoo acoustic environment.

## A VISITOR CENTRE

The Commonwealth Scientific and Industrial Research Organisation (CSIRO) Discovery Centre in Canberra, Australia is an example of a modern exhibition space. The building itself has been designed to present a public image of a vibrant and exciting institution and features a central atrium where visitors can view working laboratories through a two storey glass wall. In addition to presenting the physical environment of the laboratories and education programmes for schools, the lower levels of the building contain a public exhibition featuring a cross section of the work carried out by CSIRO scientists.

([www.discovery.csiro.au](http://www.discovery.csiro.au))

### Exhibit areas

The exhibition areas present research into the weather and energy, biodiversity and ecology, agriculture, medical and gene technology to name a few. As with the zoo examples above the role for the acoustic designer is to work with the exhibition and interpretive designers to synchronise the acoustic space within an overall cohesive functional design. Decisions will be made as to the best methods for presenting information to the visitors including text, graphics, video and sound.

The visitor path through the exhibitions begins with an audiovisual programme on a 10 minute loop. The repeating surround soundtrack has the potential to cause problems for the acoustic environment of adjacent spaces and hence was enclosed in a small theatrette. Rather than have people pushing through doors an open corridor was placed at the entrance and exit. An acoustic engineer was consulted to specify materials that would help to contain the sound from the open doorways and also 'design' the acoustics of the room by dampening wall and ceiling reflections. A large disc faced with absorptive material was floated above the primary viewing area into which an overhead loudspeaker was mounted. One loudspeaker was mounted in each corner and a centre channel loudspeaker was designed into the wall under the video screens. The programme soundtrack was mixed to the six channels using a hybrid of ambisonic<sup>5</sup> (for ambience) and mono (for localisation) signal formats.

The adjacent exhibit area deals with weather and energy and is comprised mostly of text and graphic materials. To help create a context and backdrop for this information a general soundscape was composed. The sonic texture of the sounds of wind and water, almost white noise, serve the additional function of masking the crosstalk from the theatrette and voices from the nearby information desk. From there visitors pass into an enclosed space which houses a display dealing with biodiversity and salinity. The decision to enclose this space was made in conjunction with the exhibit designer to enable the creation of a broad rural ambience without interference from and to the adjacent exhibitions. A four channel ambisonic soundscape was created from background sound materials, mainly insects, from the Australian bush. A mural on one side of the exhibit creates the sense of a distant horizon and in the foreground 8 species of bird and insect are on display. Visitors pick up a shotgun microphone and point it at the 'stuffed' animals hidden within the display to activate a sound recording. Occasionally these foreground sounds will be met by an answering call in the distance. The intention is to give visitors a sense of the practice of sound field recording carried out by the CSIRO scientists. An added feature is to provide visitors with a listening activity where they can identify an animal with a specific sound and also hear similar sounds from within the general rural ambience that has been simulated in the exhibit.



Photography by Nigel Frayne

Not much to see but plenty to listen to - soundscape area on pathway into the Elephants of Asia Exhibit, Singapore Zoological Gardens.

The processing of sound files into an ambisonic format for the background sound level helps to achieve a reasonably large sweet spot within the sound field where distance and perspective can be perceived. The general availability and increasing sophistication in DSP (digital signal processing) functions are providing us with very powerful tools to both generate the sound materials (sound design) and place them within a naturalistic and very believable sound field (acoustic design).

### Architecture

In the case of both the zoo and exhibition examples presented so far it can be observed that there can be a direct correlation between the soundscape and the other elements comprising the functional and aesthetic design of a space. Essentially the composed soundscapes in these areas are predetermined and derivative. When we start to consider moving beyond these localised areas and consider transitional spaces and the architecture beyond, a whole new set of issues for the acoustic designer come into play.

Continuing with our virtual tour of the CSIRO Discovery Centre, we can move back away from the lower exhibition spaces and rethink our approach and entry into the building itself. As mentioned this is a striking, imaginative piece of architecture. One is experiencing the facility and an image of the institution, CSIRO, well before one has even entered the building. Is it reasonable that the only sound that would be heard from the car park, across the raised walkway, through the atrium, down the stairs and into the small theatrette would be the incidental flotsam of traffic, air conditioner hum, espresso machine and café sounds combined with conversation not intended for us? Is it reasonable that the building and CSIRO remain essentially mute at this point?

In an attempt to explore this deficiency in the overall precinct design a small extension to the soundscape system was introduced into the external areas and in the central atrium through which one passes to access any of the areas within. The acoustic design is quite elementary where sound is reflected off glass walls and delivered from high up in the atrium, where the reverberated energy of ambience also emanates. The content of this soundscape is a bit more perplexing since there are no functional requirements or features for direct correlation with sound. A somewhat different response is perhaps required whereby sound materials are manufactured which draw the sound and acoustic designer in to new creative territory.

As discussed, the facility is designed to present the public with an image of CSIRO scientists at work and some insight into the topics of their research. The soundscape that was composed for these areas external to the exhibition were comprised of a combination of both manufactured or synthesized sounds as well as a selection of natural sounds from within the exhibition, bird calls specifically, which were processed in various ways. This palate of ingredients was then mixed, matched and manipulated almost as a scientist would do in the laboratory. Single sine tones rise and fall or combine to form more complex tones. Grains of fragmented bird calls combine into clusters of at times completely unrecognisable sounds then reappear in their original and recognisable form. Given the highly reflective nature of the glass walled precinct and the desire not to overpower the general visitor ambience occurring on a human scale, most of the soundscape content is limited to the high frequency range. The tendency of high frequencies to predominate over lower ones works to overcome the mechanical hum of the air conditioning plant and the unnecessary reverberation within the atrium. The unusual nature of these sounds (there being no obvious reason for them to be occurring or sense of association with this place) and yet the inherent logic of their performance combine to create a sense of intention and control much as the structure and aesthetic of the architecture is a subtle and convincing force upon visitor perceptions of CSIRO.

### ACMI AMBIENT SOUNDSCAPE

An extension of the concept of what might be referred to as 'architectural sound' in the non-exhibit areas of the CSIRO precinct (above) is presented in this section describing the soundscape for the Australian Centre for the Moving Image (ACMI), Melbourne, Australia. The origins of this project are drawn directly from the client's interest and willingness to explore the creation of a 'voice' for an institution housed in an extraordinary piece of modern architecture. The inventors of Muzak and every store and boutique on the planet will know that the introduction of any sound will perform a simple aesthetic function of animating a space. The acoustic designer will synchronise this 'animation' to a specific building by way of a more considered design process rather than the emotion laden choice by bored staff from a limited range of music CDs.

This building, the home of ACMI, is unique and the sonic imprint of people's experience of the spaces should also be unique. The memory of a visit to ACMI will be an imprint of the architecture and the experiences within. Sounds heard also play a part in this memory and should not be compromised by generic and ubiquitous music. The main architectural feature of the building, based on deconstructionist philosophy, is the con-

stant shifting and motion of angles and perspectives. There are practically no parallel or perpendicular surfaces and a visitor is regularly presented with a view into distant areas through angular windows and shard-like crevasses. A feature of the interior design is a series of video screens and projections carrying what ACMI refers to as public imaging. In a sense one composes one's own movie through multiple choices made along alternative pathways as one moves about the building.

The sonic response to this personal habitation is to initially create a sense of cohesion by way of a general background ambience. One is subtly aware of being within the precinct of ACMI rather than any other place because it 'sounds different'. Within this ambience, midground zones of sound generate a sense of orientation. The main entrance is differentiated from the atrium, the toilets, stairwells and so on. Within this structural and spatial logic the visitor can be challenged in a dynamic interplay between subconscious hearing and direct listening achieved by the introduction of a range of foreground sonic materials. The interonset time structure and energy levels of these sonic events are critically matched to the human scale and activity level such that there is neither an imposition on consciousness nor undue distraction for visitors.

### Sonic texture

Structurally, a sonic layout plan for ACMI was derived from the placement of five iconic sound sources or themes into specific areas of the building (midground zones). The sounds of trains and trams, reflecting the origins of the site as a public transport hub, were placed in the northern zone where the building fronts the city streetscape. Sounds derived of nature, reflecting the perspective of the nearby hills to the east of the city were sent into the building's eastern atrium. The sounds of water, notionally connecting the wet areas of the building to the nearby river and ultimately the ocean were delivered within the toilets. The sound of footfall or footsteps representing the habitation of an urban space were delivered into stairwells. And, in recognition of the cultural institution housed within the building, the sound of a hand clap, was the basis for sounds generated for the central atrium.<sup>6</sup> Within the ACMI soundscape these iconic sounds are rarely heard in their prime form and are actually departure points (impulses) for the creation of the content both in terms of inspiration as well as the actual production of the sound materials.

Each of the five themes was developed into a large library of sound materials using DSP techniques, particularly filtering, granular synthesis and spatialisation by convolution. Each prime sound is considered an impulse and the product of the treatment is a response. This becomes particularly relevant for the hand clap which mirrors a technique adopted by acoustic engineers when measuring and assessing a building's acoustic properties, the impulse response. A sharp full bandwidth sound (often the pop of a balloon) is generated within a building and the resulting echoes and reverberation are recorded and analysed. As these techniques were applied to the prime sounds of the ACMI soundscape a wide range of variables were tweaked and the resultant sounds recorded. A process of review and selection of appropriate materials was then carried out, a process which threw up a set of very significant issues.

### Rhythmic features

The auditioning and reviewing of sound materials in real time is now a common feature of compositional processes involving computers. As sound materials were being generated for this project it became apparent that the sounds chosen featured

Photography by Nigel Frayne



View from the eastern atrium stairwell, ACMI, Federation Square, Melbourne



Building façade of extraordinary architecture, ACMI, Federation Square, Melbourne

rhythmic elements far more than they did pitched qualities. It is interesting to speculate that the physical nature of a body inhabiting a space is better synchronised through the macro time scale of rhythm than it is to the micro dimensionality of pitch.

Discarding or selecting sounds could be seen as a purely subjective set of decisions by the acoustic designer. However, it is a process deeply informed by an understanding of the spaces and functions within the final composed soundscape. So the intuitive response in this case was that the rhythmic performance and the passing of time was considered more important to the requirements of this space. It now seems clear that the main intention is not to create a 'piece' that engages visitors in any kind of conscious or coherent listening. Rather, the sounds are, for the most part, to be heard and processed in much the same way as the colour of the walls or texture of the floor might be.

One of the organising principles used in the formation of the rhythmic organisation within the soundscape was the geometry of the basic unit of the building structure, a right angled triangle with two sides having a 2:1 ratio (see photo of building façade). Whenever a decision was required for setting a variable in a DSP function, this ratio was used. This is a fairly tenuous link to the physical building and yet, combined with the enormous sound generating capacity of the contemporary computer, provided ample materials for the selection process. Variables within the replay system, the audio server,<sup>7</sup> were also set according to this 2:1 ratio whenever possible. Multiple layers of sound were built up in each of the midground zones of the building. The main element that references the five basic themes to each other is the specific feature of rhythm or pulse.

As has been mentioned, the experience of listening to this music-like structure and form bears no resemblance to classic music listening experience. Nor is the resulting soundscape derived directly from any interpretive materials or functions such as the habitat sounds described in the zoo exhibits above or specific exhibition themes of CSIRO. The soundscape of ACMI is free to exist purely within the transitional experience of the building in response to architectural features and the cultural role of an institution. In terms of acoustic design the challenge was to move beyond technical or mechanical methodology into a more deeply creative process and yet there was not the kind of freedom to explore and challenge as would be the case for a composer of music or sound art.

## CONCLUSION

In each of the examples above we have seen how an acoustic design process was applied to three quite different settings. Each

case called for a specific treatment based on the functional requirements of both the site and the institution. The process called on the acoustic designer to make a range of intuitive decisions from a set of both technical and creative skills and apply them to a basic structural format in order that the resultant soundscape exhibits an underlying logic and yet dynamic texture. In all cases the desire was to create a setting where the soundscape was 'tuned in' to the site. People inhabiting these spaces may choose to listen or not, but for those that will, the desire is to reward them with deeper insights and a more complete picture of these fragments of the built environment.

