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Sonic Affordances of a Sacred Spring.
The Urban Courtyard as a Figure of Rehabilitation of the Medina

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Oasis Water, Rare Element, Founder Element

Water is a fundamental resource. It structures, by its distribution, the oasis habitat and makes it one of the first nodes of human settlement (Goeury and Leray 2017). In fact, the rarity of water and the aridity of the oasis regions have caused communities to establish a very special relationship to water, nourished with many beliefs, sets of rituals, and prayers for the water to remain abundant and to guarantee prosperity for all. This relationship, based on care and protection, reveals a particular conception of water as a sacred matter (Ftaïta 2006). As an essential element of the oasis ambiance, water is the *former*[1] of a unique experience: urban, sensory, and sacred. It is perceived as a giver of life, as aesthetic material, and as the core of collective memory. In water, the founding myth of feminine fertility, *Lalla Zninia*, is embodied (Naji, Goeury and Boumzgou 2016).

This article tackles the interaction between space and sound. It investigates, from an *in situ* sonic experience, the rehabilitation project of the Blue Spring realized in 2015 by the architect and anthropologist Salima Naji. *La Source Bleue* (FR), *Aïn Zerka* (ar-MA pronunciation), is a public space surrounding a natural spring located at the heart of the ancient city of Tiznit, Morocco. The rehabilitation project has favored the acoustic aspect of the spring through the creation of a two-level basin system, resulting in a waterfall of some meters. This new sonorous space has caused certain social practices to emerge and new forms of public behavior to arise. This work is part of a broader research project: *Zerka, la Source Bleue et l'urbanisation des Oasis de Méditerranée*. Conducted in Tiznit in 2015 and in Nefta, Tunisia, in 2016, the project aimed to define the oasis habitat in terms of sensory experiences, ambiences, significations, and attachment.
In this article, I seek to interpret the sonic affordances of the *Source Bleue* following rehabilitation. In order to achieve this, the article weaves three literature reviews: on affordances, thresholds, and ambiances. This triad investigates the interrelationships between the existing sonic ambience and the different types of social interactions and aspects of physical presence – steps, gestures, movements, silhouettes – the sonic environment affords.

[1] The terms *former* or *formants* have been developed by the French architect Grégoire Chelkoff. He states that they come from phonology: "It is a way to link elements of morphology to plurisensory ordinary experience and action, i.e.: what is rather static in architecture (material, permanence of space) to what is dynamic (sounds, light, motion) when we use a space or an object" (Chelkoff 2008: 39-40).

The thresholds act here as the operating tool that helps us to unfold the relation between sonic environment and space affordances. Experimenting with this tool in an empirical study, the first objective is to develop a typology of sonic thresholds that will enable another reading of this space through senses, gestures, and emotions. Drawing upon this, the article highlights a new figure for rehabilitation of urban spaces in contemporary oasis cities.

Sonic Affordances of the Space, Approach by Thresholds

Coined by James J. Gibson – within the field of ecological perception in the 1970s[2]– the term *affordance* questions the visual interaction between an agent (animal or human) and its environment. Gibson states that affordances are determined by both the physical characteristics of an object and by the sensory, motor, and mental capacities of an individual (Gibson 2014). The term *affordance* comes from the verb "to afford" that designates "the quality or property of an object that defines its possible uses or makes clear how it can or should be used" (Merriam-Webster). In other words, it delineates the physical characteristic of the object and its ability to promote usage.

From this perspective, space ambiance plays a major role in determining the affordances of a place as inseparable from the sensory background of an environment, *le fond sensible* (Thibaud 2012). According to Jean-Paul Thibaud, ambiance exists in the way in which the sensory space appears to users and how it gives rise to potential actions. It is as much a reality of the environment as a reality of behavior. If Gibson is primarily dealing with visual perception, in this article, I will put audible perception at the center of our engagement with the affordance theory. Thus, I join other researchers who are reconsidering the sound dimension as either a "resource" (Thibaud 2012: 15) or a "solution" (Pecqueux 2012: 215) in order to decode the articulation between perception and action: how does sound generate and reshape actions? How does it (re)define spaces, create (sub-)territories or mark space-time boundaries?

