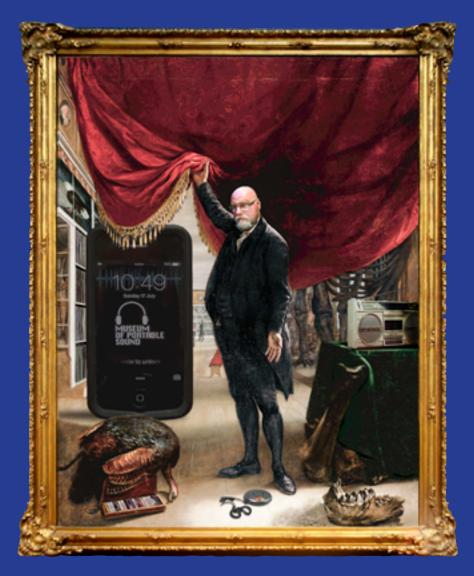


GALLERY GUIDE2nd Edition





The Museum of Portable Sound

is dedicated to the collection, preservation, and exhibition of artifacts related to the history of sounds as objects of culture.

With particular focus on portability, digital initiatives, community engagement, experience, and education, we bring the culture of sound to the world – one listener at a time.



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A version of this publication is also available in PDF at museumofportablesound.com for use by our visitors.

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FROM THE DESK OF THE DIRECTOR



elcome to the second edition of our *Gallery Guide*, and to the third major iteration of our Permanent Collection Galleries. Our new permanent collection display now includes *two hundred* listenable objects, adding up to more than five hours of material. We've come a long way from the first display way back in

November of 2015, when our listenable objects only kept our visitors occupied for a grand total of thirty minutes! We've learned it takes more than half an hour to communicate the wealth of variety that makes up the culture of sound!

That's something we've tried to focus even more attention on in this newest configuration of our displays and Guided Tours: the ways sound impacts upon, and are intertwined with, human culture.

You'll find that our museum explores that notion in a number of ways. We have organised our objects into categories that are obviously somewhat inspired by 19th Century notions of the world. We did this because, first and foremost, we wanted to communicate to our visitors that this is most definitely a *museum*, an institution that is part of a long line of other such institutions with a unique if problematic history, even if we don't have a proper building or even what most people would consider to be proper objects.

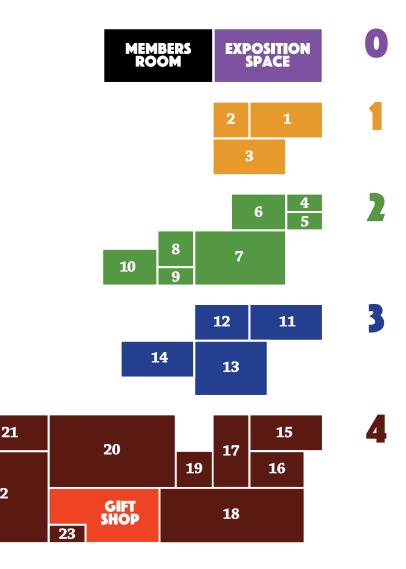
We've grounded our museum in a sort of nostalgic view of what a museum might be, because our objects are themselves inherently nostalgic: recorded sound is all about collecting and capturing the past. When we listen to sound recordings, we might feel as if we've been transported through time, and are suddenly able to listen to the world with someone else's ears. While most museums are obsessed with the *authenticity* of their objects, we are instead embracing the *reproduction* as our *objet d'art*. Does that negate our institution's ability to act as a proper museum? You, the visitor, will need to be the judge of that.

I hope you enjoy your experience here at the Museum of Portable Sound!

JOHN KANNENBERG

DIRECTOR AND CHIEF CURATOR
MUSEUM OF PORTABLE SOUND
LONDON, NOVEMBER 2017





0: EXPOSITION SPACE

& MEMBERS ROOM

22

1: NATURAL HISTORY

- 1. Animals
- 2. Insects
- 3. Weather & Water

2: SCIENCE & TECHNOLOGY

- 4. Laboratories & Medicine
- 5. Acoustics
- 6. Recording History
- 7. Audio Interfaces
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3: SPACE & ARCHITECTURE

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4: ART & CULTURE

- 15. Art Processes
- 16. Archaeology
- 17. **Bells**
- 18. Transport
- 19. **Food**
- 20. Rituals & Events
- 21. Libraries & Archives
- 22. Museums
- 23. Exhibitions of Sound

GUIDED TOURS

With 200 objects organised into 23 different galleries that take five hours to listen to, deciding where to start in our permanent collection galleries can be more than a little overwhelming!

If you'd like some suggestions, try one of our Guided Tours that have been specially curated to highlight our most important objects depending on what you're in the mood to listen to.

If you'd like to learn more about the items on display in each tour, follow the tour throughout the Gallery Guide by looking for the objects in the Guide that are marked with the icon for your chosen tour. Or, just look up the info you're interested in on the page number listed for each object.

LEARNING

Tour a collection of historical objects, places, and events. **33 minutes.**

Follow objects marked



- The First Commercially Released Recording of Birdsong, 1910 - p. 17
- 2. Psithurism: Albufeira, Algarve, Portugal p. 26
- 3. The First Recording of a Human Voice, 1860 p. 37
- 4. The First CD, Track 6, 1980 p. 40
- 5. The First MP3, 1987 p. 41
- 6. iPhone 4S magnetic field p. 55
- 7. Exhibition installation: Ujazdowski Castle Centre for Contemporary Art, Warsaw p. 79
- 8. King Tut's Trumpets Played For the First Time in 3,000 Years, 1939 **p. 81**
- 9. Big Ben's final 12 Bongs: London, 8 August 2017- p. 90
- World's oldest bookshop: Bertrand, Lisbon, Portugal
 p. 108
- 11. Friday Of Departure: Egyptian Revolution Protest, Alexandria, Egypt p. 117
- 12. Internet Archive Backup Server p. 124
- 13. Science Museum Sound Archives: Blythe House, London p. 125
- 14. Musei Vaticani: Raphael, *School of Athens*, Rome, Italy **p. 135**
- Royal Observatory, Prime Meridian: Greenwich, UK
 p. 139
- 16. Motown Museum: Detroit, US, 2012 p. 139
- 17. Art or Sound exhibition: Venice, 2014 p. 141

MUSIC

Listen to objects that contain or are related to music. **34 minutes.**

Follow objects marked



- 1. Dawn Symphony: Rome, Italy p. 17
- 2. The First Recording of a Museum, 1888 p. 38
- 3. The First Binaural Pop Album, Track 3: Lou Reed's *Street Hassle*: Waltzing Matilda, 1978 **p. 39**
- 4. The First CD, Track 6, 1980 p. 40
- 5. The First MP3, 1987 p. 41
- 6. Dansette Hi-Fi model phonograph, 1960s p. 51
- Madhavi: Jewalikar family house, Gurgaon, India - p. 104
- 8. Hofbrauhaus: Munich, Germany p. 106
- 9. Carousel: Santa Cruz Boardwalk, Santa Cruz, California p. 107
- 10. Amolador trumpet: Lisbon, Portugal p. 110
- 11.Wedding musicians practicing in Maulbronn Monastery church - **p. 111**
- 12. Pride Parade: San Francisco, US p. 111
- Myra (Street music from Crete): Athens, Greece
 p. 112
- 14. Busking band: Underground District Line train, London **p. 113**
- 15. Ashmolean Museum: Oxford, UK, 2015 p. 128
- Museum of Mechanical Musical Machines, Setúbal, Portugal - p. 128
- Museu de Cera dos Descobrimentos: Lagos, Portugal - p. 131
- 18. Motown Museum: Detroit, US, 2012 p. 139

RELAXATION

Bliss out on a tour of natural, quiet, or calming objects. **29 minutes.**

Follow objects marked



) in guide

- 1. Birds, Crickets, Cows, and Cow Bells at Dusk: Évora, Portugal p. 19
- 2. Crickets (day): Ann Arbor, US p. 21
- Autumn Leaves Falling: North Park Village Nature Center, Chicago - p. 23
- 4. Thunderstorm: Corfu, Greece p. 25
- 5. Psithurism: Albufeira, Algarve, Portugal p. 26
- 6. Creek: Park of the Senses, Germany p. 28
- 7. Lake Erie waves: Pelee Island, Canada p. 29
- 8. Waterfall: Offenburg, Germany p. 29
- 9. Ventilation Fan: Coffeeshop, Amsterdam p. 68
- 10. Tree trimming (artist unknown): Cairo p. 79
- Ancient Roman Well: San Clemente, Rome, Italy
 p. 82
- 12.Maulbronn Monastery Cloisters: Germany p. 88
- 13. Alexandria, Egypt: Train To Cairo p. 93
- 14. Speyer, Germany: Train to Karlsruhe p. 98
- 15. Harold Washington Library Reference Room: Chicago **p. 122**
- 16. Art Institute of Chicago: Modern Wing p. 137

TECHNOLOGY

The machines are coming. You'd better learn to listen to them. **30 minutes.**

Follow objects marked (17) in guid

- 1. Radiology Lab: Lisbon, Portugal p. 31
- 2. Public Telephone in Telephone Booth: Zagreb, Croatia p. 43
- 3. Utility Telephone: Francisco Brown Line Station, Albany Park, Chicago - **p. 43**
- 4. ATM: San Francisco, US p. 43
- Automated Track Announcements: Union Station, Chicago - p. 44
- 6. Street Crossing Signal: Ann Arbor p. 46
- 7. Street Crossing Signal: Munich p. 46
- 8. Street Crossing Signal: Toronto p. 47
- 9. Street Crossing Signal: Zagreb p. 47
- 10. Malfunctioning MacBook p. 49
- 11. Broken P.A. Speaker p. 49
- 12. Broken Fire Alarm p. 49
- 13. Dansette HiFi model Phonograph p. 51
- 14. Arcam Solo CD Player p. 53

- 15. iPhone 4S electromagnetic field p. 55
- 16. Doorbell: Private Residence, Milwaukee p. 61
- 17. Steam Heat Radiator: Private Residence, Chicago - p. 66
- 18. Ventilation Duct: Venice, Italy p. 67
- Air Vent: National Stadium, Warsaw, Poland
 p. 69
- 20. Paris: Escalator at St Lazar train station p. 97
- 21. San Francisco: Cable car underground cable **p. 98**
- 22. Compact Shelving: Kelsey Museum of Archaeology Archives - **p. 123**
- 23. Melodic CD-R Printer: British Library p. 124
- 24. Internet Archive Backup Server p. 124
- 25.Mold-A-Rama® Machine: Field Museum, Chicago - **p. 132**
- 26. Hayward Gallery: London p. 133
- 27. Las Vegas Pinball Hall of Fame and Players Museum: Las Vegas - **p. 134**

WALKING

Take a hike! Listen to objects recorded while walking. **31 minutes.**

Follow objects marked



- 1. Pardais birds: Lagos, Portugal p. 19
- 2. Street Crossing Signal: Chicago p. 46
- 3. Street Crossing Signal: San Francisco p. 46
- 4. Street Crossing Signal: Antwerp p. 47
- 5. Street Crossing Signal: Aarhus p. 47
- 6. Elevator ride and entering a flat: Warsaw p. 71
- 7. Deserted house after tornado: Dundee, Michigan p. 72
- 8. Catacombs of Kom El Shaqoufa: Alexandria, Egypt p. 83
- 9. Ghent Belfry: Ghent, Belgium p. 88
- 10. Popsicle cart: Albany Park, Chicago p. 89
- 11. Venice, Italy: Boat in a canal p. 99

- 12. Public water fountain: Corfu, Greece p. 105
- 13. Street market: downtown Cairo, Egypt p. 108
- Feira Da Ladra Flea Market: Lisbon, Portugal
 p. 109
- Shop Owners Banter: Stratford Centre, London
 p. 109
- Running bases on a softball diamond: West Park, Ann Arbor, US - p. 114
- 17. Pere Lachaise cemetery: Paris p. 119
- 18. Science Museum Sound Archives: Blythe House, London p. 125
- 19. Museu de Cera dos Descobrimentos: Lagos, Portugal **- p. 131**
- 20. Pollocks Toy Museum: London p. 132



HEALTH & SAFETY WARNING: Visitors who are aviophobic are advised to avoid **OBJECT 9**. We apologise for any inconvenience caused.

Isn't it time you had a vacation? Listen to objects from around the world. **34 minutes.**

Follow objects marked



- 1. Dawn Symphony: Rome, Italy p. 17
- 2. Falling off of a Camel: Great Pyramid, Giza, Egypt **p. 18**
- 3. Waterfall: Offenburg, Germany p. 29
- 4. Architecture Boat Tour: Chicago River, Chicago p. 59
- 5. Sacre Coeur: Paris p. 72
- 6. Alley Weave: Loom (artist: unknown), Varanasi, India p. 78
- Catacombs of Kom El Shaqoufa: Alexandria, Egypt
 p. 83
- 8. Munich Dom: Munich, Germany p. 87

- 9. Baku, Azerbaijan: Flight to London takeoff p. 94
- 10. San Francisco, US: Cable Car p. 98
- 11. Warsaw, Poland: Horse-drawn carriages outside a cafe p. 99
- 12. Zagreb, Croatia: Funicular p. 99
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- Myra (Street music from Crete): Athens, Greece
 p. 112
- 15. Chicago White Sox stadium: Chicago p. 114
- 16. Royal Observatory, Prime Meridian: Greenwich, UK p. 139



A GUIDE TO THE

PERMANENT COLLECTION

GALLERIES

All object recordings, photographs, & notes by John Kannenberg unless otherwise noted.

Object recordings edited by Cristina Sousa Martínez & John Kannenberg unless otherwise noted.

Animals



People who live in cities may tend to have limited experience listening to the sounds of animals, yet we have shared the natural soundscape with other creatures as long as humans have walked the Earth. Listening to birdsong is probably one of the world's oldest pasttimes. Poets, musicians, and philosophers have all extolled the virtues of listening to the music generated by our feathered friends. Along with the culture of bird watching, bird listening is an activity that can, depending on the type of song, bring a sensation of calm or even agitation to listeners.

Farm animals make sounds communicating their satisfaction upon receiving a feeding or terror upon the realisation that their time at the farm has come to an end.

The purr of a pet cat might make you feel relaxed after a difficult day. Conversely, the bark of a neighbour's pet dog might keep you awake at night. All night.

Some animals, like dolphins, make sounds to communicate underwater, while bats make sound to *echolocate*: using sound as a form of radar to help them navigate in the dark. Animals also make sounds for many of the same reasons humans do: to attract potential mates, to express emotions, to warn each other of potential danger.

Do you have a favourite animal sound?

Actual Bird Record made by A Captive Nightingale (No. II), The Property of Herr Carl Reich, of Bremen, Berlin (His Master's Voice, Cat. No. B 390, released in 1910)

Digital transfer of vinyl LP recording, 3.33



The first commercially released recording of birdsong in world history, this digitised track was donated to The Museum of Portable Sound in 2015 by the British Library Sound Archive.



Original record label of Actual Bird Record made by A Captive Nightingale, 1910. Photograph courtesy British Library Sound Archive.

OBJECT 2

Rooster: Lisbon, Portugal, 22 May 2016

Digital field recording, 0.47



It's an early morning in the Santa Iria de Azóia neighbourhood in Lisbon, Portugal, and someone's got a rooster.

OBJECT 3 🚺 🕕



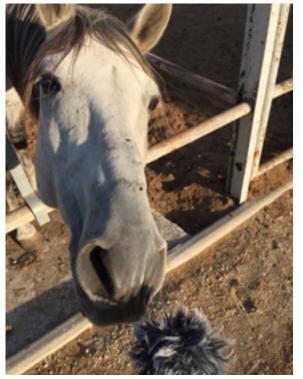


Dawn Symphony: Rome, Italy, 13 April 2017

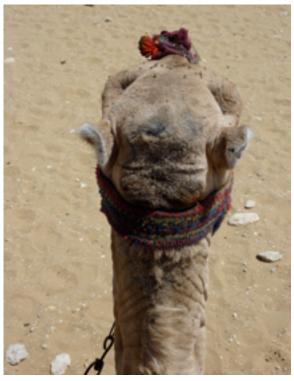
Digital field recording, 2.19



'Dawn symphony' is an expression used by birdwatchers to describe the sounds that birds make as the sun rises. The dawn symphony in this recording happened on a spring morning in the middle of Rome.



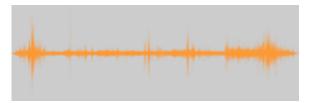
Horse mid-interview, Setúbal, 23 September 2017.



The view moments before disaster, Giza, 1 May 2010.

Horses: Setúbal, Portugal, 23 September 2017

Digital field recording, 1.01



Of course, as soon as one turns the recorder on, the horses are obviously going to stop whinnying.

OBJECT 5

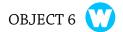


Falling off of a Camel: Great Pyramid, Giza, Egypt, 1 May 2010

Digital field recording, 0.49



While on a tour of the Giza Plateau, home of the three most famous pyramids in Egypt, my sketchy and slightly confrontational guide led my camel down a steep hill alongside the Great Pyramid. Between the camel's nerves and my inexperience and distraction, I succeeded in falling off the camel's back and into a pile of sand while recording. Of course, hilarity ensued.



Pardais Birds: Lagos, Portugal, 17 September 2017

Digital field recording, 1.43



The Pardal is a Portuguese sparrow. The tree in the picture above right was filled with what appeared to be hundreds of them when this recording was made shortly before dusk.



A large yet unassuming tree hides a big flocking secret, Lagos, Portugal, 17 September 2017.

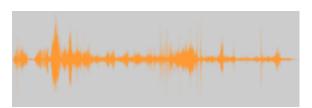


View of cows recorded at dusk on 30 April 2016, Alandroal, Évora, Portugal.

OBJECT 7

Chickens: Luke's Barn, Michigan, 20 February 2010

Digital field recording, 1.30



Perhaps it was the fact that there were over a dozen strangers walking through their coop at the time, but these chickens just sound really weird.

OBJECT 8

Birds, Crickets, Cows, and Cow Bells at Dusk: Alandroal, Évora,

Digital field recording, 1.30

Portugal, 30 April 2016



An impromptu recording made on the balcony of a farm house resort, with the microphone placed on the floor of the porch behind a wall to avoid excessive wind. The cows were far off in the distance, but the overall quiet at the time allowed their mooing to carry onto the porch.

NATURAL HISTORY Insects



Some of the smallest creatures on Earth have some of the largest impact upon the sonic environment. Most soundmaking insects, like crickets, make sounds using a process known as *stridulation* – the repetitive rubbing together of multiple parts of their bodies. Male crickets chirp for a variety of reasons related to mating: attracting a mate, announcing that they have successfully mated, or attempting to repel other nearby male crickets. The pitch of their song is relative to the temperature of their climate, with higher pitched songs chirped in warmer areas.

Cicadas, however, are a uniquely percussive species. Male cicadas make their distinctive sound using a portion of their exoskeleton called a *tymbal*, a noisemaker that is struck against their mostly hollow abdomens by a contraction of muscles, producing a clicking sound. In North America, one particular species of cicada spends its formative years underground, emerging only every 13 or 17 years to finally produce their song.



Cat tails in West Park wetlands, 2009.

OBJECT 1



Crickets (day): Wetlands, West Park, Ann Arbor, Michigan, US, 14 September 2009

Digital field recording, 1.00



OBJECT 2

Crickets (night): Train Station, Graben Neudorf Nord, Germany, 18 August 2012

Digital field recording, 2.00



Recorded on an unusually warm autumn afternoon in the wetlands of a small urban park on the west side of a small college town in the midwestern United States. The park had recently been re-landscaped to create areas of wetlands more conducive to settling by local wildlife, including the creation of a small pond and creek.

A missed train connection led to a two hour nighttime delay at this tiny train station in southwestern Germany. On one side of the train tracks, a large area of woodlands provided the perfect venue for a symphony of crickets.

OBJECT 3

Bee: Catford, London, UK, 20 August 2017

Digital field recording, 0.38



August is the time of year when insects start to get a little crazy. This bee flew into my flat and, although this is blatantly anthropocentric, acted a little drunk.

OBJECT 4

Cicadas: Corfu, Greece 2 October 2011

Digital field recording, 1.00



Recording made at dusk out the window of a room in the Hotel Venezia, whose name is a reminder of the time the Greek island of Corfu was part of the Venetian empire.

Weather & Water

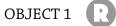


As the seasons change, the sounds in the world around us change as well. Summer traditionally brings blue skies along with the sounds of the beach; autumn brings colour to the trees and plants, accompanied by the sound of raking leaves; winter brings white snow and an eerie silence, particularly on the day of the first substantial snowfall as traffic sounds are muffled by a blanket of cold; finally, spring brings an explosion of green and the sounds of birds returning. The rains of spring are also heard by many warmer climates during winter, where precipitation is liquid instead of icy.

What are your favourite seasonal sounds? What other sensations – smells, tastes – do you experience during different times of the year?



Autumn leaves at North Park Village Nature Center, Chicago, 18 October 2008.





Autumn Leaves Falling North Park Village Nature Center Chicago, US 18 October 2008

Digital field recording, 2.00



During a walk in a Chicago nature center, I made this recording of autumn leaves falling to the ground. The trees in this recording were near the edge of the park, resulting in added traffic noise. Sporadic gusts of wind brought large bunches of leaves off the trees in waves.



Ominous clouds in Albany Park, Chicago, 2008.

Rain and Tornado Warning Siren Albany Park, Chicago, US 5 August 2008

Digital field recording, 1.57



Eerily quiet rain falls in the foreground while the neighbourhood's tornado warning siren howls in the distance, mixed with automobile and train traffic, ending with a crack of thunder.

