Bent Object

BELOW 20

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Below 20

This document explains the research and development of Bent Object's (Susanne Bentley & Peter Van Hoesen's) new creation.

Content beginnings:

The core of this work is the domination of the individual by a (technologically oriented) environment, placed within a period in history in which Western man believes in an increase in control. This increase is regarded as necessary in order to solve issues related to (in)security and to continuously insure our standard of living. We believe, and are led to believe, that this increase in control will better our existence. The vague feelings of insecurity we have are counteracted by cctv cameras, mobile telephony, gps systems, the willing disclosure of private information, etc.... In short, there is a widespread acceptance of the idea that technology will help people neutralise their current fears.

We want to place the subject in a dominant environment that exercises influences that are not only compelling, but also subliminal. In this way we indicate that many control mechanisms manifest or develop 'under the public radar'- without any public knowledge.

The form of the work is based on the presentation of a current situation - a snapshot, without directly referencing the history behind it. A composition will be built from this current picture, in which the individual and the environment play equal roles.

There are many ways to approach the notion of control:

* subliminal surrounding influences
* being surrounded by an unseen 'pressure'
* the experience of an unlocatable source of irritation
* the (conscious?) finding of oneself in a dominant environment
* the subject controls **himself**, albeit unconsciously

Consent is also an important element. The individual gives consent, if unspoken, to be subjected to this control. Here we reference the fact that surveillance techniques today are seldomly criticised. There is, generally speaking, no talk of a civil movement that opposes this development, never mind providing a political counterweight. On a social level we see increasing infiltration of rules, norms and laws, with the consent of the same silent majority, fostering a growth in control.

As a last element we add the concept of self-control. People are placing themselves more and more under the spotlight of public scrutiny. They reveal their private lives and give others access to personal details. Virtual interactive systems such as Myspace, Facebook, Bebo, etc. transform what was once private into public knowledge. It is then not only a question of an increase in control on a collective level, but also on a personal one.

Research components

1.Choreography / movement elements

Our intention is to confront Susanne Bentley with infrasound during the research phase of the project. We will search for the impact of infrasound on movement, emotions and mood, physical restrictions, feelings of fear,... From this confrontation we can distill choreographic elements, that will contribute towards creating a dominant environment.

It is not our intention to work on a literal interpretation of infrasound. We want to use the choreography rather as a dynamic element inside the environment, in exactly the same way as the infrasound, lighting and eventual visual elements. Further research will therefore focus on the use of choreography as part of the controlling environment- not as a consequence of it. The last element is research into whether the pervasive character of infrasound can be related to the physical proximity of performer and onlooker.

Spatial planning means that the choreography will be utilised as a dynamic part of this constantly evolving environment. By subjecting herself to (self) control, the performer becomes an integral part of the story. From this departure point, concepts such as vibration, wave patterns and repetition will be examined.

2.Subliminal sound frequencies: infrasound

Infrasound is the term for frequencies below 20Hz, which are scarcely audible or inaudible, but produce mental and physical effects. Interest in this material comes from many sources. Artistic work within Foton has often been directed towards sound within different forms of representation. The different experiments and projects that have been developed since 2000 have led to a sharpened interest in the physical and mental impact of sound. I see it as a broader subject than just music, as sound is an essential part of our daily reality. Our perception of the world around us is strongly influenced by sound - it is true to say that we don't always consciously notice sound and therefore are also not aware of its radical effects on ourselves and our surroundings. The different performance installations where I used extreme frequencies (Phaser/Sleeper/Wisper, Clicks 'n' cars, Alternative Junction) resulted in exciting experiences in the field of perception. I want to deepen this work in Below 20.

Infrasound is defined as all frequencies under 20hz. The human ear can hear frequencies from 20Hz to approximately 20Khz. Sound that is situated under this level is picked up by other means, hence the title 'Below 20'. For more information see attachment: Infrasound Primer

3. Performance or installation or mixed format?

There is concrete interest from both Susanne Bentley and myself in a non-traditional configuration, whereby we are working towards an immersive organisation of the space.

In concrete terms this means that performer and public share the same space. The public 'leaves' the tribune, so the barrier between performance and spectator space

blurs. The concept of a 'black box' is the most readily accessible and fitting term for this. We are thinking of an environment where public and performer are in direct relationship with each other through the sharing of the same experience- in time and space.

Within this configuration we refer to the element of 'silent agreement' explained earlier on in this text. The public stands for the 'silent majority' in this context: involvement is complete, because one shares the experience with the performer and the environment. One agrees, through entering into this environment, to the control exercised within.