In "Vers une praxéologie du monde sonore," Thibaud emphasizes the role of sounds as an essential support for action and a fundamental operator of social practices. Considered most often as an epiphenomenon or a secondary consequence of social activity, Thibaud sketches a praxeological approach toward sound in which he associates everyday sounds with ordinary practices. He introduces the affordances of the sonic environment as a tool that helps in "differentiating and characterizing different sound contexts according to the types of action they make possible" (Thibaud 2012: 15, translated by the author).

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[2] The theory of affordances was first introduced by James Gibson in his 1966 book, *The Senses Considered as Perceptual Systems*. However, his best-known definition is taken from his 1979 book, *The Ecological Approach to Visual Perception*.

Anthony Pecqueux clarifies that affordances cannot be reduced to the visual aspect; they are, rather, a set of dynamic phenomena that constantly influence people's perception and behavior. "The sound appears there [...] as a *clutch* to intersensorial situations linked to multiple events occurring in the environment" (Pecqueux 2012: 215, translated by the author). This is why he calls for the "affordances of events" in which he underlines the dynamic nature of the perception related to the body in motion and the perpetual interaction between the sensory environment and the agent who constantly reshapes it. Pecqueux refers to the siren as an audible sign reshaping the user's action: "The sound of the siren works exactly like the affordances in Gibson's sense: not only does it contain information (coming from the surrounding events) but it also promotes actions (stepping sideways or avoiding a priority lane in order to allow an emergency vehicle to pass) (Pecqueux 2012: 222, translated by the author). In addition, Pecqueux insists on the fact that the focus on the sonic dimension is not an attempt to isolate sounds from other sensory modalities. Rather, it means that sound constitutes a primary element in the act of perceiving the environment. It is from this perspective that I aim to understand the sonic affordances of the *Blue Source*. More precisely, I seek to understand the impact of making water audible – while rethinking the relationship between man and water – in affording certain social practices around the spring.

Sonic Thresholds

The intangible character of sounds makes it difficult to understand the relationship between sounds and actions. To facilitate the task, I have chosen to approach affordances via the notion of thresholds. A threshold is by definition what connects and separates two spaces of a different nature, e.g. inside and outside. It is a miniature space having a status of an architectural detail. Far beyond the spatial aspect, the French philosopher Tatjana Barazon has offered an in-depth study on the notion of thresholds in the article "*La 'Soglitude': aperçu d'une méthode de la pensée des seuils*" translated to English as 'Soglitude'- introducing a method of thinking thresholds (2010). The nomadic nature of this term has urged her to elaborate a broad overview of its signification in different disciplines: cinema, art history, ethnology, history, psychology, and philosophy.

Barazon presents thresholds as a "state" or more precisely a "state of in-between" – a moment, a space or perception: the interstices. A threshold is "neither one thing nor another"; it "defines" a vague zone, a state of floating that allows us to understand a situation about to evolve. The threshold raises awareness of a transitional state where things are "never done, but are being constantly done." It seizes the moment when one thing is not yet reached while another is no longer finished, pointing therefore to a state of becoming (Barazon 2010: 4, translated by the author)

With regard to ambiences, thresholds define a perceptual state where perception is shifting towards another sensory world (Chelkoff 2016: 124, translated by the author). Here, thresholds are spatial elements often associated with movement and rites of passage: entering, waiting or leaving, as well as other actions that mark transitional phases along a passage. It is a dynamic state of perception that implicates a body in motion.

