

# Symphony of the Siege

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“Sound Lifeline”  
by International Burch University

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Within the work package 7, entitled “Sound Lifeline,”, the team at the International Burch University (IBU), has been exploring the relationship between sound, space/architecture, and memory as it relates to the experience of the survivors of the siege of Sarajevo (1991-1992) applying research to create approach where the scientific research supports the artistic creation and vice versa.

The electro-acoustic composition “*Symphony of the Siege*” by Haris Sahačić is one of the three artistic components of the Sound Lifeline project and is an attempt to spatialize and recreate some of the key experiences described as sound memories through the fifteen testimonies in the documentary “Narrating the Siege” by Lejla Odobašić Novo and Emir Klepo. It is intended to be listened to after watching the documentary and before experiencing Mirsada Zećo’s sound performance, or ‘sound bath’ entitled “*Peace*”.

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# Symphony of the Siege

Electro-acoustic sound composition

by **Haris Sahačić**

# Symphony of the Siege – The content

## Overture

*Inside the sound barrier,  
the fissuration of the echo.*

## Act 1 - Birth of the Distance

*In the circle of time,  
resistance of the space,*

*Streets of walls,  
path of steps,*

*Trajectory of the lead,  
and tremor of asphalt.*

*A knot of the air,  
as a ricochet of the darkness.*

*The silence of the pressure,  
breath of the moan,  
as blade of flame.*

## Act 2 – Architecture of the Ricochet

*At the oculus of consciousness,  
whiz of conscience.*

*Flap of wings,  
as Nocturno  
in the room of freedom,  
in the rain of glass,  
a tact of fear,  
a dance of light.*

### Act 3 – Abstractions of the Resistance

*Cataracted frame,  
and Corridoristia,  
Nagasaki Blues  
as an aggregate of silence.*

*The dynamics of life,  
for radio warmth.  
diffusion of tree rings  
as exodus of leads.*

*The torch  
of de-literalization,  
as the heartstone of truth.*

*With Hertz,  
without flow,  
in the rhythm of the rain.*

### Act 4 – Calibrating the Silence

*At the corner of the childhood,  
the resonance of evil,  
protocol of agony,  
and friends from the hood.*

Throughout the interviews for the “Sound Lifeline” project, when the witnesses were asked about the soundscape of war, silence stood out as the most prominent sonic memory. In fact, silence also amplified awareness of the absence of daily life processes. Silence is therefore conceptualized as a “basic tone” that aesthetically separates and emphasizes each individual sound and allows it to exist as its own entity within this electro-acoustic composition, “Symphony of the Siege.”

Like most sensorial experiences, the interpretation of sound is individual. Likewise, “Symphony of the Siege” was created with the desire to portray the relationship between individualizing collective experience and collectivizing individual experiences (in this case, the siege) through the medium of acoustics, whereby the sound itself functions as a document of acoustic reality.

By acoustically recreating the individual sound memories of the witnesses and arranging them into a new composition, this electro-acoustic piece aims to question the relationship between the collective and the individual war experience, between silence and sound, and between memory and space. The piece allows the listener to experience the reconstructed sounds of the siege, based on the fifteen testaments of the witnesses interviewed for the project.

The composition is interlaced with many symbolic aspects, thus number 44, which represents 44 months of the siege, transposed to the acoustic illustration of the siege and its mathematical reflections. The whole piece is set to a Largo of 44 beats per minute, which is set as a tempo that symbolizes the slow passage of time under the siege. Furthermore, as mentioned above, the 4 acts consist of 44 sound miniatures. Each of the 44 sound miniatures is treated as an individual sonic memory representing an entity unto itself, bearing a poetic name with its own spatial, architectural, acoustic, tonal, and temporal identity in relation to the mathematics and poetics of the whole composition.

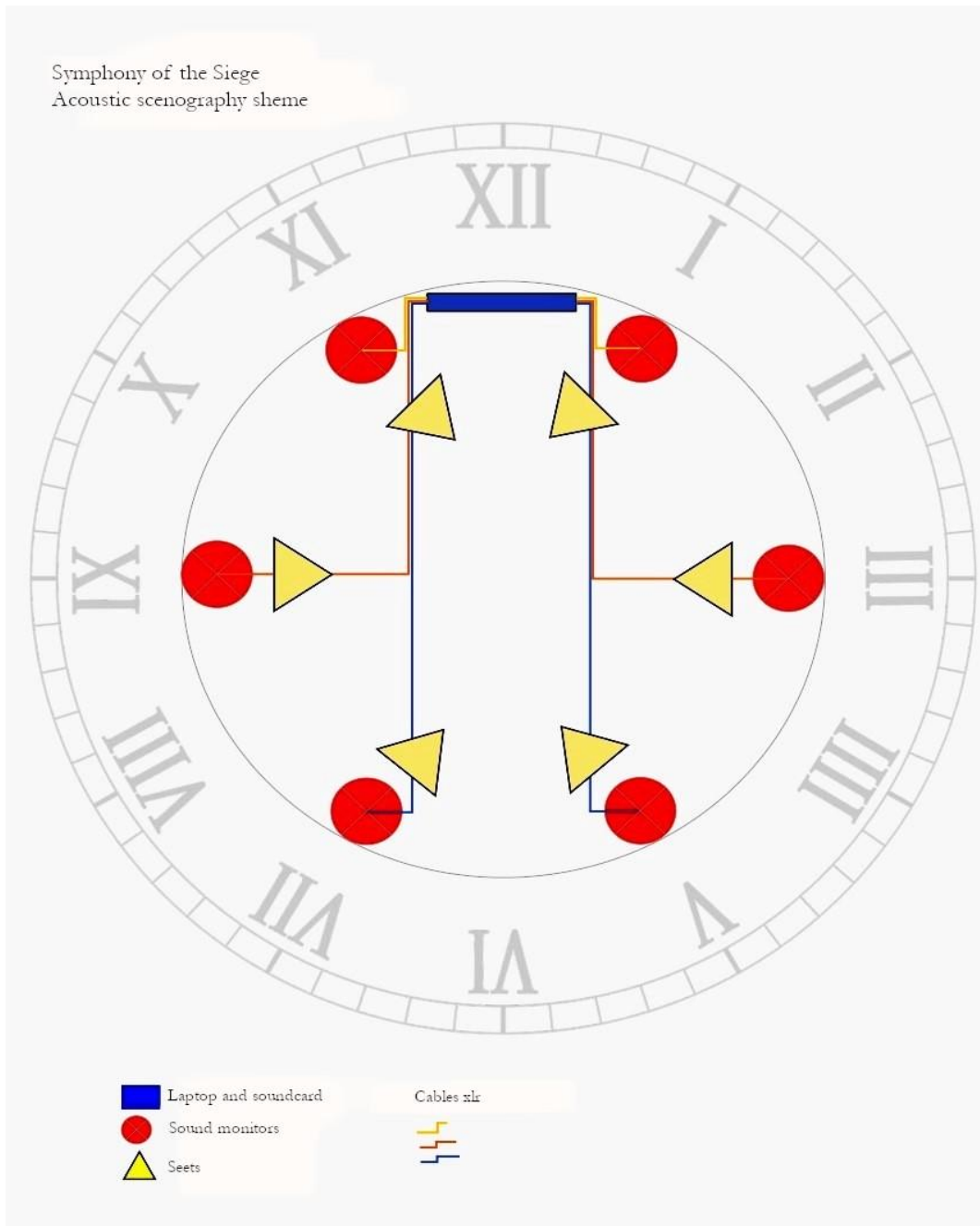
In the artistic conceptualization of the miniatures, the methods of understanding the elements of the aesthetics of electro-acoustic sound composition and its traditional interpretation (such as echo, reverberation, natural exponential diffusion, architectural reflections, noise definition, soundscape, distance, dynamics, center of gravity, source, beat, movement within the sound panoramas of the phantom sound, and tonality) are taken into account by creating a new acoustic space within the gallery’s existing acoustic space, all based on narrated memories of our witnesses. The artistic

conceptualization therefore includes defining sound semiotics within the relationship of these spaces as well as the duration of the whole in relation to its parts.

“Symphony of the Siege” consists of 44 sound miniatures arranged in four acts: “Birth of the Distance,” “Architecture of the Ricochet,” “Abstractions of Resistance,” and “Calibrating of the Silence.” Each miniature is a sound event in itself and it reflects a particular sonic memory of the siege. The acts conceptually move the soundstage from the large urban scale in the first act right down to the most intimate scale in the last act.

The symphony opens with the sound of breaking the sound barrier above Sarajevo, which, according to most of the witnesses triggers the first memory of the siege. The Fibonacci sequence (which, due to the mathematics of exponentiality, best illustrates the nature, form and function of sound) permeates every element of the composition. It does so within the substantive eclecticism of the organization of sound miniatures, a concept constructed to question the physical dimension of space as a given, and also to represent sound as the delimiter of the landscape of the siege, suggesting that space is limited and confining.

The arrangement of audio monitors in the space of the sound reality of the performance - 12 corners of sound sources like twelve o'clock on the clock - represents a spatial matrix for sound reproduction - 6 stereo channels divided into 2 reproduce the sound of 12 mono mix signals for 6 monitors.





This concept is not only enabling the reproduction of individual sounds from different angles, as is usually the case in 5.1 concepts, but in the case of the “Symphony of the Siege” it opens the space for the configuration of acoustic relationships and sound movements within the “phantom sound field” between all 6 audio monitors.



*Symphony of the Siege – Historical Museum of Bosnia and Herzegovina.*

The metronome that permeates the entire duration of the electro-acoustic composition “Symphony of the Siege” and thus marks the rhythmic key that changes from act to act is crucial for understanding the eclecticism and conceptual decisions about the places within the composition where a specific sound is heard. The metronome resembles the ticking of a wall clock, a mechanical sound that marks the reduction of time from 4/4 to 1/4.