OBJECT 3

Rain and Tornado Warning Siren Ann Arbor, MI, US 6 June 2010

Digital field recording, 1.57



Almost 250 miles and two years away, a similar alarm accompanied one of the many summer rainstorms in the college town of Ann Arbor, Michigan, a place that sees frequent severe weather warnings throughout the season.



Storm clouds roiling above Corfu, October 2011.



Thunderstorm Corfu, Greece 7 October 2011

Digital field recording, 1.42



Heavy rain falls outside the window of a bedroom inside the Bella Venezia hotel in Corfu. Thunder crashes almost constantly throughout, off in the distance.



Wind in trees, Albufeira, September 2016.





Psithurism: Albufeira, Algarve, Portugal, 8 September 2016

Digital field recording, 2.34



Psithurism is the sound of wind and trees (see the box on the next page). This example was recorded in a small suburb in the south of Portugal during a brief respite from an otherwise extraordinarily hot day.

Psithurism

The sound of the wind whispering through trees



'Among plants and trees, those with large leaves have a muffled sound; those with dry leaves have a sorrowful sound; those with frail leaves have a weak and unmelodic sound. For this reason, nothing is better suited to wind than the pine.'

-Liu Chi (1311-1375)

The word **psithurism** was derived from the ancient Greek word for 'whispering.' It is an *onomatopoetic* word, meaning that it is a word that sounds like the thing it represents: the very sound of the word psithurism (pronounced without the 'p') evokes the act of listening to rustling leaves.

There is a curious parallel between sound and wind: we only hear either of them because they are forces which act upon something else. Soundwaves need the inner workings of an ear in order to be heard, otherwise they are just vibrations. Similarly, the wind pushes against physical

things, which then make sounds in reaction to the pushing. One of the most sonically pleasant things for wind to push against are the leaves which decorate the branches of trees.

Listening to the wind blowing through trees can become a training exercise to develop a deeper awareness of one's sonic surroundings. Using it as a focal point for your listening attention, the sound of psithurism can become transformed from a background sound to a foreground sound, subsequently opening one's attention to a myriad of audible events that are otherwise ignored. This is one of the techniques used in the *Deep Listening* exercises pioneered by contemporary composer **Pauline Oliveros**, whose workshops taught people how to more actively listen. Oliveros' approach combined avant-garde compositional techniques and Buddhist-inspired mindfulness exercises, playful yet serious games that teach effective ways of becoming aware of the sounds around us, to accept them and work with them as partners of our experiences rather than trying to block them out.



Views from Park mit allen Sinnen, September 2014.



Creek: Park mit allen Sinnen, Schwartzwald, Germany 14 September 2014

Digital field recording, 2.00



Gutach's 'Park With All the Senses' is a unique park that invites its visitors to experience nature via the five senses. Activities are designed to make use of one's touch, smell, taste, and hearing as well as sight, including going barefoot and walking through creeks and puddles.





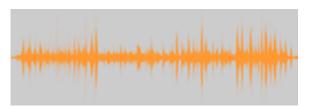


Waterfall, Offenburg, September 2014.



Lake Erie Waves: Pelee Island, Canada 2 July 2010

Digital field recording, 1.57



The fourth-largest (or second-smallest) of the Great Lakes that share the border between Canada and the United States, Lake Erie surrounds Canada's Pelee Island. **OBJECT 8**





Waterfall: Offenburg, Germany 14 Sept 2014

Digital field recording, 1.42



The waterfalls in Offenburg are the highest waterfalls in Germany, spilling down from a height of over 160 meters into the Gurlach river.

SCIENCE & TECHNOLOGY

Laboratories & Medicine



Laboratories are places where science happens. When we think about scientists, we almost immediately place them within a laboratory in our minds. Similarly, in so-called Western culture science and medicine are closely intertwined. Scientists are often concerned with the fundamental building blocks of the universe – the elements that make up the stars, planets, and everything that lives; meanwhile, medicine is a science that concerns itself with making sure that what lives is able to live well.

The well-being of humans is interconnected with the lives of the stars and planets; as popular American scientist Carl Sagan often said, human beings are 'made of starstuff' – that is, we are made of the exact same chemicals and elements that make up the rest of the universe.

It seems fitting, then, to begin our galleries devoted to science and technology with a brief listen to some medical and laboratory-related sounds.

What other sounds of science laboratories or hospitals can you think of? Do you enjoy those sounds?



Patients inside a radiology lab in Lisbon are urged to remain silent, although their machines and televisions do not.

OBJECT 1 (T



Radiology Lab: Lisbon, Portugal 10 April 2015

Digital field recording, 1.30

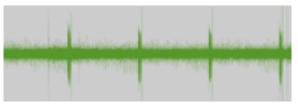


This recording of a radiology laboratory in Lisbon, Portugal contains repetitive sounds of scanning machines as well as the sound of a television in the waiting room, which at the time was showing a Brazilian telenovela, or soap opera.

OBJECT 2

IV: Evanston, IL, US 13 April 2014

Digital field recording, 1.08



During hospital stays, it is often important for patients to receive fluids via intravenous tube, one that is inserted directly into the patient's veins, usually through the arm or the back of the hand. The flow of liquid into the bloodstream is controlled by an automated pumping machine.

SCIENCE & TECHNOLOGY Acoustics



The word *acoustics* has two meanings. Firstly, it refers to the physical properties of a space or room that contribute to how sound moves around that space or room. Secondly, it also refers to a discipline within physics that studies the properties of sound.

The spaces that are represented by the sounds in this gallery serve both those meanings, as they are each specially designed spaces utilised to study the way sound moves – or doesn't move – in space.

Researchers use purpose-built spaces like *reverberation* chambers and anechoic chambers to study how sound affects space and how space is affected by sound. These spaces can be used for scientific experiments, artistic projects, or even for product testing.

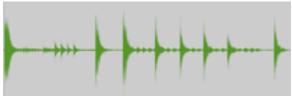
Think about the sounds in the space where you are right now. How do the sounds interact with the space? If you close your eyes and just listen, what can you determine about the space around you?



The door to Columbia College's reverberation chamber looks like a door to a bank vault because that's what the chamber was before the college purchased the building, which is located in the heart of downtown Chicago.

Reverberation Chamber: Columbia College, Chicago, US 9 July 2010

Digital field recording, 0.40



The Department of Audio Arts & Acoustics at Columbia College in Chicago houses a sizable reverberation chamber for use by the students and staff. The chamber, like similar reverb chambers around the world, is used for a variety of testing purposes that includes, according to the College's website, 'aural identification and localization of absorptive surfaces, systematic physical and perceptual assessment of absorption parameters, noise simulation, measurement, and evaluation.' It is also used as a space within which to generate reverb effects - the echoes you hear as a sound is made, which help to indicate the presence of that sound within a space.

This recording features the latter use, with various noises made by both myself and radio producer Michael DeBonis.

To hear another type of reverb chamber, listen to Gallery 22, Object 23, p.139.



Anechoic Chamber Performance of John Cage's 4'33" Acoustics Research Department London South Bank University 23 July 2015

Digital field recording, 4.33 4´33´´ performed by John Kannenberg

An anechoic chamber (see sidebar, next page) is a room specially constructed to remain perfectly silent. It is built with materials designed specifically to reflect no sound whatsoever. While inside an anechoic chamber, it is theoretically possible to experience perfect silence.

The 20th Century experimental music composer John Cage's most famous musical composition plays with the idea that there can be no such thing as silence. Cage himself spent time in an anechoic chamber, and it was this experience which inspired him to write 4'33", a piece of music without sound: the musician performing the piece is instructed to *not* play their instrument for exactly four minutes and thirty three seconds.

During a private tour of London South Bank University's anechoic chamber, I couldn't resist the urge to perform and record my own version of 4'33". The small group of people with me in the anechoic chamber remained as silent as possible while I recorded four minutes and thirty three seconds of the non-sound inside the chamber.



Recording a silent room: four minutes and thirty three seconds in the anechoic chamber at London South Bank University, 2015.

Can you hear the sounds of silence in this recording? How does the lack of sound for this length of time make you feel?

LISTENING CLOSE-UP

Anechoic Chambers

What can you hear in a perfectly silent room?

by Cristina Sousa Martínez

"The sound experience which I prefer to all others is the experience of silence and this silence almost everywhere in the world now is... traffic. If you listen to Beethoven or to Mozart you see that they are always the same, but if you listen to traffic you see it's always different."

— John Cage (1912–1992)

Thanks to the experiments that have taken place within *anechoic chambers* ('anechoic': where there are no echoes), we've discovered that scientifically, silence does have a sound.

The world's quietest anechoic chamber is currently in Redmond, Washington, at Building 87 of Microsoft's laboratories. There, they've collected the quietest sound ever recorded, the chamber's room tone of -20.6 dBa, which is very close to the quietest sound ever theorized: the sound of Brownian motion – the stochastic movement of microscopic particles within a fluid, at -23 dBa. The creation of anechoic chambers began in the 1940s at Bell Labs (Murray Hill, New Jersey) and, three years later, at Harvard University's laboratories (Boston, Massachusetts). Initially, both chambers were made for testing military technologies during WWII, but later they served to test other kind of machines' sounds and the acoustics of performance spaces. Generally, anechoic chambers have the same constitution: they are cubic rooms covered with foam or fiberglass wedges (materials that absorb all sound). The floor is a metallic mesh on top of tales, equally made of absorbent material.

Dr. Leo Beranek, who coined the term 'anechoic,' was responsible for the construction of the Harvard anechoic chamber, the one that composer John Cage would go to in an attempt to find absolute silence, in 1951. There was a time in which Cage was obsessed with composing a silent piece, hoping to sell it to the Muzak Co. and by doing this, he hoped to give people a genuine experience of silence. But how could this be possible if he didn't know genuine silence himself? In his own words:



Wall of anechoic chamber, London South Bank University

It was after I got to Boston that I went into the anechoic chamber at Harvard University. Anybody who knows me, knows this story. I am constantly telling it. Anyway, in that silent room I heard two sounds: one high and one low. Afterward I asked the engineer in charge why if the room was so silent I had heard two sounds. He said 'Describe them'. I did. He said 'The high one was your nervous system in operation, the low one was your blood in circulation'.

Hence, silence appeared to him not as the absence of sound but as unintended sounds or as I like to call them, 'imperceptible'. A year later, he came up with the score for 4'33", his most famous composition and his own favourite. It lasted 4 minutes and 33 seconds and had three movements: the first one lasting 30"; the second one at 2′23′′ and the last one, 1′40′′. However, Cage later said that as long as there were three movements and the piece lasted the same time as it was stated to last it could still be considered a performance of 4'33". Its first presentation happened at the Maverick Concert Hall in Woodstock, New York and was performed by David Tudor, who sat in front of a piano and elegantly turned the pages of the original score, which remains lost. Because of the unconventionality of the presentation, it was badly received and some people even still think that it's merely an intellectual joke, but for other people, this is the piece in which Cage revealed his new philosophy about sounds, his appreciation for each and all of them, and extended a timeless invitation to his listener(s) to pay attention to their own sound surroundings for a very short time.

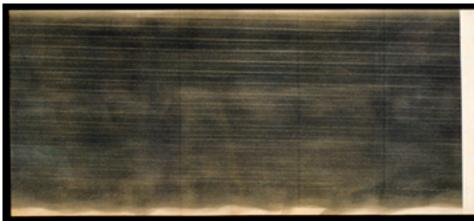
SCIENCE & TECHNOLOGY Recording History

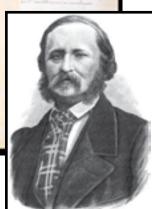
GALLERY

What we think of now as recorded sound began in the 19th Century, remarkably, using pictures of sound. This rapidly progressed to wax cylinders and wires, then to electricity and the mass-marketed LP record. The 20th Century saw the birth of radio, and the dawn of magnetic tape – eventually leading to the Sony Walkman in 1980, the first mainstream portable consumer audio device for playing recordings. Suddenly, our listening experience changed completely: now we were able to create our own personal soundtracks, sequenced to our own liking, with all of recorded sound able to be experienced anywhere. As audio tape was replaced by the Compact Disc, recordings became more portable than ever, and we could begin to carry around small libraries of sound.

The quest for smaller formats sometimes misfired: the Mini-Disc, introduced in 1992, was re-recordable and smaller than the CD, but never caught on. MP3s – purely digital files, without a physical form – were easily distributed for free via peer-to-peer file sharing networks such as Napster in the early 21st Century. Our relationship with recorded sound, and how we collected it, changed forever.

Do you collect digital sound files? Do you collect any physical recordings like LP records, cassettes, or CDs? Do you feel nostalgic for your old MP3s?







Above: The image of the sound of Au Claire de la Lune made in 1860, Courtesy of First Sounds. **Right:** Édouard-Léon Scott de Martinville.

The First Recording of a Human Voice, 1860

Phonautograph by and of Édouard-Léon Scott de Martinville, 1860

Digitally educed audio by Patrick Feaster, 2007



In 1860 – seventeen years before Thomas Edison claimed to invent sound recording, a French printer named Édouard-Léon Scott de Martinville developed a visual method of recording sound by building a machine he called the *phonautograph*, whose mechanics were based on the anatomy of the human ear. He didn't believe the pictures his machine created would be able to reproduce sound, only represent it.

In 2008, researcher Patrick Feaster developed a digital method of *educing* the sound from such images, and revealed the first known recording of the human voice: Scott de Martinville singing *Au Claire de la Lune*, a popular French folk song.

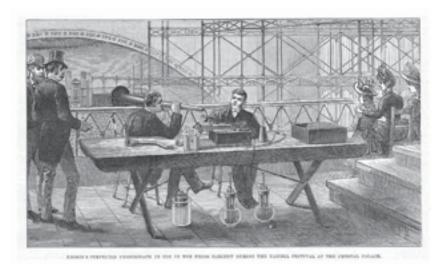
Educed AudioSound from pictures

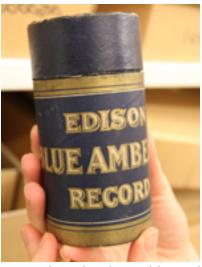
According to the Oxford English Dictionary, to educe means to 'bring out or develop' something, or 'to infer something from data.' Both of these definitions can easily be applied to the methods by which researcher Patrick Feaster and his colleagues at the First Sounds initiative seek to develop historical sound from two-dimensional drawings and other visual means of representing sound.

By treating these images as not merely representations of sound waves but also as data from which sound may actually be extracted, Feaster has been able to use off-the-shelf software such as the Windowsonly program *ImageToSound* to breathe new life into historical pictures of sound, some of which date back as far as 980 C.E.

You can learn more about Feaster's techniques on his website **Phonozoic.net**.

Information about the First Sounds project, including news about their latest efforts to rescue the sounds of history, can be found on their website, **Firstsounds.org**.

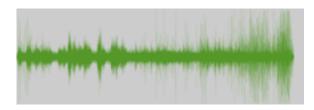






The First Recording of a Museum, 1888

Digital transfer of wax cylinder, 2.28



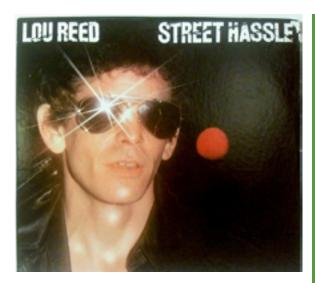
London's Crystal Palace was originally built in Hyde Park to house the Great Exhibition of 1851, a 19th Century pop-up museum of culture from around the world. After the Exhibition, the building housed cultural events like the popular annual Handel Festival, a worldwide phenomena of the time. Col. George Gouraud, a salesman employed by Thomas Edison, was sent to London in 1888 to record the performance of 'Israel in Egypt' - featuring a 4,000 person choir conducted by August Mans onto a wax cylinder (see sidebar at right). Because of the volume of the chorus and the sensitivity of the equipment, Gouraud's phonograph recorder was placed over 100 yards from the performers.

Above left: Col. George Gouraud recording the Handel festival in the Crystal Palace, 1888. **Above:** An Edison cylinder in the British Library Sound Archive.

Edison's Wax Cylinders Buzzing wasn't just for bees anymore

The recording of Handel at the Crystal Palace was important for many reasons, not just for capturing the first sound recording in a museum, but also as a marketing tool for the recently commercially released Edison Wax Cylinder system. Wax cylinders etched sound vibrations onto a wax surface, and could be played back – albeit rather scratchily – on one of Edison's phonographs; so Col. Gouraud wasn't just capturing important historical audio, he was also acting as a traveling salesman for Edison's new product.

Wax cylinders were also the first recordings to be made commercially available. As of 1888, people were now able to purchase pre-recorded material for playback in their homes for the first time. This revolutionised how people thought about music and sound, and it also created a massive new industry based around the packaging and selling of popular music.





The First Binaural Pop Album, Track 3 (excerpt): Lou Reed's Street Hassle: Waltzing Matilda Arista Records, 1978

Digital transfer from Compact Disc, 3.20



In 1978, Lou Reed recorded and released the first pop album of binaural sound (see sidebar at right). This format attempts to replicate the 360° experience of listening in only two stereo channels. Most binaural recordings only sound correct when heard via headphones, and as a result Reed's album was accused of sounding 'muddy' by some music critics. Reed's next two albums were also recorded binaurally, but after that he abandoned the technology.

When listening to this object, pay careful attention to where you feel the sounds coming from. How do the vocals sound compared to most pop songs you listen to?

LISTENING CLOSE-UP Binaural Recording Two channel surround (for headphones only)

Binaural recordings are made with specially designed microphones that are able to capture sound in a way that mimics how human ears work: we can perceive sound in a 360° field with only two ears.



In order to make these recordings, binaural microphones are often mounted on artifical heads like the one seen in the above photograph. In this way, the sound waves present in the room strike the microphones at the same angles they would reach the ears on an average sized human head. When these recordings are played back to a listener wearing headphones, the effect is replicated, and the sound appears to surround the listener in a manner very much like the way we hear sound in nature.

The first binaural listening system appeared in the Palais Garnier opera house in Paris in 1881, which broadcast binaural sound to its patrons using a device made of telephone microphones called a Théâtrophone. In 1920, a Connecticut radio station broadcast binaural sound over two different radio signals, requiring listeners to own two radios to hear the effect.

The 21st Century has seen something of a resurgence of binaural sound entering live performance spaces, like Simon McBurney's The Encounter at London's Barbican in 2016.





The First CD, Track 6: **Claudio Arrau performs Chopin:** Waltz #6 In D Flat, Op. 64/1, "Minute"

Digital transfer from Compact Disc, 2.28



Track 6 of the first commercially released Compact Disc, released by Philips Classics in 1980. The original recording for the album was made in 1979. In a ceremony to launch the beginning of the manufacture of the disc, musician Claudio Arrau was invited to the factory to press the 'start' button on the machinery.



The copy of Claudio Arrau's Chopin Waltzes held in the collections of The Museum of Portable Sound. This Compact Disc is available for inspection upon request - see page 110 for more information.

LISTENING CLOSE-UP Compact Discs Into the Digital Age

The Compact Disc, or CD, was the result of a joint venture between Philips and Sony, two giant electronics companies who decided to come together to produce a new standard format for audio playback that used optical laser technology.

Philips had already produced the Video Disc, a large format laser-read disc used for playback of films, which ultimately failed not only due to the limitation that the 12" discs had to be flipped over in the middle of a two-hour film, but also because consumers were under the false impression that the discs were recordable (this did not, however, stop non-recordable DVDs from becoming widely adopted two decades later).

Philips developed the initial technology for the CD, announced it at a press event, and then traveled to Japan to begin hammering out a plan to create an industry standard for the new optical disc technology.

Many of the design decisions for CDs were arrived at arbitrarily. Philips wanted the size of the disc to be the same width as a compact audio cassette, 11.5cm; ultimately it was decided to increase it to 12cm. Some claim this was due to Sony's insistance that a single CD should be able to hold all of Beethoven's 9th Symphony, and since Sony's best-selling version of it at the time was 74 minutes long, that became a CD's length. The disc's sampling frequency of 44.1kHz was decided upon because it was easier to remember than the current standard of equipment of the time, 44.056kHz.

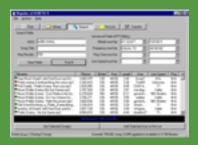
With their extra-clean sound quality that did away with the pops and clicks of LP records, the CD quickly established itself as an audiophile's format, although debates over the relative superiority of both analogue and digital audio continue to this day. What CDs did manage to achieve, however, was the mass conversion of recorded sound into data – computer code which laid the groundwork for the digital revolution that was about to come next.

LISTENING CLOSE-UP MP3s

Music & the Music Industry Disappear

Once recorded sound's primary mode of distribution became CDs, it was almost an inevitability that recordings would one day become digital files rather than a physical object. As home computers began to handle larger amounts of data, CD burners became a necessity for home PCs. As internet speeds increased, the transfer of large amounts of data online became easier.

The final straw was the development of MP3 encoding, an algorithm which took CD-quality sound files and compressed them to a fraction of their original size with minimal detectable loss in sound quality. Developed at the Fraunhofer Institute in Germany, the MP3 quickly became a standard.



By 1999, this perfect storm of transfer speed and algorithm resulted in *Napster* (screenshot above), a peer-to-peer network that allowed music to be shared for free by anyone on the Internet. The floodgates had been opened, and recorded sound was now no different than computer code.

Attempts to replicate the purchasing experience of physical music within the digital world mostly failed until the advent of Apple's *iTunes Music Store*. Amazon.com and Google followed with their own digital music shops. Now that fast data transfer speeds are almost ubiquitous, streaming music from services like Spotify is becoming the new standard – digital files are no longer owned by the consumer, replaced by subscription-based on-demand radio.