We can forge closer links between affordance and thresholds in the sonic dimension. Three aspects substantiate this correlation. The first is related to the meaning of a threshold: its value of transition. Approaching the change in the sonic environment as a threshold facilitates the understanding of affordances: the detection of sonic thresholds – i.e. places and moments where a change in the sonic environment takes place – and figuring out its impact on the social actions makes an assessment of sonic affordances and their modulations attainable. The second aspect lies in the dynamic state of perception related to the body in motion. A threshold marks a change of perception, whether in an emotional state or in the sensory phenomena. For example, when crossing a threshold, one may experience a gradual or sudden fluctuation in the levels of light or sound. It is due to this dynamic state of perception the Pecqueux suggests the "affordances of events," while Chelkoff underlines the mobile state of the body in traversing and perceiving thresholds. The third aspect is the spatial urban configuration of the oasis habitat. The urban fabric offers a series of tiny spaces that connect main spaces; these subspaces single out the walking experience.

Listen, Describe, Represent

As the new spatial configuration, realized by Salima Naji, has privileged the sonic aspect of the water, my objective was to qualify the rehabilitation project of the *Source Bleue* from an auditory experience. The study focuses on two spaces with contrasting sound configurations: *Aïn Zerka* and *Kasbah Aghenaj,* including the adjacent streets leading to the spring. I started with an improvisatory soundwalk in order to get familiar with the context and to select the proper place and time to make sound recordings. The recordings represent the multiplicity of daily life situations, highlight the different components of the aural particularities generated by the presence of water, and therefore reveal the sonic identity of the spring.

Two types of recording were conducted: fixed points and short journeys, the latter helping to explore and understand the articulation between the different sonic ambiances. I obtained a sequence of 17 sound fragments – ten fixed points and seven short journeys – with an average duration of two minutes each. They are all illustrated – localized and numbered – on an illustration of the *Source Bleue* (Fig. 2). This type of representation has permitted me to understand the spatial framework conditioning the emergence of the sound phenomena (Gamal Saïd 2016a and 2016b). All sounds are accessible on the blog of the project Zerka). In order to convey the intersensorial dimension of the sonic experience, the recordings are accompanied by a text that basically translates my own feelings, reinforced with a few short interviews conducted with space users that reveal their attachment and the meaning they ascribe to this place. The journal crosses sound dimensions with visual, bodily, emotional, and social experiences. Through this double corpus of text and sound recordings, it was possible to determine the particularities of the sound configurations of the *Source Bleue.*

Fig. 1: The Source Bleue and the Kasbah following rehabilitation. © Salima Naji

Fig. 2: Locations of sound recordings in the form of paths (red lines) and fixed points (blue points) © Noha Gamal Said

Ain Zerka: a Senso-Social Description of the Space

La Source Bleue is the colonial appellation designed to help promote Tiznit as a tourist destination. Located at the ancient heart of the city, its Arabic name *Aïn Aqdim* means "the ancient source." For the inhabitants, it is "the initial source, *i.e.* the source from which everything has begun, symbolizing the foundation of Tiznit" (Naji and Goeury 2020: 8, translated by the author). The discovery of the spring is connected to the myth of *Lalla Zninia*: a woman, accompanied by her dog, who settled nearby. Buried in the adjacent mosque, her presence ensures the sacredness of the place[3].

In a recent ambition to make the history of the city comprehensible, the municipality of Tiznit launched a vast project to rehabilitate the ancient city. The project included several spaces and buildings, and among them the *Source Bleue* was at the center of interest (Naji 2013). Conceived as the site in which a tangible and intangible heritage intersects, the *Source Bleue* has become a place where memories of collective founding institutions (Goeury 2018) are superimposed onto the memories of female fertility rituals (Naji, Goeury and Boumzgou 2016). In 2015, Naji responds to this by proposing a new staging of the spring, surrounded by a small public garden (Fig. 2). Naji attempts to recall the history through evincing it in the atmosphere of the oasis, with water flow and birdsong (Naji and Goeury 2020).