**Nigel Frayne** is an Acoustic Designer and Soundscape Composer with a background as a rock musician, sound engineer, a theatre sound designer and a graduate in composition and music technology from Latrobe University, Melbourne. Through his company, Resonant Designs, Nigel has travelled the world as a designer of electroacoustic soundscape projects including zoos, museums, aquariums, science and exhibition centres, arts and leisure precincts. His involvement in projects includes a wide range of activities-concept design, acoustic and sound design, sound recording, soundscape composition, audio production, project management and technical installation and commissioning. He spent the early years of his career touring Australia as a bass player in a number of rock groups and later as a sound mixer/engineer for live music and theatre. He maintains a keen interest in electroacoustic music and the applications of computers to music and is actively involved in the broader issue of sound design in the environment as Chair of the Board of the World Forum for Acoustic Ecology (WFAE) and Vice-President of the Australian Forum for Acoustic Ecology (AFAE).

## Footnotes

<sup>1</sup> Schafer, R. Murray. "Acoustic Design" in *The Soundscape: Our Sonic Environment and The Tuning of the World*. One Park Street, Rochester, Vermont 05767, U.S.A.: Destiny Books. ISBN: 0-89281-455-1. p.238.

<sup>2</sup> Ogden, Lindburg, Maple. *The Effects of Ecologically-Relevant Sounds on Cognitive and Affective Variables in Zoo Visitors*. Zoological Society of San Diego, P.O. Box 551, San Diego, CA, USA.

<sup>3</sup> For further description of this structure see - Frayne, N. "Electroacoustic soundscapes: aesthetic and functional design." *Sonic Geography Imagined and Remembered*, ed. Ellen Waterman, Penumbrapress 2002, P.O. Box 940, Manotick, Ontario, Canada, K4M 1A8. <http://www.penumbrapress.ca> ISBN: 1-894131-34-7.

<sup>4</sup> Woodward, C., Ogden, J., Czekala, N. and Lindburg D. *The Effects of Environmental Sounds and Intraspecific Vocalizations on Captive-Housed Gouldian Finches*. Zoological Society of San Diego, P.O. Box 551, San Diego, CA, USA.

<sup>5</sup> See [www.ambisonic.net](http://www.ambisonic.net) for a collection of articles, sources and links detailing the subject of Ambisonic surround-sound and digital audio technology, compiled by engineer/producer Richard Elen.

<sup>6</sup> It has been said that in 1932 an audience erupted into spontaneous applause when they heard the well-known sounds of Australian birds in the soundtrack of one of the first 'talkies' to be shown in Sydney, Cinesound's 'On Our Selection'.

<sup>7</sup> A software package called Krypton Audio Server™ developed specifically for the delivery and fine control over an electroacoustic soundscape by a partnership between my company, Resonant Designs Pty Ltd and software engineer, Stephen Graham of Softeye Pty Ltd.

# Active Acoustics: Defining One's Private Acoustic Environment

By Steve Haas

Imagine if you could not only escape from your everyday acoustical environment but also be instantaneously transported to any conceivable acoustic space—all without leaving an ordinary home environment. New technology now is able to offer private residences this escape into a new acoustical world with a process known as “active acoustic enhancement.”

For centuries, opera singers, musicians and even entire orchestras performed in royal palaces and the parlors of the aristocracy. The support of new musical works from these same sources were also filling fine, dedicated concert halls with great acoustical success, even though “acoustical science”, as we know it today, was largely undefined. Practically speaking, this was largely due to such spaces being architecturally treated as large volumes with hard, ornate surfaces and narrow widths—resulting in an acoustically live, diffuse sound environment, suitable to the music of the age.

Fast forward to the late 20th century/early 21st century. Today, it is rare that private home environments are built with such acoustically-conscious consideration, let alone any live music played in the home. We have almost entirely given away our traditions of sharing “live” performances to newer forms of electronically-based entertainment—movies, TV, video games, etc. Yet even listening to the best *recording* of a chamber orchestra on a fantastic system cannot re-capture the intimacy, depth and freshness of a real living ensemble playing before you—not to mention the interaction of audience and performers. This was part of the inspiration for the development of a new type of technology to return a more balanced perception of musical and/or theatrical performance to private home environments within an acoustically-pleasing architecture.

Active Acoustic Enhancement (AAE) is not something new; as early as the 1930s, acousticians have been developing and applying technologies to enhance deficient acoustic environments via electronic means. RCA was one of the earliest experimenters—attempting to energize the reverberant stairwells adjacent to the Philadelphia Academy of Music's main concert space in order to increase the perceived level of reverberation within the hall. Since that time, AAE has gone far beyond the experimentation phase and has been successfully integrated into concert spaces, cathedrals and multi-purpose halls for decades. The advent of digital signal processing, better computing power and highly-transparent loudspeakers have made the variety of AAE platforms and approaches much more palatable to the ear.

The concept of AAE is fairly straightforward: the electronic recreation of specific sound reflection patterns that would normally occur in a performance or presentation space. This might mean adding or enhancing certain aspects of a hall—such as on-stage hearing or low-frequency reverberation in the audience chamber—or it could be a total redefinition of the acoustic environment through the space. While there are differences in the various AAE technologies, most follow a basic method: Microphones situated above the performance area and, in some cases, throughout the audience areas as well sample the physical acoustical environment. Cardioid microphones are used near the



Photography by Steve Haas

Sarah Koo and Heidi Torvik perform for guests in an acoustically-enhanced listening room. As the active acoustic enhancement system is embedded in the architecture of the setting, to preserve the aesthetic integrity the architect had intended, there is no “hardware” to view. The point is “the return of the concept of ‘house concert’ to people's homes again.”

performers to “listen” more to the source while omni directional microphones pick up the ambience (or lack of) that is present in the audience area. These signals (typically 2-8 in number, but could be as many as 32 in a very large space or outdoor environment) are sent to a proprietary digital signal processing system which then adds to each signal a certain amount of early reflected sound energy and reverberation. The early reflections provide the presence and clarity to music and speech while the (frequency-variable) reverberation defines the liveness, envelopment and “warmth” in the room. These processed signals are then sent in specific amounts and ratios to a complex network of loudspeakers and other types of transducers installed in all walls and the ceiling of the room. The quantity of loudspeakers could be anywhere from 12-14 in a small residential space to hundreds in a large concert hall or cathedral.

It should be stated that this is *not* a PA system closely micing a performer and then patching in a reverb unit to simulate an environment. Rather, AAE still allows the direct sound—whether it is a cellist, vocalist, or even someone coughing in the audience—to emanate into the space naturally and unaltered. The AAE system then “takes over,” just as a real room would, to enhance the intimacy, intelligibility and fullness of the sound.

Having spent 14 years as an acoustical consultant with Jaffe Acoustics—one of the pioneering firms developing and applying AAE systems—I was exposed first hand to the design and integration of enhancement systems for many venues, including the main performance halls for the Nashville, Milwaukee, Indianapolis and San Diego symphonies. The earliest analog systems integrated in the late 70s/early 80s often received mixed

reviews, since the delay and reverberation algorithms simply couldn't maintain the processing speed necessary to deliver undistorted, uncolored sound to the audience as well as back to the musicians. Since then, though, the newest DSP-based technologies have come a long way to deliver very natural, transparent acoustic fields.

For the past 10 years I have also operated an independent consulting practice designing acoustic spaces for high-end residences (home theaters, ballrooms, music listening rooms, etc.). I was pleasantly surprised to find out how many of my clients were actually amateur musicians playing in their homes. Some even hired musicians for parties and other special events to perform. A little research revealed that "house concerts" have become popular again—especially as people are investing more into having their homes be virtual sanctuaries that meet all of their needs for entertainment and leisure.

Many home theaters also are being architecturally designed by the likes of Theo Kalomirakis and others to look like miniature performance halls—containing stages, prosceniums, fixed audience seating and even balconies in some of the larger theaters! People are naturally trying to use these grandiose spaces for a variety of activities, including live performances. I have watched as several clients played their instruments or their children nervously got on the stages of their home theaters and gave their first recitals. One homeowner even built a dedicated organ room 30 feet high by 60 feet long in his home and commissioned a quarter-million dollar organ for the space.

After witnessing all of this, I began to query some homeowners hosting house concerts and especially the musicians who play in these homes on a regular basis. One of the biggest complaints has been the uninspiring acoustic environments in which the musicians are forced to play. Visiting musicians usually end up getting cramped into a corner and sometimes have to try and contend with the noise of several hundred guests (in large mansions), that of other activities in the home (e.g. cooks and caterers preparing and serving food) and even outside sirens and other vehicular sounds when they play in urban penthouses.

This investigation led me to find a way to marry my two worlds (performing arts and luxury homes) to turn these ornate residential architectural spaces into acoustical jewels for just about any type of performance. Of course, there are those who have created moderately successful home recital halls the natural way. But, even for the rich and famous, having a 40-50 foot high room and a large footprint just to give the sheer volume necessary for balanced recital acoustics is almost never a desirable solution. In addition, there is a practical limit to the adjustability that the acoustics of these types of physical spaces can have for different genres and music types.

Enter active acoustics as a solution. AAE has been done in limited forms with reasonable success in prefabricated music practice rooms and studio rehearsal booths by Wenger Corp. and others. We wanted, though, to go beyond the prefabricated environment and promote the use of AAE in smaller, more intimate environments on a highly customized level. Utilizing a technology platform that allowed for complete flexibility in the assignment of each input signal to one or more output devices, we sought to design and integrate AAE experiences into luxury homes and other high-end small commercial spaces. We began working with a technology platform that had been created primarily for larger commercial spaces where certain I/O configurations, networking functions and algorithms were optimized for major concert venues, Broadway theaters and houses of worship. To be effective in the smaller residential settings,

we needed to work with the technology to scale down and adapt its hardware and software architecture so it would apply more (and be more affordable) to the home clients.

The first attempts at implementing the optimized AAE system were even better than we expected. Unlike most commercial applications, where the systems have been used to augment existing natural acoustics, the spaces that we first tried basically were dry, lifeless rooms. Therefore, the entire acoustic impression was created electronically. We spent many hours listening with a variety of sources and using our background in concert hall natural<sup>1</sup> acoustic design to simulate the multitude of parameters—subjective and objective—that go into the design of most excellent halls. Once again, with the flexibility of the system we have been using, we have been able to correlate the relationship of software settings for initial time delay gap (ITDG), early decay time (EDT20 and EDT 30) and clarity (C80) as well as a number of minor parameters to the perceived listening experience.

The real test, of course, came with the evaluation from our first musicians and audience members. We set up a temporary system in a New York City-based home theater showroom and proceeded to bring in a variety of performers—mostly classical and jazz musicians from Juilliard. We figured that these young musicians have already had quite a bit of experience performing and rehearsing in good and bad acoustic spaces, and would really be able to give us some great feedback on the playing experience in the AAE environments.

Keeping with the objective to customize a number of presets, we spent hours working on optimizing a number of different hall sizes, apparent proportions (e.g., narrow width/tall ceilings vs. wide width/short low ceilings) and even the amount of acoustic feedback to the musicians from the rear of the "hall". We also experimented with the creation of environments that accentuated certain tonal characteristics of particular instruments—something that would never be done on purpose for economic and artistic reasons in a commercial venue, but could easily be done in the electronic domain and saved as a preset.

We and the musicians have been very pleased with the results. The subjective impressions from the musicians have all supported how well AAE helps them hear themselves and other performers, and the "return" from the simulated halls has strengthened their playing ability. One performer actually utilized one of the AAE environments to prepare for a solo recital at a major hall in New York City and remarked on how confident she felt after doing so. Soloists and small ensembles ranging from chamber groups to jazz combos to Top 40 guitarists to a bluegrass quartet have now spent hours playing for audiences and rehearsing in our new AAE enhanced demonstration facility. Utilizing not only the enhancement technology, but also new types of flat panel radiators in lieu of traditional loudspeakers, we have been able to create very non-localizing and enveloping results that are now being designed for about a half-dozen luxury residences around the United States.

Of course, for a residential space to be transformed with active acoustic enhancement into Carnegie Hall or Birdland or Notre Dame Cathedral, one must create an infrastructure that completely nullifies any outside or inside acoustic interference. Such spaces must be absolutely silent at all times, otherwise the whole suspension of disbelief goes out the window. Imagine listening to an oboist play a quiet passage in the recreated environment of Boston Symphony Hall, and all of a sudden you hear pots and pans dropping from the adjacent kitchen, the heating system turning on and a fire truck roaring by outside. Hardly, the intimate escape to the concert hall! Before even beginning to



One of Denver's hottest jazz trios entralls the audience in a high-end home theater outfitted with active acoustic enhancement.

integrate the enhancement system, all walls, floors, ceilings, doors and windows are acoustically upgraded to the most practical level of isolation possible, while noises and vibrations from home climate systems, plumbing and lighting systems are eliminated.