OBJECT 5



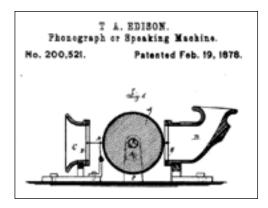


The First MP3: Suzanne Vega - Tom's Diner (a capella), 1987

Digital transfer from Compact Disc, 2.09



When German digital recording engineer Karlheinz Brandenburg of the Fraunhofer Institute was helping to fine-tune the compression algorithm for the MP3, the story goes that he used the a capella version of Suzanne Vega's song *Tom's Diner* to help him hear what parts of the soundwaves of a recording were acceptable to strip away from the human voice in order for it to still sound 'natural.' The Fraunhofer Institute went on to declare Vega 'The Mother of the MP3,' bringing her to their offices for a major press event at which she politely suggested that MP3s didn't sound as good as CDs.



In 2012, Suzanne Vega brought the world of audio recording full circle by re-recording Tom's Diner on an Edison cylinder at Thomas Edison National Historical Park in West Orange, New Jersey.

Watch a video of the recording session here: https://youtu.be/OankHVwXX3Y

SCIENCE & TECHNOLOGY Audio Interfaces



Interface design, or 'User Experience Design (UXD),' tends to be thought of as a visual discipline. Yet countless audible interfaces surround us every day. Sound brings another level of communication to an interface, a visceral, almost haptic sensation of touch, an experience based on the sensation of sound brushing against our eardrums; sounds designed to help us complete a task or find our way around an unknown space can trigger instinctive, almost primal responses within us.

How do you feel when you hear the 'ding' of an elevator bell, the 'beep' of a microwave oven, the startup sound of your laptop computer? How does it differ from when you hear a fire alarm, a tornado warning siren, or your alarm clock on a weekday morning?

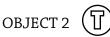
What if you could change these sounds to radically different ones? What would you want them to sound like?

Have you turned off the 'camera shutter' sound effect on your mobile phone?



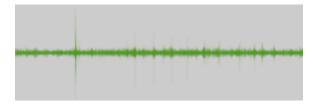
Public Telephone in Telephone Booth: Zagreb, Croatia 25 September 2015

Digital field recording, 0.26



Utility Telephone: Francisco Brown Line Station, Albany Park, Chicago, US, 2 May 2009

Digital field recording, 0.24





A rainstorm in Zagreb provides the backdrop for a recording session in a telephone booth, capturing the sound made while using the phone. You can hear more of this rain in Gallery 22, Object 5, p. 133.

Late at night while standing outdoors on the Francisco station platform in Albany Park, Chicago, a utility telephone began ringing. Instead of answering it, I decided to record it. I hope it wasn't an emergency.

OBJECT 3



ATM: San Francisco, US 5 July 2008

Digital field recording, 0.39

OBJECT 4

Elevator: Hancock Tower, Chicago, US 2 May 2009

Digital field recording, 0.47





One of the most heard sounds of the late 20th and early 21st Centuries must be the sound of a banking machine dispensing cash. However, this sound may soon be endangered as more people adopt mobile phone and touchless payment systems.

The John Hancock Tower is the secondtallest building in Chicago, featuring an observation deck on its top floor. The express elevator in the building features specific beeps as well as recorded messages that make some bizarre claims about the tower, including the questionable existence of a rather undesirable nickname for it.

Alarm Test UC-Berkeley campus Berkeley, California, US 2 July 2008

Digital field recording, 0.50



Alarm systems are large-scale audio interfaces, alerting people of dangerous situations. By the time I was able to unpack my recorder and begin recording, this alarm test was over.

Luckily, the closing announcement made the effort worth it.

OBJECT 7



Automated Track Announcements Union Station, Chicago, US 21 March 2009

Digital field recording, 2.55



Chicago's Union Station uses an automated announcement system to help passengers find the correct track where their train will depart. By walking from one end of the track bay to the other, I was able to record a looping, phasing vocal piece with more than a slight resemblance to one of composer Steve Reich's early tape pieces.

OBJECT 6

Apartment Security System: Warsaw, Poland 8 May 2017

Digital field recording, 0.50



Travelers often face difficulties when staying in a country whose language they don't happen to speak. Some audio interfaces attempt to overcome these difficulties through the use of allegedly universally recognised sounds for certain situations. This interface is not one of those, unless it were to be used in a Bugs Bunny cartoon.

SoundmarksWhat we hear is where we are

The objects on the next two pages make up a collection of audio interfaces that help visually impaired people cross the street. The sounds are heard when users press buttons at the crosswalk. Some of the signals use language, others use abstract clicks or beeps. Although the signals are similar, each is unique.

Could hearing these sounds become a kind of **soundmark** (an audible landmark) that the local community might hear and realise they are at home? **R. Murray Schafer**, a Canadian composer and researcher, coined this term for sounds that give communities an 'acoustic identity.'

How might these sounds reflect the local culture of each city? What are some soundmarks in your own neighbourhood?



Intersection, Port of San Francisco, 5 July 2008.



Recording a traffic signal in Aarhus, 5 June 2016.



Street Crossing Signal for Visually Impaired: IIT Campus Chicago, US, 11 Oct 2004

Digital field recording, 1.29

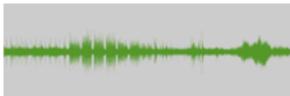
OBJECT 9



Street Crossing Signal for Visually Impaired: Port of San Francisco San Francisco, US, 5 July 2008

Digital field recording, 0.59





OBJECT 10



Street Crossing Signal for Visually Impaired: Ann Arbor, Michigan, US 14 June 2009

Digital field recording, 1.09

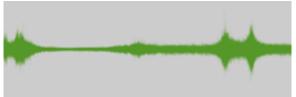
OBJECT 11



Street Crossing Signal for Visually Impaired: Munich, Germany 20 October 2012

Digital field recording, 1.07







Recording a traffic signal in Antwerp, 3 August 2017.



Street Crossing Signal for Visually Impaired: Toronto, Ontario, Canada 31 July 2009

Digital field recording, 1.08

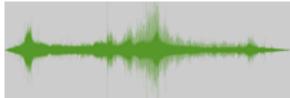
OBJECT 13



Street Crossing Signal for Visually Impaired: Antwerp, Belgium 3 August 2017

Digital field recording, 1.28





OBJECT 14



Street Crossing Signal for Visually Impaired: Zagreb, Croatia 26 September 2015

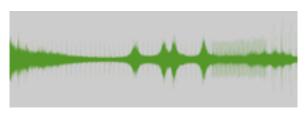
Digital field recording, 1.00

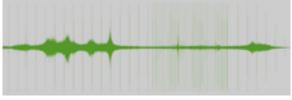
OBJECT 15



Street Crossing Signal for Visually Impaired: Aarhus, Denmark 5 June 2016

Digital field recording, 1.05





SCIENCE & TECHNOLOGY Glitches



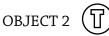
What does it sound like when your laptop breaks (other than your own screams of panic)?

A glitch, according to the Oxford English Dictionary, is a 'sudden, usually temporary malfunction or fault of equipment.' In the late 20th Century, this term was co-opted by experimental musicians who began creating music entirely out of the sounds of failing computers and compact discs. 'Glitch Music' was often produced by musicians using laptop computers, leading some to speculate that their live performances were actually just excuses to check their email onstage. But glitch music seriously questioned the pristine quality of digital sounds and the polished aesthetics of the digital age. This music was usually either painfully loud or almost imperceptibly quiet – Japan's Yasunao Tone tore apart CDs, slicing and dicing them to produce ear-splitting rumbles and shrieks; Germany's Pole sampled the pops and clicks in the silent portions of vinyl LPs to create music for chill-out rooms.

Today, glitches have become merely another part of the contemporary music producer's toolbox, yet their ubiquity has not lessened the impact of hearing a raw, unedited glitch. If you are disturbed by noise, you might want to skip this particular gallery!

Malfunctioning iPod: Michigan Ave. Apple Store Chicago, US, 5 August 2008

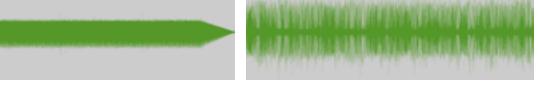
Digital field recording, 0.43



Malfunctioning MacBook: Michigan Ave. Apple Store Chicago, US, 8 September 2008

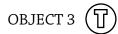
Digital field recording, 1.26





While visiting the Apple store, I attempted to listen to an iPod that was obviously malfunctioning. The recording was made by placing a stereo microphone between the earbuds attached to the iPod.

A month later, at the same Apple store, I recorded this sound coming out of a MacBook that had crashed while running GarageBand, Apple's built-in audio editing software.



Broken P.A. Speaker: Mitchell Hall **University of Wisconsin** Milwaukee, US, 1 March 2008

Digital field recording, 0.49



Broken Fire Alarm: Pierpont Commons, University of Michigan, Ann Arbor, MI, US, 19 June 2009

Digital field recording, 0.53



During preparations for a live performance by a group of field recordists, it was noticed that the P.A. system being used in the room was emitting strange noises. Along with fellow sound artists Glenn Bach (the organiser of the concert) and Christopher Delaurenti, I recorded the sound of the malfunctioning speaker while we waited for the arrival of a replacement.



The Pierpont Commons is a student union building on the art and sciences campus at the University of Michigan. This fire alarm emitted these sounds off and on for the entirety of the three years I attended graduate school there.

20th Century Audio Equipment



As the technology to record and reproduce sound became cheaper and more accessible, listening to recordings became more commonplace as a leisure activity during the 20th Century. Once Thomas Edison's seeming monopoly on sound-playing devices was finally broken, several major companies sprang up to deliver products to a market hungry for hearing.

Edison's wax cylinder phonograph was replaced by the Long Playing (LP) record phonograph, with its standardised rotations per minute: 16, 33 1/3, 45, and 78 rotations all delivered varying sound quality on different sized discs. Record companies were able to sell sound as a physical object, taking advantage of the phonograph's limitation of only being able to play, but not record, sound.

With the advent of the tape recorder, the music industry became paranoid of losing its grasp on consumers of sound. 'Home Taping Is Killing Music' was a slogan used by the music industry in the 1980s to try to stigmatise consumers' newfound ability to make copies of pre-recorded albums.

Little did the industry know how the impending digital revolution, beginning with the advent of the Compact Disc in the 1980s, would irrevocably change how music was collected.





Dansette HiFi Model Phonograph (Portable LP Record Player, 1960s): London, 17 September 2016

Digital field recording, 0.48



A highly popular brand across the UK in the 1960s, Dansette phonographs were built to be a portable, self-contained unit, with a speaker built in and a carrying handle on its side. The HiFi model heard here includes no radio receiver, as was common for many phonographs at the time.



The Dansette HiFi model plays a record in a house in Bethnal Green, London, 2016. Device courtesy the collection of C.J. Mitchell.





Front and back of the Panasonic RQ-L317, displaying the unique built-in speaker, highly uncommon in tape players of this sort from this time period. Device courtesy the collection of Karen Christopher.

OBJECT 2

Panasonic RQ-L317 Voice Activated System, **Variable Tape Speed Cassette** Recorder (Portable Audio Cassette Player/Recorder, 1980s): London, 17 September 2016

Digital field recording, 1.26



This portable tape player/recorder includes a built-in speaker. The recording contains a demonstration of the RQ-L317, playing a vintage cassette tape containing excerpts from a 1981 radio broadcast of John Peel's 'Festive Fifty,' wherein the iconic radio presenter played his listeners' fifty favourite tracks of the year every Christmas time. The artists heard in these excerpts include Killing Joke and Theatre of Hate.

SCIENCE & TECHNOLOGY

21st Century Audio Equipment



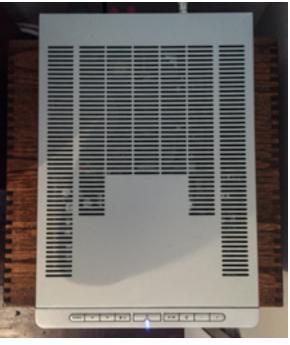
In the latter part of the 20th Century, CDs became the new standard for listening to recorded sound. Like the LP, CDs were not recordable, and their 'pristine' digital sound quality was a major selling point. After a little over a decade, the home computer industry began to wrestle control over the production of CDs from the recording industry. 'CD burners' became the new tape recorders, with consumers now able to rip songs from pre-recorded CDs and create their own mixes to burn onto their own CDs. Soon after, the MP3 became the standard format for sharing music, literally – MP3 files were easily distributed for free on the Internet.

MP3 players like Apple's iPod soon became ubiquitous in the 21st Century. Like the Sony Walkman before it, the iPod offered previously unheard of potential for personalised portable listening experiences.

The field recording movement, having moved from the grammophone to the reel to reel tape recorder, to Digital Audio Tape (DAT), were treated to the MiniDisc – a tiny recordable CD, a format which never became mainstream – and finally portable digital recorders. With mobile phones now able to play, record, and stream digital sound, portable listening has become even more convenient.



The Arcam Solo Mini Music System's front face (**above**) and top (**above right**). Note the presence of a radio antenna on the rear of the unit, and a USB port in the lower right of the front face – evidence that this device seeks to be a bridge between 20th and 21st Century listening habits. Device courtesy the collection of C.J. Mitchell.



Arcam Solo Mini Music System CD Player (component compact disc player, 2008): London 17 September 2016

Digital field recording, 0.45



Although CD players fell out of favour in the 21st Century, some afficionados still prefer owning physical copies of their music. This system not only plays CDs but also has a built-in radio receiver and a USB port for playing MP3s and other digital audio files from a removable drive.

The recording here captures the CD player in use, with a slightly disturbing mechanical sound heard from the device as it operates.

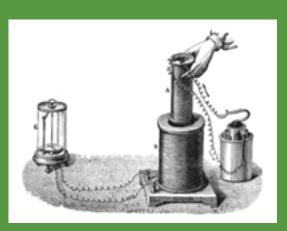
LISTENING CLOSE-UP

Electromagnetic Induction

The invisible sounds of electronic devices

Those of us who live in cities are surrounded by electronics, whether it's the slew of mobile phones that surround us in a train carriage on our daily commute, or the fibre-optic network that drives the Internet in our office, or the CCTV cameras that continuously monitor us as we go about our business. And unbeknownst to us, these devices are generating electromagnetic fields that, in turn, produce a constant barrage of sounds – as long as you have a device that can decode the transmissions.

Electromagnetic induction is a means by which to decode these sounds, to listen in on the secret symphonies surrounding us. It was discovered by the English scientist Michael Faraday, who first publicly demonstrated the phenomenon in 1831. By attaching a liquid battery (see it at right in the diagram below) to a small coil of wire, the ensuing electrical current created a magnetic field. When the small coil of wire was then passed through a larger coil of wire, a current was *induced* – that is, produced by proximity, without any physical contact - in the large coil, which Faraday demonstrated by attaching the large coil to a galvanometer (the device at left in the diagram below). This discovery paved the way for many advancements in electrical engineering, such as the development of the electrical generator.



Faraday's induction experiment. The liquid battery, at right, is attached to a small coil of wire (A), which is then passed through a larger coil (B) which sends a signal to the galvanometer (G, at left)



German artist Christina Kubisch wearing her specially designed electrical induction headphones while conducting one of her Electrical Walks. The headphones allow participants to listen in to the electromagnetic fields surrounding public devices like cash machines. Photograph courtesy ChristinaKubisch.com.

In the 1970s, the artist Christina Kubisch began experimenting with electromagnetic induction, eventually creating a pair of headphones that could pick up and amplify the sounds generated by magnetic fields. This was the beginning of her ongoing series of pieces entitled *Electrical Walks*. Staged in cities around the world, Kubisch creates these pieces by exploring an area with her headphones, mapping instances of particualrly interesting electromagnetic impulses to listen in to. She then distributes maps of these fields to her audience along with a pair of her specially designed wireless headphones. By following the instructions on her maps, participants are able to follow in her footsteps and hear the 'invisible' electromagnetic sounds constantly happening all around us.



Recording electromagnetic signals emitted from the iPhone 4S that houses The Museum of Portable Sound (Object 3 below).

The objects listed below are recordings made with a microphone designed to pick up electromagnetic signals from electronic devices – specifically, it was designed to record telephone calls made on wired landlines. However, the microphone (seen in the photo at left) is perfect for picking up the electromagnetic signals emitted by all sorts of electronics, like the devices listed below. The sounds you are hearing here are 'invisible', unable to be heard by the human ear, but are constantly happening around us.

OBJECT 2

iPod Classic, Magnetic Field (portable digital audio player): London, 2015

Digital studio recording, 1.57

OBJECT 3





iPhone 4S, Magnetic Field (portable digital audio player & recorder): London, 2015

Digital studio recording, 1.00





OBJECT 4

Zoom H2, Magnetic Field (portable digital audio recorder): London, 2015

Digital studio recording, 1.03

OBJECT 5

Olympus LS-10 Magnetic Field (portable digital audio recorder): London, 2015

Digital studio recording, 0.35





SPACE & ARCHITECTURE

Construction, Exteriors & Tours



Architecture is much more than just the creation of buildings, although it inevitably begins there. It is a civic art, a social science, an aesthetics of shelter, and a poetics of space; architecture creates the spaces we can not find in nature, protects us from the elements, and provides urban living with a substantial portion of its personality.

Architecture is something we need to spend time with in order to develop a familiarity – spending time inside and outside a building, developing a relationship with it. Building this relationship involves a multitude of sensory inputs: sight, touch, smell, and hearing all contribute to the way we experience architectural space.

When we travel, we often don't find the time to develop intimate relationships with a city's architectural spaces, which is why many cities offer architectural tours – brief overviews of architectural exteriors, whetting our appetites to seek out buildings we may want to explore further.

This gallery represents a 'before and after' approach to the sonic identity of architecture, without actually displaying the sound of architectural space. What does a building sound like when it's being built? What does a building sound like when a person describes it?

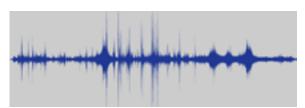




A construction crew on the street in Porto, Portugal loads a stack of particle board onto a crane (**above left**) which then lifts the wood over a row of houses and onto the construction site (**above right**), 11 September 2017.

Crane Operators: Porto, Portugal 11 September 2017

Digital field recording, 1.19



Construction can not begin without materials, and here a construction crew transports building materials from street level, up over a row of houses, and ultimately back down again to the construction site.

OBJECT 2

Construction Site: Apple Retail Store, Michigan Ave. Chicago, US, 22 April 2009

Digital field recording, 1.44



In 2009, the Apple computer retail store on Michigan Avenue, in what is referred to as Chicago's 'Magnificent Mile' of shops, was expanded and remodeled. This recording captures the sound of cranes at the site.

Welding: Newbury Library, Chicago, US 14 June 2009

Digital field recording, 0.37



While attempting to record the sound of a welder working inside an entrance to Chicago's Newbury Library, a staff member ejected me from the building.

OBJECT 4

Construction Destruction: Baku Law Centre Baku, Azerbaijan, 5 October 2017

Digital field recording, 1.01

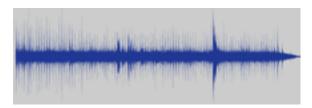


Often construction also requires demolition. Buildings are often reused rather than rebuilt, but their interiors are gutted and refit for a new purpose.

OBJECT 5

Bridge Rising: Wisconsin Avenue Milwaukee, WI, US 4 September 2005

Digital field recording, 1.01

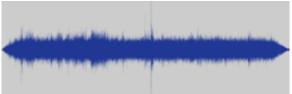


Milwaukee's city centre spans the Milwaukee River. This is the sound of the Wisconsin Avenue bridge being raised to allow tall boats to pass through.

OBJECT 6

Bridge Rising: Merchandise Mart Chicago, IL, US 29 May 2009

Digital field recording, 1.32



This recording of a bridge being raised above the Chicago River was made while sitting inside a delayed Red Line CTA train at the Merchandise Mart station. Not captured in this recording was, moments later, the agitated gentleman sitting behind me letting loose a bevy of expletives because the train was running late.





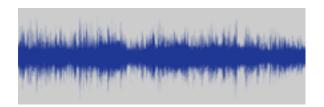


Architecture tours offer glimpses of buildings from a distance. The Chicago River boat tour takes visitors past famous landmarks such as The Wrigley Building (above left) and the Marina City complex designed by Bertrand Goldberg (above middle) while listening to narration by docents (above right).



Architecture Boat Tour Chicago River, Chicago, US 5 July 2008

Digital field recording, 1.19



A docent leads a tour on a river boat, pointing out some of the most important buildings to look at while also doing her best to generate interest in the city's tourist destinations.

Doors, Windows & Fixtures



Doors and windows are examples of *liminal* spaces – spaces that are transitional, that lead from one place to another, or one state of being to another.

Within architecture, doors and windows act as access points to different parts of a structure. Doors keep rooms private, and create a sense of security and protection. Windows offer glimpses into the outside world for the occupants of buildings, while to passersby windows act like a live television feed of what is going on inside a building.

Windows also act as a bridge between the indoor and the outdoor, allowing fresh air from the outdoors to enter an interior space. Doors may also act as portals between indoors and outdoors, offering security but also featuring access points for observing the outdoors from within, either through windows built into them, or via tiny lenses inserted into a door known as *peepholes*.

What do the doors sound like where you live? Do you listen to what goes on outside your windows?

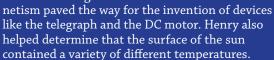
DoorbellsKnock knock. Who's there?