A second aspect is the extension of the dominant environment. What if visitors are already tracked as soon as they enter the theatre building? This option has not yet been fully explored but offers different possibilities.
(See attachment 3- black box options)

4. Surround Sound

Surround sound will be used to strengthen the immersive environment. In the mean time different tests are being done in the Foton studio. Different software packages are being tested with the starting point being sequential diffusion of sound over 6-8 speakers. 'Surround' in this context means sound that moves within a space, in opposition to the interpretation of 'surround' where every speaker puts out a different sound without any actual movement.

5. Lighting

Light creation that does not only light the performer, but takes the whole room into account. After talking with light designer Jan Van Gijsel we came up with the idea of strengthening the impact of the environment through advanced synchronisation of light and sound.

6. Visuals

Further development of an audiovisual language in the performance. Working with sound and image as a whole will be continued. Synchronisation will be important, and the layering of different media upon each other will be researched and developed further.

7. Sensors

Further research into integration of sensor systems within the dominant environment. At present this is not a part of the project. We will research it further when we have reached a decision on the scenographic environment. (see attachment 3)

8.Mobile telephony

There is interest in emphasising the pervasive character of the environment by using mobile phones during the performance. Concretely we are researching if it is possible to call different numbers (attached to the phones used by the spectators) simultaneously.

Infrasound Primer

INFRASOUND - A PRIMER

Sound is, quite simply, a vibration that the human ear can detect. One note will sound higher than another if it vibrates the air at a faster rate (in other words, at a higher frequency). We're used to talking about the visible light spectrum - the range of colours that the human eye can see. Acousticians also think of sound in spectral terms. As sound rises in pitch, from bass to treble, it moves across the audible spectrum. Just as there is infrared and ultraviolet at the cusps of the visible spectrum, there is infrasound and ultrasound at the fringes of the spectrum of audible sound.

Infrasound lies at the extreme bass end of our hearing range. It's usually defined as a vibration that occurs fewer than 20 times a second. Humans (unlike some other animals) don't communicate with infrasound and are not very good at detecting it. But infrasound isn't always inaudible. To understand why, it's worth knowing more about human sensitivity to sound.

Physicists measure frequency in units called hertz (Hz) and call a thousand hertz one 'kilohertz' (kHz). Most physics textbooks say we can hear airborne vibrations that occur between 20 and 20,000 times a second (20 - 20kHz). But in truth, this is a gross simplification. Hearing varies from person to person, with countless factors influencing the range of frequencies that any one of us can detect. Your age and genetic makeup play a part — so do many other variables, such as the time you've punished your ears in foundries or heavy metal concerts and the amount of wax in your ears.

Rather than cutting off sharply at 20Hz and 20kHz, our hearing ability fades gradually as we approach these frequency limits. A piano's bottom note C, for example, vibrates at roughly 33Hz, a frequency near the edge of our hearing range. Top C on the piano vibrates at around 4190Hz, a mid-range frequency where human hearing is extremely acute. To seem as loud as top C, bottom C needs to make a sound that is roughly a thousand times more powerful (in acoustic terms, 30dB louder). In general, extreme bass and treble sounds need more power than mid-range sounds, in order to cross the 'threshold of hearing' – the minimum loudness that can be heard. With enough volume, even sounds that lie outside the often quoted '20 to 20k' frequency range can be heard. This is true of infrasound.

Infrasound shouldn't be confused with the more familiar term 'ultrasound', which refers to sound above 20kHz, the upper limit of human hearing. Today, ultrasound is most often associated with clinical scanners. These make sound waves with a frequency of several million hertz. A scanner detects these waves as they bounce off the tissues of the human body, analysing them to draw an image of the structures inside.

Infrasound clearly lies on the cusp of our perception, rather than outside it. But our

experience of infrasound is still a mysterious issue. When we sense these vibrations, what do we actually hear? Researchers at University of Salford asked this when they tested our ability to hear low frequencies in 1967. Subjects described the sensation of infrasound as 'rough', a 'popping effect'. Infrasound below 5Hz was described as a 'chugging or 'whooshing', a sensation they could 'feel'. (Yeowart, Bryan and Tempest, 1967)

THE INFRASONIC ZOO

Far from being an exotic phenomenon, infrasound is with us all the time. We continually bathe in a sea of barely perceptible, ambient infrasonic noise. Sometimes described as the 'infrasonic zoo', most of this is generated by natural processes and events: thunderstorms, earth tremors, ocean waves, volcano eruptions and curious phenomena such as meteor impacts, aurora and 'sprites' (sudden electrical discharges in the upper atmosphere).