Now, for the physical environment in the listening room: this also must be "tamed." Active acoustic systems can not "dead" an overly reverberant room (a large Great Room, Foyer, etc.). For example, one can not hope in a Ballroom to simulate a jazz venue that is intimate and present when the natural<sup>1</sup> room itself might have a mid-frequency reverberation time of 3.0-4.0 seconds! Therefore, passive sound absorbing treatments must first be introduced as a way of neutralizing the effects of the physical space. This also comes into play with the multi-purpose function of many large home spaces. One anonymous homeowner, who is in the process of integrating active acoustic systems into two rooms in his new home, describes the following:

We have a very large Ballroom that my wife and I wanted to be able to entertain in on a regular basis for up to 300 guests. Yet we also wanted to simply enjoy the space on a regular basis for leisure activities and also live music performances. Our acoustician's analysis of the space told us that our proposed interior finishes would give us a liveness of almost six seconds, which we knew would be unbearable once our many guests were all in there conversing. Discovering active acoustic enhancement was a

blessing, because it will give us the ability to first lower the liveness of our Ballroom with some high-end acoustic finishes so that we can all talk comfortably at any time. Then, when we want to bring out the Steinway or have a chamber group in there, we'll just press a button and, voilá, we have our liveness back.

The integration of active acoustic enhancement is not an inexpensive proposition due to the raw costs of the technology, the amount of supporting equipment and the design and tuning time required by qualified acousticians. It is, though, for a number of homeowners and even commercial venues (where no one wants to deal with unsightly microphones or playback equipment), the ultimate way to escape the reality of their numb aural surroundings and embark on a voyage into new and exciting listening experiences.

**Steve Haas** is the founder and president of SH! Acoustics —an internationally recognized acoustical and audio consulting firm. He is also the creator of Concertino™, an active acoustic enhancement system being integrated into luxury homes, yachts, hotels and recording studios. For more information, visit <http://www.shacoustics.com>.

<sup>1</sup> 'Natural' is referring to the acoustical state of the space or room and not to any 'organic' sense of the word. In the world of acoustical jargon, this word is befitting.

# Istanbul Sound Diary

by Gérard Mermoz

Photography by Gérard Mermoz



Günar at the Yerebatan Cistern, Istanbul (April 4, 2003)

This is an account of *Sonic Postcards from Istanbul*, a sound project conducted in Istanbul in April 2003, as part of the *City of Signs* project<sup>1</sup> (<http://www.research.linst.ac.uk/cityofsigns>). The project explores, in an artistic context, the capacity of sound design to intervene at the conceptual fringes where the materiality of sound and semantics meet, and new possibilities of meaning emerge in the form of ambiguous, multi-layered sonic texts. These sonic texts, in turn, become the object of a semiological reflection about language, meanings and their various manifestations, between sound and other media. Working in combination with photography and text, this sound project explores the capacity of sound to mediate between self and self, self and others, people and places: through its own medium specificity (the richness of the human voice and the infinite possibilities of its acoustic and acousmatic re-presentation), its staging as *performance*—in an acoustically rich and significant location [the sound of architecture]—and as an art installation, in which sound remain the primary vehicle for communication and artistic expression.

The project focuses on the issue of *sonic reference*, the capacity of sound to relay meanings outside the codes and conventions of language. The project also examines the role of notation systems (phonographic, typographic, photographic...) and explores the effects of their interaction within the context of a *sound-led artistic practice*.

Part of this research will be presented in the form of an installation, at the Zentrum für Kunst und Medien (ZKM), Karlsruhe, Germany, April 17—August 8, 2004. It will also be discussed at the SoundCircus conference organized by the Sonic Network in England (Leicester June 11—14, 2004) (<http://www.sonicartsnetwork.org/>).

**June 2002.** From a first brief visit to Istanbul, I bring back sonic memories; among them, the sound of the *narghile*—breathing through water—which unfolds as a *wordless text*, with its own syntax, rhythm and punctuation: evidence of a silent circle of conviviality, in a tea garden, and testimony to the gentle art of spending time in the pursuit of no-thing...<sup>2</sup>

Against this background, the *City of Sounds* emerges as a possible subject of investigation for the *Reading the City of Signs: Istanbul: revealed or mystified?* project mentioned above and scheduled for April 2003.

A visit to the Yerebatan Sarnici—a monumental cistern of the Byzantine era, situated near Aya Sofya—suggests possible sound *interventions*, working with the discrete physical, acoustic and symbolic attributes of this large underground Hall of Water.

**July—September 2002.** First idea: to compile a Sound Archive for the city of Istanbul, to preserve a neglected aspect of the City's cultural heritage. Through a survey, I plan to collect nominations from the people I shall meet, to see which sounds emerge from the undifferentiated rumble of the city, and which sounds appear as more present in people's mind, or more significant—in negative and positive terms—to the people of Istanbul.

Second Idea: A project of sonic intervention in the Cistern. There, unknown to visitors, I would use the existing sound system—on which a background of classical Western and Ottoman music is played at low levels, during visiting hours—to mix and play, *on the fringe of audibility*, a selection of sounds from the city, montaged with the music; to subtly bring to consciousness the sounds of the city, by *compositionally unobtrusive means*, in an environment, where, *under the spell of architecture*, the mind becomes more receptive. The architectural space of the Cistern is not just acoustically rich, and historically and culturally significant, but is also relaxing and conducive to self-reflection. It is not surprising, as the architecture of the Cistern resembles that of a gigantic cloister, pushed underground, away from the pandemonium of the streets above.

**5—19 April, 2003.** Reading Michel Chion's *Guide des Objets Sonores*—in particular the sections which semiologically distinguish different types of “sound objects” and their corresponding modes of listening—leads me to consider which type of “sound objects” would best represent the city, and on what *semiological* basis; and of what the sonic equivalent of a *personalized* postcard might consist. Given my interests in those aspects of discourse which are not notated, either in writing or in print (termed “supra segmental” by linguists; lost to the experience of silent reading, with the standardization of writing brought about by the invention of printing types), and the wish to explore sound for the *City of Signs* project, the concept of “objet sonore” theorized by Pierre Schaeffer and revisited by Michel Chion seems particularly relevant. This cannot happen without some theoretical adjustment, however, as I wish to retain the notion of signification and remain outside the sonic utopia postulated by Schaeffer. Even when aiming for the sound ‘itself’, in what Schaeffer termed “*écoute réduite*”, the listener cannot prevent signification to return and proliferate, via the *relay of connotations*, to adopt a distinction introduced by Saussurean linguistics between signification and communication. For I know in advance that the “objets sonores” I devise or ‘capture’ cannot be treated as *objective entities*. As Chion puts it “sound is a cultural object constituted via an act of attention and a naming.” (Szendy 2000, :55).

As sounds of the City, the sounds to be assembled for this project will necessarily implement a reference to the City—as *indexical signs*—and, through that reference, will open up narrative possibilities and possibilities of readings about the City, beyond the self-referential sonic ghetto of the “objet sonore” theorized by Schaeffer. To conclude: the referent cannot be left out of the equation, as it is inscribed in the modality of the (indexical) sign.

The first idea of compiling a sound archive for the city develops into the more manageable *Sonic Postcard* project, more suitable for experimentation.

Unlike the electronically manipulated Sonic Postcards published by the Sonic Art Network in 2001 (SAN CD/1) [Go to the website: <http://www.sonicartnetwork.org>], I want to make a sonic postcard without manipulating my recorded material in any way, except for eliminating accidental noise, and adding a fade-in and out.

My first impulse had been to start looking for and record the picturesque or significant sounds identified by my informants; but I resist.

**Sound 1:** The first recording I make is of silence; in the Mevlana Temple (off *Istiklal Caddesi*); during that part of the ceremony when the musicians stop and the dervishes continue to whirl, in a rustle of robes and friction of slippers on the parquet floor—an echo of John Cage's 4'33", and an opportunity to share with strangers the poetic experience of silence, in the architecture of another faith.

**Sound 2:** The sound of the call to prayers, carried by the wind, in irregular drifts, along the *Bosphorus*, at night—poetic and picturesque, and dear to the people of Istanbul.

The survey I carry out among the people I meet reveals that the most noticed sonic feature of the city is the obtrusive “noise” of traffic. By contrast, the fluid space of the Bosphorus—which divides and unites the Eastern and Western parts of the city—carries positive associations. “Corridor” for tankers transiting between the Mediterranean and the Black Sea, and bridge for ferry boats between East and West, the Bosphorus is a “place that links and binds the multiple identities of the city and its inhabitants” and a “locus for social, cultural and natural transformations.” (G. Cepoglu, *Bosphorus*).

Other sounds identified by the survey include: the call to prayer; the cry of seagulls; the calls of street sellers: scrap metal collector, *boza* drink, the bell of the yoghurt seller; the recorded jingle of the Aygaz gas cylinders delivery van; the ringing bell of the tram; the horn at 9:05 am every November 10 (to commemorate the exact time of Atatürk's death); dogs barking; water running underground; a knock on the door, etc.

An agnostic film-maker confides that she misses the sound of the call to prayer, whenever she travels abroad.

Postponing the archive project, I consider alternatives manageable within the two weeks available.

**Sounds 3 & 4:** I record fragments of conversations, to find out how spoken words behave and hang about in urban-acoustic spaces and how they relate and coexist with other sounds: indoor (on the top floor of the headquarters of the Ottoman Bank, overlooking the Golden Horn) and outside (in Aya Sofya gardens). Characteristically, on both occasions, the ubiquitous call to prayers irrupts into our conversations, drowning them at times, re-writing/fusing them into the *polylogue* of the City.

In the ensuing exhibitions of the *City of Signs* project, in Bristol, Nottingham and London, these recordings are played back on wall mounted mono Muji CD players, to facilitate visitors access to the material. The sound quality of the equipment keeps the audio experience on the level of a low resolution (grainy) “postcard”. This is the expression of an artistic compromise, based on the acceptance of the limited technological resources available. However, as with all compromises, I learn from the experience and capitalize on those limitations by planning alternative versions.

**Sunday, April 4, 2003.** I meet Günar, aged six—daughter of a Turkish colleague—who has agreed to perform a sound improvisation, using laughter as the sole means of expression. The performance takes place in the Yerebatan Cistern, as soon as the volume of the piped music recedes, and Günar overcomes her shyness.

Günar sustains the performance for 3'17", spontaneously introducing, after 2'30" of subtly modulated bursts of laughter, the Turkish word for laughter, *kahkaha*, repeating with different inflections till the end of the piece. The recording is made in one take, with no prior rehearsal and no subsequent check. This preserves for the piece the quality of an *event*.

To bring out the acoustic properties of the architecture, we run around and keep moving. I try to keep the mike at an appropriate distance from Günar, moving it around, to pick up other sounds and to spatialize her voice in relation to the reflecting surfaces: columns, walls, water... and to pick up other sounds: bird wings flapping, water dripping, human steps, etc. The only form of controlling the recording is produced, collage-like, by orienting the mike to spatialize the voice in the echoing architectural setting. As we walk out of the building, I take a photograph of Günar and her mother, with no idea whether the recording will be usable. By combining a human voice from Istanbul and a significant example of Byzantine architecture, *Laughter* defines the criteria for my sonic postcard from Istanbul.

Alongside other recordings of the human voice during personal conversations (Conversation 1 and 2), *Laughter* provides material for a typographic reflection about the existence of *texts* into *space*, i.e. text is projected from the two-dimensional space of the printed page onto the four dimensional sonic space of the performance—where does the text dwell? This reflection highlights the filtering processes at work in conversations, as the mind boosts certain signals, filtering down others, according to criteria of appropriateness and relevance. Here, the accidental *sonic layering* of our dialogue with other voices, street sounds and the call to prayer manifests the complex, dynamic and anarchic *topo-graphy of discourse in performance*, before order is restored through the process of purposeful listening.