[3] *Lalla Zninia* is thirsty, having been walking through the desert for a long time. Suddenly her *Sloughi* greyhound begins lapping up a little water under a rock. *Zninia* thus discovers a small channel of water, digs it out further, and transforms it into a perennial water spring. In this way, the oasis is born, and *Zninia* has been considered a saint ever since. Later on, this spring was transformed into a basin, allowing for the irrigation of olive groves and other agriculture. The name *Zninia* also refers to the Amazigh roots *izni, isni,* and *ifni*, which refer to bodies of water, such as lakes or ponds. *Lalla Zninia* literally means the lady of the spring (Naji, Goeury and Boumzgou, 2016).

The *Aïn Zerka* is a small, intimate space, enclosed by dwellings to the west and south. It is covered entirely with stone: the basin, the arches of the waterfall, the floor covering, the alley that runs along it, and the *khettarates* (an underground draining gallery leading the water to the oasis gardens). The stone reflects the reality of an arid climate. Yet, the water, placed at the center, softens and refreshes the whole. The basin, constructed during the colonial period, has been recently redesigned: a reflecting pool, elevated by a pump, allows for a water cascade and a new circulation of water. This cascade falls into the basin, while a small diversion flows into a tiny, shallow channel running through the garden. The *khettarates* consists of two stone domes containing two spiral staircases leading to a water gallery. This space is used for educational purposes.

The architectural composition plays with various levels: the steps of the amphitheater; the reflecting pool, raised one meter above street level; the *khettarates*, with stairs descending to the water level in the basin; a few steps raising the garden above street level. These steps, levels, and curbs ensure a variety of listening situations.

The space is welcoming for all ages: young mothers, elderly people, children and teenagers. Women, more numerous than men, sit on the steps, wrapped in their *mellafahs,* colorful Saharan outfits that catch the eye in counterpoint to the architectural ensemble dominated by the ocher of the stones.

Raised some steps above the street, the back garden is protected from street traffic, which is an element that attracts the presence of children. They appropriate the architectural elements through multiple gestures: tactile contact with the water, climbing the *khettarates*, jumping on the steps, and, most noticeably, screaming to experience the reverberation of the space. In brief, this space constitutes a playground with multiple possibilities for the children (Breviglieri and Landoulsi 2016).

For adults, the space encourages taking a break or socializing. Several architectural elements make this possible: the surrounding walls of the dwelling – slightly inclined – invite users to sit and talk while monitoring their children; the stairs are frequently sat upon; the porches of the houses favor social meetings. This is not only a preferred place for the inhabitants, it also invites people arriving from further destinations. Individuals also find their place: sitting on the walls, which mark the site's entrance, they enjoy a certain contemplative intimacy. As for young people, they often stand a few minutes in front of the stairs, take selfies, and then leave.

The *Kasbah Aghenaj*, at the opposite side of the spring, is an enclosed space surrounded by the earth walls of a fortification. Initially a barracks, then a civil prison, it is now an urban space open to the public. It can be accessed by a door raised a few steps from street level. Interestingly, this slight elevation offers a panoramic listening experience. With the exception of a single tree, the space of the Kasbah is made of stone and designed as a theater, with multiple steps around a podium that is used for ceremonies (Fig. 3).

Fig. 03: Social practices and body presence in the *Source Bleue*. ©Noha Gamal Saïd.

Soundwalk Throughout the *Source Bleue*

© Noha Gamal Saïd

Within the sound environment of the medina, *the Aïn Zerka* emerges as a unique place. It opposes the familiar urban hierarchy: from the private house to the public *derb*[4] via the street, the avenue, and finally the square. In this hierarchy, a sound gradient can be perceived, which moves from the calm of a semi-private space to the tumult of busy public spaces, from the hushed interior courtyards and secluded dead-ends to the brouhaha of squares and shopping streets.

The thresholds: intermediate space preserving calm

Despite being at the heart of the medina, with adjacent streets busy with constant traffic, the spring is enveloped by silence. The Aïn Zerka is approached via turning streets that work as intermediate spaces preserving the site of the spring from the surrounding noise. As the silence becomes more significant through its suddenness, this urban configuration invites the passerby to listen. The succession of turns at right angles in the layout of the alleys allows for a sonic pause, during which the ear breathes to better capture the melody to come ... Where the neophyte is surprised, the one who is familiar anticipates and knows. This spatial composition induces the feeling of approaching a sacred space.