Human activity also contributes to background infrasound. Deep below the rumble of city traffic, there is a cacophony of very-low-frequency noise from factories, lorry engines, fireworks, passing aircraft, distant quarrying and many other human sources. In 1957, the French physicist Vladimir Gavreau highlighted this overlooked noise pollution, citing it as a possible cause of city dwellers' stress. (Gavreau, Condat and Saul, 1966)

TRUNK CALLS

Humans aren't infrasonic communicators (except, perhaps, during organ recitals) unlike countless other species. Zoologists have found some animals are sensitive to vibrations as low as 0.05Hz. Infrasonic animal calls weren't discovered until the 1950s when oceanographers first detected the sound of the North Atlantic fin whale (originally mistaking it for a Soviet submarine on manoeuvres). Interestingly, this came almost seventy years after the discovery of animal ultrasound. This was confirmed by Victorian polymath Francis Galton in 1883. Galton took some infrasonic whistles to the zoo and observed the reactions of caged animals as he blew them 'as near as safe' to their ears.

Rhinos, cod, squid, pigeons, guineafowl and capercaillie are among the planet's many infrasonic species. A discovery by zoologist Kathy Payne in 1984 added elephants to this list. On a visit to the Metro Washington Park Zoo, Oregon, Payne felt her chest throbbing as though it were responding to some kind of low-frequency vibration. During her flight home, she experienced similar vibrations from the aircraft engines. After analysing the frequency content of the elephant's call, she deduced infrasound was the connection.

All the infrasonic communicators discovered so far instinctively migrate, home, or call to one another over vast distances. Infrasound can travel a long way, even through thick forest or scrubland, so it gives these animals a distinct evolutionary advantage. The female elephant, for example, is only in oestrus for four days or so, once every four years. When she is ready for mating, she emits a distinctive, infrasonic call that attracts males from up to four kilometres away.

ORGAN PIPES AND HAUNTED SITES

Check out the organ pipes in any large cathedral and there's a high probability you'll see some '32-footers'. The longest of these pipes are over 8.5m long (approximately 28ft) so will be producing infrasound. On a technical note, these are effectively open at both ends so are 'half-wavelength' pipes. Infrasonic organ pipes are surprisingly prevalent – they can be found in most cathedral cities in Britain. The pipe organ in St Alban's Cathedral, for example, can play a bottom C at 16.4Hz, four octaves below middle C. These aren't a recent innovation. In Syntagma Musicum, Praetorius's ancient catalogue of musical instruments, there is evidence of 32ft pipes in use since the late sixteenth century.

Sydney Town Hall, Australia, and the Atlantic City Convention Hall, USA, both have extremely rare 64-foot pipes that produce notes as low as 8.2Hz in frequency. The Atlantic City organ was built in 1926, an era when large theatre organs attracted great publicity and were a source of civic pride. Officially recognised as the biggest musical instrument ever built, the Atlantic City organ took the crown from another instrument, bought by store owner John Wanamaker. He purchased his pipe organ to ornament the main court of his Philadelphia store. With great fanfare, the Wanamaker organ was inaugurated in 1911, at the exact moment George V was crowned. A Shetland pony was posed inside the largest pipe for publicity photos.

The evidence linking infrasound to reputed hauntings is tentative but intriguing. Apparitions in peripheral vision, cold shivers and feelings of discomfort and fear have all been reported in places where infrasound is present. Some notable research in this area was conducted by Vic Tandy, an engineer from Coventry University. Working in the laboratory, Tandy and his colleagues had strange experiences which led to suggestions the place was haunted. When he investigated the lab building, Tandy found a ventilation fan was producing an infrasonic standing wave with a frequency of 19Hz. As soon as he switched off the fan, the standing wave disappeared and the unusual sensations evaporated. This discovery – a possible connection between infrasound and his experiences – prompted Tandy to look for infrasound in other allegedly haunted sites. A second investigation took place at a 14th century cellar in Coventry, where people had seen apparitions. At this site he also found a spike of infrasound at 19Hz.

Written and compiled by Sarah Angliss, with contributions from Ciarán O'Keeffe, Dr Caroline Watt, GéNIA and Professor Richard Wiseman.

Source: http://www.spacedog.biz/infrasonic/background.htm#PRIMER