Can you imagine a time before the invention of the doorbell? Obviously when doors were only made of wood, houses were small, and the lack of electrically-powered devices kept homes quiet, a simple knock would be enough to gain someone's attention when arriving at their doorstep. But as the world became busier and noisier, bells became the norm for announcing one's presence.

However, it took the director of a museum to create the world's first electrically powered doorbell.

Joseph Henry, an American scientist and expert in electromagnetism, created the first doorbell powered by an electrical signal along a wire in 1831. Henry was the first secretary of the Smithsonian Institution, the national museum and research organisation of the United States.

His experiments with electromag-



Above: Portrait of Joseph Henry taken sometime between 1865 and 1878.



OBJECT 1 (T)

Doorbell, Private Residence Milwaukee, WI, US 1 March 2008

Digital field recording, 0.13



This sound of a 1950s doorbell from a private residence in the River West neighbourhood of Milwaukee, Wisconsin in the Midwest United States is an example of a modernist technological advance: an electrically powered bell.



A door in the house of Rubens, 21 July 2017.

Door: Rubens house Ghent, Belgium 21 July 2017

Digital field recording, 0.34



17th Century Flemish painter Peter Paul Rubens moved into an Italian-style villa in Antwerp in 1610, which is now preserved as the Rubenshuis Museum. This is the sound of one of its interior doors.

OBJECT 3

Door, DeBalie Café Amsterdam, NL 28 February 2010

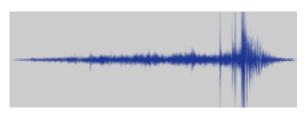
Digital field recording, 0.28



The creaky-hinged door is well known from the world of horror stories, used to chilling effect in everything from the earliest stage plays and radio dramas to the world of big-budget cinema and home console video games. Door creaks can also be thought of as architectural fingerprints: no two doors creak alike.

Door: Neue Staatsgalerie Stuttgart, Germany 17 October 2012

Digital field recording, 0.06

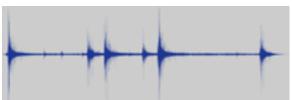


This glass door inside Stuttgart's Neue Staatsgalerie makes a somewhat musical noise when it closes.

OBJECT 5

Window, Private Residence Bay View, Milwaukee, WI, US 27 April 2007

Digital field recording, 0.34



Early modern homes benefitted from many technological innovations. Spring-loaded windows helped to make heavy panels of glass and wood easier to raise and lower, while providing some intriguing sonic side effects.

SPACE & ARCHITECTURE

Plumbing, Heating & Cooling



If doors and windows are the access points to the insides of architectural spaces, then plumbing, heating, and cooling systems are the circulatory systems of architecture.

Buildings need to breathe just like their occupants do. Often old houses make sounds that are described as the house 'settling' – mysterious creaks or groans that seemingly come from ghosts. Heating and cooling systems move air throughout buildings, helping occupants to stay comfortable during extreme fluctuations in the temperature outside. As pathways for air, these circulatory systems also become excellent conveyors of sounds.

Plumbing systems have intimate connections to the people who use architecture – they convey the water that they drink and bathe in, and also operate as an integral component of toilets.

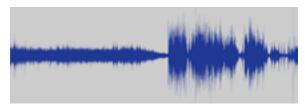
Can you describe the sound of your home's heating or cooling system? What do the sounds remind you of?



Ceiling inside Rawabet art space, 17 May 2010.

Water Pipes, Toilet: Rawabet, Cairo, Egypt 17 May 2010

Digital field recording, 0.47



Rawabet is a theatre and exhibition space that is part of the Townhouse Gallery, one of Cairo's most vibrant venues for contemporary art. Back in 2010, its loo had a very distinctive sound.

OBJECT 2

Water Drainage System, Shower: Catford, London, UK 8 August 2017

Digital field recording, 1.47



A typical London flat uses an outdoor drainage system for its plumbing. This is the sound of my own flat's drainage system while running the shower.



Radiator, Albany Park, Chicago, 2009.

Drain Pipe (Outdoor): Baku, Azerbaijan 3 October 2017

Digital field recording, 1.31



This outdoor drain pipe on the side of a house in the Old City section of Baku, Azerbaijan was working overtime after several days of rain.

OBJECT 4



Steam Heat Radiator: Chicago, Illinois, US 1 October 2008

 $Digital\ field\ recording,\ 0.47$



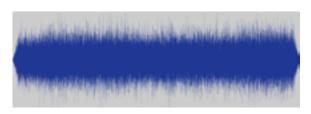
Most apartments in the city of Chicago are kept warm with steam heat radiators like the one in this recording. Much like snowflakes and fingerprints, no two radiator sounds are exactly alike.



Ventilation duct on the exterior of a private residence in Venice, 3 November 2014.

Central Heating System Vent: Ann Arbor, Michigan, US 20 February 2010

Digital field recording, 1.44



The house where I lived in Ann Arbor, Michigan had a central heating system. The vent in the living room floor pushed hot air up into the room, and also provided a slightly dangerous place for my cat to fall asleep.

OBJECT 6



Ventilation Duct: Venice, Italy 3 November 2014

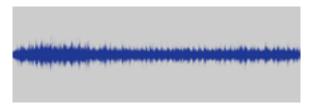
Digital field recording, 1.04



There's almost nothing more suspiciouslooking than standing outside someone's home in Venice holding a microphone above your head to capture the sound of a ventilation duct.

Air Vent: Windsor, Ontario, Canada 12 April 2010

Digital field recording, 1.16



Although I have no actual memory of the establishment where I recorded this sound, I would like to think it was a Tim Horton's.

OBJECT 8



Ventilation Fan: Coffeeshop, Amsterdam, NL 5 March 2010

Digital field recording, 1.44

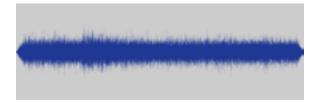


There is a distinct difference between cafés and coffeeshops in Amsterdam: cafés are places that serve coffee, while coffeeshops are places that serve marijuana. This coffeeshop ventilation fan sounds appropriately relaxing.

OBJECT 9

Air Vent Behind Yoshi's: Ann Arbor, Michigan, US 23 August 2009

Digital field recording, 1.01



Yoshi's, the restaurant behind which this recording was made, closed its doors for the last time six months after it opened. I leave it up to your imagination what impact this fact might have upon your interpretation of the sound you hear in this recording.



Toledo Mud Hens Minor League Baseball Stadium, 1 July 2009.

Air Vent: Toledo Mud Hens Baseball Stadium, Toledo, OH, US 1 July 2009

Digital field recording, 1.45



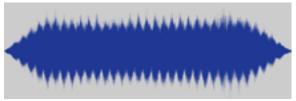
The Toledo Mud Hens are a minor league baseball team, meaning they are not one of the 'A-list baseball' teams whose names you may be more familiar with, such as the New York Yankees. They are popular enough, however, to warrant a small stadium in the heart of downtown Toledo. This air vent sat over one of the stadium's entrance doorways.

OBJECT 11



Air Vent: National Stadium Warsaw, Poland 6 May 2017

Digital field recording, 1.11



While walking alongside Warsaw's National Stadium, I was struck by this amazing drone coming from a massive air vent the size of a garage door.

SPACE & ARCHITECTURE Interiors



In our brief sonic journey through the world of architecture, so far we have listened to architecture being constructed and talked about, and we've heard the sounds of various components and processes that exist within architectural spaces. Now it's time to turn our attention to the main event: interior spaces.

Interiors are the heart of architecture; they are the places where we seek refuge, where we spend our time thinking, working, and playing. Interior spaces are a reflection of humanity's belief that it knows better than nature – that we need to provide better places than the world has already given us. They range from the utilitarian (like toilets, kitchens, and prison cells), to the social (pubs, cafés, living rooms), and to the sacred (mosques, churches, and temples).

Spaces are designed in order to serve a purpose, and part of that purpose is to inspire us. We develop relationships with the interiors we inhabit – we instinctively know where the light switch is in our bedroom, we grab a pot hanging from the wall in our kitchen without turning away from the stove, we know if our refrigerator is working by the sound it makes. How do we get to know a space? Do we analyse and interpret our surroundings with our senses, building cognitive maps of the interiors that make up our lives?

Other than the waveforms that represent each of the sounds in the following gallery, we have deliberately chosen to not show you pictures of the places you will listen to here.

As you listen, try to pick up on clues within the sounds that can give you an idea of how large the space is that you are hearing. What is it about the sounds you hear that allows you to imagine the size of the place where each recording was made?

Can you figure out why we have placed the recordings in the specific order they are in?

OBJECT 1

Huettenbar: Lincoln Square, Chicago 10 July 2008

Digital field recording, 1.12

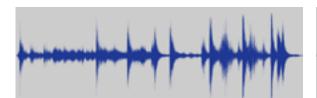


The sonic atmosphere of this space is dense, beginning with the sound of a live band alongside the sounds of people talking and glasses clinking.

OBJECT 2

Café: York, UK 2002

Digital field recording, 0.13



Even a brief moment of listening can give valuable clues to the size of a space. Listen carefully – does it sound crowded? What individual sounds can you pick out? What qualities of these sounds help to give clues about what this space might look like?

OBJECT 3

Elevator ride, entering flat,

locking flat door: Warsaw, Poland, 8 May 2017

Digital field recording, 1.17



This sound moves through three distinct spaces. Notice how the sounds give clues to the types of materials each of the spaces might be built from.



Deserted House After Tornado: Dundee, Michigan, US 8 June 2010

Digital field recording, 1.25



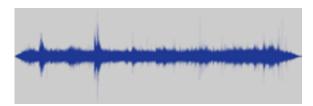
On 7 June 2010, a tornado ripped through the town of Dundee, Michigan. I joined my friend and colleague, the photographer James Rotz, who invited me to join him in exploring the affected area to search for photos and sounds. This house had sections of its roof torn off, and most of its contents were spread across the field behind it.

OBJECT 6



Sacre Coeur: Paris 24 September 2012

Digital field recording, 1.52

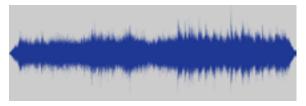


The Basilica du Sacre Coeur is a church at the top of a hill in the Montmarte neighbourhood of Paris. A popular tourist destination, it is also a place of religious pilgrimage; tourists are therefore asked to remain silent. However, people inevitably make sounds, which this recording displays.

OBJECT 5

Swimming Pool: Hotel Intercontinental Chicago, 27 August 2007

Digital field recording, 1.21



The swimming pool at the top of one of Chicago's downtown skyscrapers, the Hotel Intercontinental, is famous for having been used as an Olympic training pool by athlete and actor Johnny Weismuller, cinema's best-known Tarzan. Indoor pools are covered with ceramic tiles which are waterproof and easy to clean. They also reflect sound in a very particular way.

OBJECT 7

The Great Hall: Union Station, Chicago 21 March 2009

Digital field recording, 1.31



Chicago's Union Station is a central travel hub for trains and buses entering and leaving the city, but its interior spaces are also used for cultural events. The Great Hall hosts exhibitions and live performances. This recording captures workers setting up temporary furniture for an upcoming event. How does this sound compare to sounds of the other spaces you've just heard?

Sound & Space

You can't have one without the other

'We can say that sound takes up space, not just in the sense that it can often seem to fill it, but also in the sense that it assumes it, as one assumes a position....A sound is the space in which it occurs...So sound is unthinkable without space and sound and space are indissoluble. But sound is always more (but for that reason also considerably less) than space, sound and space never exactly correspond.'

- Steven Connor from *Secession*, a talk given at Sonic Acts XIII: The Poetics of Space, Amsterdam, 27 February 2010

Sound, as Steven Connor suggests above, is reliant upon space for its very existence. It is a complex relationship, one filled with dizzying philosophical thoughts of the chicken-and-theegg variety. One thing is certain: without the special acoustic properties of space, our experience of architecture would be vastly different from what it is.

When we are confronted with a vast open exterior space, like a canyon, we often find ourselves tempted to call into it, to mark our territory with our own voice, to test the expansiveness of its echo. Conversely, when we walk into a museum gallery, we fight against this urge for fear of standing out, of being put on the spot, of being judged.

In his seminal work *The Poetics of Space*, French philosopher Gaston Bachelard described sound's ability to activate memories when spending time within a living space. This 'sound house' was, according to Bachelard, 'a sort of geometry of echoes,' as voices and other sounds display different sonic characteristics, different *timbres* or qualities of sound, depending on the size of the room in which they are heard.

Flipping this notion on its head, in 2007 the artist Mark Bain collaborated with architect Arno Brandlhuber to create a permanent sound



In January 2014, this World War II-era oil storage complex in Scotland became home to the world's longest echo – a gunshot fired inside the space resonated for a full 112 seconds. Photograph via The Independent, 16 Jan. 2014.

installation entitled BUG. Bain installed sensors and microphones within Berlin's Brunnenstraße building as it was being built, embedding within it a sound system that could be listened to via a single headphone jack in one of the external walls of the building – inviting passersby to stop and listen to the inside of the building from outside on the pavement. In this way, the audience is able to develop a sonic relationship with the building without ever having to set foot inside it.

'Sound...spreads in space, where it resounds while still resounding "in me"...In the external or internal space, it resounds, that is, it re-emits itself while still actually "sounding"...To sound is to vibrate in itself or by itself; it is not only, for the sonorous body, to emit a sound, but it is also to stretch out, to carry itself and to be resolved into vibrations that both return it to itself and place it outside itself.'

- Jean-Luc Nancy from *Listening*, 2007

Art Processes



What comes to mind when you think about what happens when an artist makes a piece of art? Chances are you picture a solitary artist at work in a studio, late at night, drawing or painting or sculpting. When you look at the finished work of art, you see it in its final state, but you might also notice evidence of the process of making it: the pencil lines of a preparatory drawing underneath an oil painting, or chisel marks on a stone sculpture. These actions are visceral physical events, and as such, they generate not only visual records of themselves, but they also generate sound.

So, what does a drawing sound like? What does a sculpture sound like? What about other creative processes like textile weaving? This process is ritualistic, rhythmic, a relationship between an artist and a machine, and as such its sounds are mechanical, precise, and much louder than what might come to mind when looking at a piece of cloth.

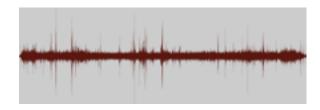
Have you ever made a piece of visual art? If so, what did it sound like?



Chalk drawing on board, 2012. Photograph courtesy Bettina Fung.

Drawing On Board (artist: Bettina Fung) London, UK 26 September 2016

Digital field recording, 1.20



Drawing is the foundation upon which visual art is built. Developing vital hand/ eye coordination, visualising objects and ideas in two dimensional space helps artists to intuitively interpret the physical world in a purely visual language. Once the act of drawing is separated from rendering life, it becomes a means of pure expression.

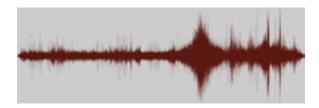
For artist Bettina Fung, drawing has become a performance. Her lines do not represent what she sees in space, but rather record her own action. This is an excerpt of a twenty minute live performance.



Engraver working on Al-Muizz street in Cairo, 17 May 2010.

Street Engraving (artist: unknown) Cairo, Egypt 17 May 2010

Digital field recording, 1.49



Not all artists work in the privacy of their own studio. This man was working outdoors on Al-Muizz Street, in the Khan Al-Khalili neighbourhood in Cairo, making elaborate engravings on metal plates. Surrounded by stone buildings and pavement, the engraver's constant hammer taps traveled far and helped draw attention to his table, a sound that helps attract potential customers.



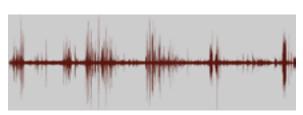
Reem Gibriel sculpting, 31 March 2010.



Jasmin Schaitl performing atop the final construction, 6 May 2017.

Sculpting an Amphora in Wet Clay and Fabric (artist: Reem Gibriel) Ann Arbor, Michigan, US 31 March 2010

Digital field recording, 1.55



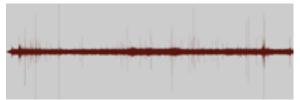
Sculptures are made either *subtractively* (carving a form out of a previously existing material) or *additively* (building up a form out of raw materials).

Artist Reem Gibriel, as recorded here, was working additively. She soaked pieces of cloth in a tray of wet clay, then layered these over an armature shaped like an *amphora*, a type of pot that has been used in the Middle East since antiquity. This sculpture was part of an installation that commented on the violence against children in the ongoing conflict in Gaza.

OBJECT 4

Constructing a Performance Installation (artists: Christina Raab and Jasmin Schaitl) Warsaw, Poland, 6 May 2017

Digital field recording, 1.28

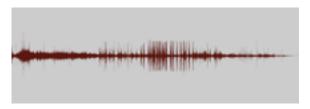


Another example of additive construction, artists Christina Raab and Jasmin Schaitl built a large structure out of fabric and clay for their piece in the 2017 *Transfashional* exhibition at the Ujazdowski Castle Centre for Contemporary Art in Warsaw, Poland. In this recording, the sounds of clay being mixed with water and then slathered across the fabric's surface almost act as foreshadowing to the sounds of the dried clay cracking that were heard throughout the resulting gallery performance, during which Schaitl slowly rolled across the form, causing it to eventually break down.



Alley Weave, Loom (artist: unknown) Varanasi, India, 31 July 2009

Digital field recording by Mike Hallenbeck, 3.24



A pilgrimage destination for Hindus and Jains, and near the purported site of the Buddha's first sermon, Varanasi is considered holy ground and a pilgrimage site for many people of faith. The city is a renowned center of cultural and academic life as well.

Varanasi is also the site of vibrant commerce, especially silk production – the beauty of the city's silk goods, exported worldwide, is breathtaking.

In this recording we move in and out of the silk workshops and hear the clacking percussion of machinery used in the production process.

Almost without exception, the machines heard on this recording are operated by children. Though technically illegal in India, child labor continues unchecked in many places.

For those who wish to join with Indians fighting against child labor, a group called CRY is a good one to get involved in:

www.cry.org/issues-views/child-labour

- Mike Hallenbeck





Rachel Esslinger weaving, 10 October 2009.

OBJECT 6

Weaving, Loom (artist: Rachel Esslinger) Ann Arbor, Michigan, US 10 October 2009

Digital field recording, 1.16



This second example of weaving takes place in an artist's studio, and the end result of the weaving process serves a much different purpose from the previous recording.

Artist Rachel Esslinger creates sculptural forms from woven fabric that explore social themes like language, communication, and post-colonialism. The piece she was weaving while this recording was made explored her own relationship with her daughter. It integrated materials made by her daughter with thread that was dyed a specific colour also chosen by her daughter.





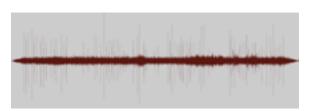
Tree and trimmer's ladder, Cairo, 6 May 2010.

Ujazdowski Castle Centre for Contemporary Art, Warsaw, 6 May 2017.



Tree Trimming (artist: unknown) Mahmoud Mukhtar Museum park Cairo, Egypt 6 May 2010

Digital field recording, 1.01



Tree trimming is sculpting with nature. It is a subtractive process of forming shapes out of trees in order to give them a regular, clean look, a way to both help maintain the health of some trees and display humanity's mastery over nature.

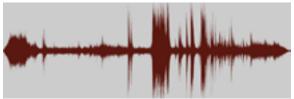
The man trimming this particular tree was working in an outdoor sculpture park filled with the works of one sculptor, Mahmoud Mukhtar. This sizable park is a natural refuge in the middle of central Cairo, as you can hear from the mix of birdsong and traffic droning in the background.

OBJECT 8



Exhibition Installation: Ujazdowski Castle Centre for Contemporary Art Warsaw, Poland, 6 May 2017

Digital field recording, 1.01



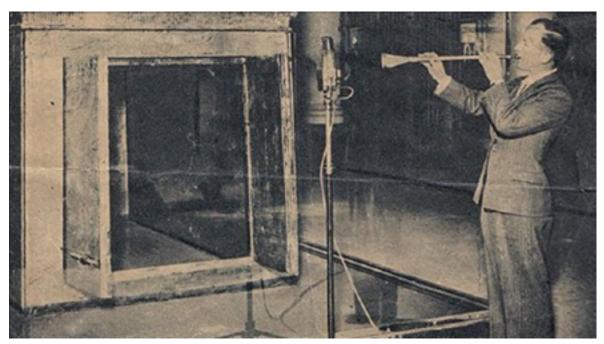
Recorded the same day as Object 4 above, this is the sound of gallery workers putting together the supporting infrastructure for a group exhibition of video, sculpture, performance, installation, and design entitled *Transfashional*, part of a year-long series of international exhibitions in London, Warsaw, and Vienna exploring interdisciplinary approaches to fashion in the arts. We hear vacuuming, a paint roller covering a plinth in white paint, carts of supplies moving through the galleries, hammering, and other sounds related to art handling and installation.

SCIENCE & TECHNOLOGY Archaeology



What comes to mind when you hear the word *archaeology*? Chances are it probably brings to mind digging in the ground, mummies, underground tombs, or even exciting chase scenes in big-budget films. You probably don't think about the sounds of a library, which is where so much of archaeology actually takes place.

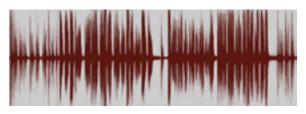
The truth probably exists somewhere in the middle between the hushed tones of a library and the thrilling action films of Hollywood. Our collection of archaeology-related sounds includes a little bit of quiet, a little bit of underground tombs, a little bit of digging, and even a tiny bit of action and adventure – but it also includes the sound made by some objects that were discovered as part of one of the greatest archaeological finds in history!