Threshold after threshold crossed, the sound arrives gradually to the ear. Its arrival is far from uniform; it is constantly fluctuating as regards level, direction, and intensity. According to where one listens, one perceives it differently: weaker on the street side, stronger in front of the theater, fading away beyond the green space. The sonic experience is surprising: the water can either fall at the feet of the listener or surround them in total immersion within the *khettarat* or at the bottom of the stairs.

A sound center: a masking effect.

The source constitutes a [sound center], it generates an intangible veil masking the surrounding sounds.

In the delimited zone circumscribed by the sound of water, women group together, draped in their colorful fabrics. The presence of bodies, wrapped by *mellafahs,* corresponds with the water sound, with its enveloping effect, thereby creating subspaces for encounter and exchange. The sound of water protects these spaces from the invasion of loud voices, e.g. the laughter and

[4] *Derb* means narrow streets, often dead-ending, that lead to the house entrances in the medina.

Passage from the impersonal to « I »

cries of the nearby children. To listen to these women, (I) must get close to them, reducing body distance and trespassing upon their intimacy.

Subspaces created by sound

The visual continuity of the space opposes the multiple intangible sonic boundaries by means of which people can isolate themselves from the rest of the space.

Sound hollow : a silent space

A few meters from the spring is the Kasbah. It is enough to cross the main door to experience the switch to another sonic universe. In the fortress exists a sonic hollow: there are no sounds at the center of the space, only along its borders. This corresponds to the origin of the word *ksb* (قصب), meaning in Arabic a hollow envelope or a shell or a hollow structure within a bone of the body.

« Voices are silent, bodies speak,

Children Jump

Steps of women

Children run

The guardian intervenes

Passage from the impersonal to « I »

[I] Stay…

The space empties

The Kasbah is wrapped in silence

The sun declines.

The birds come, one by one.

Some land on top of the palm tree, others choose the crest of the walls.

A new symphony begins.

Birdsong gushes forth.

The space itself repeats their melody.

The sound travels from wall to wall

Passage from the impersonal to « I »

[I] open my eyes and stare at the horizon.

A birds' ballet animates the crenels of the wall. Passing from merlons to merlons, the birds dance a complex choreography"

Journal, Noha Gamal Said, 2016

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Towards a Typology of Sound Thresholds

In order to sketch a preliminary typology of sonic thresholds of the *Source Bleue*, I shall confront the corpuses developed in the research – the descriptive text, the soundwalk, and the sound recordings – with two documents. The first is Barazon's text from 2010, in which she introduces a range of meanings for thresholds across different disciplines; the second is a 1995 text by Jean-François Augoyard and Henry Torgue on sonic effects as a tool for describing and nominating changes in sonic environments.

Silence as Buffer

The urban oasis is composed of spaces that, despite being clearly delimited and well defined, nevertheless enjoy a high degree of porosity thanks to the intentional presence of thresholds. They are intermediate spaces that take different forms: bent entrances, doors, or a change in level. I can only approach the spring through these bent entrances – short passages marked by a succession of right angle turns. These thresholds have their own micro-ambiances, highlighting an important influence on atmosphere: as the space becomes narrower and darker, the body is enveloped and protected from the sun's rays. The change can take place either through an abrupt cut-off effect[5] or a gradual crossfade effect[6]. Sonically, the threshold consists of a buffer space dominated by silence in which the usual animation of the city is attenuated, and a simple event like the passage of a person completely fills the auditory space.