The sound of the metronome is positioned on two paired audio monitors. Two audio signals are simultaneously reproduced from two tracks, one with theses and the other with arzas. While the theses are time-synchronized, there is a 44 millisecond symbolic delay between each arza. In this way, the sound of the metronome has been provided with a neutral spatial dimension.

4/4 – First Act – Birth of the Distance

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3/4 – Second Act – Architecture of the Ricochet



2/4 – Third Act – Abstractions of the Resistance

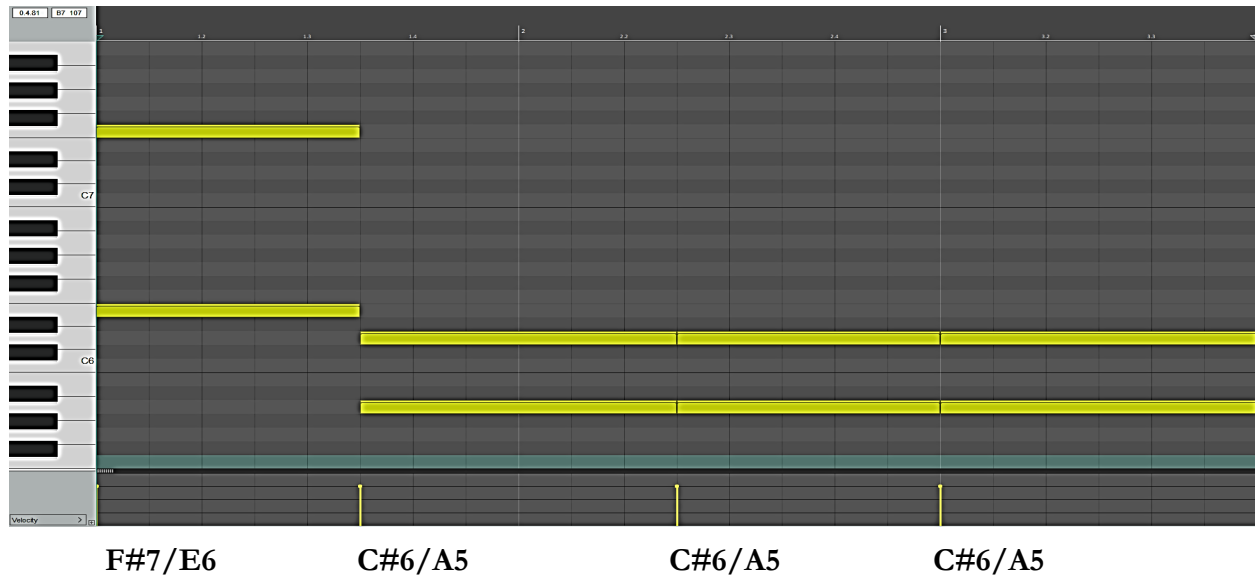


1/4 – Fourth Act – Calibrating the Silence

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In contrast to the acoustic reality of the “Symphony of the Siege,” which is constantly changing and, systematically, through content and concept, places listeners in different acoustic spaces, the sound of the metronome has permanence.



The metronome is placed on two tracks; the thesis (left F#7 and right E6) and arza (left C#6 and right A5) signals are reproduced separately but synchronized from two paired audio monitors so that they additionally communicate the conceptuality of artificially shaped acoustic space and the rhythm that exists within it as a measure according to which each individual miniature is rhythmically organized.



## *Overture*

### **INSIDE THE SOUND BARRIER**

*Džemil Hodžić: ... you have the feeling that the approaching sound is coming at you, so that the plane flies over your head and that's terrifying...*

War is communication, violent communication. The means and levels of this type of communication are numerous, often depending on the context but also on the symbolic concept. For the majority of interlocutors of the B-AIR project, the breaking of the sound barrier, which happened on April 5, 1992, above Sarajevo, represents the first encounter with sound that carried a new acoustic reality.

*Sabina Tanović: ...before the moment when the military plane broke the sound barrier, we were still officially living in peace. There was no official war yet, but that moment of breaking the sound barrier was so terrible and noisy. One sound that all of us experienced for the first time, and it was a confirmation of that kind of feeling that something bad was going to happen. Like a spell. That kind of shock. That was a kind of beginning for me, the real beginning of the war.*

The airplane of the Yugoslav People's Army, MIG-21, which arrives exponentially and at the moment of flying over the microphone, propagates a frequency through the air, which, with an even mathematical progression in accordance with movement and acceleration successively rises and changes, entering through the architecture into the peace and everyday life of those to whom the message refers, sounds as one comprehensive “drums *virble*.”

*Džemil Hodžić: ... as far as I remember, adults saw such planes for the first time in Sarajevo. You couldn't see them before, but they were flying very low, among the buildings, they would disappear into the city and just pop out. [...] You have the feeling that the plane flies over your head.*

On a symbolic level, in which the entire analysis of the sound dimension of the siege of the city of Sarajevo is transposed, the sound miniature called “Inside the Sound Barrier,” which is also part of the overture, contains a connection between nature or its order of atmospheric pressure, the sound of the military technology of that time, the authentic sound landscape of the city of Sarajevo and the sound architecture of the interior.

These elements are the spatial parameters of the “Symphony of the Siege,” and each parameter carries with it acoustic regularities when it comes to the acoustic image. The changes that take place in the space of interaction of the above-mentioned elements are placed inside each other within the sound

miniature, where they should be heard as a chaotic but *unison* - growing sound element that exponentially draws in all the instruments and ends as one *crescendo*, which in the case of the miniature “Inside the Sound Barrier” reaches its peak at 285 Hz, meaning tone C3.

The miniature “Inside the Sound Barrier” is composed of restored video of a MIG - 21 overflight found in the *Associated Press* online archive. The video was reproduced in the acoustics of the living room so that the vibration of windows, glasses in the rack, chandeliers, and clocks was recorded with binaural and contact microphones and saved on separate tracks.



*Recording of dishes shaking in accordance with the sound of the footage of the plane flying over.*

The miniature lasts 10 seconds and contains a total of 24 tracks. The exponentiality of the sound of fly-bys and the relationship between the furniture flickering inside the room were further enhanced in the process of post-production. Ultimately, the sound of breaking the sound barrier is acoustically illustrated from the acoustics of the closed space of the room as an acoustic phenomenon that happens outside and has a muffled manifestation; the bass is additionally amplified; and the detonation sound of breaking the sound barrier was generated with the help of a *pure data patch* for generating thunder.

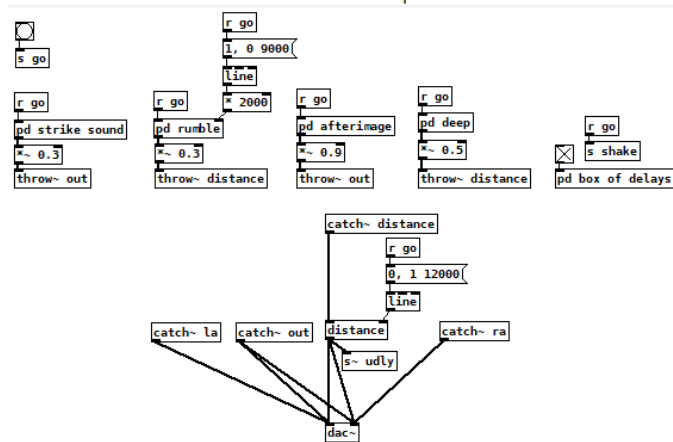
The vibration of the walls was additionally recorded with a dynamic microphone placed in the next room.

## THE FISSURATION OF THE ECHO

The detonation of breaking the sound barrier - developing a speed greater than 1225 km per hour, whereby the object moves through the atmosphere faster than the atmosphere propagates sound - which, muffled by the interior architecture of the acoustic reality from which it was experienced fills the air of the city of Sarajevo basin with a deep frequency of sound (between 40 and 90 Hz, as much as the audio monitors used for the installation “Symphony of the Siege” allow) and reaches to windows, which at first vibrate and at one point the glass breaks.

The sound of the detonation in the distance was generated with the help of a *pure data patch*, but it was also additionally shaped in post-production as close as possible to the sound of thunder in the basin of the city of Sarajevo.

The low frequencies were kept and on a special track was placed a recording of the sound of the original thunder breaking in the valley of the city of Sarajevo, which is in no way different from the sound of a fighter plane taking off.



*Pure data patch for generating the sound of thunder.*

After the sound synthesis, the volume was reduced in order to demonstrate the distance and to create a space of silence for the hyperbolized sound of vibrating windowpanes and breaking glass.

Given that the miniature has its own rhythmic organization apart from the main rhythm of the “Symphony of the Siege” and is capable of functioning as an independent loop, its arrangement can be interpreted as a rhythmic transition.

The sound source is placed 4 meters away, so that the sound of the vibrating window and breaking glass is presented as an interior event. The sound comes from all the monitors but not at the same volume, thus creating the impression of the interior and the dynamics of glass breaking in the same way.

*Zoran Došner: You see traces of glass everywhere and so you have to be careful not to cut yourself.*

The recording of the glass breaking and vibration was done in a studio where the glass breaking was recorded with a contact microphone in order to capture the vibration ending with the concrete sound of the large glass structure breaking.

The miniature “The Fissuration of the Echo” contains the sound of panes and glass flickering; the breaking of one and then several panes is followed by a short exit from the acoustic reality, which artistically opens an acoustic perspective for illustrating the street as a new acoustic space.