Away from obvious clichés and stereotypes, for me *Laughter* more than any of my other recordings, crystallizes my experience of the sounds of Istanbul. The vulnerable and hesitant expression of a child—oscillating between joy, curiosity, puzzlement, anxiety...—set in a vast underground architectural space of great beauty and simplicity, highlights the aforementioned capacity of sound to mediate between self and self; self and others; people and places. In the now quasi-empty Cistern, stone, water, colour and darkness combine to create a sense of place. The historic shift of function, from water reserve for the ancient city of Byzantium to ‘espace de recueillement’ for the inhabitants of contemporary Istanbul, highlights the ‘*ecosonic*’<sup>3</sup> capacity of architecture to reveal the subtle palette of ambient sounds, which surround us, on the threshold/fringe of our consciousness. It is *not* just by echoing or amplifying sounds that architecture contributes to our sonic environment—as a *resonator*—but also by making us more attentive and engaged “to make audible, make possible, make conscious; in brief, to extend our listening experience instead of satisfying our aural expectations” as Helmut Lachenman wrote of music (Szendy 2000, 116).

During an interview on National Turkish Radio, a journalist remarks, off air, that she does not see any connection between *Laughter* and the “sounds of the city” she knows. I point out that my intention was not to reproduce existing sounds—as a sound archive would and my survey revealed—but to present an abstraction which would also work as a *synthesis* of my experience



Gaïng at the Viva Face Café, Istanbul, (October, 2003)

as an outsider/visitor, and, in so doing, enable *new* sounds of the city to be heard.

In this context, the title of the project *Sounds of the City* needs to be interpreted as “adding a sound to the soundscape of the City” or, better still, through the paradox of making the gift of a (new) sound to the City; with sonic material (the voice of a child, the ‘voice’ of architecture) which already *belongs to* the City.

By combining the voice of a child with the “voice” of architecture, *Laughter* inscribes a poetic reference, via the detour of a metonym. Implicit but not immediately audible, a third presence is also inscribed in the piece, manifesting itself in sign language, physical movements and facial expressions. This third (silent) voice—which spoke and mimed in improvised signs and body language (below recording levels) crucial cues during the improvisation—is the third (deliberately inaudible) protagonist in the performance; which by no means should be treated as a monologue, but, indeed, as a *study for three voices*: one laughing, the second silent and listening, attentive to the Other, helping and witnessing her coming out of herself...as she attempts—and succeeds—to manifest herself *through* a new form of sonic identity. The third voice—that of architecture—does not solely provide an echo or background for the other two, but the *potential space* in which they can ex-ist and manifest themselves as “machines de voix”, as one says “machines de vision”. (Virilio 1988)

**Sunday, December 7, 2003.** The unsophisticated playback equipment I used in our shows in Bristol (July) and Nottingham (September) had flattened the sound, reducing it to pale shorthand of the original.

Today, in Birmingham, England, the opportunity to *perform* some of these recordings, on the new M2 Diffusion System, developed by David Moore and James Mooney at the University of Sheffield—during a workshop organized by Birmingham Electro-acoustic Sound Theatre (BEAST)—*trans-forms* these recordings back into the dynamic, monumental *sonic architecture* from which they come, *transfigured* and with different emphases.

The sound image, which, up to now, had only existed as low-tech domestic play-back, now assumes a different dimension as *sonic performance* which brings us back to the original event. This acoustic transposition of an experimental typographic idea, projected into architectural space, is unfortunately too costly to be repeated for future exhibitions.

Meanwhile, the typographic experiment continues, in acoustic space: *typophonics*? At the ZKM exhibition, in Karlsruhe (April 17—August 8, 2004), the voice of the child will be staged

as acousmatic presence: concealed in the ceiling, triggered by visitors, as they cross an invisible beam, to view a postcard-size photograph and read three short texts, all of which evokes, from different perspectives, the circumstances of the original event.

**Gérard Mermoz**, [Senior Research Fellow in Typography at The London College of Communication (ex London College of Printing)]. Works across art, design and theory; focusing on the relation between language and its representations (phonic & typographic). Leader of Reading the *City of Signs: Istanbul, revealed or mystified?* Project. Articles in *Visible Language*, *EMIGRE*, *Baseline*, *Communication et Langage*, *Hyphen*, etc. Sound work *Laughter* to be published on CD in *Earshot* (Jan 2004), featured in *Call Me Istanbul* exhibition, ZKM (April 17—August 8, 2004), and presented at SoundCircus conference organized by the Sonic Network in England (Leicester June 11—14, 2004) [<http://www.sonicartsnetwork.org/>]. The *City of Signs* project will be presented, in the form of a large installation, at AKSANAT, Istanbul, from November 6 to December 30, 2004. [gerardmermoz@hotmail.com](mailto:gerardmermoz@hotmail.com)

### Footnotes

<sup>1</sup> The *City of Signs* project is an Action Research project led by Gérard Mermoz, at the London College of Communications (ex London College of Printing). The project, ironically titled *Reading the City of Signs: Istanbul: revealed or mystified?* redefines Art and Design Practice as Research, and uses form and media to make *propositions* about the urban environment. The project is structured around the concept of the Lab, a flexible space/structure/framework in which to set up and carry out fieldwork and dialogues across disciplines, in the spirit of a *relational aesthetics*. (Bourriaud 2002)

<sup>2</sup> I owe my initiation to the ritual of the narghile to Dr. Sebnem Timur’s paper *The Eastern Way of Time-Keeping: The Object and Ritual of Narghile*, presented at the ‘Mind the Map’ conference (Istanbul, June 2002) [to be published in the proceedings]. ‘Unlike the Western conception of time, the narghile acts like a physical object that materializes a different sense of reality; against the rush of the mechanical clock’ (S. Timur). Performed in tea-houses, the ritual of narghile smoking brings together people, in an experience of serene conviviality, in which time and the mind are purposefully emptied of all preoccupations and worries.

<sup>3</sup> Unlike ecology which refers to the discourse (logos) about living organisms in relation to their natural habitat, the neologism ‘ecosonic’—formed with ‘eco’ [from Gr. ‘oikos’ (house)] and ‘sonic’—refers to the potential of interaction, through sound, between organisms and their ‘milieu’. Thus, in the context of the sonic work discussed, ‘ecosonic’ refers to the capacity of architecture to mediate, by its direct action on sounds and people, and to inflect the quality of the resulting experience.

### References

- Bourriaud, N. 2002. *Relational Aesthetics*, Dijon: Presses du Réel.  
 Chion, M. 1983. *Guide des Objets Sonores: Pierre Schaeffer et la recherche musicale*, Paris: Buchet/Chastel.  
 Chion, M. 2000. *Comment tourner autour d’un objet sonore*, in: Szendy, P. (ed.), 2000, *L’écoute*, Paris, IRCAM: 53-62.  
 Virilio, P. 1988. *La Machine de vision*, Paris: Galilée.  
 Szendy, P. (ed.) 2000, *L’écoute*, Paris, IRCAM: 53-62

# Soundwalks

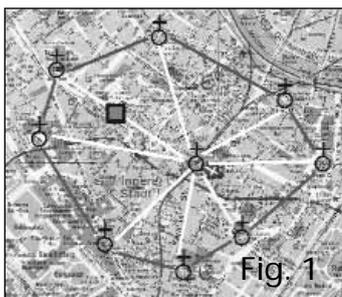
## Vienna Soundwalk A Soundscape Information System

By Hartwig Hochmair

[Ed. Note: *Vienna Soundwalk* is an example of a dissertation project (see bio). The application has worked locally in Vienna on the author's computer as described in the article below. Because of the enormous amount of data, especially in video, it would take another step to make the soundwalk publicly available on a CD or on the internet. However, some of the sounds included in the Vienna Soundwalk project are available on a CD\*.

### Motivation

The inner city of Vienna provides a manifold soundscape. The basic aim of this project was to capture the various atmospheres of the city in a computer application, and to provide the user of the system the possibility to re-experience these atmospheres within a virtual soundwalk. The system is an interactive multimedia work, where the user can determine his or her route through the city area on the computer screen with the pointing device. Depending on the user's virtual location, the system plays sounds from the acoustic environment and—in one of the two program modes—corresponding post-processed video clips (of the original location, but post-processed to get a slightly surrealistic impression). The application demonstrates the outstanding role of sounds for characterizing a place. To capture the meaning of a place, the place must, besides its location, also be seen in the context of human action and sensing (Jordan et al. 1998). *Vienna Soundwalk* is a contribution to present a place in its acoustic context.



The organizing principle of *Vienna Soundwalk* is based on the geographic position of nine selected churches of the inner city of Vienna. St. Stephan's cathedral is the geographic centre, whereas the remaining eight churches build a circle-like shape. The imaginary connections of

each of the peripheral churches with its two neighbours and the central church span eight triangles (Fig. 1) which in sum contain 16 connecting paths. I recorded, video-taped, and photographed the included paths and churches, which gives a sum of 25 separate places for *Vienna Soundwalk*. The audio-recording (for all 25 places) was done with a high-sensitivity mono-microphone and a DAT-recorder, the video-taping for the 16 paths was made with a S-VHS camera, and the pictures of the interiors of the nine churches were taken with a digital camera. All of the material was digitized and post-processed on a Macintosh computer. The final application has been programmed in Delphi. It runs in Windows.

### Sound Characteristics

The sounds found in the inner city of Vienna cover a wide range of characteristics, reaching from cultural soundmarks (Schafer 1977), i.e., sounds typical for a geographical area, over back-



Fig. 2: Playing the items of the play list of a pre-defined route (screenshot of route-walk mode)

ground sounds (e.g., distal voices), to almost silent places (interior of a church). We can distinguish outside soundscapes from interior ones acoustically, on the one hand through the different sound sources, and on the other through the characteristic *acoustic colouration* (Wrightson 2000) caused by echoes, reflection from surfaces, and reverberation in each of these environments. The sound materials for *Vienna Soundwalk* reflect a random acoustic snapshot of the places, i.e., it includes all sounds that happened to be present at the moment of recording. For the outside landscape, the Vienna "Fiaker" (see Fig.2) is a typical soundmark (through the clattering of the horses), as well as the characteristic Viennese dialect of voices captured from passengers. In addition to these sources, various foreground sounds attracted my attention during the outside recording process, such as bells of churches, street musicians, children's laughter, busy voices at market places, the ringing of mobile phones, the clattering of dishes in a café, water fountains, and sporadic bird song. The soundscape of the interior of churches takes place on a smaller acoustic "scale", i.e., the range of potential sound sources is—in my experience—smaller than in the outside environment. Silence is one of the key elements in the soundscape of churches, potentially overlaid with the whispering of people or silent footsteps. Nevertheless some characteristic foreground sounds can be found in churches, such as coins being dropped in the offertory, a door being closed, the muted sound of bells, a priest preaching, organ tones, or a choir practising a song.

### The Application

*Vienna Soundwalk* offers two modes of virtual walks, namely live-walk, and route-walk. In live-walk mode the user deliberately moves the mouse pointer over the city map to take the virtual soundwalk. If the mouse pointer is inside one of the eight triangles of connections, the program highlights the triangle through labeling the churches at the corners of the triangle (Fig. 1). The program continuously plays and mixes the three sound files that are assigned to the surrounding imaginary connections. The closer the mouse pointer is to a connecting element, the more dominant is the sound. If the mouse pointer is dragged over a church, a short transition file is played, followed by the sound file of the interior of the corresponding church.

In *route-walk* mode, the user can pre-define a route of any length through clicking in an arbitrary order on the labels of all places on the map. That is, a play list can be created consisting of paths and churches, and additionally the length of each part can

be determined. After pressing the 'start' button, the pre-determined sounds are played in the chosen order, and the video clip assigned to each sound is shown simultaneously. The current position of the virtual soundwalker is displayed on a small map in the upper left corner of the screen, and also highlighted within the play list in the lower left corner (Fig. 2).

**Hartwig Hochmair** holds an MA in electroacoustic composition and a MSc in surveying. In his dissertation he compared aspects of navigating the physical world and electronic spaces. In 2003 he joined the institute of informatics at the University of Bremen, Germany, as post-doc fellow. Some of his compositions for recorder, piano, and organ are going to be printed by the music-publisher *Doblinger* in Vienna.