Approaching thresholds as physical spaces, Barazon analyses them from an anthropological point of view; she states that a threshold must be understood in relation to physical rituals of entry, waiting, and departure. Following this approach, she underlines two important threshold states, the first being the introductory state. In rituals of passage, thresholds form marginal spaces, preparing the participant's arrival to the main scene. In fact, in the urban context of the *Source Bleue*, the thresholds around the spring accentuate the process of access to and prepare the approach to the water. The second is the transient state experienced by the passerby or visitor. Crossing thresholds – especially those of a house – correlates to changes in state of the one who crosses them: passing from the state of a stranger to the state of a familiar, for example. Penetration into the private space concurrently imposes a sense of respect for the rules that govern the house (Barazon 2010: 5).

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[5] "The cut out (*coupure*) effect refers to a sudden drop in intensity associated with an abrupt change in the spectral envelope of a sound or a modification of reverberation (moving from reverberant to dull spaces, for instance). This effect is an important process of articulation between spaces and locations; it punctuates movement from one ambience to another" (Augoyard and Torgue 2008: 29).

[6] "While the cut out effect describes an abrupt change from one sonic state to another, the term crossfade refers to a more progressive transition between states, accomplished through a decrease in intensity of the first state and increasing apparition of the second" (Augoyard and Torgue 2008: 29).

These senso-spatial features create an atmosphere of pause that allows the body and the ear to relax and open up to better capture the rustling of the nearby falling water. The contrast between shadow and light, animation and calm, space and narrowness, the alternation of contraction and relaxation awakens the senses and solicit perception. The sudden silence becomes a buffer that reinforces the feeling of entering. Through its preparatory and protective nature, the sensory space sends a message and the passerby experiences the sacred dimension of water. At the end of the journey, the sound of water is born.

Multiple Sound Perceptions of Water

Familiar connotations associated with a spring are: a natural environment, low slope flow, moderate sound level, *kharïr alma'a*. Here, the experience is unexpected: the spring, recently rehabilitated to flow into two basins at different levels, now generates a waterfall of a few meters, with accompanying high sound levels. Active only a few hours per day, this manmade waterfall provides a daily rhythm to the space: absence of the water sound when it is not working, gurgling during the start-up and when shutting down, and a steady rush when it is active. The changes in sound constitute a series of sono-temporal thresholds that coincide with the variation of the intensity of the water flow throughout the day.

Furthermore, the architectural form reconfigures the listening experience: the various articulations in level and the presence of many subspaces create masking effects within the sonic environment. A physical experience of these architectural levels reveals the relationship between the body and sounds: the listener on the steps of the amphitheater perceives the waterfall frontally, while in the closed space of the *khettarates*, where the sound is transformed by the reverberation effect, the sound envelops them.

Sound Center vs Hollow

The soundscape of the two spaces, the *Source Bleue* and the *Kasbah Aghenaj*, constitutes a dual atmosphere, separated by a busy street that actualizes a sonic wall effect[7]. Whereas the waterfall constitutes a sound center that masks small sounds – footsteps, conversations, cries of children, etc. – the Kasbah manifests a sound hollow where sounds exist primarily on the edges of the space. Here, the ocher walls, delimiting stage and theater, produce the same nesting effect, both visually and sonically. This is why the enclosed space is very quiet, and the slightest sound attracts attention: children jumping from step to step or moving in and out of the space. The rectangular form of *the Kasbah* produces a strong reverberation effect; the listener perceives the sound echoing in front of and behind them. Immutably, at sunshine and sunset, the birds perch on the merlons, and their songs their songs fill time with rhythm.

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[7] The wall effect is "a composite effect in which a continuous high intensity sound gives the listener an impression of facing an ensemble of sound materialized in the shape of a wall. This feeling of solidified sound, accompanied by a feeling of powerlessness and crushing, can be easily experienced at a rock show or when facing an urban street with multiple lanes of dense traffic" (Augoyard and Torgue 2008: 145).

Bubbles of Intimacy

I have borrowed this expression from the German philosopher Peter Sloterdijk who introduced the term "bubbles" in his trilogy *Spheres*. He interprets them as "physical forms that receive forms of human engagement in intimate spaces such as the egg and the uterus, as spaces that are both protectors and donors of life." For him they constitute "shared, consubjective and inter-intelligent spaces; bubbles participate in the constitution of any subject" (Sloterdijk 2002: 8).