*Mirza Ćorić: Every sound is heard, I don't know if you've ever camped in a tent, the feeling of entering a tent, closing it, as if you are in a closed room. Everything is heard, in the tent as if you are lying in a meadow, so it is with foils. Let's say it is very characteristic. There is no sound barrier. You hear everything from the outside. It's like sleeping out, and that's very typical.*

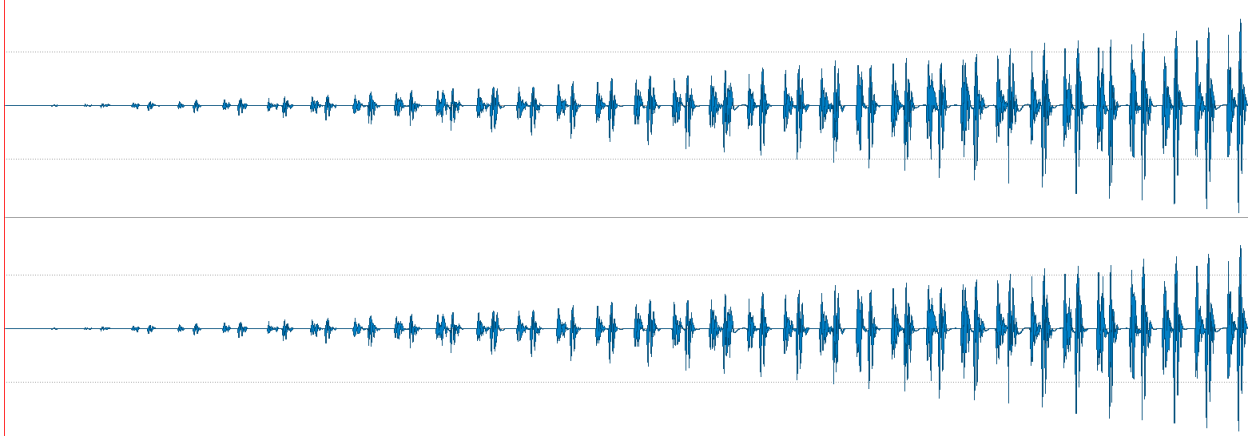
## Visualisation 1

*Sabina Tanović:*

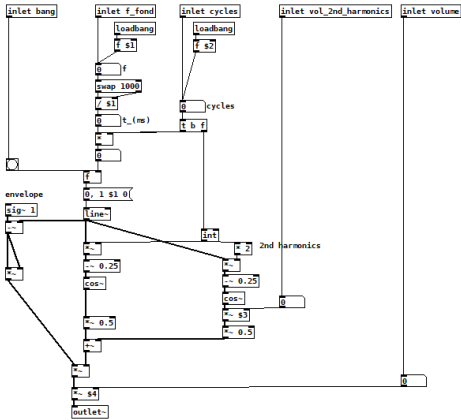
*Silence always opened,  
the possibility  
that,  
something can happen,  
out of the blue,  
that,  
it will find you,  
completely  
unprepared.*

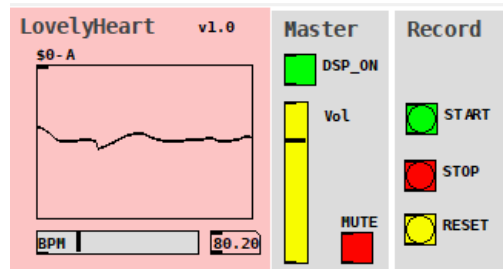
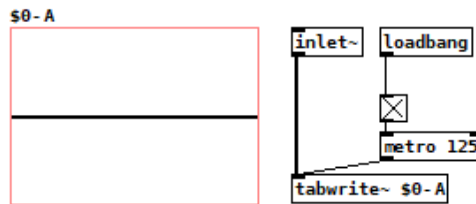
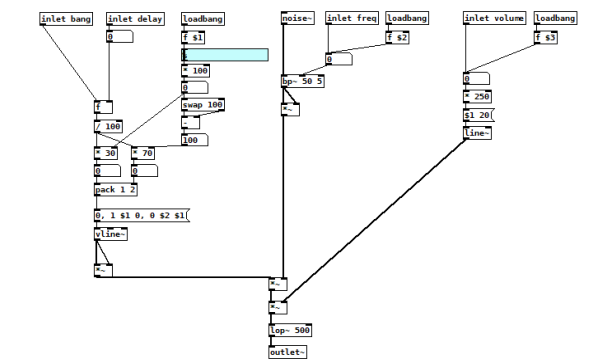


In the acoustic reality of the performance, the sound of the heart's exponential acceleration, which, in three seconds, goes from normal heart function to hypertension, symbolically reduces the audience to a state of fear, connecting them with survivors of traumatic events and acoustically illustrating the dynamics of the arrival of unrest.



The sound of the exponential acceleration of the heart is mathematically generated with the help of a *pure data patch* and all signals are reproduced at the same volume from all channels or monitors. The heartbeats become more aggressive, their volume increases, they become deafening, and they separate the audience from any reality.





*Deconstructed layers of the pure data patch for generating heartbeat sound.*

### Act 1 - Birth of the Distance

**BPM: Largo 44 beats per minute**

**Tact: 4/4**

### IN THE CIRCLE OF TIME

The rhythm of the first miniature within the first act, entitled “In the circle of time,” is conceptually permeating the entire duration of the piece. It represents a rhythmic backdrop within which all the other miniatures are in rhythmic syncopation. The duration of the entire “Symphony of the Siege” is 547 seconds, which, when divided within the 12 sound sources, forms the number 47. This is significant because every 47 seconds within the composition (including the duration of the silence),

listeners hear gunshots from different weapons reproduced from a particular angle, which moves clockwise in the acoustics of the performance.

Sound parameters as markers of the spatial dimension of the siege change exponentially according to the Fibonacci sequence. As the composition continues, the circle of sound sources closes in, and the shooting gets closer while simultaneously becoming more sporadic. Its intensity decreases while the volume increases, and everything ends symbolically on a very intimate scale, with one shot fired at Amel Hodžić, who was killed by the sniper while playing outside of his house.

*Mirza Ćorić: You can always hear shooting, it's somewhere far away. You hear a sniper somewhere, shooting at an intersection, that's reality, and the sound of some grenade somewhere on some line, around the city. It's a sound that you completely get used to.*

In the first act, “Introducing the Distance,” the sound of gunshots sets the stage on the periphery of the city. The beat of this act is 4/4, and within the first second, 233 shots are heard—the position of the sound source is on the left channel of the monitor in the corner of 1 o’clock—the distance of the sound source is 14,400 m. As the composition progresses, the sounds of the shots get closer to the listener, indicating danger narrowing in the 47th second, one can hear the 144 gunshots from the right channel monitor angled at 1 o’clock at a distance of 8, 900 m from the source, while in the 94th second, 89 gunshots can be heard from the left channel monitor angled at 3 o’clock at a distance of 5,500 m from the source.

*Mirza Ćorić:...this reaction varied a lot, probably due to stagnation and intensity, how often and how long something happened, I think the best was a period of relaxation when for a while there were no big fights or shootings, so when it started again it was the worst. One relaxes a little and then...*

Continuing with the narrowing of the spatial distance, in the second act, “Architecture of the Ricochet,” the sound of gunshots and other activities is set at the scale of the street. In this act, the time signature is set to 3/4, and in the 140th second. 55 gunshots can be heard from the position of the sound source from the angle of 4 o’clock, where the distance of the source is at 3,400 m.

In the third act, “Abstractions of the resistance,” the sounds of the siege take us down to the level of the common and residential spaces, where the time signature shifts to 2/4. In the 282nd second, 13 shots can be heard, and the position of the monitor is at the angle of 7 o’clock while the distance of the source is 800m.

*Džemil Hodžić:... as a child, you form an atlas, an encyclopedia in your head and you already know which grenade is from which position...*

In the fourth and final act, “Calibration of the Silence,” the sounds of the siege become those of the resistance to the violence and the time signature shifts further to 1/4. In the 570th second, we can hear one shot from the position of the monitor at the angle of 12 o’clock while the distance of the source is 100m.



*A graphic representation of the exponential amplification of the volume or the proximity of the sound source in relation to the duration.*

The conceptual decision to reduce the soundscape from the periphery through the architecture of the street and further to the halls or acoustics of the home, the basement, in order to finally be reduced to the space of individual spirituality and intimacy, symbolically illustrates the arrival of war in people's

lives. However, in the context of acoustic production, it reveals one dimension relevant to sound and some of its characteristics and forms.

The shootings that take place in the periphery have almost no acoustic identity, no symbolism. These are sound accents reminiscent of knocking on a door or walking in high heels in the distance. As they get closer, the sounds of gunfire begin to gain identity and acoustic context. It is becoming easier to recognize the weapon from which the ammunition and caliber are fired, as well as the three most important parameters for the production of the "Symphony of the Siege".

The acoustic presentation of the space within which the shooting takes place is limited by three parameters. The first parameter is the location of the source of the gunshot, whether it is an enclosed space, or a street surrounded by tall concrete buildings that reflect the sound or an elevated location. The second parameter of the triangulation is the location of the target, which is especially important in the context of reflections or ricochet sound, and the third parameter is the location of the microphone or the acoustic perspective of the audience at a given moment.

While there are other factors, like weapon type of caliber, that influence the acoustic identity of gunfire, they are more related to the source than the acoustic image, which is relevant for the artistic intervention in realization of the conceptual decision regarding the symphony's soundscape.

This conceptual decision is an essential determinant that served as the guiding thread when conceptualizing the symphony's acts, the order of the miniatures, and then configuring the space within each individual sound miniature takes place.