#### References

- Jordan, T., Raubal, M., Gartrell, B. and Egenhofer, M. (1998). *An Affordance-Based Model of Place in GIS*. 8th Int. Symposium on Spatial Data Handling, SDH'98, Vancouver, Canada, International Geographic Union.
- Schafer, R. M. (1977). *The Tuning of the World*. New York, Knopf.
- Wrightson, K. (2000). "An Introduction to Acoustic Ecology". *Soundscape—The Journal of Acoustic Ecology* 1(1).

\* Available on an Audio-CD produced by *Extraplatte*. The CD includes further electroacoustic works produced by students of the University of Music and Performing Arts in Vienna. The CD (EX 4562, 2000) can be purchased from:

Extraplatte Musikproduktions- und Verlags GmbH  
Postfach 2  
A-1094 Vienna, Austria  
Tel: +43 (1)31 01 084  
Fax: +43 (1)31 00 324  
info@extraplatte.at  
www.extraplatte.at

Excerpts from the CD can also be heard in real-audio at:  
<http://www.alphamusik-shop.de/5104798.html>

---

## Planning A Class Soundwalk

By Gary Ferrington

I had the opportunity to teach my first soundscape studies course this past summer. This was a two-day weekend seminar held in late June when the weather is quite warm here in the American Northwest. The course was held on the University of Oregon campus in Eugene. Summer weekends are very quiet and I was concerned that the soundscape would offer little acoustic diversity for a soundwalk on a Sunday morning. I knew that few students would know about soundwalks and so some advanced planning would be required.

I took the weekend prior to the seminar to figure out the type of listening experiences I wanted the 15 students in the class to have. We had about 45 minutes in which to do a complete circle from the classroom and back. Within that time frame I wanted to encounter as many different acoustic spaces as possible.

I went to the classroom where I would be teaching and with a campus map in hand set out to listen. I noticed that the long enclosed veranda outside the classroom had a wood floor and footsteps could be heard easily. This semi-enclosed space also had substantial reverberation. I would use this feature in the walk.

The University campus is rather unique in that about six acres are devoted to a pioneer cemetery. The graveyard is filled with old tombstones and hundreds of 40 to 60 foot tall Douglas fir trees. I thought that this would be a great place to hear birds and listen to the wind. However, on this trial walk there was neither. It was a very hot day.

I continued to follow a loop that would take students over a variety of walking surfaces including grass, gravel, and different types of concrete. I also found additional acoustic spaces that reverberated.

At one place on the planned walk we would go by a very busy four-lane highway hidden by a hedge. One could hear the various vehicles but not see them. The walk would return by a fountain in front of the library and then into a building that has an enclosed stairway creating an eleven-story echo chamber.

On the day of the walk we left the classroom in single file allowing about 15 feet between each student. Students were good at keeping this distance during the walk. Taking people on a soundwalk is much different than taking a walk by oneself. I learned a lot from this experience and although it was a good activity it can be improved.

As we walked down the veranda I clapped my hands and stomped my feet. Soon all the students were doing so creating a wonderful rhythmic echo. We would do this again later, except each person would do a task in one specific place. As individuals entered a rotunda he/she would clap three times. It was interesting to hear this taking place as one moved away from the rotunda.

The walk through the cemetery was on a gravel walkway. Any hopes of hearing birds or the wind would have been impossible. Stopping or walking off trail in places would have opened the acoustic space to whatever sounds might be there.

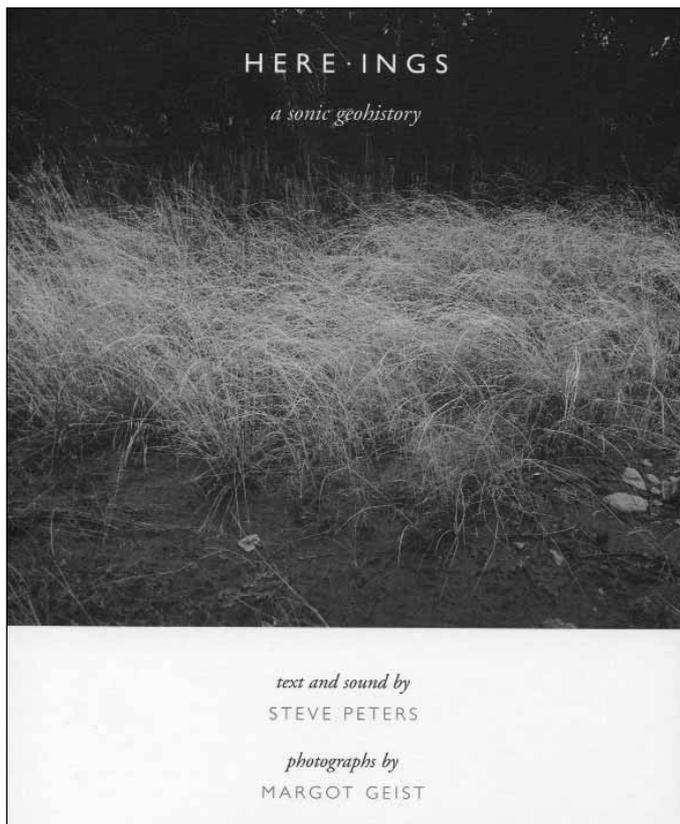
I also learned to be prepared for the unexpected. There was one place in the soundwalk where I wanted students to take a break and sit in an outdoor amphitheater, close their eyes and listen. When we started the activity we were treated to a fly over by antique airplanes from a local air show. What perfect timing to take a listening break!

On our return to the classroom we encountered a construction crew working on a Sunday morning to lessen traffic problems. There were all kinds of graders, cranes, and other trucks making delightful sounds as our group walked by in single file. This was an acoustic bonus and eliminated any worry I had about diversity of acoustic experiences.

The building I had planned to use for the end of the walk was locked and we could not access the enclosed stairway. So we lingered at the library fountain and then walked into the library foyer where composer Jeffery Stolet had installed an electro-acoustic soundscape earlier this year.

The course evaluation provided me with comments on how much the students enjoyed this walk. It brought together all the things we had explored about acoustic ecology the day before. I will lead other soundwalks in the future now that I have had the experience of organizing, planning, and conducting one.

**Gary Ferrington**, Senior Instructor Emeritus, Media Studies, University of Oregon, Eugene, USA. Currently WFAE secretary and website manager.



## HEREINGS (A SONIC GEOHISTORY)

By Steve Peters,  
with photographs by Margot Geist

La Alameda Press, New Mexico; book and CD (August 2003)  
ISBN 1-888809-38-8 \$20 (USD)

Reviewed by Brandon LaBelle

The impulse to make field recordings goes back to the very beginning of recording technology. Ethnographers and anthropologists utilized recording technology in the gathering of field data from the early days of its existence: so indigenous sound could now be captured and held on cylindrical spools, to be heard again. This opportunity enabled, to some degree, a more thorough consideration of sound's ability to embody and convey information pertaining to particular cultures and their environments. From music to speech, environmental sound to ceremonial events, sound provided a source for probing the details of difference.

Contemporary environmental sound recording seems to occupy a similar and yet more complex terrain: while retaining some of the anthropological concerns of paying witness to the specifics of place, it can sometimes also move from the scientific towards the poetic, complementing data with speculation, or fieldwork with reverie. Bird calls, wind noise, plant life, the bristling of nature, and the humming of humanity, all tell us something of a particular place and time by making such things present as well as absent. For environmental recordings are literally marked, through aural impressions, by external stimuli, while simultaneously announcing that these stimuli are passing and will inevitably disappear. This quality in general pertains to any

form of recording, from audio to visual: to record "reality" is to both capture its presence—making it available to a multiplicity of times and places—while underscoring its absence: the captured event is always already in the past. Such poetics of sensorial experience haunt environmental recording. (Even extending to Edison's own concern for the voices of the dead upon inventing recording technology in the late 19th century.)

The composer and sound artist Steve Peters engages in a consideration of environments and their aural events through recording projects, writings, installations and performances. His most recent publication, *Hereings (A Sonic Geohistory)* is both a document of an installation project from 2000 and a project in itself. As Peters describes it, "the Hereings project documents my experience of immersive listening, and of consciously forming an intimate relationship with Place over time." Invited to participate in a group exhibition at The Land, an art site in Central New Mexico, Peters dedicated one year to making field recordings at different locations surrounding the site. The recordings were made so as to span the course of 24 hours occurring throughout the seasons. Thus the recordings take a listener through two simultaneous "cycles" of time, running the course of a full day, and of a year. In addition to the recordings, Peters wrote a series of poetic texts describing sounds heard during the recording process. These texts were inscribed onto stone benches placed at each of the recording locations. In this way the final installation acted as markers for the project, as well as points from which to experience the environment and its aural life. Visitors were encouraged to occupy the benches, as listening stations; in listening, they could in turn read Peters' own experience: "a deep molecular emptiness/ hangs in the air/ time holding its breath" reads the entry for "11:00 pm (April 13, 2000)". Another, from 4:00 pm on September 6 reads: "late afternoon stillness/ several birds/ a sudden ruffle of wind".

The *Hereings* publication beautifully documents the project by creating a constellation of information—visual, textual and auditory—that both informs and excites the senses by keeping the notion of "Place" alive. Any publication on "the gradual process of becoming connected with Place" runs the risk of leaving the notion of Place behind, for certainly books are mobile objects circulating through random environments. Further, the desire to form an intimate relationship with environments seems to imply something quite personal, potentially sealed off from conversation; and Peters' own testimony to such intimacy hints at an interior sacredness that might elide social forms of participation. Yet what shines through in *Hereings* is a belief that communication is integral to such forms of intimacy. Whether as an installation or a publication, the project aims to immerse itself in the specifics of "Place"—as a process with its own "life" and rules—as well as to capture and articulate this experience for others. Thus, to listen and read *Hereings* is on the one hand to overhear Peters' diaristic musing, and on the other to become engaged in one's own environment. For myself, my room here in Copenhagen takes on new life while I am listening to the *Hereings* CD: track 20, 7 pm to 8 pm, with "(crickets out)/ falling rain/ nighthawk/ thunder/ juniper branches end/ storm intensifies/ (mourning doves)", stands in direct contrast to my own "Copenhagen's sun-blown wintry chill, with deep blue sky complemented by hot coffee on the stove". Thus, "Place" comes to life by being somewhat alien, other, and separate. Such contrasts are,

I suggest, at the heart of *Hereings*, and further, it exemplifies the potential of environmental recording itself: that is, its potential to accentuate difference. The recording of an environment gives definition to a specific place, revealing its inherent properties and events, while operating to decontextualize, or “displace”, such specifics. That is to say, as a listener I hear just as much displacement as placement, just as much placelessness as place—for the extraction of sound from its environment partially yields a poetic power, by making sound boundless, uprooted and distinct. Thus, difference and displacement become the flipside to environmental recording’s emphasis on immersion and place. Perhaps to listen deeply is to arrive at a place of alienation, not necessarily disheartening but rather productive. For the pursuit of the environmentally poetic may not necessarily lead to harmonic plenitude between oneself and the world—as Peters suggests, one’s knowledge of “Place” is never complete, for it always contains things beyond one’s grasp, which may in the end be part of what this knowledge teaches us.

**Brandon LaBelle** is an artist and writer, and editor of Errant Bodies press.

---

## NOISE DESIGN

### Architectural Modelling and the Aesthetics of Urban Acoustic Space

By Björn Hellström

ISBN 91 88316 38 6  
Bo Ejeby Förlag, Göteborg, Sweden  
www.ejeby.se  
263 pages + CD-ROM (Mac + PC)

Reviewed by Gregg Wagstaff

In a climate of *sound-scapes* and *sound-design*, Björn Hellström has purposefully made a provocative choice for his book—*Noise Design*. His reason, as I understand it, is to move away from the common interpretation of noise as “unwanted sound”, towards a clearer understanding of noise as a “mediator of qualitative information”.