In this study, the "bubbles" are subspaces created by an immaterial membrane induced by the sound of water. The latter is a sonic threshold that forms a protective layer preserving an intimate coexisting presence by creating micro-territories within the public space through a masking effect[8]. This wrapping effect perfectly matches with the presence of the women covered with their *mellafahs,* the colored sub-Saharan outfit.

I and You, A Return to Oneself

The soundwalk text offers a fluctuation between the "passive voice" (the impersonal state) and "I" (the first person) modes of expression. When experiencing public spaces, we expose ourselves fully to the world, to our "You." However, the passage to "I" signifies a momentary return or transition to one's self. This alternation between "You" and "I" is an alternation between different states of mind that occur during an experience in which we can distinguish between former and prospective states. In this case the threshold is neither spatial nor temporal; it forms a "perceptive threshold."

Barazon refers to a Hegelian and Joycian dialectic. For Hegel, where the experience takes place, the self disappears temporarily; and the experience itself takes place, the self is exteriorized (*entäußert*) in the experience (Barazon 2010: 14). For Joyce, the "I" is externalized and becomes the experience itself; it merges into action and thus reduces the gap between the world and one's perception of it (Barazon 2010: 8). The perceptive threshold possesses specific traits: it is dynamic, meaning that the dialectic relation between the inside and the outside defines the self as a threshold in motion, where the self ceaselessly oscillates between experience and reflection or emotions. The different states of mind are not abruptly separated but are present in a continuous mode (Barazon 2010: 6).

Regarding the soundwalk text, the return to oneself refers to two different states of mind. The state of a stranger: once the threshold is crossed, the listener enters the shared space of the *Source Bleue* while being completely immersed in the experience. When confronting the

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[8] "The mask (*masque*) effect refers to the presence of a sound that partially or completely masks another sound because of its intensity or the distribution of its frequencies. This effect, easily demonstrated acoustically, also implies a subjective psychophysiological reaction: the masking sound can be judged as either parasitic or favorable, depending on whether or not the mask sound is perceived as pleasant" (Augoyard and Torgue 2008: 66).

bubbles of intimacy, where the sound of water defines the subspaces, the listener's state changes: they become strangers, intruders. Conversely, in the second state, the "I" returns to itself. In the Kasbah, the spatial isolation and the dominating calm create a nesting situation. The prevailing calm allows for an encounter with oneself, providing a moment of contemplation that can be experienced in this public space.

Incorporation of Myth in the Water

"The *Source Bleue* is we!" This statement of a young girl represents the spring as a place of memory and a constructor of collective identity. The sonic environment created by the waterfall combines the power of place and the power of time. The presence of water reinforces the myth of the spring discovery: in any narration, written or oral, the holy woman remains alive. The sound of water unfolds anterior temporal strata. Through its anamnesis effect[9], the sound of water becomes a base of collective and trans-generational memory

This robust identity belongs to a specific type of thresholds: the thresholds of identity that unfold over a long time span. In her approach to the thresholds of time, Barazon draws upon perception, change, and memory, stating that thresholds of identity conserve a preliminary state which endures despite subsequent changes. They allow us to recognize ourselves and find ourselves, through the act of narration or self-narration, in a world that is constantly changing (Barazon 2010: 17, translated by the author).

Moreover, the myth – as related to the fertility of the female body – is still embodied in water. Up to the present, there are rites that take place around the spring – weddings, religious festivals, etc. – during which an egg, its shell or a chicken throat are thrown into the basin. Despite being immaterial, the myth becomes tangible through these rituals. The continuity of these social practices in this deliberately vernacular contemporary architecture reveals earlier temporalities and gives a thickness to the present time. The importance given to the water in the redevelopment of this space has provided a place for the myth and reestablished it within the city.