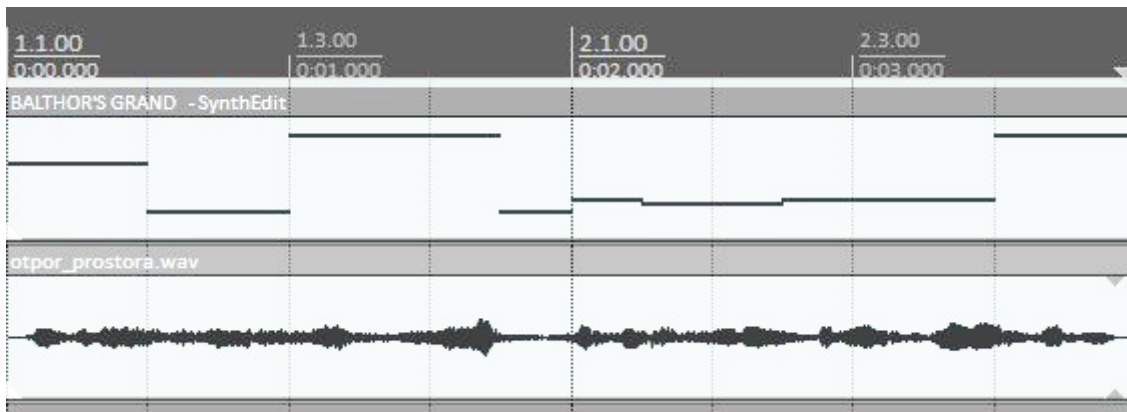
## **THE RESISTANCE OF THE SPACE**

*Džemil Hodžić: We were in the basement, but(...) panic could be heard. Call for help. I remember the man who came and asked for bullets... Someone who is 10-11 years old, becomes fearless in a way, because you recognize what is actually happening. Come on, it's nothing.*

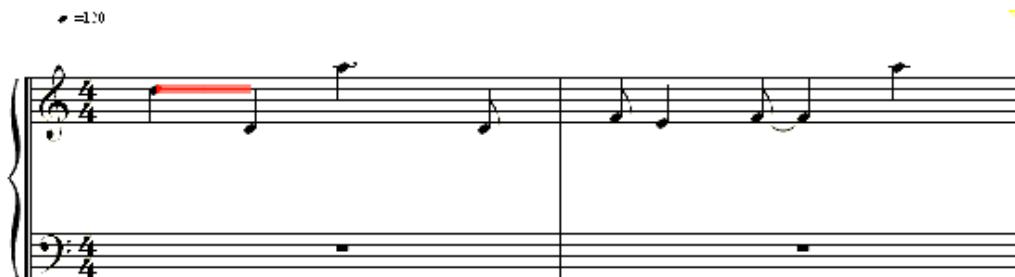
Nihad Čengić: *Tršćanska street is well-known, but now it has a different name. It was one of the most dangerous places.*

After acoustic semiotics through the overture determined the space between the artificially suppressed atmospheric pressure, the basin of the city, architecture, and windowpanes, as well as the relationship within the human organism, and after the first miniature of the first act determined the rhythm of the periphery, which determines the rhythmic matrix, the place where life, resistance, information, and interest take place moved to the street.

The miniature “Resistance of the Space” represents the shouting of people who are organizing on the street. The recordings are authentic: their source is the *Associated Press* archive; they contain the dimension of seriousness, fear, and focus, but also tonality, dynamics, and rhythm. In post-production, each recording was edited so that its space, volume, and position are shaped.



The miniature is configured as a loop where human voices appear as a sequence of different tones (D5, D4, D4, F4, E4, F4, A5). All in accordance with the rhythmic key.

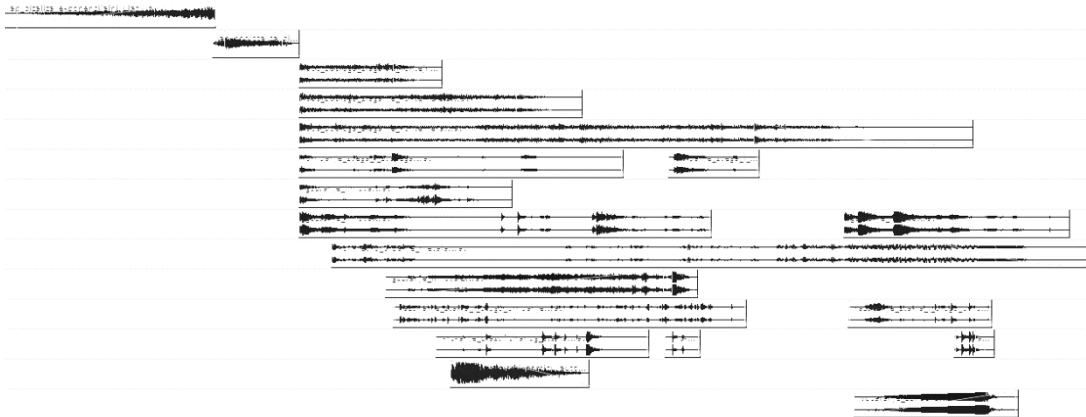


In the context of the channel setting and the acoustics of the electro-acoustic composition, each recording is heard from a different angle and from a different distance.

## STREETS OF WALLS

*Nihad Čengić: I've never done this before, stacking vehicles and making a shield. And that sound was a bit scary. Sound of tearing asphalt. There is still one winding line produced by one bus that we returned to Trščanska Street. So, that French truck and that other truck or bus that needed to be the shield could not be loaded well and the bus was leaning on the asphalt. He tore up that asphalt. The soldiers stopped and said asphalt, and I said, but a sniper.*

The sound miniature “Street of the Walls” acoustically places the audience in the middle of a bus that is lifted, broken, and placed in a certain place by a crane. In order to convey the breaking, crumpling of sheet metal, and creaking of metal parts as “purely” as possible, as well as to design the rhythmic organization of each individual sound, the miniature is composed out of 15 recordings of different sounds subsequently recorded with contact microphones. At one point, the sounds are combined into one specific beat, which is the key rhythmic determinant of the miniature.



*A graphic representation of rhythmically arranged acoustic fragments.*

The volume and position of each sound in the stereo panorama are specially configured on a separate track and then each one has been exported as a separate audio track, whereby the space of acoustics within the electro-acoustic composition as a sound installation is created by pre-produced audio tracks being reproduced from a special angle of each of the six audio monitors.

In order to create the dynamics of the movement, the volume of the particular identical soundtracks that were reproduced from the paired monitors was changed simultaneously, and the position of each of the sounds in the stereo panoramas was not the same. In this way, due to the conceptuality of the symbolic message, a **closed acoustic reality** was artificially created.



## THE PATH OF STEPS

*Dina Memić: The place where I lived and the streets to the left and to the right were among the most frequently targeted, where a large number of Sarajevo citizens were killed and a large number of them were wounded. Also, one of the big dangers was the intersection near the Alipaša mosque, which was a section that was really risky to run over, those were some key points and approximately when you crossed that intersection, the others were not so risky.*

*Mirsad Tokić: The sound of canisters and wheels of baby carriages that were pulled out from the basement and repaired, and empty canisters hitting each other, knocking, is pure poetry of emptiness. and our fullness...*

*Enes Zlatar: People didn't talk much. They walked quietly down the street, when they had to walk, they carried a canister of water.*

All the sounds that make up the miniature were recorded separately: exterior, street, footsteps in the snow, running, or in the atelier for electro-acoustic sound composition with contact microphones. The screeching of authentic war wagons and carriages is synchronized with the beat of footsteps in the montage, as well as the knocking of half-empty canisters against each other.

Carts and canisters with water have been provided thanks to the support of the Historical Museum of Bosnia and Herzegovina. Because the miniature includes stepping and running in the snow, this movement is acoustically illustrated by a mathematical progression of acceleration and deceleration.

The miniature is an acoustic illustration of the movement so that this movement is completely constructed in the stereo panorama between two paired monitors. Sounds from other channels or monitors additionally support the soundscape.

## TRAJECTORY OF THE LEAD

*Paul Lowe: When the French UN established an anti-sniper patrol to create protection from snipers, there was an incredible video of French UN soldiers driving a transporter along the street to protect people, and then someone gets hit by a sniper and they go with the UN vehicle to protect someone who needs to pull out the body of the person who was hit. There was no stronger metaphor for depicting the defeat of the UN.*

The sound of footsteps in the snow and the running over end up slowing down; the footsteps become a walk that begins to be followed by the sound of a UN transporter moving slowly. The movement is captured in the sound panorama of two parallel audio monitors within the electro-acoustic composition's acoustic reality. The steps recording and the UN transporter recording were pre-

produced and exported as mono tracks that have been played back from two audio monitors positioned in parallel.

By successively reducing the volume of the tone on one channel, the impression of the movement of transporters or people is achieved. Other audio monitors are representing soundstage for street acoustics and gunfire from a sound miniature called “In the Circle of Time” and a metronome.

## **TREMOR OF ASPHALT**

*Enes Zlatar: And then, the most memorable sounds were actually those sounds of the second of May 2<sup>nd</sup>, '92. When the Yugoslav Army started to leave the barracks to fight in the city. And there was the tank on the Čobanija bridge, which fired at Kulovič Street and then at Tito Street. I lived near there, that's where I heard everything.*

The miniature represents the scene of a tank approaching the microphone, which is in a closed space of an apartment that has no windows. The recording was created by synthesizing authentic audio recordings of the movement of the tank found in the *Associated Press* archive and another recording made from close range while the model of the T-84 tank is standing with its engine running, on which a sound design intervention was made so that in the process of increasing the progression of the arrival of the tank, amplified and approaching sounds of screeching and scraping on the asphalt have been successively added. The recording is muffled; it is a sound perspective of what is happening on the street, where the microphone or the audience is located in an apartment where the architecture filters and mainly transmits low frequencies, where the furniture shakes in the rhythm of the engine.

## **A KNOT OF THE AIR**

*Nihad Čengić: It is like a dog barking in the distance. This is the sound of some types of grenades.*

*Enes Zlatar: It's that puff in the distance and then just fshshshshs and the explosion of a shell. That's the worst sound. That is the greatest horror.*

*Sabina Tanović: That one whistle when you can estimate exactly where it will hit. You hear exactly that the grenade passed you, that you are safe. So that sound is also the sound of relief. That sound lasts for a few seconds, but it contains both fear and expectation and relief, and that sound is very characteristic and engraved in my memory.*

*Nihad Čengić: They usually say, if you hear a sound, then you are safe. The ones you don't hear are dangerous.*

In the miniature “A Knot of the Air” the sounds of firing the grenade, its flight, and the explosion in the distance are acoustically illustrated. The sound of firing the grenade, which in the distance resembles the barking of a dog, was generated in the studio, silenced, and placed in the distance from where, in the acoustic reality of the installation, it sounds, as the witness described, like the sound of a dog barking in the distance.