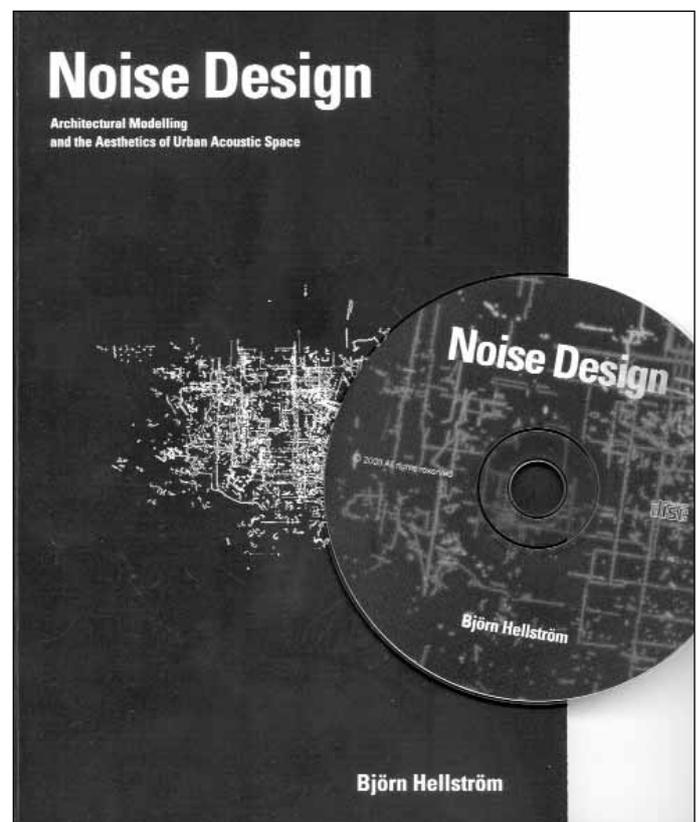
In the prologue the author presents a good overview of the current research field, setting out two camps; the WFAE and CRESSON institute. He then structures his main text into three essays—I. *On Sound Design*, II. *On Sound Effect*, and III. *On Sound Identity*—which are complimented by a CD-ROM.

I. The first essay, *On Sound Design*, deals with sound from an aesthetical perspective of the sonic arts (electroacoustic music, musique concrète, neues Hörspiel etc.) and is divided into chapters on the *Sound-Object*, *Sound Landscape*, *Sound Perception* and *Sound Notation*. Here, Hellström introduces Pierre Schaeffer, Trevor Wishart, Iannis Xenakis and John Cage, amongst other key figures. Whilst, I imagine, some of this substance will be familiar to readers of this journal, the subsequent essays however are new to the English reader and absolutely essential. What Hellström importantly achieves in this essay is to “frame the knowledge field” of sound art in relation to that of sound design. Consequently he derives *six statements* that describe the close interface between the environmental and musical field. For example, “5. Listening perception is a basic qualitative tool for the sound designer when exploring the relation between sound and the user’s space, implying that sounds are not undesired, but

possess certain qualities by bringing qualitative information in many aspects and situations.”

CD-ROM. Also, interspersed throughout this first essay are fifteen *Studies*, which relate to audio and video on the accompanying CD-ROM. These aim to elucidate different concepts under discussion. For example *Study no. 1* invites us to listen or *attend* to a composition of electronic and environmental sounds first from an analytical level (i.e. acoustic qualities, social behaviour) and then on a creative level (i.e. its aesthetical, musical aspects). Of particular note on the CD-ROM is *Tiks* (Transparent Information of the Klara Systems) a sound and video installation by Hellström, which initiated his subsequent architectural and sonic explorations.

II. In the second essay, *On Sound Effect*, Hellström renders for the first time an English translation of *A l’Ecoute de l’environnement—répertoire des effets sonores* (Listening to the environment—repertoire of sound effects), edited by J-F Augoyard and H. Torgue. This comprehensive, qualitative tool was developed at CRESSON (Centre de Recherche sur l’Espace Sonore et l’Environnement Urbain) at the School of Architecture,



Grenoble. CRESSON investigates the urban sonic environment using interdisciplinary and qualitative approaches with a view to producing sound design tools for architects, and it was here that Hellström studied from 1998–99 under the supervision of Jean-François Augoyard. Published in 1995, by Editions Parenthèses, Marseille, *A l’Ecoute de l’environnement—répertoire des effets sonores* is the only work where sound effects are thoroughly classified each according to their acoustic, architectural, sociological, psychological, cultural, philosophical and musical contexts.

In its original form ‘*effets sonores*’ consists of 16 major and 70 minor sound effects with which one might describe any unfolding sonic situation. Hellström goes on in the next chapter to translate one effect in its entirety—the *metabolic effect* (an appendix also translates the descriptions of a further sixty or so effects relevant to architecture and soundscape design). The

author has done an excellent job opening this essential text up to other readers. I must admit however, that when I reached the more detailed schematics and various conceptual representations of *the metabolic effect*, I became swamped in the complexity of it all. I think I would have preferred to see/hear about more real-life examples.

III. In the third and final essay, *On Sound Identity*, Hellström presents us with a thorough presentation of Pascal Amphoux's *L'Identité sonore des villes européennes* (The Sonic Identity of European Cities), 1993. As with CRESSON's *effets sonores*, this is the first time that the text has been translated into English and Hellström has done all soundscape researchers and designers a great service here. Amphoux's work (including his earlier *Aux écoutes de la ville*—Listening to the City) also presented here by Hellström, should now be essential reading, especially by creators of any soundscape projects looking at applied methodologies.

Hellström explains Amphoux's *CVS-model* (*Connu-known, Vécu-lived, Sensible-lived*) as well as the *EMP-model* (Environmental listening, Milieu listening, Landscape listening), which are used as tools to map and qualify different dimensions of sonic urban identity. These in turn refer to an extensive *Repertoire of Qualitative Criteria*, some of which Hellström translates in another appendix.

In the final chapters, the author presents his own explorative *Tiger* project using the *effets sonores* and *EMP-model*. Also presented on the CD-ROM, the *Tiger* (Tourist Information Guide to Environmental Resonance) represents nine short locations through surveys in Stockholm's Klara district, in which Hellström demonstrates how these tools can be employed both analytically and creatively.

In summary, I must admit that I found this book a bit heavy going in places, albeit meticulously notated and referenced. In addition, the various layers of sub-chapters, headings, figures, tablatures, footnotes and CD-ROM studies were a little disorienting. Having said that, Hellström does well to contain this multiplicity with preambles and summaries to most chapters, keeping the reader on course within the larger trajectory of the thesis. Given the vast scope of Hellström's research and the sometimes deeply technical aspects of what he relates (and translates), he could not have done a better job.

Hellström has provided the English speaking acoustic community with a detailed presentation of Pascal Amphoux's methodology and CRESSON's repertoire of sound effects. This has obviously been a huge undertaking and we should applaud Hellström for being able to act as a bridge to this essential work. This is not to undermine his own contribution either through the *Tiks* and *Tiger* projects, which I feel were unfortunately relegated and confined somewhat within the publication. Actually, I would have liked to have heard more of Hellström emerging in the mix. *Noise Design* is something to *shout!* about. It will be indispensable reading for any soundscape researcher, composer, architect, or urban acoustician.

**Gregg Wagstaff** is a freelance sound artist/designer and soundscape researcher living in Scotland. He is currently part of the UKISC management committee and its representative on the WFAE board. He recently co-edited *Soundscape Studies & Methods*, published by the Finnish Society of Ethnomusicology, 2002.



## YOUR FAVOURITE LONDON SOUNDS

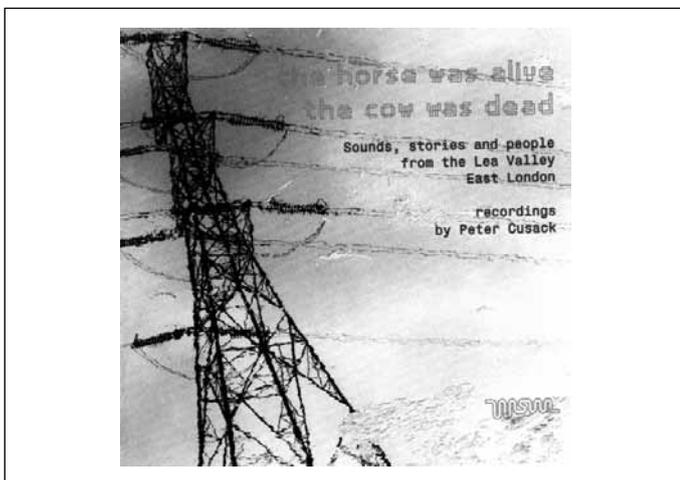
Compiled by Peter Cusack  
with photography by Dave Mandl.  
LMC; RESFLS1CD 2001

Reviewed by Ian Stonehouse.

As Peter Cusack notes in the accompanying booklet, *Your Favourite London Sounds* is as “an attempt to discover what Londoners think and feel about their city's rich and varied soundscape”. The project was originally realised for the London Musicians' Collective's Resonance FM radio station in 1998, and the majority of recordings included here were made by Peter Cusack, responding to the many hundreds suggested in answer to his original question “What is your favourite London sound and why?”

The recordings range from the familiar, such as the chimes of Big Ben, to the more intimate (‘Rain on a skylight while lying in bed’) or incidenta—“Canal towpath stones”—“...loose concrete slabs which rock musically when cycled over”. The choice of the sound of the Big Ben chimes as the first track acts as a declaration of intent. This signature London sound is not the official “high in the tower” BBC chimes broadcast daily to the world, but the soundscape at street level amidst the traffic and passers by. These are the personal and everyday soundscapes of London—elevators in tower blocks, bleeping supermarket checkouts, air brakes released on a red London bus (a release of “urban pressure” as recordist Tom Wallace notes). There's a fresh documentary approach, with an informal echo of the work of the original Mass-Observation social research organisation during the 1930s-50s in the UK (for further information and to consult the archives of this social anthropology project visit the archives at <http://www.sussex.ac.uk/library/massobs/>). As Charles Hayward explains on his recording - “...this is Deptford Grid substation at the edge of the Thames. I've been coming here for twenty years... I like the drone of the electricity. I like the way it's just electricity pure and simple. I love the way you can walk through the overtones and I especially like the strange conjunction of that with the sound of the river”.

*Your Favourite London Sounds* hints at the psychogeographic landscape of the London unearthed in Iain Sinclair's book *Lights Out for the Territory* (1997), and there's also a tangential echo of Borges short story *The Witness*, which starts with a tolling Angelus, marking the passing of the last witness to pagan England. “What will die with me when I die, what fragile form will the world lose?” Borges concludes. For Londoners, could it be the slamming train doors at Victoria station, the bell on a number 73 bus, or children mimicking the coot chicks in St James's Park?



**THE HORSE WAS ALIVE  
THE COW WAS DEAD**  
Sounds, stories and people  
from the Lea Valley, East London.  
Recordings by Peter Cusack.  
LMC; RESWOSM1CD 2001

Reviewed by Ian Stonehouse.

When heard in relation to *Your Favourite London Sounds*, Cusack's recordings of life along the Lea Valley in East London have an innately stronger narrative pull and show his obvious delight in uncovering bizarre tales and odd conjunctions of sound (as on "Nightingale Sub Station"). Though the majority of recordings were made between 1998 and 2000, the CD covers a 14-year period and the recording quality is consistently clear throughout. *The horse was alive the cow was dead* also formed part of a festival in 2000 to celebrate the River Lea Valley, *The Week of Small Miracles*, which included work by noted experimental filmmaker John Smith, amongst many others. It's an area of London rich in history: in the 9th century the river was part of the boundary between King Alfred the Great's Saxon England and the invading Vikings (to the east).

The title track comes from a story related by Alan Farmer on "Items Pulled Out of the River", who goes on to list a grand piano, cars, beds, burial boxes with cats and dogs inside, and Hindu flower shrines. We move on through the sounds of toads calling underwater, to the fizzing and clanking of a disabled electric train as it tries to re-engage with the overhead wires, and later to saxophonist Alan Wilkinson exploring the acoustic properties of Walthamstow Marshes. As with *Your Favourite London Sounds*, other than careful editing, any temptation to process or manipulate the original recordings has, given Cusack's purist approach, been thankfully avoided.

Cusack is careful to present a delicate counterpoint of narrative and soundscape: on "Naked Rituals on the Banks of the Lea". Michelle Bhatia relates a newspaper story of startled walkers encountering a religious bathing ceremony, whereas "Flight Path Trace" has Thurston Moore's electric guitar (played via ghetto blaster) energising the space beneath the railway arch where A.V. Roe built the plane that made Britain's first powered flight in 1909. On the final track, "Dawn Chorus Walthamstow Marsh", there's a change in the weather, as song thrushes, wood pigeons and reed warblers call amidst a fall of rain. The CD booklet includes photographs by Anna Sherwin, with one particularly evocative image of a discarded rubber glove floating down the river.