King Tutankhamun's Trumpets Played After 3000 Years: BBC Radio Broadcast Egyptian Museum, Cairo 16 April 1939

Digital transfer of LP recording, 2.55



According to the memoirs of T.G.H. James, former curator at the British Museum, in 1939 the BBC wanted to present a live broadcast from the Egyptian Museum in Cairo featuring a modern-day musician playing the two intact trumpets that had been discovered in the tomb of the young pharaoh Tutankhamun by British archaeologist Howard Carter in 1922. It was to be the first time the trumpets were played in public. The BBC auditioned several professional trumpeters – astonishingly, using the

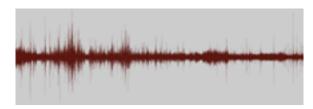
James Tappern playing one of Tutankhamun's trumpets during the 1939 BBC Radio broadcast from the Egyptian Museum, Cairo. Photo courtesy BBC News.

actual trumpets – in the hopes of finding someone able to play the instruments, as their construction was strikingly different from contemporary trumpets. According to James, during the auditions he heard a loud, metallic cracking sound, then turned around to discover one of the trumpets had shattered when a trumpeter attempted to force a contemporary trumpet mouthpiece into the ancient instrument to make it easier to play. Needless to say, he did not get the gig. Eventually another performer was found, and the broadcast went along as planned - except for a power outage at the museum five minutes before broadcast, forcing the event to go forward by candlelight. The result was this fascinatingly melodramatic - and totally historically inaccurate - recording of white Britons play-acting as ancient Egyptians.



Archaeologists Clearing Roman Theatre: Lisbon, Portugal 9 April 2015

Digital field recording, 1.59



The city of Lisbon in Portugal was at one point a territory of the Roman Empire. A theatre was built there during the time of the emperor Augustus. Abandoned during the Middle Ages, it was rediscovered in the 18th Century after a great earthquake destroyed much of the city. Archaeologists continue to work on the site, and can be observed from the street.

OBJECT 3



Ancient Roman Well: San Clemente, Rome, Italy 13 April 2017

Digital field recording, 1.00



The 12th Century basilica at San Clemente in Rome was built on top of the ruins of a 4th Century church, which itself was built atop a Republican villa and warehouse that was destroyed during the great fire of Rome in 64CE. It is inside that level of the structure where this ancient water well still stands, and still provides fresh water to tourists.



Above: The second level entrance to the catacombs. **Right:** Wooden planks above flooding in the chamber. Photographs courtesy AroundDeGlobe.com.

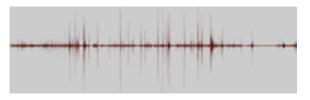
OBJECT 4





Catacombs of Kom El Shaqoufa: Alexandria, Egypt, 11 May 2010

Digital field recording, 1.59



With an Arabic name meaning 'Mound of Shards' due to the piles of broken pottery left above the site by people paying tribute to the deceased below, the Catacombs of Kom El Saqoufa were originally built to house the remains of a single family. The site includes a banquet chamber that was used during familial burials, and three giant sarcophagi.

The complex was begun in the 2nd Century, when the city of Alexandria was a melting



pot of the cultures of the ancient world. This is reflected in the artwork contained in the catacombs, with statues and wall paintings mixing iconography from Egyptian, Greek, and Roman traditions.

Originally three levels deep, the bottom level is currently underwater. The flooding has now reached the second level as well, causing visitors to have to walk across wooden planks balanced across stone caskets that jut out of the water (see above photo). This recording is only a portion of the walk around the complex, but manages to give an accurate impression of how claustrophobic and humid the space is.



Above: North Temple at Karanis, Egypt, 19 May 2010. **Right:** Olympus LS-10 digital recorder capturing sound on the floor of the North Temple, 19 May 2010.

North Temple Interior: Karanis, Egypt, 19 May 2010

Digital field recording, 1.57



As part of a trip to the ancient city of Karanis, located in the western Fayum oasis region of Egypt, I made arrangements with a guide, a local archaeologist, to make field recordings in the ancient city's two temples. I was traveling to Egypt as part of a programme sponsored by the University of Michigan, whose Kelsey Museum of Archaeology requested that I collect field recordings from Karanis, since it was the source of a large portion of the museum's



collection. Because Karanis is rarely visited by tourists, regulations required that an Egyptian military captain accompany us on my tour of the city.

When we arrived at the North Temple, the captain and the archaeologist insisted upon





Top: Didactic sign outside North Temple. **Left:** Looking out of the North Temple interior towards the front staircase. The archaeologist and military captain are just in view at the foot of the stairs. **Above:** Military surveillance helicopter radioed in by the captain to investigate.



accompanying me inside the temple. Not only did the captain continuously use a walkie-talkie, but they both refused to stop speaking while I was recording, effectively ruining the recordings – the temple's roof is long gone, and the temple is so small, any noise made inside is easily heard. I asked the archaeologist if they could both leave. He put up a fight, but I reminded him the Museum and I were both paying them for me to do this. Incredulous, he eventually shrugged and left the temple along with the captain.

Soon after, while I was standing at the altar in the main shrine of the temple, I heard a helicopter off in the distance. It grew in volume until it stopped directly overhead. Annoyed, and with one hand holding my recorder, I used the other to pull out a camera and photograph the helicopter.

As we left, I asked the archaeologist if he knew what the helicopter was doing. 'Oh yes, it was full of soldiers spying on you,' he said. 'The captain did not like being kicked out of the temple by you, so he called for backup.'

ART & CULTURE Bells



The sounds of bells have been an important component of communities for almost as long as people have lived together in groups. Bells have had many uses across many different cultures: as a means of signalling, as a musical instrument, as a way to mark the passing of time. Religions have often incorporated bells within the designs of their temples and churches, using them to signal important events.

As Christianity spread across Europe, church bells were used to demarcate the boundaries of towns – once you reached an area where you could no longer hear the church bell, you knew you were out of town.

Church bells continue to ring throughout many cities around the world. What was once an art form practiced by a live performer is now often relegated to a machine, or even a recording of a bell sound rather than an actual live bell.

The following small collection of bells offers a glimpse into the way church bells interact with other sounds in a city. There is, however, one non-church bell in the bunch. What is different about this bell from the others?



Munich Dom, 2012.



Heiliggeistkirche, Heidelberg, 2012.

Munich Dom: Munich, Germany 21 October 2012

Digital field recording, 1.04

OBJECT 2

Heiliggeistkirche: Heidelberg, Germany 15 September 2012

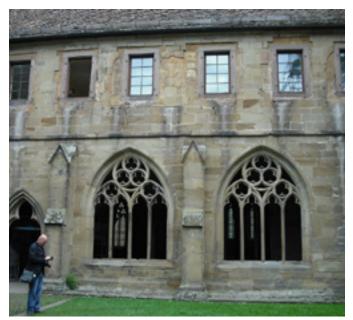
Digital field recording, 2.00



A steady rhythm of the bell atop Munich's largest church is accompanied here by the sound of bird wings flapping and the squeaking hinges of the Dom's own door.



The Heiliggeistkirche is located next to a sizable public square in Heidelberg's city centre, from which this recording was made – hence the sounds of crowds of people.



Recording the bells in the Maulbronn Cloisters, August 2012. Photo by Lindsay Ambridge.

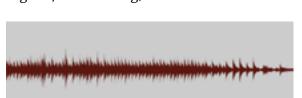


Ghent Belfry, July 2017.



Maulbronn Monastery Cloisters: Maulbronn, Germany 31 August 2012

Digital field recording, 1.55

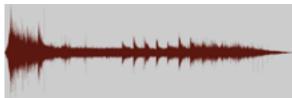


This recording was made in the centre of the area surrounded by cloisters in the Maulbronn Monastery. If you listen closely, you will be able to hear musicians practicing inside the building. **OBJECT 4**

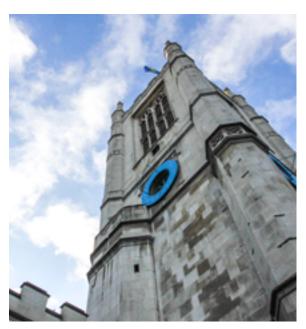


Ghent Belfry: Ghent, Belgium 23 July 2017

Digital field recording, 1.03



While exploring the area around the Ghent Belfry, I managed to record the giant clock tower striking out the chimes for 9pm.



Westminster Abbey, Christmas Day 2014.



Popsicle Cart: Albany Park, Chicago, US 10 May 2008

Digital field recording, 1.01



Just in case an entire gallery of church bells would start to feel monotonous, here is the sound of a tiny bell attached to a pushcart used to sell popsicles during the summer months in Chicago.

OBJECT 6

Westminster Abbey: London **Christmas Day 2014**

Digital field recording, 1.16



A particularly festive bell peal from one of the world's most famous churches.









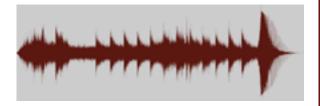


The Museum of Portable Sound's Acquisitions Team collects Big Ben's final bongs, Noon, 8 August 2017.



Big Ben's Final 12 Bongs London, UK 8 August 2017

Digital field recording, 1.28



As part of a long-term project to upgrade and restore the Houses of Parliament in London, the 'great bell' of the Big Ben clock tower will not ring for four years, a period that began at noon on 8 August, 2017. In order to mark this historic moment, the Museum of Portable Sound's Acquisitions Team traveled to Westminster that morning and secured a prime spot from which to record the clock's final bongs. You can also watch a video (screencaps of which decorate the pages above) of this important piece of intangible cultural heritage on our YouTube channel (search: 'Museum of Portable Sound Big Ben')

LISTENING CLOSE-UP London's Bells are Fading Away

Who cares about bells? With Big Ben silent and the foundry that forged it also gone, London's disappearing bells are more than a partisan problem—they're a cultural one.

Bells have been an integral part of city life for centuries. In the days before widespread literacy and the ubiquity of wristwatches, church bells (as well as other non-denominational 'town bells') served multiple purposes. They didn't just signal the start of worship-they also served as a sonic boundary of the town's limits. If you could hear a town's bells, you lived there. Employers required workers to live within listening distance of their own bells. The practice of change ringing-the art of performing complex sequences of tuned bell strikes-became an aspirational activity in the 17th century amongst the U.K.'s higher classes, and even today change ringing is still practiced not only for aesthetic enjoyment, but also as a form of physical exercise. In short, the relationship between bells and urbanism is practically one of the foundations of European culture.

So when it was announced in 2017 that Big Ben, the 'Great Bell' inside Elizabeth Tower at London's Palace of Westminster, was to go silent for four years, it was obvious that the Museum of Portable Sound, which calls London its home, should acquire a recording of Big Ben's final chimes











for our permanent collection. After all, we hadn't yet included the sound of Big Ben amongst the objects on display here.

Bells were in the local London news earlier in 2017 as well when the Whitechapel Bell Foundry, the oldest manufacturing company in the U.K. (in business since 1570 CE) and the one responsible for casting the Big Ben bell, closed its doors for good. The Foundry cast one final bell and donated it to the Museum of London, its papers were sent to an archive, and its business was off-loaded onto another U.K. company. Never mind that they had still been using 300 year-old techniques, or that they'd also cast some of the world's most famous bells including the Liberty Bell in the US; the spectre of 21st century capitalism had cast its shadow, and an era was at an end.

It's no exaggeration to proclaim that, with the four-year silencing of Big Ben and the shuttering of the Whitechapel Bell Foundry, London is losing a substantial amount of both tangible and intangible cultural heritage. The fact that Big Ben's silencing has become a political issue doesn't exactly come as a shock; the politics in 2017's U.K. are nearly as polarised as those in the United States as of this writing. And the sides are even fairly predictable: embattled, embittered, and embarrassing Tory Prime Minister Theresa May has tisk-tisked the Big Ben repairs, declaring that such a huge part of London (and U.K.) culture disappearing is just not on. Meanwhile, the embattled, embittered, and embarrassed Labour Party and other local flavours of progressives have poo-pooed the tisk-tisking, proclaiming that we have much more important things as a nation to be worried about at the moment, thank you very much.

Luckily, there are those who have begun calling for a more reasoned attitude toward the whole thing, proclaiming that the notion of missing something like the sound of a bell might not actually be a waste of energy, much less only the purview of the conservatives. I have to say, as a collector of sounds, I heartily agree with that stance. I don't see this as a political issue, I see it as a cultural one.

There's a decades-old movement within the world of musical composition and sound studies known as *acoustic ecology*: the protection of the soundscapes of places, especially natural locations, from being overrun with the sounds of the post-industrial world. The acoustic ecology movement was begun by Canadian composer R. Murray Schafer, who also originated the term 'soundscape.' Schafer also coined another term that's quite relevant to the Big Ben debate: **soundmark** (see also p.43). A soundmark, according to Schafer, is a sound that is unique to a specific place, a sound that is immediately recognisable by its inhabitants that acts as a signal of identification. Schafer suggested that once a soundmark is identified within a community, every effort should be made to preserve it, the same as other, more tangible markers of place are protected.

Big Ben is, quite obviously, a soundmark. As a marker of place and time, it is quite possibly unequaled in London. Going without it on a regular basis for four years is bound to have a significant impact on the residents of Westminster, as well as greater London. The longer Big Ben is silent, the longer that London is no longer a site of the manufacture of bells, the more disconnected it will become from a tradition that goes beyond politics and aesthetics. Bells have existed as urban soundmarks for centuries. We break that connection, and a fundamental part of ourselves will become broken as well.

ART & CULTURE Transport



As cities grow larger and larger, being able to get from place to place within them becomes even more important. One of the primary ways that people move around cities is through the use of public transportation.

Trains, buses, trams, ferry boats, and streetcars are designed to move people quickly and efficiently around cities. Safety is usually the primary concern of a transport system's designer, while sound design is usually of less concern. Yet the sounds of a city's transport system become inextricably linked to that city's identity – one only has to see the words 'Mind the Gap' and the sound of the calm, reassuring announcer's voice of the London Tube immediately springs to mind, instantly reminding anyone who has traveled there of what it is like to explore London by Underground train.

The combination of machine sounds – engines, wheels, tracks, pistons, exhaust – with vocal announcements over a public address system is a 20th Century invention, the sound of the modern world. As transport and other technologies continuously evolve, the sounds by which a place identifies itself will also certainly change.

Do you have a favourite transport sound? Where is it heard?



Alexandria, Egypt Train To Cairo

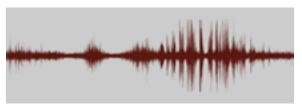
Digital field recording, 2.01

A quiet, pleasant ride in the 2nd Class section of one of the most used intercity train lines in Egypt.

OBJECT 2

Amsterdam, NL Tram To Rijksmuseum

Digital field recording, 1.05



This electric tram system in Amsterdam is clean, efficient, and well-signed, allowing tourists to easily find their way.

OBJECT 3

Ann Arbor, Michigan, US Number 9 Bus

Digital field recording, 1.59

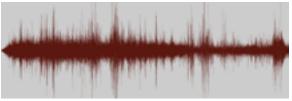
OBJECT 4

Ann Arbor, Michigan, US Paddle boat, Gallup Park

Digital field recording, 1.40



A typically rough ride on a city bus in the small college town of Ann Arbor.



Paddle boats are small two-person boats whose propulsion system is powered by two sets of pedals – a squeaky sounding workout and navigation system.

Athens, Greece Metro train

Digital field recording, 1.48



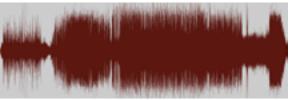
Even the trains in Athens remind their passengers to 'mind the gap.'

OBJECT 6



Baku, Azerbaijan: Flight takeoff (to London)

Digital field recording, 7.39



This lengthy recording chronicles the safety procedures and takeoff of a flight from Baku to London.

HEALTH & SAFETY WARNING: Visitors who are aviophobic are advised to avoid this object. We apologise for any inconvenience caused.

OBJECT 7

Cairo, Egypt Boat Ride to Nilometer

Digital field recording, 1.22

OBJECT 8

Cairo, Egypt Cab ride

Digital field recording, 2.44



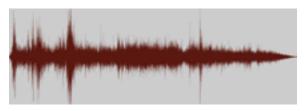
Attempting to visit the Nilometer (an ancient well in Cairo built to measure the annual Nile flooding) and finding the entrance closed, a friend and I hired a local man who lived on the river to take us there by boat. We still couldn't find our way in.



Often while I was riding in cabs in Cairo, the cab drivers would spend much of the trip flipping through radio stations before landing on NileFM, the local Englishlanguage station. This trip featured the sublime confluence of listening to Gary Numan's 'Cars' mixed with the ever-present cacophony of Egyptian automobile horns.

Chicago, US Amtrak Hiawatha Train 'Quiet Car'

Digital field recording, 1.26

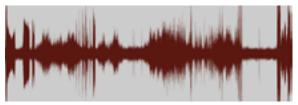


The 'Quiet Car' does not allow the use of mobile phones or loud conversations. That does not mean it is a silent journey.

OBJECT 10

Chicago, US Moaning Bus

Digital field recording, 2.00



A Chicago bus making particularly unsettling noises, possibly related to its brakes.

OBJECT 11

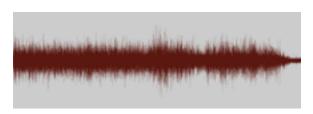
Chicago, US Squeaking Metra Train

Digital field recording, 1.20

OBJECT 12

Detroit, Michigan, US People Mover Tram

Digital field recording, 2.00



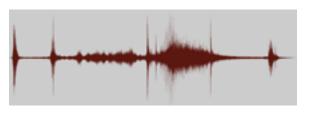
Rhythmic and somewhat plaintive squeaks ring out on an otherwise quiet Metra train, an above ground line with some branches that leave the city and cross the state line from Illinois into Wisconsin.



A tiny magnetic tram runs in a small circle around downtown Detroit, meant mainly to accommodate tourists. This trip on the tram includes the sound of a passenger who discusses the cost of installing the service.

Karlsruhe, Germany Steam Train, Schloss Grounds

Digital field recording, 1.35

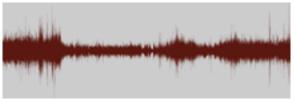


A tiny steam train transports visitors around the park grounds behind Karlsruhe's local castle.

OBJECT 14

Lisbon, Portugal Night Tram

Digital field recording, 1.56



One night, a tram driver who appeared to be particularly fed up with the rude behaviour of tourists decided to listen to his radio in an attempt to make his shift more pleasant.

OBJECT 15

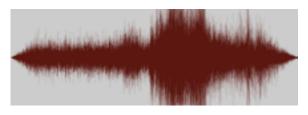
Milwaukee, Wisconsin, US Harley-Davidson Motorcycles

Digital field recording, 0.44

OBJECT 16

Minneapolis, Minnesota, US Tram Approaching

Digital field recording, 1.59



The sound of a group of Harleys traveling the streets of Milwaukee during HarleyFest, the annual festival devoted to the Milwaukee-based company's beloved (by some) main product.

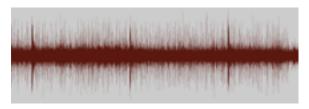


Recorded from an outdoor tram platform on a frigid February night. Look out for the rolling luggage.



Paris Escalator, St Lazar station

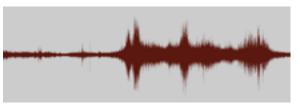
Digital field recording, 1.42



This escalator appeared to have picked up a slight wobble, which resulted in a catchy, rhythmic tune. **OBJECT 18**

Paris Metro Train to Montmarte

Digital field recording, 1.54



The Paris underground system has a uniquely dense, almost claustrophobic sound that somehow feels distinctly Parisian.

OBJECT 19

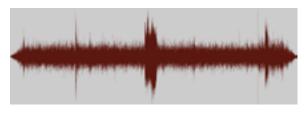
Pelee Island, Ontario, Canada Ferry boat

Digital field recording, 0.59

OBJECT 20

San Francisco, US BART train to 24th street

Digital field recording, 1.35



In order to reach Pelee Island in the middle of Lake Erie, tourists drive their cars onto a giant ferry boat which travels several times a day back and forth from the mainland to the island.

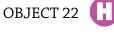


San Francisco is home to an overground train system to reach the outer areas of the city. Its streamlined trains feature heavy-sounding doors.



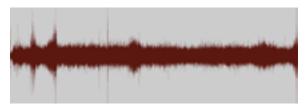
San Francisco, US Cable car underground cable

Digital field recording, 1.50

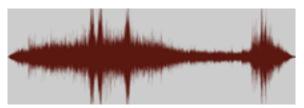


San Francisco, US Cable car

Digital field recording, 1.25



The cable cars of San Francisco ride along underground cables just below the surface of the street. This recording was made by holding a microphone inside a cable access panel built into the sidewalk.



A trip inside a cable car, traveling to San Francisco's famous Fisherman's Wharf.

OBJECT 23



Speyer, Germany Train to Karlsruhe

Digital field recording, 1.40

OBJECT 24

Strasbourg, France Tram

Digital field recording, 2.00



The Deutsche Bahn train system is what you would expect: clean, orderly, and mostly on time. At night, it is also particularly quiet.



A busy morning tram around downtown Strasbourg. Pay particular attention to the musical stop announcements.

Toronto, Canada Subway to Museum Station

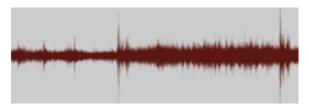
Digital field recording, 1.17



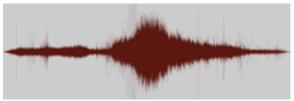
ECT 26

Venice, Italy Boat in a canal

Digital field recording, 2.08



Toronto has three primary means of public transportation: a bus system, a tram system, and a subway. This train stops at the main museum campus downtown.