The spatial relationship between the place from where the grenade has been fired, the microphone, and the place where the grenade falls is actually a mathematical relationship, and in this miniature, it illustrates triangulation, which is a physical law that must be respected and reflected in the production of electro-acoustic compositions of audio documents.

The sound that a grenade produces during a flight is the result of the pressure of its mass, shape, and speed of movement on the air, which is, in itself, space or acoustic reality. The miniature of the flight of a shell and its explosion in the distance is the result of the synthesis of dozens of recordings found in audio archives published in various places on the internet and the sound created by compression and design interventions has completely erased the “acoustic identity” of the recordings and created a new noise that is neither hissing nor whistling, but simultaneously hissing and whistling, where the duration of the approach, overflight and firing does not last more than one second and ends with the explosion of a shell that acoustically positions the event on at distance of 300-400 m.

The sound miniature “A Knot of the Air!” is placed in the space of the electro-acoustic sound composition in such a way that the same exported mono recording after synthesis is additionally shaped on each channel separately, especially due to the need to highlight in one second the movement of the grenade from one to the other side of the artificially created acoustic reality of the electro-acoustic sound composition “Symphony of the Siege.”



Despite the fact that history remembers that an average of 329 shells fell on the city of Sarajevo per day during the siege, the electro-acoustic sound composition “Symphony of the Siege” treats the shells according to their acoustic manifestations due to the conceptual idea behind the artistic work and intention to acoustically illustrate the sounds of life under siege rather than to present different calibers of shells and their acoustic manifestations.

### **THE RICOCHET OF THE DARKNESS**

*Zoran Došner: there were also shells that have not exploded (...) in our area, on Koševsko brdo, shells flew over intensively, hitting down to the railway station, but they fell on our houses, on our roofs too.*

The sound of a shell that does not explode but only passes through the architecture; breaks everything in its path, bounces off, and finally hisses in the reality of the electro-acoustic composition “Symphony of the Siege,” placing the audience in a situation of waiting for the shell to explode and listening to the hissing preceded by the sound of the explosion.

Unfortunately, it is often the case that the acoustic expression lacks a visual one in order to convey the message. The sound is suggestive, many noises sound similar, and it is difficult to make distinctions, especially when it comes to sound miniatures that, above all, should sound aesthetically clean, conceptually harmonized, short, clear, and, in the case of an experimental project such as the “Symphony of the Siege” documentary, true and based on testimonials.

In the process of producing the miniature “Ricochet of the Darkness,” dozens of individual, studio-produced, and generated sounds were used. In order to achieve hyperbolized and unnatural electro-acoustic purity, the sounds of breaking and destruction were recorded in the studio with contact microphones. With the help of binaural microphones, the details of the breaking that are not even perceptible to the human ear were designed, and many small details that illustrate “acoustic dust” were subsequently inserted so that each sound stands in accordance with the rhythm of the loop.

Every noise produced by a grenade while in flight smashes everything it encounters and bounces off the architecture, has its own track in the project, its place in the stereo panorama, and on each track or audio monitor, its own volume setting. In this way, one unique artificial acoustic dynamic that is ending with the hiss of a grenade that doesn't explode, has been created.

## **SILENCE OF THE PRESSURE**

*Husein Mahmutović: And a grenade fell. One, on a relatively calm day, where you could hear gunfire a kilometer away.*

*Džemil Hodžić: Explosion, shrapnel falling on the roofs, especially if you had someone who had a tin roof..*

The sound miniature “Silence of the Pressure” acoustically illustrates the sound of a shell exploding in the immediate vicinity. This miniature has three acoustic perspectives, realities, and scenes, which in any case are acoustical layers that have a substantive relationship. The sound produced by the shell is too loud to be included in the artwork, which is intended to be reproduced in the museum space and looped every 18 minutes and 22 seconds. However, for all those who experienced the explosion at close range, the sound dimension was largely absent, the sense of hearing was filled with a deafening tinnitus, and the low frequency of the detonation pressure that threw them off is remembered. These are all sounds whose frequency is either too high or too low for the audio monitors to reproduce.

The three perspectives of the sound miniature “Silence of the Pressure” acoustically illustrate the feeling of a person who experienced a shell explosion in the immediate vicinity. All audio monitors are calibrated to simultaneously emit a generated frequency of 45 Hz bass and 6440 Hz tinnitus. In these two acoustic realities or perspectives, sounds of breaking, falling stones, and dust on concrete and sheet metal are integrated.

## BREATH OF THE MOAN

*Husein Mahmutović: When I heard that grenade. I could locate it somewhere nearby (...) mom was lying in a large pool of blood, motionless. She got shrapnel through her neck. Neighbor Pero was dying, neighbor Andrej was also shot in the stomach (...) And neighbor Božo was also wounded and my mother was lying there, and my father was pleading in such a panicky voice. He calls her name, she doesn't move and that's it. There is what perhaps remains the most intense memory of the sounds of war.*

Thanks, above all to the journalists and videographers of BHTV who took the footage immediately after the grenade explosion in Vase Miskina Street, (today's Ferhadija) in Sarajevo, which can be found on the YouTube channel of the Hague Tribunal. the miniature is entirely based on authentic footage without any intervention. The recording acoustically takes the audience through the agony of people looking for help and calling out to their loved ones.

## BLADE OF THE FLAME

*Enes Zlatar: The everyday life of firefighters was that we were on shift. When we hear that siren. That means intervention. There were interventions, constantly, something was constantly burning. From private houses to the front line burning, large, huge buildings (...) My first intervention was in Pofalići. Big skyscraper. The Chetniks would shoot at the eighth floor with incendiary bullets, then we would come with the pipe upstairs, go to extinguish that eighth floor, then they would shoot at the sixth floor. To cut us off, that was their tactic... My first fire was the one where I rushed in to put out the eighth floor, they shot the sixth and I panicked...*

As a continuation of the acoustic illustration of the falling shell and the content of the previous two sound miniatures, the sound of the architecture engulfed in fire that is getting closer and closer and contains the acoustics of the space and a slight echo is a logical sequence of events. In the context of the sound reality of the electro-acoustic installation, different recordings of fire that were generated but also recorded from proximity to be subsequently shaped and rhythmically positioned in specific places, i.e., channels, i.e., audio monitors, stacking sound layer by layer of fire, acoustically created claustrophobic a feeling.

## Visualisation 2

*Nihad Čengić:*

*The silence could have been a threat.  
Silence could also be an instrument of peace.  
The silence was good.*

*Primarily because somehow  
opens a beautiful future  
that the weapon will no longer be heard.*

*Once, when there was silence.  
In anticipation of what is to come  
at that hour or tomorrow we would sometimes,  
silenced that silence and looked for the sound of danger,  
which is associated with weapons.*

The sound of unbalanced breathing, characteristic of panic attacks, recorded in the studio from the immediate vicinity of the microphone without any space, was reproduced from all monitors simultaneously so that, in a specific way, all signals meet in the middle of the sound reality of the electro-acoustic composition “Symphony of the Siege.”



*Act 2 – Architecture of the Ricochet*

*BPM: Largo 44 beats per minute*

*Tact: 3/4*

The second act of the electro-acoustic composition “Symphony of the Siege” is called “Architecture of the Ricochet,” and apart from the fact that by listening to the metronome it is possible to recognize the change in the beat, which has become richer, the acoustic scenography of the microphone's perspective has also changed.

The action slowly enters a closed space, the gunshots of the soundscape that accompanies the entire composition become closer, the sound of street acoustics begins to gain reflections and identity, and war events begin to approach, but in mathematical proportion, the frequency of gunshots begins to weaken.

**OCULUS OF CONSCIOUSNESS**

*Adela Jušić: The snipers are quiet, but we knew what positions they were on (...) so we behaved in accordance with the knowledge of the positions on which they were. There were always situations where we could not predict where a new sniper would appear in a new position.*

The eyepiece of consciousness symbolizes the sniper himself as an optic. As with the physics of the sound of a grenade, in the case of the sound of a sniper bullet or its whistle, it is an authentic sound created by the pressure of the mass and shape of the bullet on the air. It is a great challenge to reproduce this kind of movement in artificially created acoustics. This miniature is composed out of an authentic recording that was subsequently shaped and placed in the acoustic reality of the “Symphony of the Siege.”

The movement of the bullet through the air is faster than the movement of the shell, and the whistle is higher in terms of frequency, lasts shorter, and resembles the sound of a swallow, only it is much shorter. This similarity in the physics of sound is a foreshadowing of the next miniature, which, in addition to the shattering sound created by a bullet flying through a window, a curtain and hitting a wall, precisely connects the sound of a bullet whistling and the sound of a bird.

## WHIZ OF CONSCIENCE

*Mirsad Tokić: Those sounds that were urban, disappear, and suddenly the birds start...*

The miniature is symbolically but also rhythmically linked to the previous one, and the recording of a swallow whose song frequency corresponds to the frequency of the sound of a bullet passing by the head or by a microphone on a symbolic level questions the similarities of sounds as well as the context in which they are heard.

In the reality of the electro-acoustic sound composition “Symphony of the Siege,” the swallow is heard from the same audio monitor from which the sound of the bullet from the past miniature is heard. Unlike a bullet, it does not leave behind a veil of brittleness. The question is, to what extent do the sounds of peace or swallows and the sounds of war or bullets meet in consciousness and conscience? How much of all this can be considered prolonged trauma?