*The horse was alive the cow was dead* contains a wealth of narrative riches and soundscapes, both recollected and very much alive in the present day. Cusack's keen ear and sensitive presentation make for a thoroughly engaging journey.

#### Related links

*The Week of Small Miracles*: [www.pixeldom.com/wsm/](http://www.pixeldom.com/wsm/)  
Mass-Observation Archive: [www.sussex.ac.uk/library/massobs/](http://www.sussex.ac.uk/library/massobs/)  
*Your Favourite London Sounds* and *The horse was alive the cow was dead* are available from the London Musicians' Collective.  
Website: [www.l-m-c.org.uk](http://www.l-m-c.org.uk)  
Email: [fls@lmcltd.demon.co.uk](mailto:fls@lmcltd.demon.co.uk)  
London Musicians' Collective Ltd,  
Unit B3, Third Floor, Lafone House,  
11 - 13 Leathermarket Street, London SE1 3HN, England.

**Ian Stonehouse** is the Head of the Electronic Music Studios at Goldsmiths College, University of London.

## Dialogue

---



*We invite your comments and criticism in response to anything you read in Soundscape, including other members' comments. Please send your reactions to: [soundscape-editor@wfae.net](mailto:soundscape-editor@wfae.net), or to the mailing address at the bottom of page 2.*

In the prologue to Bjorn Hellström's *Noise Design* (see review, page 29) the author presents a good overview of the current research field, setting out two camps; the WFAE and the CRESSON institute. In the context of this WFAE publication, *Soundscape* — *The Journal of Acoustic Ecology*, it is highly significant that we take notice of Hellström when he says,

"...one may also discern some scepticism to the soundscape movement in its idealisation of rural life at the expense of urban lifestyles. Such idealism is not very realistic. Therefore in this thesis, I join the urban, structural approach formulated by CRESSON rather than the more unspecified 'ecological' view of the WFAE".

This perception is also something that is mirrored and perpetuated in Sabine Breitsameter's article in the last issue of *Soundscape* (Volume 4 Number 2, Fall/Winter 2003). This assessment is of *huge* consequence to the future of the WFAE. On what (or whom) is this 'idealisation of rural life' and 'dislike of technology' critique based? I don't think these comments are representative of the WFAE members or its outlook at all. In fact the WFAE is inclusive of researchers at CRESSON and we should not describe a polarity between the two. As a member of the WFAE, I do not know any fellow members who subscribe to such idealism, or am I mistaken? Or, is it that the views of Murray Schafer are *still* synonymous with the WFAE? If so, why? I have the utmost respect for Murray, but whatever his individual thoughts and writings, the WFAE needs to shake off this perception.

**Gregg Wagstaff**

## Sound Mapping the Danube River from the Black Forest to the Black Sea: Progress Report, 2001—2003

By Annea Lockwood



This map is taken from Claudio Magris' book, *Danubio*<sup>1</sup>. For the installation, a new map will be designed.

There is a long-standing dispute over the Danube's true source:

"Here rises the source furthest from the Black Sea" asserts a plaque above a spring on the Öhrlein family's farm at the source of the Breg River, the higher of the Danube's two source tributaries. Forty-eight kilometers below that farm, on the lip of a lovely well in Donaueschingen, the Donauquelle, is carved "The Danube rises here".

The other tributary, the Brigach, rising quietly in a small spring on the Heinzmann farm, makes no such claim and merges with the Breg just below the Donauquelle, to form the Danube, as "confirmed by guide-books, Public Authority and proverbs"<sup>2</sup> and my own perambulations.

In November of 2001, I started making field recordings there for a sound installation: *A Sound Map of the Danube*. The river is 2888 km long, from the Öhrlein farm to the Black Sea, and its names are beautiful variants of one another: Donau (Germany, Austria), Dunaj (Slovakia), Dunav (Croatia, Serbia, Bulgaria), Duna (Hungary), Dunavrea (Romania, Moldova). Using an AT 822 stereo microphone, the mono modular condenser Sennheiser microphone with which I recorded the Hudson River, back in 1981, an Offshore Acoustics hydrophone generously lent to me by composer Maggi Payne, and a Sony

PCM-M1 DAT, I am recording the most interesting water sounds I can lay my ears on, at as many sites as are productive. In three extended journeys I have recorded 66 sites so far, moving through Germany, Austria, Slovakia, Hungary, Croatia and Serbia. Next June (2004), with approximately 850 km to go, I will return to where I ended in October 2003, the huge dam at Djerdap, on the Serbian-Romanian border, and continue on to the Black Sea delta, recording in Romania and Bulgaria.

My most recent trip was funded in part by a grant from Arts International, for which I am very grateful. In May, 2004, a month-long residency sponsored by the NÖ Festival in Krems, Austria will enable me to carry out special studies, such as recording at the same spot daily for a week, to reveal the extent to which the river's level<sup>3</sup>, and thus its sounds, changes constantly. The project will be completed early in 2005 and will first be presented in the Minoritenkirche, Krems, that spring.

I grew up in New Zealand, spending much time up in the Southern Alps, where the land-shaping powers of wild rivers made a strong imprint on my mind, and their sounds educated my ears. Gradually I began working with water sounds, exploring their complexity, our responses to them and their effects on our bodies. In the late 1960s I started the River Archive, a collection of recordings

made by myself and traveling friends of rivers and creeks from various countries, from which I made several installations under the general title, 'Play the Ganges backwards one more time, Sam.' Then in 1981-2, on a commission from the Hudson River Museum in Yonkers, NY, I recorded all along the Hudson River, from its source to the ocean, and taped interviews with people physically familiar with the river's power and character. This became an audio installation and later a CD, *A Sound Map of the Hudson River*<sup>4</sup>.

Some elements of the Hudson River Sound Map are retained in the design for the new work: the focus is audio, so no images of the river are included; the site recordings will flow onwards, (down-stream of course), uninterrupted; a large wall map and timer will give the time at which each site can be heard and locate the listener along the river. In addition, the map will show the date and time of each recording, suggesting season.

I am also recording people living and working on the river, talking about its importance to their lives in their native languages, thus tapping into the rich parallel stream of languages and dialects found along the Danube. These inter-



The Bregquelle spring and plaque.

Photography by Annea Lockwood



Weltenburg Abbey



In the Kazan Gorge, Serbia



A mural by the river, Hainburg, Austria

Photography by Ruth Anderson

views will be re-recorded underwater in the Danube, the voices processed by the river itself (with no other processing used), and mixed in with the river sounds into a 5.1 format. From recent underwater tests made in the Hudson with the help of installation artist, Liz Phillips, I expect that the voices and words will remain intelligible, but that the resonances enveloping them will create a distinctly different acoustic space, just as the river itself inhabits two acoustic spaces, at the surface, and underwater.

This is a river which has had a profound effect on its peoples for millennia and has shaped borders and histories repeatedly. As recently as December 2003, Dr. Nicholas Conard, an archaeologist from the University of Tübingen, Germany, reported finding three mammoth-tusk figurines dating from 30,000 to 33,000 years ago<sup>5</sup>, which “suggests an early migration of modern humans along the Danube Corridor into the interior of the continent”. I want to incorporate some echo of all this human interaction within the river, and see the double-layered mixing of voices and river as a way to do this without becoming didactic.

Sound has immediacy but is immaterial, so I also want to restore something of the tactility of experiencing the river, something personal and direct. As I walk along the banks, I am collecting rocks which show traces of the river’s action; after all, it is a great force, continuously scouring and reconstructing the center of the continent. Some are smoothed and soft to the touch, others show grooves and scratches carved by the water. All have one flat surface. Each is numbered to identify from which site it comes. The rocks will be set out so that they can be picked up, and turned over, giving a way of feeling the river through one’s hands. Some, when turned over, will reveal a brief quote from the interviews, translated into English or German and painted onto

the flat surface. That these stones speak was confirmed by an encounter in Weltenburg Abbey, Bavaria one hot day. The Abbey is famous for its brewery and I was sitting at a table in the courtyard, testing that reputation, when a woman near me picked up one of the rocks I’d collected from the nearby beach, turned it over and over and said “It’s amazing, you can see the river in the stone, look at these scratches!” before I’d even explained what I was doing.

The river is a major route through central Europe and the Balkans, so trains, trucks and barges are omnipresent. And it is often windy, even when away from the water all is still. I’ve concluded that the river generates its own wind! By the second trip, I was equipped with a Rycote windscreen, and now can’t imagine how I managed the German recordings in ‘02 without it. Working along the shore rather than from boats, (to avoid motor or paddle noise), often in remote areas and early in the morning (to avoid road traffic), I place my microphones very close to the water to get maximum presence, the mic stand often actually in the water, feeling myself inside the water in that way. Takes vary in length from 10 mins. to 40 mins. approximately, depending on ambient circumstances. Retakes are not possible, as a journal entry from 5/19/02 in Passau, confirms: *Went back to the bridge and the Hammerbach<sup>6</sup> very early, 6:15 am on Easter Sunday. An ideal day and time but it had rained overnight and the Hammerbach was in high speed mode, full of water and sounded altogether different—plus the microphone location was under water. Foot truly never does go into the same river twice.*

In Ulm, Linz, Devín (Slovakia) and at a number of other sites, in late spring, the river hisses strongly, an intense, stable and wide high Hz band which made me think the hydrophone was frying the first time I heard that sound, in Ulm. I raced back to my hotel and tested the micro-

phone in the bathtub right away—all was fine but by the time I returned to the river, rush hour had struck and next day the river was quiet again. I’ve since taped it at other places, and was delighted to receive an explanation recently from a hydrologist I met in Vienna, Dr. Sabine Grupe, who explained that in the rush of silt and rocks downriver, the force of the current bounces smaller stones off the riverbed. They spring into the upper water layers and collide with one other sharply, forming this sound which seemed so alien to me at first, a powerful energy.

These have been interesting years in which to be working on the river. Extreme conditions—the 100 year flooding in spring ‘02 and the lowest levels in 110 years (by Hungarian records) in the summer and fall of ‘03—have made for great stories and some challenges, as I found on my most recent trip. South of Budapest, the Danube traverses the great plains of Hungary, cuts through the Transylvanian Alps in the Kazan Gorge (eastern Serbia) and the Iron Gates, and on into flatter terrain through Romania and Bulgaria to the Black Sea. This fall my companion, Ruth Anderson, and I took five weeks slowly moving 800 km from Budapest to Djerdap on the Romanian border, through terrain where I knew the river was likely to be slow-moving and quiet, even in the once-dangerous Kazan Gorge, now back-filled from the dam at Djerdap, and silenced. I worried that I’d return with barely a handful of river takes. Instead, though it took a lot of poking around and hiking down fishermen’s trails, I found 21 really rich sites, including the most vivid and ferocious water texture I’ve ever recorded, on the little Vuka River where it flows into the Danube in Vukovar, Croatia, scene of one of the worst sieges in the recent wars; close to 200 geese down on the riverbank, a lovely polyphonic murmuring with occasional solos, in Backo Novo Selo, Serbia; and a



The Kazan Gorge, Serbia on the left bank. Romania on the right

delicate water-in-a-bottle sound under a rock overhang in the Kazan Gorge, its subtlety ironic in that Gorge, which once echoed with the rush of white water through its rapids, whirlpools and reefs.

I've decided that what I'm recording is essentially friction, water breaking against protruding surfaces, usually along the shore. Further out, the hydrophone picks up shipping hums, sometimes fish, but little or no water sound. This year's drought pulled the shoreline down well below the usual rocks and cut banks, down to the fine gravels and sands which the river creates—no friction. This made for many completely silent sites, one so silent I could eavesdrop on two fishermen sitting across the river on the Serbian shore while I was in Croatia, and many where a slight wave action made sounds already familiar to me. Even barges, which I once recorded readily, I am pickier about now, and rate them by the interest of their motors' flaws, the older ones being preferable. Whenever possible, I make a note of each barge's name and home port, still dazzled by the jumble of places evoked in the river's polyglot fleets: Vidin, Kelheim, Rotterdam, Silistra, Hamburg, Budapest, Regensburg, Belgrade, and river cruisers from Russia. This is a working river. Much merchandise moves along it, so the effects of the bombed bridges at Novi Sad, Serbia, which blocked the river from '99 until recently, rippled throughout the economies of Central Europe. That debris has finally been cleared, but the temporary pontoon bridge connecting the two parts of the city after the bombing, still closed to shipping for a part of each week, remains in place, and on this recent trip we saw maybe five barges a day, in contrast to the constant river traffic upstream.