The sound of boats in Venice is analogous to the sound of cars or bicycles in other cities. In this recording, a boat passes by along with several groups of pedestrians.

OBJECT 27



Warsaw, Poland Horse-drawn carriages

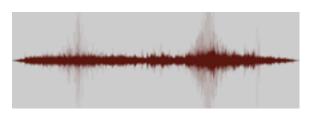
Digital field recording, 1.45

OBJECT 28

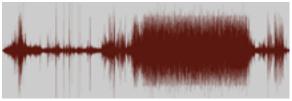


Zagreb, Croatia Funicular

Digital field recording, 1.38



Warsaw's old town features a nearly constant stream of horse-drawn carriages that clop along shuttling tourists from hotels to other sightseeing stops.



A funicular is a specially-designed train intended for travel up and down the steep inclines of mountains or large hills inside a city's limits. As this funicular's driver states several times, Zagreb's funicular is allegedly the shortest one in all of Europe, an assertion that this unedited recording certainly helps support.

Food



Eating is a matter of survival. *Cuisine* is the culture that has developed around the different ways to prepare food for individual communities. For example: we all have to eat something in order to stay alive; however, we do not all have to eat fish and chips to stay alive (although some might beg to differ!).

Sharing a meal is an important tradition in many cultures. We often relate to each other better around a dinner table. Food can even help to solve problems – many wartime agreements have been negotiated over a shared drink or meal between enemies.

Food excites all of the senses: the look, smell, touch, and taste of food are widely recognised as integral aspects of the eating experience, but the *sound* of food can be just as important. Many foods make sounds themselves before we even hear ourselves chewing on them or swallowing them.

The sounds that happen inside the spaces where we eat also impact upon our dining experience – a quiet meal alone at home is significantly different than one in a noisy restaurant, or a picnic in a park, or a quickly-guzzled meal at our desk in an office next to Bob from Marketing who, for pity's sake, is cutting his fingernails at his desk *again*.

What are some of the sounds made by your favourite foods? What does your favourite place to eat sound like?

Espresso: Rome, Italy 22 April 2017

Digital field recording, 2.00

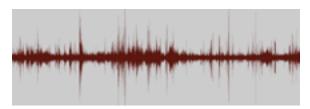


Coffee shops in Rome can be very rowdy, noisy places, particularly in the morning.

OBJECT 3

Lunch: Tendir Kebab Icerisheher, Baku, Azerbaijan 3 October 2017

Digital field recording, 1.26



A typical lunch experience in a kebab shop in Icerisheher, the Old City of Baku. Shops like these serve a wide variety of juices (see photo below).



OBJECT 2

Saganaki: Pegasus Restaurant Greek Town, Detroit 3 November 2009

Digital field recording, 0.53



Saganaki is a dish served in Greek restaurants consisting of cheese that is set aflame at the diner's table, accompanied by the server's exclamation, 'Opa!'

OBJECT 4

Pop Rocks®: London, UK 6 June 2017

Digital field recording, 1.32



Pop Rocks® candy contains carbonation that causes it to 'pop' inside your mouth. This recording was made under strict safety conditions at the Museum of Portable Sound Laboratories in London (see photo).



ART & CULTURE Rituals & Events



Rituals are an integral part of the human experience, an important part of what is known as *intangible cultural heritage*: activities or concepts that are not object-based, yet define culture in ways similar to important artifacts. Rituals are activities undertaken on a regular basis, often repetitive, and often linked to spirituality or belief in a religion.

Rituals can also be things that just happen often – like celebrating a holiday, or a regular trip to a local market, visiting a fair, watching or playing a sport, or listening to a beloved local form of music.

Human beings partake in many forms of ritual, and this repetition can either make life feel mundane or extremely important, particularly when something slightly out of the ordinary happens. Protests are another form of ritual that reoccurs when people disagree with the actions of those who hold power over them. The outcomes of these protests may vary susbtantially – the French Revolution of the 18th Century, considered one of the great moments of reversal of power over an elite in world history, happened as a result of mass protests. By contrast, in 2002-2003, a relentless series of mass protests in major cities around the world were unable to stop the United States from invading Iraq.

What are your favourite rituals? What do they sound like?

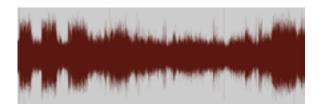




Scenes from Talaat Harb, Cairo, Egypt, May 2010.

Call to Prayer: Talaat Harb Street Cairo, Egypt, 26 May 2010

Digital field recording, 1.04



Talaat Harb is a busy street in central Cairo, and it doesn't stop for anything, even the Muslim call to prayer in the afternoon.



Madhavi singing. Gurgaon, India, September 2016.

Microphone, Al-Azhar Mosque, Cairo, May 2010.



Madhavi: Jewalikar Family House Gurgaon, India 9 September 2016

Digital field recording by Cristina Sousa Martínez, 1.44 **OBJECT 3**

Chanting: Al-Azhar Mosque Cairo, Egypt 21 May 2010

Digital field recording, 1.59



In between August and September of every year, Brahmin families from Maharashtra (India) celebrate the Hindu goddess Lakshmi for three days.

This recording in particular is from a family gathering in Gurgaon, after a long day of food preparation for the goddess and the people who attended the ceremony. In it, Mrs Madhavi Vaidya sings *Balma Mane Na*, a song from a Bollywood film (*Opera House*, 1962) which is a praise and love song for God.



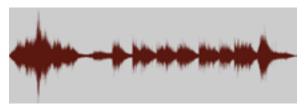
The mosque at Al-Azhar in Cairo is the earliest mosque in the city, built in the First Century C.E. as part of the then-new Egyptian captial city of Cairo. The mosque quickly expanded to include a university which still operates today, and is considered the second oldest university in the world.



Inside the Munich Dom, October 2012

Sunday Services: Munich Dom Munich, Germany 21 October 2012

Digital field recording, 1.19



Not all local Christian churches employ large choirs for standard services, but a large church like the Munich Dom does.

OBJECT 5



Public Water Fountain: Corfu, Greece 7 October 2011

Digital field recording, 1.48



On a Friday morning, I stood in a tiny public square on the island of Corfu and listened as multiple people trickled through the square to make their daily visit to the public water fountain in order to replenish their home stores of water. All the while people were filling up containers from the spigot, a group of children were playing outside a school across from the square, hidden by a tall green wooden fence.



The outdoor patio of Chez Paul II, 8 September 2012.

Lederhosen and ennui, Munich Hofbrauhaus, 2012.

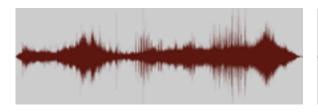
Pub Worker Sweeping Street: Chez Paul II, Appenweier, Germany 8 September 2012

Digital field recording, 1.31

OBJECT 7

Hofbrauhaus: Munich, Germany 21 October 2012

Digital field recording, 2.01



Having taken the wrong train on my way to Strasbourg from Karlsruhe, it became necessary to kill time in the little town of Appenweier at the only open establishment near the train station: Chez Paul II, a tiny local pub filled with local people. While enjoying a drink outside, one of the pub workers came out and conducted a very thorough sweeping of the pavement and street, pausing occasionally to greet passersby and give directions to the lost.



A type of traditional *volkmusik* ('people's music') in Germany, the music played in this recording is evocative of a particularly German pub experience: beer, pretzels, and lederhosen.



Late night autumn family fun at the Pier, 2013.

Penny Arcade: Brighton Pier Brighton, UK 1 December 2013

Digital field recording, 1.36



A visit to a penny arcade involves kids, coins, conversation, and chaos.

OBJECT 10

Roller Coaster: Centreville Island Toronto, Ontario, Canada 1 August 2009

Digital field recording, 1.45

Tiny roller coasters can be much more frightening than large ones, depending on who is operating the controls.



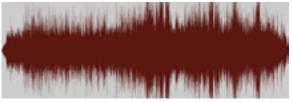
Gliding above the Santa Cruz Boardwalk, 2008.

OBJECT 9

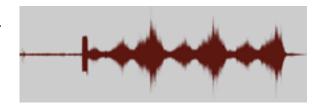


Carousel: Santa Cruz Boardwalk Santa Cruz, California, US 5 July 2008

Digital field recording, 3.14



Carousels provide a near-universal experience: children sit on animals accompanied by loud music that wouldn't sound out of place in a horror film.



Although this particular coaster was quite tiny, it was nonetheless quite frightening. I did not ride it.



Bertrand's entrance reading room, September 2016.





World's Oldest Bookshop: Bertrand, Lisbon, Portugal 5 September 2016

Digital field recording, 1.30



First opened in 1732, the Bertrand book shop on Rua Garrett in Chiado, Lisbon, is recognised as the oldest operating book shop in the world. Their front door is usually kept open, which helps encourage browsers to come in while providing a sonic link to the shop's location on a busy commercial street. Even on a relatively quiet day such as the one in this recording, Bertrand is still a hub of activity within an upscale shopping zone.



Traffic passing through a Cairo market, May 2010.

OBJECT 12

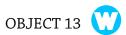


Street Market: Downtown Cairo, Egypt 8 May 2010

Digital field recording, 2.01



Amidst the perpetually horn-honking traffic and the constant throngs of people walking, street markets such as this one in downtown Cairo play host to a variety of merchants selling anything you can think of and then some: fruit and veg, shoes, wind-up toys, walking canes, lemonade, bootleg copies of Windows system software, and the occasional ice cream.

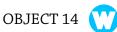


Feira Da Ladra Flea Market: Lisbon, Portugal 11 April 2015

Digital field recording, 2.00

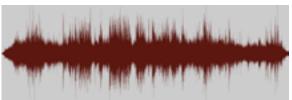


Every Saturday, the Feira Da Ladra Flea Market opens in Campo de Santa Clara on Tuesdays and Saturdays. The market has been running constantly since the 13th Century, albeit in a variety of different locations around Lisbon.



Shop Owners Banter: Stratford Centre, London, UK 26 November 2013

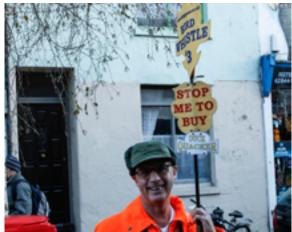
Digital field recording, 3.14



London's Stratford Centre is a mall that hosts a variety of ethnically diverse shops inside an antiseptic space that usually houses ubiquitously globalised commerce like Starbucks or H&M. Instead, Stratford Centre is full of indoor stalls selling produce and off-brand toys and bootleg mobile phone gear and countless other things that are simultaneously familiar yet unfamiliar. The shop owners also compete for shopper's attention by shouting out their special of the moment in sing-song bursts of commercial energy.



Surveillance photo of an amolador by João Caldas.



Bird whistle salesman, Brighton, December 2013.



Amolador Trumpet: Lisbon, Portugal 22 August 2017

Digital field recording by João Caldas, 0.14

OBJECT 16

Bird Whistle Salesman: Brighton, UK 1 December 2013

Digital field recording, 0.46



An amolador is a man who travels around Lisbon on bicycle and provides neighbourhoods with a variety of services such as sharpening knives. In order to alert the local residents that they are available for work, amoladors play a specific tune on a tiny plastic trumpet. As consumer culture has shifted towards disposable products and less re-use, amoladors have slowly begun disappearing from Lisbon. João Caldas, the Portuguese artist who donated this recording, says the sound of an amolador's trumpet is what makes him feel like he is at home - so what happens to people like João when the amoladors are gone? What will sound like home?



It's easy to mistake the sound on this recording for an actual bird, but it's actually the product of a simple yet ingenius little device that allows its user to mimic the sounds of birds. The gentleman in the above photo walks around Brighton selling these devices.



Choir stalls at Maulbronn Abbey, 2012.



Marching band singing 'Goin' To The Chapel', San Francisco Pride Parade, 2008.



Wedding Musicians Practicing: Maulbronn Monastery church Maulbronn, Germany 31 August 2012

Digital field recording, 1.55

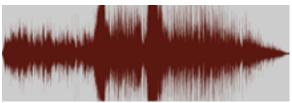


This recording captures a ritual behind the scenes, a rehearsal for the music at a Christian wedding ceremony.

OBJECT 18

Pride Parade: San Francisco, US 6 July 2008

Digital field recording, 1.01



In 2008, the state of California voted to allow gay couples the right to legally marry. Later that year during the annual Pride Parade – a ritual celebrating the gay community – a lesbian marching band performed this emotional version of the song *Goin' To The Chapel*, with the crowd in attendance roaring their approval.

Street Music Busking Makes Me Feel Good

Musicians have played on streets probably as long as streets have existed. Depending on one's mood, the presence of a street musician can be entertaining, aggravating, joyous, distracting, surprising, or just plain inconvenient. *Busking* is a term generally associated with street musicians who ask that their serendipitous audience pay them for the service of playing music in public. Some people take offense to this notion, and view buskers and beggars as two sides of the same coin.

Street music is also often connected with issues related to immigration. In Victorian London, street music tended to be viewed negatively by those who disliked the 'exotic' sounds being foisted upon them by those who were transplanted in London after escaping their native lands in hopes of finding a better life. In the 19th Century, aristocrats and the intellectual elite in London – including popular writers like Charles Dickens – complained that the city streets had become too loud for them to think clearly enough to complete their own work. Noise pollution became an urgent issue, and immigrant street musicians bore much of the blame.

In a study published in 2016 in the second edition of *The Auditory Culture Reader*, musicologists Meri Kytö and Elina Hytönen-Ng interviewed street musicians throughout London and specifically on the South Bank of the Thames, where one of this gallery's objects was collected. Their study concluded that street musicians in London were able to reclaim public space through their practice, even in the face of a complex system requiring auditions and permits, and that their music served a new form of cosmopolitanism untethered from the upper classes. Time will tell if this remains the case in post-Brexit London.



Another busker in Athens–just down the street from the one in our recording–receives a payment from Athenian sound artist Anastasia Chrysanthakopoulou, 2011.

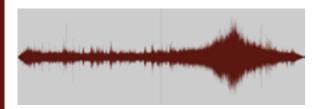
OBJECT 19





Myra (Street music from Crete): Athens, Greece 1 October 2011

Digital field recording, 1.21



On a street near the Acropolis in Athens, this busker played a traditional form of street music originating from the island of Crete according to my guide for the day, an Athenian sound artist named Anastasia Chrysanthakopoulou. During the recording, a small train passed by the place we sat in the street.

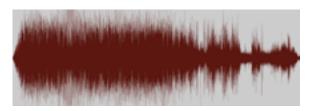


Defiance. London South Bank, October, 2014.



Busking Band: Underground District Line Train, London, UK 18 March 2017

Digital field recording, 1.58



Depending upon the type of day one is having, bumping into this situation while riding the Tube in London can either be absolutely perfect or perfectly dreadful. On this day it was absolutely perfect, so I made sure to tip them (which you can hear at the 0.16 mark) even before their trumpet player took things to a whole other level.

OBJECT 21

Duelling Buskers: South Bank, London, UK 3 October 2014

Digital field recording, 1.42



Strolling along the Thames' South Bank at dusk after a long day of field recording inside Tate Modern, I captured this bizarre scene: two unrelated buskers, sitting within earshot of each other, each playing completely different music. Luckily, I managed to stand in a spot that allowed me to make a recording where each busker's sounds primarily out of one of the two stereo channels, so if you concentrate hard enough you might be able to listen to only one of them at a time. How they were able to maintain their focus and not confuse each other is a bit of a mystery.



I also skipped work to attend this White Sox game.

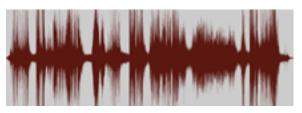


Chicago White Sox Stadium: Chicago, IL, US 15 February 2007

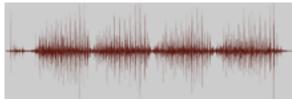
Digital field recording, 2.05

Running Bases West Park, Ann Arbor, MI, US 25 September 2009

Digital field recording, 0.36



Of all American sports, baseball may be the most ritualistic. Its slow pace not only leads to spectator-led activities, but also to audience distraction. Hence, the in-stadium announcers play an important role in communicating with the crowd via sound.



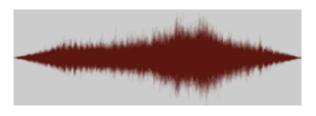
A rare instance of both me recording myself as well as exercising via a sport, this sound was made while I ran from home plate all the way around the bases of an American softball diamond, which is smaller than the hardball field played on by the White Sox.

OBJECT 24

Zamboni: Milwaukee, WI, US 5 February 2000

Digital field recording, 0.59

A *zamboni* is a vehicle driven on ice rinks to wash and even-out the ice's surface, making it easier for ice skates to function.



This zamboni was recorded in Red Arrow Park in the Milwaukee city centre at its annual outdoor skating rink.

ProtestMaking Voices Heard

The sound of mass protest can at once terrify and electrify the listener. Unruly voices, portable musical instruments, and raw noise rebound against walls and windows while other strophic chants, delayed by distance, fuse into canonic chorales of anger and discontent. You might not know the words but you can hear the emotion. Are we hearing the sound of freedom?

Mass protests also remind us that political democracy does not necessarily reflect popular sovereignty. A protest may be an expression of political will free of scheduled (and possibly rigged) elections and outside the preordained (and often tendentious) process of electoral recall. Or do we hear a prophetic rehearsal, a utopian pre-echo or apocalyptic herald of what society might be?

In his classic 1968 essay 'The Nature of Mass Demonstrations,' John Berger suggests that 'demonstrations are meant to reveal the strength of popular opinion or feeling: theoretically they are an appeal to the democratic conscience of the State. But this presupposes a conscience which is very unlikely to exist. If the State authority is open to democratic influence, the demonstration will hardly be necessary...'

But not all demonstrations arise from a mass of common consent or purpose, nor do all communities exert democratic influence outside of protest. Nonetheless, a mass protest, as Berger writes 'is an assembly which challenges what is given by the mere fact of its coming together.'

Protest is a place to talk and hear other opinions. Protest opens a route to reconnect amid a society where close social bonds of friendship and family and the chance of random social connection have begun to evaporate into a cloud-based commodity seen (and seldom heard) through phones and laptops.

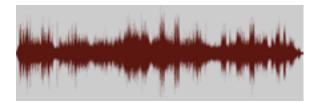
Protest presents the listener with binary choices: Join or flee. Think or forget. Activist Deray McKesson offers the following credo: 'Protest is confrontation. Protest is disruption. Protest is the end of silence. It is not the solution, it creates space for the solution.'

- Christopher DeLaurenti

OBJECT 25

PETA protest: Chicago, US 3 January 2007

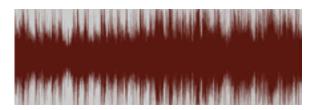
Digital field recording, 1.31



The PETA organisation (People for the Ethical Treatment of Animals) often stages protests to raise awareness about animal cruelty. This particular protest occurred on a cold winter day in Chicago.

Xalapa Protest Xalapa, Mexico 16 January 2014

Digital field recording by Cristina Sousa Martínez, 1.00



'For World Minute: A Time Zones' Soundscape *Project*, I asked artists around the world for 1 minute-long recordings of the soundscapes where they lived. Quality wasn't important, only that it was from their outdoors and that they were made at a specific time in order to have simultaneous recordings of the world. I received 25 recordings from different people, but I was able to cover only 6 timezones from the 39 that currently exist. Nevertheless, my idea was to contribute to the project with my own minute and I decided to record it at Xalapa's downtown. I didn't know that there was a protest group at Plaza Regina Martínez at the time, and neither that they had organized a concert. The streets were closed, and there was a heavy traffic jam. Although this was not exactly the kind of sound I would like to have as a memory of one minute of my city, I recorded a musical chaos.'



Anti-austerity protest, Corfu, 5 October 2011.

OBJECT 27

Anti-Austerity Protest Corfu, Greece 5 October 2011

Digital field recording, 2.00



At the height of anti-EU Greek austerity protests in 2011, I turned a corner onto an unfamiliar narrow street in Corfu's city centre while rushing to get to a conference, when suddenly I was engulfed by an anti-austerity protest being led by a group of local university students. Although I was caught up in the march and couldn't find a way out until the crowd reached a larger square, the atmosphere was much more peaceful than the media reports in the United States had led me to expect.



Friday of Departure: Egyptian Revolution Protest Reacts to Mubarek's Resignation Alexandria, Egypt 11 February 2011

Digital field recording by Khaled Kaddal, 1.20



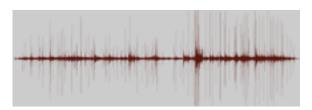
'Friday of Departure - 11th of February 2011: Large demonstrations continuing 18 days of protests, riots and curfews in Egypt.

'At 6pm, Mubarak's resignation was announced on TV channels and radios. The statement entrusted the Supreme Council of Egyptian Armed Forces with the leadership of the country. At this specific moment, perceiving such news was life changing and a turning point for many people. Experiencing such a happening was very different from one person to another, yet it is scarred in our memories.

'In front of Ras el-Tin Palace (one of the Egyptian presidential residencies) in Alexandria, surrounded by millions of people protesting, I was recording with my Zoom H4n. I didn't know that I would catch that specific moment of the resignation. While millions of people chanted "The people want to bring down the regime", a few started to sing "Oh Oh we resigned Hosni". The sound of the collective anger was replaced gradually with the sound of happiness and hope. Louder and brighter, the soundscape became more rhythmic with drums and singing. It took time to believe that it was happening, till a friend came to confirm the news. Many other people started to chant "The army and the people are one hand". At that time, I was listening to the happiness with fears and doubts.'