## FLAP OF WINGS

*Nihad Čengić: The city of Sarajevo was a whole during the siege. A really, sometimes completely deaf city. Freed from everything human, you could only hear nature. Leaves, birds. And that lasted a long time. It seems that our sensors have been organized somehow differently.*

The recording of the flapping of the wings of a dove is a rhythmic transition and neither has movement in the acoustic reality of the electro-acoustic installation “Symphony of the Siege” nor does it have space. This miniature is a poetic decoration that relies on the poetic observation of the witness, Prof. Nihad Čengić.

## AS NOCTURNO

*Dina Memić: ... I started playing and practicing a lot more, although getting used to it was pretty much the same, it was difficult because they didn't know, since we had, I don't know, blinds on the windows, blankets, that remained on the windows, even though there was already this big thick concrete wall behind it, they continued to shoot at our apartment. It was very difficult for me to get used to hearing that sound. At one point I relaxed, that's how I practiced, I played the piano, they shot, and I heard it, that's how my practice went later...*

A recording of a piano practice where several tones from the composition Nocturno Op 9, No. 2 by F. Chopin can be heard in the room acoustics, in addition to acoustically reconstruction of the testimony, are symbolically contrasting the relationship between music, peace, or harmony and the sounds that are part of the soundscape of the siege, but also those sounds that follow in the next sound miniature.

The recording of the piano is positioned in one corner of the room, slightly away from the microphone and played from one channel, i.e., from one audio monitor within the acoustic reality of the “Symphony of the Siege.” The other audio monitors reflect the soundscape and gunfire from the street.



## IN THE ROOM OF FREEDOM

*Dina Memić: From those machine gun nests from Vraca and the Jewish cemetery, our apartment was the target of fire for about 15 minutes, we barely managed to get out, over the balcony, the fire did not stop (...) The panic was so overwhelming, the bullets flew by through the entire apartment and went out to the completely opposite side of the apartment, the piano was damaged in that shooting in our apartment. I remember, the bullet entered the piano block and when it came out, it made a bigger exit hole. Even that veneer and that wood separated, but fortunately, the instrument case was not damaged.*

As a continuation of the previous sound miniature, piano practice and composition Nocturno Op 9, No. 2, have been abruptly interrupted by the sound of gunfire across the room. The gunfire produces the sounds of snapping, microphones rushing around the room, bullets whizzing overhead, glass shattering, wooden objects breaking, ricocheting off walls, and objects falling around the room.

All sounds were recorded individually in the studio and then rhythmically arranged on different tracks, from which they were reproduced in accordance with the dynamics of the movement of the microphone from one side of the room to the other. The entire acoustic reality is completely artificially shaped.

## **THE RAIN OF GLASS**

*Nihad Čengić: I have never seen glass shattering after the demolition.*

The sound of movement on the glass in itself calls for a contact microphone recording, because the crackling of the glass and the recording of the acoustic trail left by the crack as it spreads through the glass surface are typical picaresque for fans of concrete music.

This purity of sound could not be bypassed, so this miniature, which represents a step outside of the aspiration towards documentary realism - with which the electro-acoustic composition "Symphony of the Siege" exudes - because it questions the acoustic symbolism that is a part of the witness's memory through aesthetics, opening a space for thinking about acoustic semiotics.

The sound miniature places the audience in the space of a glass crack and represents the breaking of glass fragments hyperbolized, without space or movement within the installation. Each channel has a different concept of glass-breaking sound fragments, and all sound fragments are rhythmically organized. Each recording was made in an electro-acoustic sound composition studio.



*Detail from the recording of the glass breaking.*

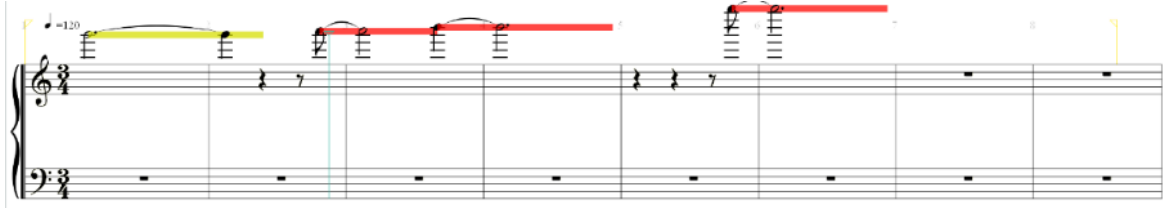
## TACT OF FEAR

*Nihad Čengić: A few sniper defenses were already in place at key locations, but this was insufficient to protect people from sniper shots. We made the decision to use all vehicles that are visibly unusable.*

*Dina Memić: There was that risky intersection, there were placed containers, the big ones that you could normally see in the stadium during the siege, I had to run through the intersection and I was alone. I witnessed several times when someone was injured at that intersection in front of my eyes. So even going to those children's theater rehearsals within my neighborhood was quite risky.*

*Adela Jušić: We were very close to the enemy. They didn't really need a sniper to shoot at us. They could practically see us from their trenches.*

The sound of the shots, by which the sniper shooter lets people know that he is active and that he has time and ammunition, is organized as a mini-composition of four tones (F#6, A#6, B6, and G7), where the perspective of the microphone is actually in the room but clearly follows what is happening on the street where a sniper shot from a distance, the intense acoustics of the street, the impact of a bullet on a metal plate, and its reverberation in a certain tonality can be heard.



Each shot produces a different tone and the last one misses the target, leaving only the echo of the acoustics after the shot is heard. The recording of the shot and the acoustics is an authentic recording of a sniper shot in Sarajevo no more than 500 meters away, while the recording of hitting a metal object is a sound that was subsequently recorded at an authentic location in Sarajevo where sniper bullet holes remain.

In the acoustic reality of the electro-acoustic sound composition “Symphony of the Siege,” the sound is distanced so that there is an adequate distance between the place where the sniper shoots and the place from the perspective of the microphone or the audience.



*Detail from the authentic location, Vilsonovo šetalište – Sarajevo.*

## THE DANCE OF LIGHT

*Nibad Čengić: The sounds of boots are also something I remember... so, these are measured steps and you can judge the condition of that person by the steps. The police, going around the building looking for a sniper.*

The rhythm of the unit's steps moving in sync through the entrance space is completely staged; the recording was made behind closed doors and puts the audience in the position of a person who is listening to what is happening behind the door.

The footsteps approach the microphone behind the door and continue to realign as they run towards the upper floors. The recording was made by one person, who is also the microman and author of the "Symphony of the Siege," running up the entrance hall steps at different time intervals, stopping at different places and continuing. In this way, the sound of the movement of eight different people moving around the entrance hall in different ways was created on eight tracks.

All tracks were exported as one stereo track, where each track had its own place in the stereo panorama. The final track was played from one audio monitor, and the other monitors supported the muffled acoustics of the entrance hall.

### Visualisation 3

*Dina Memić:*

*Silence in moments of  
silence among people.*

The sound of a tallow candle crackling was recorded from close range from the same source with multiple microphones, where the candle was sprayed with water so that the crackling took shape.

The perspective of the audience is poetically unreal; the movements of the tallow candle fire and its crackling surround the audience because the same audio signal is captured from different angles, with different microphones, placed on different tracks and played from different audio monitors.



### **Act 3 – Abstractions of the Resistance**

**BPM: Largo 44 beats per minute**

**Time signature: 2/4**

The third act of the “Symphony of the Siege” is called “Abstractions of Resistance,” the beat of the metronome is more present; the rhythmic miniature “In the Circle of Time” that successively approaches makes one more defined soundscape; the shooting is sporadic and acoustically integrated into the neighborhood, hall, apartment, and basement.

The miniatures individually treat acoustic phenomena that are as close as possible to the microphone.

#### **CATARACTED FRAME**

*Mirza Ćorić: Most of the apartments lost glass windows very quickly, then we got these UNHCR foils that have some kind of thermal insulation. They are used so that you don't have wind blowing through your window, but they don't have any sound insulation at all. You have a constant sound in the apartment as if all the windows were open.*

A short, rhythmically organized recording of the wind entwined in torn plastic film hanging on the window ends with corridor hall acoustics and echo. In the space of the acoustic reality of the “Symphony of the Siege,” the recording is as close as possible to the audience; the movement of the foil is fragmented into different channels and reproduced from different audio monitors so that the dynamics of the movement are achieved. The acoustics and echo with which the miniature ends are reproduced from all audio monitors are reproduced equally, creating the impression that the audience is in the corridor hall.

#### **CORRIDORISTIA**

*Mirza Ćorić: Since there was no electricity and water... you don't have television, people don't go to work, then you hear neighbors from other apartments talking, you hear people in the corridor hall who are hidden from the shooting, then everyone is in the corridor hall, you hear a murmur of conversation, lots of voices, lots of everything...*

*Nihad Ćengiċ: Each corridor hall was an organized system that necessarily cooperated with other corridor halls.*

*Sabina Tanović: It is a vertical space, with an air space in the middle where the dominant material is concrete and metal, which in the context of children's play and use of that space, created a specific echo of the use of that space. Let's say today when I pass through that staircase, I always have certain associations with certain events that happened in that*

*space. And that happens directly through sound, that is, through sound in such a way that my steps echo when you climb the stairs or when you call someone from the first floor to, I don't know, the tenth above. And it is a very specific construction.*

Corridor halls have special acoustics and all conversations in corridor halls contain sound that reveals the size of these spaces, which seem to endlessly reflect the sound. The audio recording that the sound miniature “Corridoristia” was made of is an authentic Sarajevo corridor hall where two women appear while talking, at first incomprehensible, and as the microphone approaches them, it becomes clear what they are talking about. At first, the acoustics are heard, and only later, the source of the sound is heard, after which a baby cry is heard. The sound miniature “Corridoristia” intersects with the soundscape of the miniature “In the Circle of Time,” where through the broken windows of the corridor hall and the mixed reflection of speech and echoes, gunfire can be heard that came closer than 300 meters.

