

Toshiya Tsunoda

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pieces of air

Our bodies are surrounded by air. Air fills space completely. But we are not clearly conscious of the existence of air in our daily lives. We notice air's existence somehow by the actions of vibration, heat and light. Air appears as a medium in our observation. Air spreads physical vibration into a space like a spring. When sound travels through space, it repeats its reflection in space and is then overlapped. The original vibration returns reversed, similar to the action of a spring. Next, a time difference appears in the sound depending on the form of the space. Movement of this medium is greatly concerned with space and time. Moreover, it is also concerned with movement from past to present and from far to near. It is interesting to observe movement of this medium by physical vibration even without discovering its cause. We can find beautiful order there. This collection of recorded works titled "pieces of air" consists of site-specific recording setups, and the environmental sound of various places. I hope you will give full play to imagination within everyday space while disregarding your recognition.

All recordings were made with two identical micro omnidirectional microphones except tracks 2, 12 and 13, which were recorded with the a simple handmade microphone. No processing was done on any recorded work compiled here. Track 14 exceeded the input level at the time of recording and thus needed the technical help of my best friend and engineer Yukiharu Higashioji.

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Tracks:

- 1: inside of a pipe- radio and water level
location: Kaneda Miura city Kanagawa pref. Japan
date: may 4. 1994
- 2: inside of a pipe- radio and gallery
location: Gotanda Tokyo
date: mar 26. 1994
- 3: inside of a pipe at the seashore 1
- 4: inside of a pipe at the seashore 2
location: Nagaura bay Yokosuka city Kanagawa pref.
date: oct 28. 1992

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I have been recording the physical vibration of insides such as pipes and bottles. We can consider these objects as simple models of space. Then, from the observation of an occurrence within a hollow object, we can observe our relationship between conscious experience and its recognition. For tracks 1, 3, and 4 I brought some metal pipes to the seashore, placed the microphones inside them and recorded the results. Here, we can observe resonance change according to the fluctuating space volume inside the object determined by wave motion. That is, we observe the state of the space as it expands and contracts. For tracks 3 and 4, I used a 3.6m long pipe. For track 3, one end of the metal pipe is fixed vertically to the seashore. In track 4, I sunk the tip of the pipe into the sea completely, while I covered the other end with my hand. In this recording we can hear changes of the characteristic frequency and its overtone. In tracks 1 and 2 I used a pipe about 1m in length. Here, radio broadcasts, transmitted using small earphones, were used as the sound source which were then received by two microphones, one for each channel. In track 1, I tried to grasp the water level motion within the pipe by hearing its changes. I fixed two identical pipes vertically to the seashore. Inside the left channel pipe, the earphone is placed at a midway point. Inside the right channel pipe, the earphone is placed further down, so that it becomes submerged and released with the motion of the waves. The microphone in the second pipe records the space as it alternately fills and empties with seawater. Track 2 was recorded in a Tokyo gallery. The microphone inside the pipe also records echoes of the conversations outside. If we consider that the gallery is a model of closed space, this recording is the internal sound of a double pipe.

5: middle of the field
location: Hasse Miura city
date: jun 12, 1995

An explosion, like a report of a gun, sounds intermittently. This is the sound of special equipment placed in a field to protect crops from birds. The surrounding space echoes with this sound, effectively describing its physical geography. We also hear the sound of an airplane crossing the sky both by its reflection on the ground, and by the original sound wave undergoing mixing and interference. Perhaps this airplane could be interpreted as tracing geographical features with its sound. (Like a sonar device.) In conclusion, we may grasp vast space with every day sound.

6: echo of a room
location: Minami ku Yokohama city Kanagawa pref.
date: aug 3, 2001

This work is the same concept as track 5, except a sine wave test signal instead of an airplane sound marks the space. For this piece, a microphone and an oscillator are connected to switching equipment, which repeats an intermittent operation. This switcher activates a microphone only when the signal is off.

Due to this structure, only the reflection of the signal can be recorded. In a fixed position in the room, a loudspeaker replays prepared test signals of different frequencies. These frequencies are: 504hz, 806hz, 1007hz, 1987hz, 2909hz and 4064hz, respectively.

7: crickets

location: Nagaura bay

date: aug 11. 1997

It is a simple sound when hearing it just for a moment. But the powerful chirps of a large number of crickets makes an interference like a high frequency rectangle wave.

8: above/below

date: sep 2001

A microphone changes air vibrations into an audio signal. An audio signal is an AC signal in which frequency and amplitude are processed as voltage change in an electronic circuit. Here I used a gate device in order to catch sound volume changes, i.e., amplitude variation. This equipment separates a signal into two parts: the signal above a certain voltage, and the signal below a certain voltage. By using this device we can observe dynamic amplitude change. The final audio piece consists of: the left channel audio signal from above the fixed voltage, and the right channel from the signal below a fixed voltage. I expanded the left channel several decibels, in order to simplify the listening experience.

9: middle of a hill

location: Kurosaki no hana Miura city

date: jun 12. 1995

I made this recording in the evening in the middle of a hill near the seashore.

10: rocky coast on a windy day

location: Arasaki Yokosuka city

date: mar 16. 1996

It was recorded in afternoon.

11: cedar forest of a windy day

location: Enkaizan mountain, Yokohama city

date: feb 1. 1993

Recorded in a cedar forest on the day after a big rainstorm passed through. Many Japanese cedars had been cloven in the half by the storm.

12: bottle + signal 121hz
13: bottle + signal 111hz
location Gallery KIGOMA, Kunitachi Tokyo
date: oct 1995

I have been interested in the acceptance of "beats". We usually do not recognize "beats" as two simple sounds which differ slightly, rather, we perceive them as one sound phenomenon. Because we perceive one image by a pair of sense organs (left and right ears and eyes), the perception of "beats" will be a matter related to the origin of our conscious experience. For this work, a microphone is installed into a wine bottle. The most conspicuous resonance of the bottle is approx. 120hz. This physical vibration is reproduced from the right channel in both tracks 12 and 13. A sine wave is reproduced from the left channel of each track: 121hz and 111hz waves for tracks 12 and 13 respectively. In this work, we may regard a sine wave as a kind of ruler for the resonant sound of the bottle. A physical vibration and a sine wave interferes between your speakers and "beats" happen. Aspects of these "beats" change according to the position of your ear compared to the position of the loudspeakers. With this structure, we may hear dynamic pitch change of the resonant sound.

14: ship passage
location: Misaki bay Miura city
date: dec 19.1998

Two microphones were installed on the inside of a vinyl chloride float. The length of the float is 1m. At the end of this recording, a large fishing ship passed through the small canal of a bay. Here, great frequency and amplitude change are observed. Also interesting are some overtone changes.

15: Islamic chant
location: Cemberlitas, Istanbul Turkey
date: mar 26.1998

I visited Turkey in the spring of 1998. This was recorded at noon on the balcony of a three story building near the bay. In Islamic countries, as we know, a reading of the Koran is replayed from the pinnacle of a mosque several times a day. The time of this reading is determined by the lunar calendar and direction, and has small variations each day. It changes also with areas. However, the start of actual declaration is not strict. There are an abundant number of mosques in Istanbul, as this recording makes clear. In what geographic range does this sound exist? How far does this sound cluster travel?