4th of July Fireworks: Albany Park, Chicago, US 4 July 2008

Digital field recording, 1.05

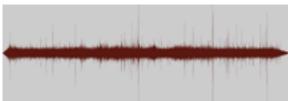


Fireworks on the 4th of July in America are a ritual that takes on many forms. There are the 'official' fireworks that are set off by cities in parks and over waterways, but there are also 'unofficial' fireworks set off by everyday citizens on the streets where they live. Since the sale of fireworks is often illegal in most major cities, there is a sort of unwritten law that allows for the widespread possession of illegal explosives on this one night every year.

OBJECT 30

Flagpoles: Ann Arbor, MI, US 15 February 2010

Digital field recording, 1.44



These empty flagpoles on the campus of the University of Michigan make a strangely pleasant sound on particularly windy days, but their sound belies the fact that their usual ritual – the flying of flags – was, for some reason, not happening on that day.



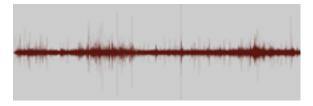
The entrance to Pere Lachaise (above) and some examples of burials inside, 2012.





Père Lachaise Cemetery: Paris 30 September 2012

Digital field recording, 1.22



One of the world's most famous cemeteries, Père Lachaise is the final resting place of scores of the world's most famous people: Oscar Wilde, Jim Morrison, Édith Piaf, Abelard and Heloise, Frederic Chopin, Marcel Proust, Colette, and even Jean-François Champollion (the man who deciphered ancient Egyptian hieroglyphs) are all interred here, and make up a mere handful of the noteworthy people whose graves are routinely visited by tourists. Paying respects to the dead, and the act of memorialising itself, is a most fitting custom with which to end our survey of the sounds of ritual.





ART & CULTURE Libraries & Archives



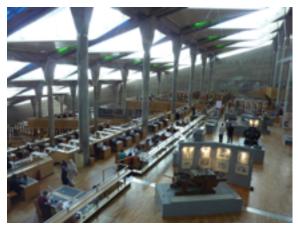
Traditionally when recorded sound has been collected by an institution, it has usually been done so by a library or an archive rather than a museum. In America, the Library of Congress is responsible for archiving the sonic heritage of their country. In the United Kingdom, the British Library Sound Archive has been at the forefront of preserving British audio history. Recently, a new European initiative, Europeana Sounds, announced a bold new mission: to bring together sound archivists from across Europe to collectively decide on a 'universal' method for preserving European sonic heritage.

Why do you think museums tend not to collect sounds? Doesn't something like an antique cuckoo clock collected by the Victoria and Albert Museum include a sound?

Could it be that museums already have collected vast amounts of sounds but haven't figured out what to do with them yet?



Above: Empty bookshelves inside the Bibliotheca Alexandrina, 2010. **Top right:** The main space inside the Bibliotheca Alexandrina is one of the largest enclosed architectural spaces in the world. Its multilevel plan includes spaces for reading, collaborating, exhibitions, and book stacks, with its ceiling held aloft by columns based on the form of the Egyptian papyrus plant which was used to create the world's first paper – and the world's first books.



Bibliotheca Alexandrina: Alexandria, Egypt 10 May 2010

Digital field recording, 1.44



The original Library of Alexandria was one of the wonders of the ancient world, at one point laying claim to owning a copy of every book in the world. Sadly, it was eventually destroyed in antiquity, and most of the books were lost. In 2002, it was resurrected as the Bibliotheca Alexandrina, a massive library and learning complex near the site of the ancient original on the shores of Alexandria. Ironically, its massive, cutting edge architecture proved so costly that there was little budget left for books – which meant that much of the library consisted of empty shelves upon its re-opening.



Harold Washington Library Reference Room: Chicago, US 14 June 2009

Digital field recording, 2.00



The Harold Washington Library in downtown Chicago is one of the largest public libraries in the world. Completed in 1991, its building is a major example of American postmodern architecture.

OBJECT 3

New York Public Library Reading Room: New York, US 30 March 2008

Digital field recording, 1.58



A space as large as two city city blocks, the Reading Room at the New York Public Library is a thickly reverberant space intended for quiet study. Its distinct lack of carpeting, however, leads to the occasional thunderous outburst from chairs being scraped across the stone floor.



The compact shelving of the Kelsey Museum's archives is behind the shelf of pottery on the left.



Kelsey Museum of Archaeology Archives Compact Shelving: Ann Arbor, MI, US, 2012

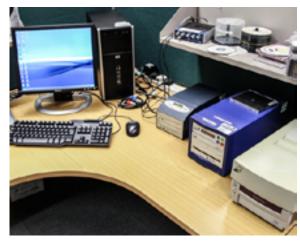
Digital field recording, 1.56



Compact shelving is space-saving storage consisting of shelves that are moved up against each other to conserve space. Some compact shelving systems are manual, meaning librarians and archivists must turn large cranks on the shelves in order to open them up. An archaeology museum's archives consists of objects that are much more delicate than books, leading to the installation of motorised compact shelving, like this example.



The Kelsey's archives are home to an abundance of ancient artefacts, including this Greco-Roman era Egyptian sistrum (an Egyptian rattle used in temple ceremonies) that I am awkwardly holding in this not-atall-staged photograph taken in 2012 by Kelsey Museum Director and Egyptologist T.G. Wilfong.



The British Librry Sound Archive's favourite CD-R printer, November 2014.



Melodic CD-R Printer: British Library Sound Archive London, 2014

Digital field recording, 0.34



Even in the post-digital age, it can be useful for a sound archive to burn physical CDs. This CD-R printer in the offices of the Sound Archive at the British Library in London is lauded by the staff for the strangely melodic sounds it emits as it burns audio files to disc.



Exterior view of the Internet Archive Backup Server, May 2010.

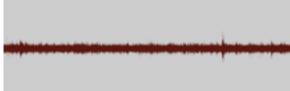
OBJECT 6



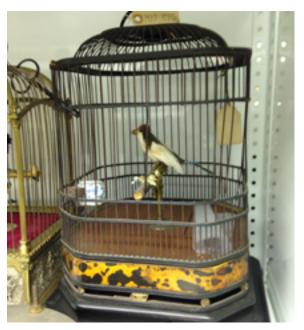


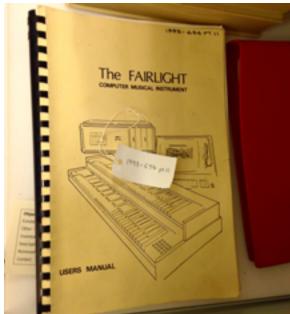
Internet Archive Backup Server: Bibliotheca Alexandrina Alexandria, 2010

Digital field recording, 1.00



Here we return to the library in Alexandria, focusing on another amazing aspect of this fascinating institution. While it may have opened without being able to afford many books, the Bibliotheca Alexandrina does hold a copy of the Internet. Archive.org, the entity responsible for archiving the Internet, has worked with the Bibliotheca Alexandrina to house their backup server in Egypt, to create *redundancy* (a key digital archival practice) with the primary Internet Archive server that lives in San Francisco. This recording is the sound of the backup server's exhaust fan.





A cuckoo clock, 1993 user's manual for a Fairlight synthesiser, and 19th Century set of tuning forks in the Science Museum's sound archives at Blythe House.

OBJECT 7





Science Museum Sound Archives: Blythe House, London, UK 23 April 2015

Digital field recording, 3.00



The Science Museum in London maintains an archive of sound-related objects at its off-site storage facility in Blythe House, where I attended a symposium on sound and museums in 2015. What you hear in this object is a tour of the Science Museum's holdings by a group of sound geeks (as well as the sound of me trying to cheat my way into staying just a little bit longer).



ART & CULTURE Museums



Many of us tend to think of museums as silent. Maybe that outdated idea is comforting to some people, maybe it is annoying or threatening to others. But is it accurate?

Museums themselves seem to have moved past the idea that they should only be soundless temples of thought. Many museums now feature late night events with loud music, dancing, or performances. Still, most of the 'noise' that museums encourage happens outside of 'regular business hours' – there still seems to be an attempt to regulate what is 'normal' sound for a museum. But as museums gradually come to grips with the notion that sound is an integral part of the museum experience, they will no doubt explore many different ways of sounding.

How should a museum sound? Do you ever wonder why you're most always asked to just quietly *look* at things in museums?

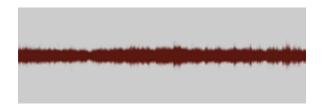
What would it be like if the sounds we heard in museums told stories about human culture the way the other physical objects inside them do? View of the Acropolis Museum from the Parthenon. 2010.



OBJECT 1

Acropolis Museum: Athens, Greece, 2010

Digital field recording, 1.01



The Acropolis Museum opened to the public in 2009, replacing an earlier museum that had been built on the hill of the Acropolis in 1874. The new Acropolis Museum displays many archaeological relics from Greece's past, particularly artifacts that were originally excavated at the site of the Acropolis, home to the Parthenon temple.

The museum's most famous – and most controversial – gallery remains incomplete. The gallery of the Parthenon Marbles, a series of sculptural reliefs that were originally carved along the outside of the Parthenon temple, contains only about half of the original marbles. The other half remains in the British Museum in London, where they have stayed since Lord Elgin removed the marbles from the Parthenon

in 1801, under the pretense that the government of Greece was incapable of properly caring for the marbles. Plaster casts of the British marbles are on display in the Acropolis museum alongside the remaining originals held there, waiting for the day that they might finally be replaced by the originals still in London.

As legal battles continue, neither museum presents a complete experience for their visitors, and the hopes of seeing the marbles reunited in their place of origin continue to fade.

This recording was made in the Acropolis Museum's Parthenon Marbles gallery, a reminder that the original marbles wait there, silently, to be reunited with the rest of the collection.



Silver Gallery, Ashmolean Museum, 2015.



The 'bastringue piano' on display, 10 September 2017.



Ashmolean Museum: Oxford, UK 2015

Digital field recording, 1.17



The sound of a John Stephen Rimbault bracket clock from 1784 chiming out the hour of 4 o'clock in the Silver gallery of the Ashmolean Museum, shortly before a professional clock winder was scheduled to arrive to re-set it.

OBJECT 3



Museum of Mechanical Musical Machines: Setúbal, Portugal 10 September 2017

Digital field recording, 1.00



This museum of early music and sound reproduction machines houses the vast collection of one man, Luis Cangueiro. Mr Cangueiro himself provides guided tours of the museum every week, and operates many of the machines on display that are otherwise unable to be heard. This recording contains the sound of one of the machines that is accessible to the public: an early 20th Century French 'bastringue piano,' a mechanical piano containing a metre-long cylinder which was struck by 58 hammers to reproduce songs. Used in dance halls, these pianos were eventually replaced by jukeboxes.



The ruins of the old Grand Rapids Public Museum, March 2010.



Gift shop display, Museum of Broken Relationships, Zagreb, 2015.

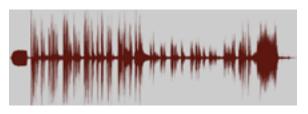
Old Grand Rapids Public Museum: Grand Rapids, MI, US 20 March 2010

Digital field recording, 1.45

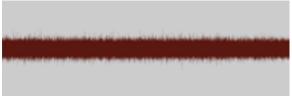
m: Museum of Broken Relationships: Zagreb, Croatia 2015

OBJECT 5

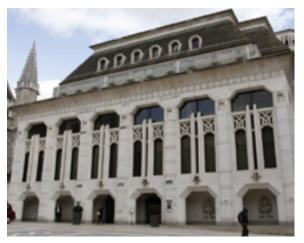
Digital field recording, 1.00



When the original Grand Rapids Public Museum was scheduled to be demolished, a local arts group invited artists in the area to use what was left of the museum as raw materials for a giant group exhibition exploring the difficult legacy left by the museum's own past. During one of my trips to the museum as research for the piece I contributed to, I recorded this old, barely functioning exhibit entitled 'The Miracle of Life,' a typically 1950s-esque display that mansplains how women's bodies work.



An incredibly powerful museum, The Museum of Broken Relationships contains objects that represent the ending of a relationship, donated by the people who have lived through the breakup. Each object is accompanied by a statement from the anonymous donor explaining the object's significance. The stories range in length, detail, bitterness, and humour. On the evening I visited, the sound of rain on the skylight inside the museum made a perfect aural accompaniment to the museum's melancholy collections.



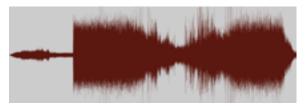
The Guildhall Art Gallery moments before potential disaster, 2014.



The Expulsion From Paradise and my nostrils, 2017.

Guildhall Art Gallery: London, UK, 2014

Digital field recording, 1.45



The Guildhall Art Gallery is an art museum built above the remains of a Roman-era amphitheatre. On the day of my visit, a crew of construction workers nearby were jack-hammering on the plaza above the amphitheatre, which could be heard as I sat down to record the gallery containing its remains. Being the only person there at the time, I wasn't entirely sure when the fire alarm went off if it was a test or a real emergency, but soon decided to leave the space. Bumping into a security guard on her way to evacuate the amphitheatre, I discovered it was an actual fire caused by the construction crew. After about 30 minutes, the visitors were allowed back inside the museum.

OBJECT 7

Sistine Chapel: Rome, Italy 10 April 2017

Digital field recording, 1.00



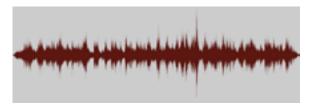
Anyone who expects to visit the Sistine Chapel and have a quiet, contemplative experience pondering the work of Michelangelo is in for a rude awakening. There is a surprisingly antagonistic relationship between the Sistine Chapel's visitors and the gallery guards assigned with maintaining order in the chapel: the visitors refuse to remain quiet and not take photographs, and the gallery guards insist on loudly telling everyone to be quiet and not take photographs. When I visited, the situation was so irritating that I took as many photos as I could out of sheer spite.



Wall text for exhibition sound installation, MoMu, 21 July 2017.

ModeMuseum: Antwerp, Belgium 21 July 2017

Digital field recording, 1.00



Antwerp's ModeMuseum (or MoMu for short) is one of the world's foremost institutions dedicated to fashion design and culture. For their blockbuster exhibition Margiela: The Hermès Years, the curator included several audiovisual pieces as well as a sound installation, 'Les Compliments,' recorded in 1995. The piece, by Marie-Hélène Vincent, consists of the sound of a man's voice paying compliments to women. It was once used by the fashion designer Margiela as the soundtrack for a catwalk show of his latest collection: in the exhibition it functioned as a sort of welcome to the designer's world, playing in the entrance to the gallery's extensive survey of his works for the Hermès brand.



Luís de Camões, Portugal's national hero, portrayed unflatteringly via the wonders of wax, September 2017.

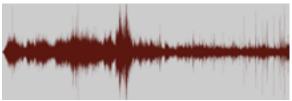
OBJECT 9





Museu de Cera dos Descobrimentos: Lagos, Portugal, 5 September 2017

Digital field recording, 1.17



This museum's name translates to 'Wax Museum of the Discoveries' in English, but in Portugal the word 'discoveries' here refers very specifically to the legacy of colonialist invasions conducted by a series of Portuguese explorers during the 15th Century. Somehow it was decided that opening a wax museum in the 21st Century was a good way to celebrate this difficult history. This recording contains a walk-through of the entire museum, showing off its tendency to use music as a way to reinforce racial stereotypes in Portugal's dealings with Arabs, the Chinese, the Japanese, Brazilians, and Indians.



Can't sleep! Dolls will eat me! 2017.



About to mold a brontosaurus at The Field Museum, New Year's Day 2012.



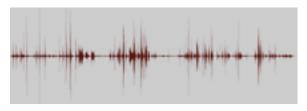
Pollocks Toy Museum: London, UK, 26 July 2017

Digital field recording, 1.17



The Field Museum: Chicago, US, 1 January 2012

Digital field recording, 1.17



Pollocks Toy Museum is a sometimes fantastic, sometimes creepy place filled with an amazing variety of toys from throughout history, albeit with a particular focus on Victoriana. Housed in an appropriately creaky period building, the museum is home to a plethora of clunks, squeaks, and other amazing sounds.



Museums and zoos in the Midwestern United States often feature Mold-A-Rama® machines which, for a small fee, produce a moulded wax souvenier in the approximate shape of something the visitor has seen during their time there. The particular machine recorded here created a green wax dinosaur, the long-necked brontosaurus.



Canadian island-dwelling Caucasian vernacular signage, Pelee Island Winery Museum, 2010.



Slide projectors, Hayward Gallery, 2013.

Souvenier Coin Pressing Machine, Pelee Island Winery Museum: Ontario, Canada, 2 July 2010

Digital field recording, 1.45



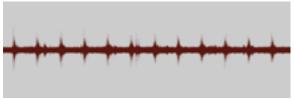
Souvenier coin pressing machines provide a visceral way to remember visiting a place, often a museum or historical landmark. After paying a larger fee, a small denomination coin (usually a penny or its equivalent) is then placed inside the machine. The purchaser is then invited to turn a giant crank, which stretches and embosses a design upon the coin, changing the coin's shape and replacing its original design with something representative of the place visited.

OBJECT 13



Hayward Gallery: London, UK, 2013

Digital field recording, 1.01



During the exhibition Ana Mendieta: Traces at the Hayward Gallery in 2013, a pair of old fashioned slide projectors stood atop plinths, projecting a constant stream of images from the artist's portfolio and personal history. I made this recording by standing between the two plinths, capturing a wonderful stereo effect of the two projectors going in and out of sync.



Florence Nightingale's desk, 2017.



Among the pinball machines, Las Vegas, 2011.

Florence Nightingale Museum: London, UK, 8 August 2017

Digital field recording, 1.34



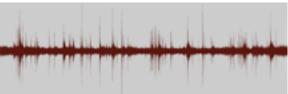
Several of the displays inside the Florence Nightingale Museum make use of artificial, composed soundscape recordings to add a multisensory element to the objects on display. Some, like the birdsong heard here, tend to bleed out into the common areas of the exhibition space, leading to odd juxtapositions of listening to chirping birds while looking at shotguns or, via a peephole, a Victorian amputation film.

OBJECT 15

`15 (廿)

Las Vegas Pinball Hall of Fame & Players Museum: Las Vegas, 2011

Digital field recording, 1.00



While most museums shun physical interaction with their objects on display, this amazing museum in Las Vegas encourages use of its collections, all watched over by the entertainingly grumpy old man who sits behind a work table in the back of the space, making repairs to the various machines as they break down. The resulting cacophony is both exciting and perfectly evocative of the original context where these machines originally spent their lives – the often seedy, dimly lit, and gloriously grubby places known as arcades.

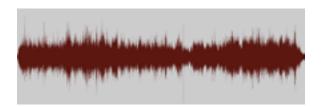


OBJECT 16

Raphael, School of Athens, Musei Vaticani, Rome, 2017.

Musei Vaticani: Rome, Italy, 10 April 2017

Digital field recording, 2.24



Although Raphael's famous painting *The School of Athens* celebrates the history of Western philosophical thought, a modern day visit to the painting is hardly conducive to rumination. Between the crushing crowds and the constant screech

of proximity alarms, what was intended to be a space for contemplation has become a hellish nightmare of claustrophobia and noise, accompanied by the belligerence of security guards who, only begrudgingly it seems, grant access to the room.



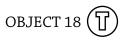
No photographs allowed, Barbican, 2015.



Concert For Seven Paintings, Tinguely Museum, 2012.

The Barbican: London, UK, 7 November 2015

Digital field recording, 1.14

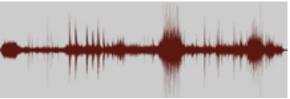


Tinguely Museum: Basel, Switzerland, 2012

Digital field recording, 1.45



As part of the exhibition *The World of Charles and Ray Eames* in 2015, the Barbican gallery in London included one of the couple's 'gravity xylophones' that they kept in their house: a sculptural musical instrument that reaches from floor to ceiling and into whose top guests were invited to drop a metal ball. As the ball falls through the sculpture, it strikes a precisely designed series of metal plates to recreate a musical composition. In order to capture this recording, it was necessary to coordinate multiple takes with the exhibition's security guards, who were surprisingly happy to help.



The Swiss artist Jean Tinguely (1925-1991) created interactive sculptures known as kinetic art. Not only did Tinguely's machines move, they also generated an array of sounds. The sculpture recorded here, in Basel at the museum that bears his name, is a piece entitled Concert for Seven Paintings.



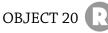
Grandfather clock, Sir John Soane's Museum, 2013.



Modern Wing, Art Institute of Chicago, 2009.

Sir John Soane's Museum: London, UK, 2013

Digital field recording, 1.01



Art Institute of Chicago, Modern Wing: Chicago, US, 2009

Digital field recording, 1.17



Sir John Soane lived inside his own museum, designing his house to act as a proof of concept for a job as an exhibition designer which he never got. This recording captures the sound of a grandfather clock that stands over Soane's scale model of the Parthenon – a constant reminder of the lengthy period of time that separated him from the creation of this ancient temple.



Recorded in the Art Institute of Chicago Modern Wing's photography and multimedia gallery, this recording captures the sound of film projectors in a special exhibition of the work of the German contemporary artist Wolfgang Plöger, *Make No Mistake About This*.

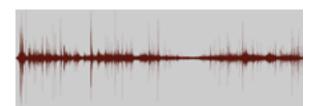


OBJECT 21

Crematorium and Gas Chamber, Dachau 22 October 2012.