## NAGASAKI BLUES

*(Dedicated to the memory of Nermin Aganović)*

*Mirza Ćorić: For the first months in Sarajevo, all of us were constantly in the basement, some kind of shelter, and since I live in a big building, and there are a lot of such buildings in Sarajevo, I'm sure that almost every building had a neighbor who had a guitar (...) and the neighbors played and sang during the day and while they were in the shelter, they sang some songs just to make them forget what was happening, to drown out the sound coming from outside, to divert the children's attention from what was going on.*

“Nagasaki Blues” is a sound miniature that contains, in addition to sound elements relevant for understanding the acoustic reality of the siege of Sarajevo, a musical performance that was actually recorded long before the idea of the electro-acoustic sound composition “Symphony of the Siege” was born.

The musical performance, which was originally called “*Kitty Katty Walked on Piano, Shaggy Pumpky, Plus!*” and “Nagasaki Blues” is only a small part of that spontaneous music performance, created thanks to the friendship of Ramiz Murtić, whom the audience has the opportunity to hear playing the accordion, Nermin Aganović who spoke about many things with a guitar solo and the author of these lines, who played the harmonica for the first time in his life and thereby bothered two real music artists.

The recording was made in the studio of the student e-FM radio, and Draško Marijan was behind the mixer. The artificially created acoustic reality in which “Nagasaki Blues” is performed has been measured and applied as an effect with the help of the *IR Reverberator*. The same effect was applied to the acoustics of the previous miniature called “Corridoristia.”

The idea of the miniature “Nagasaki Blues” is an acoustic illustration of the resistance of the city of Sarajevo. The miniature rhythmically and musically connects the spontaneous and emotional artistic expression, the gunfire, and the acoustics of the corridor hall, which unites one of the key semiotic contrasts of the “Symphony of the Siege” as a filter, conceptually commenting the relationship between the sound of destruction, which at one point is covered by the sound of musical creation that unequivocally comments on the acoustic dimension of the siege.

#### AGGREGATE OF SILENCE

*Nihad Kreševljaković: Since we were close to Mjedjenica, close to the city command, and later UNPROFOR was also there, in the evening, when there is complete silence, you can hear the humming of generators from that barracks.*

*Enes Zlatar: In the special unit of the police, whose base was right across the street from those rooms, they had electricity from the base 24 hours a day or by generators because it was a priority, so there was always electricity for training, which was great because that was a big problem for bands that didn't have electricity to practice, we were lucky so we had, and it was 1994. I had a cable, since my apartment is right next to the fire brigade, so I transferred the cable from the fire brigade to myself, so when they turn on the generator, I also get electricity in the apartment.*

*Džemil Hodžić: And now, maybe because I was a child, maybe because I played football the most at that time, but I remember that there was a battery and that a friend had one generator, so sometimes there is no fuel, sometimes the battery runs out, but I remember those little televisions.*

The sound of the generator is in no way different than the sound of the engine; the sound of the generator was recorded later and placed in the distance to make it easier to artificially edit the acoustics of the city of Sarajevo, which at one point is intersected by an authentic recording of a burst in the distance, which is part of the miniature “In the Circle of Time,” portraying in this way the acoustic reality of the Sarajevo basin.

## THE DYNAMO OF LIFE

*Enes Zlatar: He connected the radio to the bicycle dynamo, then he would sit and pedal and listen to the Radio ZID.*

*Mirsad Tokić: Television was broadcast over the radio. When everything is cut off, you don't have electricity, and then you have a child on a bicycle. Turning the dynamo would enable us to hear the music that we broadcast again through some small generator.*

An authentic prop composed out of a dynamo taken off a bicycle and connected to a light bulb with the help of two wires was recorded thanks to the History Museum of Bosnia and Herzegovina, where this artifact is kept. The recording was made from close range, with a condenser, one dynamic microphone, and one contact microphone that captured the movement.

Such props were not only used as lamps but were also used to power radios. The sound of the dynamo turning is rhythmic but irregular and in the acoustic reality of the miniature, this sound ends with radio static noise that is electro-acoustically shaped in the installation space so that crackling is rhythmically arranged and the sound of white noise fills and covers the entire background.



*Detail from the recording, Historical Museum of Bosnia and Herzegovina.*

## RADIO WARMTH

*Mirsad Tokić: It meant life. Literally, the transistor or that sound in the ear meant a lot.*

*Enes Zlatar: And we either get batteries or that cable from the firemen. The most important thing was that we had a radio.*

*Paul Lowe: The sound of music was very important, you could go to places like Obala and be in a way protected underground and at the same time have an incredibly intense party or concert with very strong and aggressive music that surrounded you with the amount of sound and noise.*

*Mirza Ćorić: I was lucky enough to be a part of the movie "Scream for Me Sarajevo." In 1994, when I was fifteen years old, I was at that concert and it remained incredibly etched in my memory (...) really an incredible event in the war, as if someone took you out of Sarajevo and put you in some part of the world where there is no war.*

*Adela Jusic: It was an experience that we can describe as cultural resistance and it was like an infusion for all of us. Being able to go to a concert and feel normal, feel young and participate in some kind of entertainment. In fact, it gave us the strength to live through all those days of siege.*

The miniature "Radio Warmth" is actually a kind of walk through the radio scale, where small fragments of recordings of wartime concerts of Sarajevo band Sikter are rhythmically combined but, due to poor radio reception, transverse into a recording of Vedran Smajlović playing the cello, which is then interrupted by poor signal reception and a crackle, after which you can hear the voice of Bruce Dickinson thanking the audience for coming to his concert in Sarajevo.

Each individual insert is reproduced separately from a separate monitor, where the noise of radio static is integrated into everything, which randomly switches from one reality to another in the radio spectrum. This sound miniature, like all the others, is rhythmically organized and stands as a loop in accordance with the metronome, but also with the sound miniature "In the Circle of Time."

## DIFFUSION OF TREE RINGS

*Nihad Čengić: The sound of wood splitting. The question arises, where did you get the wood from? That's the first question. My family, we managed to buy wood once. But somehow we saved them for just when we needed them. Not knowing that the wood should be chopped immediately. They dried up, they were big pieces. And it's a completely different sound. I learned this later when I cut fresh wood, a completely different sound when the wood is fresh and when it is dried. And when it dries, you need a lot more power and the sound is kind of deeper, shorter. Because your ax hits and bounces off that tree.*

*Mirza Ćorić: One of the characteristic sounds for my building during the war is the chopping of wood in the apartment (...) because we were all heated with wood and then someone always goes out on the balcony, puts wood on that stump and rips off those small cobs to start a fire until put that big tree and you can always hear that ax hitting that stump, someone is always chopping wood, that disappeared when the war ended. The ax is gone, that's characteristic.*

*Džemil Hodžić: The first of the sounds that I will never forget, now, I don't know exactly how and what the reasons are for that. People cut wood and then dragged that wood to their houses, and this was usually done at night when snipers and the Serbian army could not see them. Since no one had windows, we had nylon foil on the windows. That hauling of wood was very audible. You used to be unable to sleep through the night. And you simply don't complain because your father or my brother did the same thing, let's say the night before. In the morning you have to cut and split, all those sounds remain, even though we may still hear them today in a different form.*

The sound of splitting and cutting wood was recorded with contact and binaural microphones in the most diverse acoustic environments, such as a balcony, basement, house, street, or room and placed rhythmically on different channels, thus creating dynamics of movement within the acoustic reality of the “Symphony of the Siege.” The miniature ends with the sound of pulling branches on the asphalt.



*Detail from the recording, Historical Museum of Bosnia and Herzegovina.*

## **EXODUS OF LEEDS**

*Adi Sarajlić: The sound of gas, you had to recognize it well and notice it, based on the sound you could guess whether it was releasing or not (...) in fact, what we have worked with gas in the war, it is incredible that it did not kill us more than grenades and snipers. We connected to the gas, there wasn't a pipe, or some kind of certification, but the cable goes from window to window, and that's how we took gas from one entrance to another entrance and brought it in like this. You literally take a sling and attach a piece of metal with 3 holes to it and push it into something called a furnace, an improvised, closed one, and then you have something like a valve, like a fountain, literally made, and you unscrew it, and the gas begins to hiss with full force.*

The sound of hissing gas and its movement through improvised gas installations was placed on several tracks and compressed and shaped in such a way that it gained presence in the installation's acoustics. The arrival of gas in the system is aggressively exponential and therefore amplified to the limits of hyperbolicity. The idea was to illustrate the fear people felt while trying to keep warm on improvised gas installations.

## BUKTINJA

*Džemil Hodžić: I remember the gas. Gas is... A stove, which is made of tin boxes. Only made so that you can heat up, boil water and when you turn on the gas, the stove fills up but the lighter can't and then when the lighter catches it then vubh (...) I never wanted to do that.*

Just like the sound of the arrival of the gas, which exponentially creates a sense of fear, the sound of ignition and the first combustion of the gas is acoustically illustrated by the fact that the flaring in a moment encompasses the entire acoustic reality of the “Symphony of the Siege” with deep frequencies. The beat is irregular; that's how it was recorded; it was subsequently shaped rhythmically so that ultimately the rhythmic fragments are placed on different tracks and then reproduced on different audio monitors.

## DELITERALISATION

*Džemil Hodžić: But many books were burned...*

The recording of tearing paper places the audience in an unreal position; the sound is unnaturally close, concrete, and rhythmic; there is no space, and the audience has the impression of being inside a book being torn by some hands.

After the recording was rhythmically edited, it was exported to each channel, where the volume was changed on each channel in a separate place, and each channel was played on a separate audio monitor. This approach enabled dynamic movements within the reality of the installation.