Discussion

Traversing the triad affordances-thresholds-ambiances has helped to emphasize the specific features of each sonic experience and to make the different sonic configurations emerge: solid, void, threshold, and bubble. This approach highlights the importance of certain marginalized concerns of contemporary architectural and urban thinking: thresholds, intimacy, and the permanence of memory. This study has shown the important role that these dimensions play in the perceptual process and the constitution of a distinctive experience of a place.

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[9] "An effect of reminiscence in which a past situation or atmosphere is brought back to the listener's consciousness, provoked by a particular signal or sonic context. Anamnesis, a semiotic effect, is the often involuntary revival of memory caused by listening and the evocative power of sounds" (Augoyard and Torgue 2008: 21).

Thresholds link and separate different states of perception. They play an important role in the sensory experience of places by stimulating the senses due to the sensory variation they present. A threshold is, rather than a radical change, a shift, a flutter that gently leads to another state; they mark a state of becoming (Barazon 2010: 6, translated by the author).

The keen interest in these minor spaces lies in the liminal experiences they offer. They prepare the walker for another experience. Walter Benjamin observes a lack of this liminal experience and regrets that the contemporary thinking does not give it greater importance. He understands thresholds as zones. He says: "The *Schwelle* [threshold] must be radically distinguished from the limit or border *[Grenze]*. The *Schwelle* is a zone. Change [Wandel], passage, flooding lie in the word 'swelling' *(schwellen)"* (Barazon 2010: 12). For him, thresholds constitute experiences that take into account the importance of the moment (Barazon 2010: 4, translated by the author); they are indeed spatiotemporal elements that mark an opening for another thing. It is for this reason that many Arabic writers interpret thresholds along the passages in the medina as a succession of hope: in each transitional space, a new beginning starts.

The presence of thresholds in this oasis can serve as a model for thinking about contemporary Mediterranean urbanism. In the harsh climate of the desert, thresholds offer a succession of pauses during journeys; these short stops open new ways for reflecting on the sensory comfort at an urban scale, particularly in relation to the practices of walking.

The intimate dimension. One of the merits of this rehabilitation project is how it combines the intimate and the public character in this space. If intimacy by definition opposes the notion of a public space – a place of exposure – it constitutes here a particular sensory dimension of the *Source Bleue*. Intimacy emerges in different forms: architecturally, a tiny space surrounded by dwellings and thresholds; sonically, thanks to the enveloping effect of the sounds of water that configure collective subspaces and bubbles of intimacy; affectively, realized in the secular beliefs in the power of water, the myth of the holy woman, and the ritual sacrifices, providing access to deeper layers of intimacy and resulting in a special attachment to this place.

The permanence of memory. Despite the varying climatic conditions and the urban processes that have transformed the sensory relationships between humans and water, the collective memory remains largely stable. Oral transmission, rituals, and social practices related to the origin of the spring have been maintained over the centuries. The history of the origin of the place, the myth of the holy woman, the belief in its beneficial power, the feasts and memorials are now shared in this public space. Indeed, the current architectural design preserves a place for this collective memory.

The *Source Bleue*, the Urban Courtyard

The rehabilitation of the *Source Bleue* has brought a site for significant, intimate, and shared experience to the community and visitors. This study has enabled a "rereading" of the Source Bleue through the senses, emotions, and bodily experience. The assembly of the different forms of sonic thresholds alongside the social practices has revealed the sonic affordance of this space and has helped a new figure for rehabilitation of contemporary oasis cities to emerge.

This place does not correspond to the stereotypical image of the city center as a place of incessant animation. On the contrary, it is a haven of peace in which one can take pleasure in sharing a listening experience of the sound of the water; in this open-air cocoon, women settle down, little children play, people chatter – evoking the image of an inner courtyard of a Mediterranean house. In urban planning documents, they call such spaces public spaces, public gardens, or historical centers. The approach by the ambiances and more precisely by the sonic thresholds studied here highlight a new element within contemporary oasis urbanity: with this new insight I therefore propose the figure of the *urban courtyard*.

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