Dachau Concentration Camp: Munich, Germany, 2012

Digital field recording, 2.39



Memorials to despicable acts are difficult to visit. There is rarely any form of introduction that can truely prepare you for an experience like setting foot inside one of the gas chambers and crematoriums used by the Nazis during World War II. Although this area is the final location of a tour through the Dachau concentration camp, even seeing the tiny barracks where prisoners tried to sleep, and the cells where they were tortured, were not enough to set

the stage for this particular location when I visited. From the moment I entered the gas chamber, I couldn't focus on anything other than the sound of my tour group's footsteps. As the saying goes, you can't know someone's experience until you've walked in their shoes, and the sounds of our footsteps helped drive home the overwhelming feeling of death that surrounds you when visiting this horrific, terrifying place.



Recording the sound of two hemispheres simultaneously at the Prime Meridian, Greenwich, 3 November 2017.



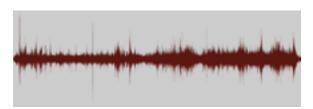
The exterior of the Motown Museum, 2012.





Royal Observatory: Prime Meridian, Greenwich, UK, 2017

Digital field recording, 1.35



The Royal Observatory Museum grounds in London's Greenwich contain the Prime Meridian, the imaginary line that divides the Earth into eastern and western hemispheres. Visitors to this museum are able to stand astride the line inscribed in the ground and, theoretically, stand in two hemispheres at once. When I visited, I stood on the Prime Meridian and made a stereo recording of both hemispheres at once: the sounds in the left channel are in the western hemisphere, and the sounds in the right channel are in the eastern hemisphere.

OBJECT 23





Motown Museum: Detroit, US, 2012

Digital field recording, 1.08



The attic at the Motown Studios house in Detroit was used as a reverb chamber – an echo effect that was added to many of the iconic record label's recordings. A speaker sat inside the attic which would play sound from the control booth inside the actual studio; a microphone in front of the speaker picked up that sound and fed it back to the studio. Instead of an expensive electronic effect, the Motown sound was created with many simple, ingenious tricks.

To hear another reverb chamber, listen to Gallery 5, Object 1, p. 33.

Exhibitions of Sound



Some museums have not only begun to accept the idea that sound should be part of the museum experience, they have actually begun displaying sounds with the same attention to detail as visual objects. This is happening most frequently within art museums, as more and more artists have begun to make theri work using sound rather than with paint, or stone, or clay.

Why do you think an artist might make art out of sound?

What do you find different about *listening* to art rather than *looking* at it?

Do you think a sound can be an object?

If you were the curator of a sound museum, what sounds would you collect?



Overhead view of one of the main spaces of ZKM's Sound Art exhibition, October 2012.



Level one of the Art or Sound exhibition, November 2014.

Sound Art: Sound as a Medium of Art ZKM Medienmuseum: Karlsruhe, Germany, 2012

Digital field recording, 1.16

OBJECT 2



Art or Sound Fondazione Prada: Venice, Italy, 2014

Digital field recording, 2.31



One of the largest exhibition surveys of sound art to date, ZKM's blockbuster exhibition presented works chosen from throughout the history of art made with or incorporating sound. While the show's breadth was astounding, and its attempt to establish a 'canon' of major works of sound art ambitious, it lacked a coherent curatorial voice, leading to a display that often embodied one of the primary critiques of sound art exhibitions: too many sounds competing for listening space leads to a cacophany that serves none of them well.



This exhibition excelled at displaying authentic sounds alongside their original sources: authentic historical physical objects (setting aside the exhibition's curatorial discretions that forego any pre-21st century contributions by non-Western artists). Several of the sculptures, instruments, and decorative objects on display played their own sounds into the gallery space, creating a tension between the sounds and their physical sources – which was the object: the sound or the thing producing it?

MUSEUM OF PORTABLE SOUND OBJECT LIST 2018: PERMANENT COLLECTION GALLERIES

• - Indicates new to the 2nd Edition

NATURAL HISTORY

Gallery 1. Animals

Actual Bird Record made by a Captive Nightingale, 1910

- Rooster: Lisbon, Portugal, 22 May 2016
- Dawn Symphony: Rome, Italy, 13 Apr 2017
- •Horses: Setúbal, Portugal, 23 Sept 2017
- Falling off of a Camel: Great Pyramid, Giza, Egypt, 1 May 2010
- Pardais birds: Lagos, Portugal, 17 Sept 2017
- •Chickens: Luke's Barn, Michigan, 20 Feb 2010

Birds, Crickets, Cows, and Cow Bells at Dusk: Alandroal, Évora, Portugal, 30 Apr 2016

Gallery 2. Insects

Crickets (day): Wetlands, West Park, Ann Arbor, Michigan, US, 14 Sept 2009

Crickets (night): Train Station, Graben Neudorf Nord, Germany, 18 Aug 2012

•Bee: Catford, London, UK, 20 Aug 2017

Cicadas: Corfu, Greece, 2 Oct 2011

Gallery 3. Weather & Water

Autumn Leaves Falling: North Park Village Nature Center, Chicago, 18 Oct 2008

Rain and tornado warning siren: Albany Park, Chicago, US, 5 Aug 2008

•Rain and tornado warning siren: Ann Arbor, MI, US, 6 June 2010

Thunderstorm: Corfu, Greece, 7 Oct 2011

Psithurism: Albufeira, Algarve, Portugal, 8 Sept 2016

- ·Creek: Park of the Senses, Germany, 14 Sept 2014
- Lake Erie waves: Pelee Island, Canada, 2 July 2010
- Waterfall: Offenburg, Germany, 14 Sept 2014

SCIENCE & TECHNOLOGY

- Gallery 4. Laboratories & Medicine
- •Radiology Lab: Lisbon, Portugal, 10 Apr 2015
- •IV: Evanston, IL, US, 13 Apr 2014

Gallery 5. Acoustics

Reverberation Chamber: Columbia College, Chicago, US, 9 July 2010

Anechoic Chamber: London South Bank University, 23 July 2015

Gallery 6. Recording History

The First Recording of a Human Voice, Paris, 9 Apr 1860

The First Recording of a Museum: The Crystal Palace, London, 1888

The First Binaural Pop Album, Track 3 (excerpt): Lou Reed's Street Hassle: 'Waltzing Matilda,' Arista, 1978

The First CD, Track 6: Claudio Arrau performs Chopin, Philips Classics, Japan, 1980

The First MP3: Suzanne Vega - Tom's Diner (a capella), 1987

Gallery 7. Audio Interfaces

Public Telephone in Telephone Booth: Zagreb, Croatia, 25 Sept 2015

•Utility Telephone: Francisco Brown Line Station, Albany Park, Chicago, US, 2 May 2009

ATM: San Francisco, US, 5 July 2008

•Elevator: Hancock Tower, Chicago, US, 2 May 2009

Alarm Test, UC-Berkeley campus, Berkeley, California, 2 July 2008

Apartment Security System: Warsaw, Poland, 8 May 2017

Automated Track Announcements: Union Station, Chicago, 21 Mar 2009

Street Crossing Signals for Visually Impaired:

•IIT Campus, Chicago, US, 11 Oct 2004

Port of San Francisco, San Francisco, US, 5 Jul 2008

Ann Arbor, Michigan, US, 14 June 2009

Munich, Germany, 20 Oct 2012

Toronto, Ontario, Canada, 31 July 2009

•Antwerp, Belgium, 3 Aug 2017

Zagreb, Croatia 26 Sept 2015

Aarhus, Denmark, 5 June 2016

Gallery 8. Glitches

Malfunctioning iPod: Michigan Ave. Apple Store, Chicago, US, 5 Aug 2008 Malfunctioning MacBook: Michigan Ave. Apple Store, Chicago, US, 8 Sept 2008

Broken P.A. Speaker: Mitchell Hall, University of Wisconsin – Milwaukee, US, 1 Mar 2008

 Broken Fire Alarm: Pierpont Commons, University of Michigan, Ann Arbor, MI, US, 19 June 2009

Gallery 9. 20th Century Audio Equipment

Dansette Hi-Fi model phonograph (portable LP record player, 1960s): London, 17 Sept 2016

Panasonic RQ-L317 Cassette Recorder (1980s): London, 17 Sept 2016

Gallery 10. 21st Century Audio Equipment

Arcam Solo CD Player: London, 17 Sept 2016

iPod Classic magnetic field, London, 2015

iPhone 4S magnetic field, London, 2015

Zoom H2 magnetic field, London, 2015

Olympus LS-10 magnetic field, London, 2015

SPACE & ARCHITECTURE

Gallery 11. Construction, Exteriors & Tours

Crane Operators: Porto, Portugal, 11 Sept 2017

Construction site for Apple retail store: Michigan Avenue, Chicago, 22 Apr 2009

- •Welding: Newbury Library, Chicago, 14 June 2009
- Construction destruction: Baku Law Centre, Baku, Azerbaijan, 5 Oct 2017
- Bridge rising: Wisconsin Avenue, Milwaukee, WI, US, 4 Sept 2005
- Bridge rising: Merchandise Mart, Chicago, 29 May 2009

Architecture Boat Tour, Chicago River, Chicago, 5 July 2008

Gallery 12. Doors, Windows & Fixtures

Doorbell, Private Residence: Milwaukee, Wisconsin, US, 1 Mar 2008

•Door: Rubens house, Ghent, Belgium, 21 July 2017

Door, DeBalie Café: Amsterdam, NL, 28 Feb 2010

Door: Neue Staatsgalerie, Stuttgart, 17 Oct 2012

Window, Private Residence: Bay View, Milwaukee, WI, US, 27 Apr 2007

Gallery 13. Plumbing, Heating & Cooling

Water pipes, toilet: Rawabet, Cairo, Egypt, 17 May 2010

- Water drainage system after shower: Catford, London, UK, 8 Aug 2017
- •Drain pipe (outdoor): Baku, Azerbaijan, 3 Oct 2017

Steam heat radiator, apartment: Chicago, 1 Oct 2008

 Central heating system vent: Ann Arbor, MI, US, 20 Feb 2010

Ventilation Duct: Venice, Italy, 3 Nov 2014

Air vent: Windsor, Ontario, Canada, 12 Apr 2010

Ventilation Fan, Coffeeshop: Amsterdam, NL, 5 Mar 2010

Air vent behind Yoshi's: Ann Arbor, MI, US, 23 Aug 2009

- Air vent: Toledo Mud Hens Baseball Stadium, Toledo, OH, US, 1 July 2009
- •Air vent: National Stadium, Warsaw, Poland, 6 May 2017

Gallery 14. Interiors

Huettenbar: Lincoln Square, Chicago, 10 July 2008

Café: York, UK, 2002

- •Elevator ride, entering flat, and locking flat door: Warsaw, Poland, 8 May 2017
- Deserted house walkthrough after tornado: Dundee, Michigan, US, 8 June 2010

Swimming Pool, Hotel Intercontinental: Chicago, 27 Aug 2007

Sacre Coeur: Paris, 24 Sept 2012

The Great Hall, Union Station: Chicago, 21 Mar 2009

ART & CULTURE

Gallery 15. Art Processes

Drawing on board (artist: Bettina Fung), London, UK, 26 Sept 2016

•Street engraving (artist: unknown): Cairo, Egypt, 17 May 2010

Sculpting an amphora in wet clay and fabric (artist: Reem Gibriel), Ann Arbor, Michigan, US, 31 Mar 2010

 Constructing a performance-based installation (artists: Christina Raab and Jasmin Schaitl): Warsaw, Poland, 6 May 2017

Alley Weave: Loom (artist: unknown), Varanasi, India, 31 July 2009, by Mike Hallenbeck Weaving, Loom (artist: Rachel Esslinger), Ann Arbor, Michigan, US, 10 Oct 2009

Tree trimming (artist unknown), Mahmoud Mukhtar Museum park, Cairo, Egypt, 6 May 2010

 Exhibition under construction (gallery workers: unknown): Transfashional exhibition, Warsaw, Poland, 6 May 2017

Gallery 16. Archaeology

King Tutankhamun's trumpets played after 3000 years, BBC Radio broadcast, Cairo, 16 Apr 1939

Archaeologists clearing Roman theatre: Lisbon, Portugal, 9 Apr 2015

•Ancient Roman Well: San Clemente, Rome, Italy, 13 Apr 2017

Catacombs of Kom El Shaqoufa: Alexandria, Egypt, 11 May 2010

North Temple Interior: Karanis, Egypt, 19 May 2010

Gallery 17. Bells

Munich Dom: Munich, Germany, 21 Oct 2012

Heiliggeistkirche bells: Heidelberg, Germany, 15 Sept 2012

Maulbronn Monastery Cloisters: Maulbronn, Germany, 31 Aug 2012

•Ghent Belfry: Ghent, Belgium, 23 July 2017

Popsicle cart: Albany Park, Chicago, US, 10 May 2008

Westminster Abbey: London, Christmas Day, 2014

•Big Ben's final 12 Bongs: London, 8 August 2017

Gallery 18. Transport

Alexandria, Egypt: Train To Cairo, 2010

Amsterdam, NL: Tram To Rijksmuseum, 2010

Ann Arbor, US: Number 9 Bus, 2009

•Ann Arbor, US: Paddle boat, Gallup Park, 2010

Athens, Greece: Metro train, 2011

Baku, Azerbaijan: Flight to London takeoff, 2017

Cairo, Egypt: Boat Ride To Nilometer, 2010

•Cairo, Egypt: Cab ride, 2010

Chicago, US: Amtrak Hiawatha Train, Quiet Car, 2010

Chicago, US: Moaning Bus, 2008

Chicago, US: Squeaking Metra Train, 2008

Detroit, Michigan, US: People Mover tram, 2009

Karlsruhe, Germany: Steam train, Schloss grounds, 2012

Lisbon, Portugal: Night tram, 2015

•Milwaukee, WI, US: Harley-Davidson Motorcycles, 2007

Minneapolis, Minnesota, US: Tram Approaching, 2008

Paris: Escalator at St Lazare train station, 2012

Paris: Metro Train to Montmarte, 2012

•Pelee Island, Ontario, Canada: Ferry boat, 2010

San Francisco, US: BART train to 24th street, 2008

San Francisco, US: Cable car underground cable, 2008

•San Francisco, US: Cable car, 2008

Speyer, Germany: Train to Karlsruhe, 2012

Strasbourg, France: Tram, 2012

Toronto, Canada: Subway, Museum Station, 2009

•Venice, Italy: Boat in a canal, 2014

•Warsaw, Poland: Horse-drawn carriages, 2017

•Zagreb, Croatia: Funicular, 2015

•Gallery 19. Food

•Espresso: Rome, Italy, 22 Apr 2017

•Saganaki: Greek Town, Detroit, 3 Nov 2009

•Lunch: Tandir Kebab, Baku, Azerbaijan, 3 Oct 2017

•Pop Rocks: London, 6 June 2017

Gallery 20. Rituals & Events

Call to Prayer: Talaat Harb Street, Cairo, Egypt, 26 May 2010

Madhavi: Gurgaon, India, 9 Sept 2016, by Cristina Sousa Martínez

Chanting, Al-Azhar Mosque: Cairo, Egypt, 21 May 2010

Sunday services: Munich Dom church, Munich, Germany, 21 Oct 2012

• Public water fountain: Corfu, Greece, 7 Oct 2011

 Pub worker sweeping street: Chez Paul II, Appenweier, Germany, 8 Sept 2012

Hofbrauhaus: Munich, Germany, 21 Oct 2012

 Penny Arcade: Brighton Pier, Brighton, UK, 1 Dec 2013

•Carousel: Santa Cruz Boardwalk, California, 5 July 2008

•Roller coaster: Centreville Island, Toronto, Canada, 1 Aug 2009 •World's oldest bookshop: Bertrand, Lisbon, Portugal, 8 June 2016

Street market: downtown Cairo, Egypt, 8 May 2010

Feira Da Ladra Flea Market: Lisbon, Portugal, 11 Apr 2015

- •Shop Owners Banter: Stratford Centre, London, UK, 26 Nov 2013
- Amolador trumpet: Lisbon, Portugal, 22 Aug 2017 by João Caldas
- •Bird whistle salesman: Brighton, UK, 1 Dec 2013

Wedding musicians practicing: Maulbronn Monastery church, Germany, 31 Aug 2012

Pride Parade: San Francisco, US, 6 July 2008

- •Mira (Street music, Crete): Athens, Greece, 1 Oct 2011
- Busking band: Underground District Line train, London, UK, 18 Mar 2017
- Duelling Buskers: South Bank, London, 3 Oct 2014
- •Chicago White Sox stadium ambience: Chicago, IL, US, 15 Feb 2007
- •Running bases on a softball diamond: West Park, Ann Arbor, MI, US, 25 Sept 2009
- Zamboni, Red Arrow Park, Milwaukee, WI, US, 5 Feb 2000
- •PETA protest: Chicago, US, 3 Jan 2007

Xalapa Protest: Xalapa, Mexico, 16 Jan 2014 by Cristina Sousa Martínez

Anti-Austerity Protest: Corfu, Greece, 5 Oct 2011

Friday Of Departure: Egyptian Revolution Protest, Alexandria, Egypt, 11 Feb 2011, by Khaled Kaddal

4th of July fireworks: Albany Park, Chicago, US, 2008

- •Flagpoles: Duderstadt Center, University of Michigan campus, Ann Arbor, MI, US, 15 Feb 2010
- •Pere Lachaise cemetery: Paris, 30 Sept 2012

Gallery 21. Libraries & Archives

Bibliotheca Alexandrina, Alexandria, Egypt, 10 May 2010

Harold Washington Library Reference Room, Chicago, US, 14 June 2009

New York Public Library Reading Room, New York, US, 30 Mar 2008

Kelsey Museum of Archaeology Archives, Compact Shelving, Ann Arbor, MI, US, 2012

Melodic CD-R Printer, British Library Sound Archive, London, 2014 Internet Archive Backup Server, Bibliotheca Alexandrina, Alexandria, 10 May 2010

•Science Museum Sound archives, Blythe House, London, 23 Apr 2015

Gallery 22. Museums

Acropolis Museum, Athens, Greece, 2010

Ashmolean Museum, Oxford, UK, 2015

- Museum of Mechanical Musical Machines, Setúbal, Portugal, 10 Sept 2017
- Old Grand Rapids Public Museum: Miracle of Life display, Grand Rapids, MI, US, 20 Mar 2010

Museum of Broken Relationships, Zagreb, Croatia, 2015

Guildhall Museum, London, UK, 2014

- •Sistine Chapel: Rome, Italy, 10 April 2017
- ModeMuseum: Martin Margiela, The Hermes Years exhibition, Antwerp, Belgium, 21 July 2017
- Museu de Cera dos Descobrimentos: Lagos, Portugal, 5 Sept 2017
- •Pollocks Toy Museum: London, UK, 26 July 2017

Mold-A-Rama® Machine, Field Museum, Chicago, US, 1 Jan 2012

•Souvenier coin pressing machine: Pelee Island, Ontario, Canada, 2 July 2010

Hayward Gallery, Ana Mendieta exhibition, London, 2013

•Florence Nightingale Museum: London, 8 Aug 2017

Las Vegas Pinball Hall of Fame and Players Museum, Las Vegas, US, 2011

- Musei Vaticani: Raphael, School of Athens, Rome, Italy, 10 Apr 2017
- •Barbican: *Gravity Xylophone*, Charles & Rae Eames, London, UK, 7 Nov 2015

Tinguely Museum, Basel, Switzerland, 2012

Sir John Soane's Museum, London, UK, 2013

Art Institute of Chicago, Chicago, US, 2009

Dachau concentration camp, Munich, Germany, 2012

Royal Observatory: Prime Meridian, Greenwich, UK, 2017

Motown Museum, Detroit, US, 2012

Gallery 23. Exhibitions of Sound

Sound Art: Sound as a Medium of Art exhibition, ZKM, Karlsruhe, 2012

Art or Sound, Fondazione Prada, Venice, 2014

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STAFF BIOGRAPHIES



Archival photo of Directeur and Conservateur en Chef Jean Kannenbérg planning the Museum's original permanent collection displays.

At this early stage he intended to call his new institution
Le Musée Imaginaire du Son Portable; however, its excessive length proved to be impractical for use as a Twitter handle, so the slightly shorter Museum of Portable Sound was decided upon instead.

DIRECTOR & CHIEF CURATOR

John Kannenberg is a multidisciplinary artist whose work investigates the sonic geography of museums, the psychology of collection, the processes of making and observing art, and the human experience of time.

John has presented work at Tate Modern and the White Cube in London, ZKM in Karlsruhe, Cairo's 100Live electronic music festival, the First Glance video exhibition in Tripoli, and Neighborhood Public Radio's American Life project (with Glenn Bach) for the Whitney Biennial. His sound work has been released by record labels including Flaming Pines, Entr'acte, 3LEAVES, and Crouton, and featured by Hyperallergic.com.

His curatorial work has included exhibitions for the ZKM Medienmuseum, the Herskovits Library of African Studies in Chicago, the Biennale of Electronic Arts in Perth, London's ResonanceFM art radio station, and a display of ancient Egyptian soundmaking objects for the Kelsey Museum of Archaeology in Ann Arbor.

John's curatorial practice has been written about in diverse publications including *Londonist.com* and *Museums Journal*. His own writings about sound and museums have been published in *Uniform magazine*, *Museological Review*, and *Science Museum Group Journal*, which also awarded him its 2017 Writing Prize.

John has delivered lectures on the sonic experience of museums at London's National Gallery; the Courtauld Institute; the Royal College of Art in London; University College London's Institute of Archaeology; Museums Showoff, London; the University of Leicester School of Museum Studies; ZKM in Karlsruhe; Aarhus University; Tyneside Sounds Society; the International Committee for Museums and Collections of Archaeology and History at the Administration of State Historical-Architectural Reserve in Baku, Azerbaijan; Università Iuav di Venezia; the University of Zagreb; and the University of Michigan Museum Studies Program. He also really likes goofing around with Photoshop.

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