## THE HEARTSTONE OF THE TRUTH

*Mirsad Tokić: The elevators don't work, the people from the skyscrapers all live in the basement, a fire breaks out and then the women boil the diapers on the former papers from the bank.*

Thanks to the Historical Museum of Bosnia and Herzegovina, a recording of the sound of fire crackling in an authentic improvised oven made during the siege of Sarajevo was made. With a directional microphone, a contact microphone, and a dynamic microphone in the semi-interior, the fire was simultaneously recorded from different positions. The signal captured by the directional



microphone best preserved all the beauty and all the sounds that the acoustic scene encompassed; the contact microphone captured the crackle as a concrete signal that was mounted on the base recording as decoration. A dynamic microphone recorded the sounds of the environment so that it was possible to reduce them and subsequently manipulate with them the relationships between the concrete crackling sounds, the acoustics of the tin stove, the noises made by the roar of the fire, the atmosphere of the interior with a strong influence of the exterior and the sound that comes from the correlation with the miniature “Inside the Circle of Time.”

As is the case with all the miniatures in the “Symphony of the Siege,” this one is shaped like a rhythmical loop too. The purity of crackling the fire and the closeness of the movement of each branch that wanders trapped among the twigs are organized in a field of phantom sound, so that the signal is placed in the middle of the circle of all audio monitors, the audience has the feeling that they are surrounding the stove, except that they do not feel the heat and do not see the fire.



*Detail from the recording, Historical Museum of Bosnia and Herzegovina.*

## WITH HERTZ

*Adi Sarajlić: It used to happen that we got electricity in the middle of the night. So you don't have electricity for a few months, then you get electricity at 2:00 past midnight. Now, the last time there was electricity, you forgot what was on in your house.(...) And then suddenly, in the middle of it all, your radio starts working. Or your water heater starts buzzing when there is no water in it, but you hear the sound of the water heater because the electricity came on and some electrical devices that had been sleeping for months and were dead woke up. It's as if you have some robots around the house that have suddenly become alive.*

*Sabina Tanović: When the electricity came, everything would turn on at once, the TV, the vacuum cleaner, everything that worked. Everyone suddenly jumps out of bed at the same moment. The radio was the loudest. And then, the goal was to make maximum use of the hour or two that there was electricity, if there was water to wash clothes, although that was rare. But I don't know, from vacuuming to some other things.*

*Mirsad Tokić: Electricity and water never come at the same time, so then water has to be prepared for the machine to work, and then it takes a short time.*

The sound miniature contains 20 layers, and the idea is to create an acoustic situation in the shortest possible time after electricity arrives in the household. Each device, a video recorder that starts rewinding a cassette, a vacuum cleaner from that time, a radio, and a washing machine, was recorded separately in the studio and then positioned in the acoustics of the apartment, which was then reproduced in the space of the electro-acoustic composition "Symphony of the siege."

The TV set on which news can be heard, where the program host announces the news that City Hall is on fire, was recorded by playing the authentic recording of the TVSA news in the space of the room, recorded and inserted into the acoustic reality of the "Symphony of the Siege" in order to reflect the sound of the TV set in the household.

## WITHOUT FLOW

*Sabina Tanović: In the toilet, you can hear the pipes when the water comes, or when there is no water. If it happened in peace, it is a kind of trigger, a memory of the trauma (...) the sound that was unrepeatable is the sound of the water coming. So suddenly you hear the cistern starting to fill up, which was a sign that water was coming. The fountain that remained open. For several months, suddenly the water flows, those sounds start, the air coming through those water pipes.*

The sound of air being displaced by the irregular movement of water in plumbing is an authentic rhythmic irregular syncopation that includes a spontaneous composition. The sound of the disappearance or arrival of water was recorded in peaceful conditions with the help of contact microphones attached to the pipes, i.e., to the fountain, but also with a directional microphone close to the tap in order to capture the specific irregular sound composition of air and water coming out of the pipes.

The miniature was subsequently arranged with the sounds of the water overflowing from the canister and the filling of the bathtub in order to finally obtain the structure of a rhythmic loop, which is positioned in the rhythmic matrix of the miniature “In the Circle of Time.”

## RHYTHM OF THE RAIN

*Adi Sarajlić: When there was a lot of rain in Sarajevo and then we collected rainwater... It was a wonderful feeling... We took buckets, who had what and then we all went out into the street and carried those things. We put them under the gutter, (...) that sound of that rainwater entering those buckets of yours and filling them (...) the rainwater was wonderful, if it ever happens in your life, try to wash your hair with rainwater once, it's an incredible feeling and smell, and then your hair becomes silky to the touch, which you can never get by washing it with tap water.*

The music of the Sarajevo gutters, as it was during the siege, played a role in creating the soundscape of the city. The recording of the snow melting from the roofs of the shops in Kazandžiluk in Bašćaršija was a unique peacetime moment in which the sound of the melted snow falling down the gutters without any rain, which would be an additional acoustic backdrop, was captured.

The recording was made with a contact microphone with the intention of capturing a rhythmical pattern that is melodic enough to be a loop incorporated into the metronome matrix of the “Symphony of the Siege.”

The audio signal was combined into one track and emitted from one channel to one audio monitor within the acoustic reality of the “Symphony of the siege.” Other audio monitors were used to intersect with the sound miniature “In the Circle of Time” and support the acoustic image of the street.

## Visualisation 4

*Nibad Kreševljaković:*

*The beauty of silence is  
for sure  
most characteristic  
knowledge about sound  
that  
man  
during the war  
can bring to his consciousness.*

A recording of a tennis ball hitting the concrete floor once.

## Act 4 – Calibrating the Silence

**BPM: Largo 44 beats per minute**

**Tact: 1/4**

### CORNER OF THE CHILDHOOD

*Džemil Hodžić: May 3, '95 is full of sounds and details that I think I will never forget. My late brother was killed from Špicasta stijena. A Serbian sniper killed him while he was playing tennis. I played marbles with my friends and he played tennis. The brother was 16 years old at the time. I was 12.*

The miniature begins with the shot of a sniper rifle 200 meters away from the microphone; the sound of that shot is part of the miniature “In the Circle of Time.” Within that mathematical pattern, a recording from the children's playground takes place. The sound of children playing with a ball can be heard at the other end of the acoustic reproduction. The recording of the children running after the ball was made with binaural microphones that also capture the acoustic image of the space, which in itself, due to the dynamics of the microphone's movement, becomes variable and seems to follow the ball.

### THE RESONANCE OF EVIL

*Džemil Hodžić: The moment when that sniper shot... I had the feeling that a bullet had gone through my head and I had the feeling that everything went silent and that it was echoing in my head, I didn't hear anything except that shot. At the time of the shooting, I thought it was our soldiers shooting because it was so close and, in those days, it was mentioned that we also have our own sniper who could neutralize the Serbian sniper.*

The sound of putting a bullet in the barrel of a sniper rifle was recorded with a contact microphone in the studio for electro-acoustic sound composition, after which it was rhythmically organized and sonically shaped. There is a brief period of silence after the bullet is inserted into the barrel, followed

by a shot, but from the perspective of the witness, the shot is surrounded by an echo and acoustically illustrates a space of 150 meters. The footage is authentic and taken from the *Associated Press* archives.

## PROTOCOL OF THE AGONY

*Džemil Hodžić: It's seconds, it's maybe two seconds where I get disappointed and see my brother holding his chest and my friend hugging him, and she's trying to hold him or help him. I still don't know that he was shot almost in the heart (...) I went, called my mother, and my mother was home. I told her Amel was hit. I called an emergency. And I brought a blanket while all the other kids were crying and screaming, I don't remember a lot of faces but I do remember the screams and it's the kind of screams that you just have to tune out to focus on one detail. My mom was trying to revive my brother, she's a nurse, she knows how it works, I remember she didn't cry either, but I remember she was pale. So completely, her lips were pale (...) The ambulance didn't come, a vehicle that was there came. Maybe someone else called the emergency because it took them so long. I don't know who put Amel back, I was wearing slippers, I mean, later I thought about where I got my slippers from. In fact, I took my shoes off when I called the emergency.*

The sound miniature “Protocol of the Agony” is a spatially neutral sequence of events that acoustically reconstructs the events after Džemil's brother Amel was shot. After the final editing, all recordings are arranged so that all monitors simultaneously reproduce the same signal from the middle of the sound installation.

A collage composed of sound fragments of authentic recordings of events from the time of the siege of the city of Sarajevo, taken from the *Associated Press* archives, was then additionally sound-shaped. For example, the recording of screaming children in panic is a collage made up of several different authentic recordings in which the children of Sarajevo can be heard either screaming, calling for help or cursing.

After that, in a rhythmically organized and fast exchange of audio frames that are difficult to distinguish due to the rhythm and dynamics, the sounds of a running boy's steps, the sound of a door, the dialing of numbers on the phone, the phone ringing and no one answering alternate with the sounds that were recorded afterwards, mostly with a directional microphone but also with a contact microphone, especially the recording of the sound of an old phone.

In the sequel, the acoustic frames alternate faster, and original and authentic sound fragments appear again in the audio narration: a car coming in reverse and braking suddenly; the sound of putting a wounded person into the car; people's voices; fast driving; arrival at the hospital; the trolley; the atmosphere of the hospital; the voice of a woman kissing her child for the last time and quietly asking why.

The silence that remains after that question lasts until the sound of digging the earth and hitting the same wooden plank starts from all the audio monitors. This sound fragment was created by using the original recording from the funeral of Amel Hodžić in combination with recordings made with contact microphones in the studio for electro-acoustic sound composition.

The sounds of the earth falling on the wooden boards of the grave are spread over all six channels and different noises surround the audience sitting in the middle. The metronome stops beating.

## **FRIENDS FROM THE HOOD**

*Džemil Hodžić: The funeral took place on Saturday, the sixth of May, St. George's Day.*

The original sound recording of a girl reading a letter to her fallen friend in the name of his friends from the neighborhood is slightly removed from the acoustic reality of the “Symphony of the Siege” and edited so that there is no acoustics or soundscape of the cemetery.