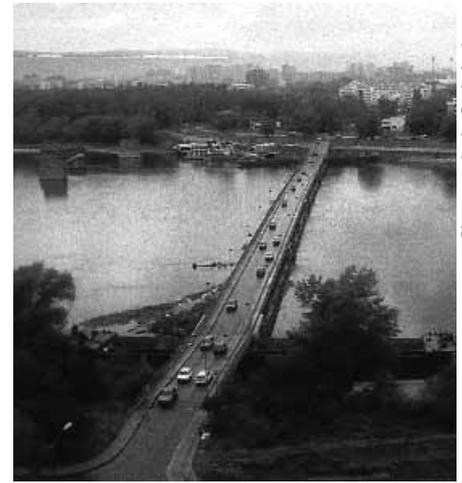
Each time I begin a trip, an internal debate starts up between 'significant site'

and 'significant sound' and each time, sound wins out. The major cities, Vienna, Budapest, Belgrade have not been so productive for me both because of the incessant traffic buzz, and because the banks are often smoothly lined with large cut stones past which the water glides silently. Tiny places, even the smaller towns, are fruitful however. In Esztergom, Hungary, for example, I found a floating dock, behind which a V shaped stream of little alternating vortices flowed, perfectly distinguished by the two channels of the AT 822.

Finding sites has become instinctual by now. We drive mostly on back roads, often along bike paths on levees, keeping as close by the river as possible, or following the rough mud tracks used by fishermen. Often I'll spot a turning and say, "Let's try this one" and find, at the end, the day's first good site. In '02 I was able to use the detailed maps published for bike riders, all the way from Donaueschingen to Budapest. From those I could find the tiniest local roads, spot promising wetlands, assess where I could get far from traffic noise. But even local maps disappeared in Serbia, however. So instinct and persistence guided us there.

I ask each person I interview "What does the river mean to you?" These have included a ferryman, fishermen, the mayor of Donaueschingen, restaurant owners and staff, park rangers and an archivist at the Historical Archives in Belgrade. I have heard many memories, trenchant critiques of fish populations and the echoes of recent struggles, and a common thread running through all eighteen responses: "The river is life."

Sitting completely still, listening, watching the river's muscular (as Ruth puts it accurately) surface, alert for possibilities, and with only this one thing



Novi Sad and the pontoon bridge

Photography by Ruth Anderson

to do, this single focus, is a most peaceful activity. Underlying the whole work is the question: "What is the river, what is its being?"

**Annea Lockwood**, born in New Zealand and living in the US, is a composer whose work includes sound art, installations, and concert works. She takes particular pleasure in timbral details, drawing her towards both extended techniques in acoustic music, and environmental sounds.

<sup>1</sup> Magris, Claudio, *Danubio*, Milan 1986.

<sup>2</sup> *ibid.*

<sup>3</sup> This varies with the precipitation in the upstream watershed.

<sup>4</sup> *Lovely Music LCD 2082*, New York, 1999.

<sup>5</sup> at Hohe Fels Cave in the Swabian Mountains, near Ulm; reported in *Nature* and in the *New York Times*, December 18, 2003.

<sup>6</sup> a stream flowing into the Danube near the Franz Josef Strauss bridge.



Annea Lockwood near Donauwirt, Austria

# World Forum for Acoustic Ecology

## Membership Information

**JOIN OR RENEW NOW! PLEASE CHOOSE THE APPROPRIATE AFFILIATE BELOW.**

As a member of an Affiliate Organization you will automatically become a member of the WFAE. If you are not near a convenient Affiliate Organization, or if you relocate frequently, you can join the WFAE directly as an Affiliated Individual. Financial members of the WFAE receive a subscription to *Soundscape—The Journal of Acoustic Ecology*. A Membership Form and a sample article from *Soundscape* are available for download in PDF format on the WFAE website: <http://www.wfae.net>

### DONATIONS ARE WELCOME

Additional donations (in CDN \$ and US \$, to the WFAE address below) will be gratefully accepted. Donations will be used toward the production costs for *Soundscape*, and to help subsidize those who cannot afford membership, or who come from countries with disadvantageous exchange rates.

#### **Australian Forum for Acoustic Ecology (AFAE)**

Individual fee: A\$40 — Institutional fee: A\$95  
Please send a cheque or money order in Australian Funds to:  
Australian Forum for Acoustic Ecology (AFAE)  
P.O. Box 268, Fairfield, Victoria  
3078, Australia

#### **Canadian Association for Sound Ecology (CASE) Association Canadienne pour l'Écologie Sonore (ACÉS)**

New fees as of September 1, 2004!  
Individual: Cdn \$40 — Student/Étudiant: Cdn \$25 (with a copy of your current student ID). Old rates (35/20) valid until August 31, 04! Please send a cheque or money order in Canadian funds to:  
Canadian Association for Sound Ecology (CASE)  
Association Canadienne pour l'Écologie Sonore (ACÉS)  
c/o Musicworks  
401 Richmond Street West, Suite 358, Toronto, ON  
M5V 3A8, Canada

#### **UK and Ireland Soundscape Community (UKISC)**

Individual fee: £20 GBP — Institution: £50 GBP  
Concessions: £10 GBP  
Cheques should be made payable to the UK and Ireland Soundscape Community and sent to:  
Dr John Leveck Drever  
Music Department, Goldsmiths College, University of London  
New Cross, London, SE14 6NW  
Great Britain  
E-mail: [j.drever@gold.ac.uk](mailto:j.drever@gold.ac.uk)

#### **Suomen Akustisen Ekologian Seura (Finnish Society for Acoustic Ecology—FSAE)**

Individual fee: €20 — Student fee: €15. Please pay to the bank account in Finnish Funds: Osuuspankki 571113-218325  
Suomen Akustisen Ekologian Seura  
c/o FT Helmi Järviluoma  
Musiikkiteide, Turun yliopisto  
20014 Turku, Finland

#### **American Society for Acoustic Ecology (ASAE)**

Individual Fee: US \$35.00  
Cheques should be made payable to American Society for Acoustic Ecology and sent to:  
American Society for Acoustic Ecology  
Attn: Membership Coordinator  
PO Box 503, Greenpoint Station  
Brooklyn, NY 11222-0503, USA

#### **Klanglandschaft (FKL)**

Austria, Germany, Italy, Switzerland  
FEES: Normal Studierende Gönner Institutionen  
EURO 27 17 50 60  
CHF 40 25 75 85  
*Austria:* CA Creditanstalt, 6218 2061 531, BLZ 11000, lautend auf "FKL"  
*Germany:* Mittelbrandenburgische Sparkasse Potsdam, 350 300 4032, BLZ 160 500 00  
*Italy:* Conto corrente postale nr. 100 075 08 Firenze, intestato a Albert Mayr, con l'indicazione della causale "iscrizione al FKL/WFAE"  
*Switzerland:* Postcheckkonto 40-551632-1

#### **Japanese Association for Sound Ecology (JASE)**

Individual fee 2,000 yen/year  
NOTE: the JASE fee should be paid with and in addition to the annual fee of 6,000 yen for the Soundscape Association of Japan (SAJ) by postal transfer.  
Postal transfer number: 00110-6-612064  
Japanese Association for Sound Ecology (JASE)  
c/o Keiko Torigoe  
University of the Sacred Heart  
4-3-1, Hiro-o, Shibuya-ku, Tokyo, 150-8938, Japan

#### **WFAE Affiliated Individual Membership**

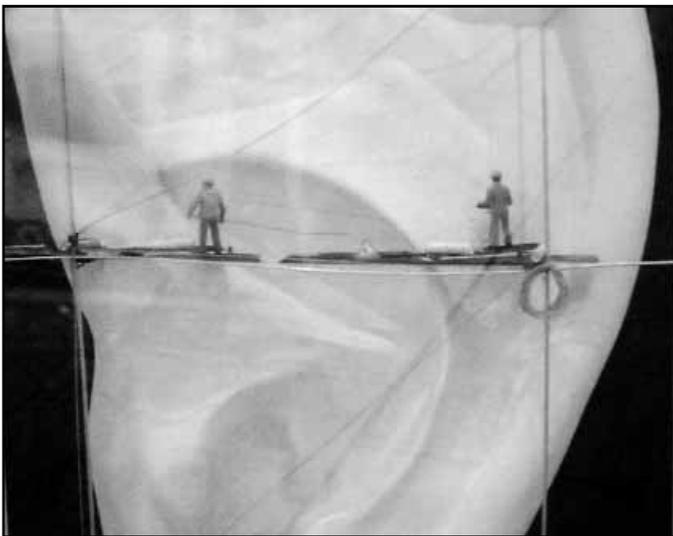
Regular: US \$35 - Students: US \$20  
(with a copy of your current student ID).

#### **WFAE Associate Membership**

Regular: US \$75 - or as negotiated depending on size of organisation.  
Please send US cheques, international money orders, or travellers cheques made out to the WFAE. Do not send drafts, as bank charges are very high! Mail to:  
World Forum for Acoustic Ecology (WFAE)  
Membership Secretary  
P.O. Box 268, Fairfield, Victoria, 3078, Australia  
E-mail: [membership-secretary@wfae.net](mailto:membership-secretary@wfae.net)

### NON-MEMBER SUBSCRIPTIONS TO SOUNDSCAPE NOW AVAILABLE!

(Each subscription includes 2 copies per year including postage)  
1 year library or institution paper copy subscription = US \$50  
1 year individual paper copy subscription = US \$25  
Single copy purchase: US \$15.00  
Available from the WFAE address above.



## WFAE—Electronic Contact Information

<http://www.wfae.net>

Home to an extensive collection of Acoustic Ecology related materials—sembled and maintained by Gary Ferrington. (While you are at the WFAE Website—Join our Discussion List!)

**WFAE Board:** [chair@wfae.net](mailto:chair@wfae.net)

**Secretary:** [secretary@wfae.net](mailto:secretary@wfae.net)

**Membership:** [membership-secretary@wfae.net](mailto:membership-secretary@wfae.net)

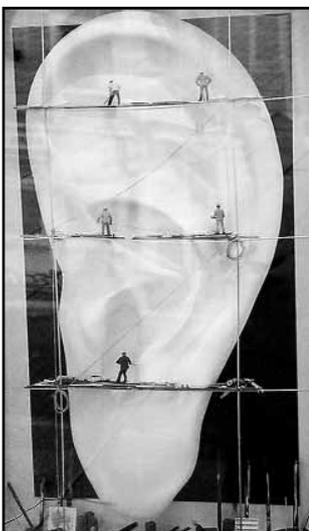
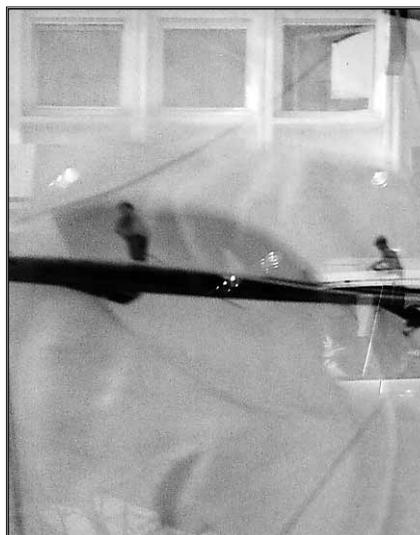
**Website:** [webmaster@wfae.net](mailto:webmaster@wfae.net)

**Journal:** [soundscape-editor@wfae.net](mailto:soundscape-editor@wfae.net)

## 5 BACK ISSUES OF *SOUNDSCAPE* NOW ON LINE

Adobe Acrobat PDF versions of *Soundscape* are now available for download at the URL below:

<http://www.wfae.net>



## **NEW! Online WFAE Newsletter.**

<http://www.wfae.net/newsletter/>

This is a monthly supplement to *Soundscape—The Journal of Acoustic Ecology*. Our goal is to make available, in a timely manner, news, events, and announcements from WFAE Affiliates and other sources. Newsletter contributors are asked to send related news and information to the WFAE secretary by the 20th of each month for publication on the 1st. Submissions can be e-mailed to ([secretary@wfae.net](mailto:secretary@wfae.net)). We welcome information about regional events, new publications, and general news of interest to the acoustic-ecology community.

