

# Are the loud knocks –“pics i repicons”- still remaining as voices in the soundscapes of the “Barri Gòtic” of Barcelona?

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## Summary

Like in many sites all over the world, until the diffusion of electricity in housing, the sounds of doorknockers were the most important building “voices” of the “Barri Gòtic” of Barcelona during the day. However, the night watchman was the person who opened the doors during the night.

Nowadays these sounds remain in few particular buildings using specific codes with loud knock called as “pics i repicons”. These ones are transmitted by the architecture and the environment – which are the soundboard- until they reach the receptors.

At this moment, the research stands out because of the methodological discoveries about the state of the Art and the following study.

The analysis of the doorknocker sound is very complex. It starts by studying the diversity of people who use it –each one with a particular emphasis. The main study of the sound that originates at the doorknocker takes into account the material and the different parts it is formed by. Moreover, we should pay attention to the esthetic aspect and the symbology that it has.

The sound is amplified by different ways: the wood door -that holds the doorknocker-, the street, the hall, the staircase and the courtyards; it arrives to the interior and exterior windows of the house until the receptor gets the information.

In order to avoid the disappearance of this historic and cultural sonorous patrimony, we think that it should be classified and geolocated, getting as much information as possible including photos, drawings, plans, recordings and surveys of users –both the speaker and the receiver, among others.

In brief, we are working on a trustworthy scientific and artistic study.

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## 1. Objective

The project consists in proportionating a first scientific-technic tool about the door knockers of the “Barrio Gótico”, which is a cultural loud patrimony of Barcelona. The “Barrio Gótico” belongs to the district 1 of “Ciutat Vella”.

This barrio is characterized for being the oldest urban manifestation of the city where one can find the own, unmistakable styles of the primitive “Barcino” roman, the medieval city and the gothic period. According to the town hall of Barcelona, the barrio is delimited by the “Ramblas”, “Vía Laietana”, the “Paseo de Colom” and “Plaza de Catalunya” as it is shown in Figure 1.



Figure 1. The “Barrio Gótico” inside the District 1 of “Ciutat Vella” of Barcelona. Source: our own production.

The definition of soundscape according to the ISO [1] is: acoustic environment as perceived or experienced and/or understood by a person or people, in context.

The context is precisely what defines the importance of communication of the door knockers in the city.

## 2. Methodology used

It has been necessary for the investigation to make a review of the state of current and previous art, such as newspaper, periodicals library, congresses, libraries and other searchers among others. In addition, we have looked up the definitions of dictionaries, literary references and collections of proverbs. We have also done multiple inspections “in situ” in order to verify the density of the existing door knockers per street and to catalogue the means that link the human communication with the existing housing. Furthermore, we had to do sonometric measurements in different parts (source, lobby, street, exterior receptor window, hall, stairwell, interior receptor window) as well as recordings with WAV quality, photographs, video, physical measurements, drawing plans and sketches. Moreover, we also had to study the loud broadcast in the main door knocker and the door, but also in the elements that knock into shape the different transmitters, the loud route in the air and solid in the interior of the buildings, to describe the materials and constructive systems, to make interviews and surveys to know the opinion of the users, crossing of results, final discussion, conclusions, bibliography and websites [2].

## 3. Definitions

The definitions about these elements have been studied in Spanish, English and Catalan dictionaries. We have found the following inputs in the “Real Academia Española de la Lengua”: “Aldaba”, “Aldabada”, “Aldabón”, “Aldabonazo”, “Llamador”, “Picaporte” and “Repique”, in the “Diccionari de la Llengua Catalana” we have found: “Balda”, “Díngola”, “Pic”, “Picador”, “Picaporta”, “Repicó”, “Trucador” and “Trucar”, and, finally, in the Collins English Dictionary we have found “Knocker” and “Rapper”.

## 4. Cataloguing

In order to catalogue the elements that form the study, an index card of each element has been prepared being aware of all its complexity [3].

Each index card collects all the typical characteristics of the door knocker. This information includes the aesthetic, the style, the materials, the symbology related to the form of the element, the composition of the different parts, the support system, its function, the location, the users that the door knocker is destined to, the positioning height, if this element coexists with another and the fabricant of this.

The study not only includes the elements that take part in the process of communication and how the sound is excited in the main door (material, thickness), but also the transmission of the sound into the building (lobby, stairwell, home entrances), as well as the resonance that it makes in the street. Finally the sound is received at home because of one or two weak elements. These elements are the interior window that transmits the sound that comes from the stairwell, and the exterior window that transmits the sound that comes from the street.

Apart from the index card, all this information is supported by graphic material (sketches and photographs), audio (recordings and videos) made by the door knocker in question, historic documentation if it is classifiable, and user surveys results (inhabitant opinion about the door knocker, historic opinion, lexical or subjective part – satisfaction or dissatisfaction of the user-, psychoacoustics).

## 5. Door knocker parts:

In order to understand why and how a door knocker sounds, it is necessary to study carefully the parts that it is formed by and the execution method of the impact sound.

The door knocker is fundamentally formed by four parts: the plate, the spike, the hammer and the tas. (Figure 2).

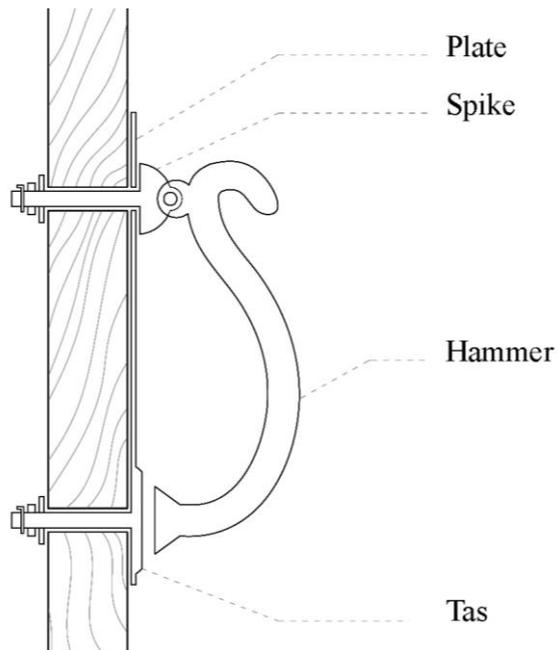


Figure 2. Door knocker parts. Source: our own production.

The plate is a metal sheet of different forms flush-mounted on the door itself and that contains a drill hole. The spike is the piece that holds it all together. It is put on the outside, piercing the door with a stud and pressing the plate against this one. Its fixation is done by an eye bolt in the interior extreme where it can contain, or not, an anti-theft fastener. With these two parts, the system is fixed at the door by two points. The hammer is the piece that people use to knock, in general, the “door knocker” is affixed to the spike letting a unidirectional movement with vertical fall by gravity, although it is better to go with the hand. Finally, the tas is the part that receives the blow when calling and it is transmitted by solid way to the door.

The materials that constitute this parts of the door knockers are usually of forged iron, sweet iron, smelting, brass and bronze [4].

## 6. Symbology

Depending on the shape that the door knocker has, diverse links have been found to determinated symbologies, among them, we highlight the following ones:

The word “door knocker” has its etymological meaning in the Andalucian Arabian “Ad-dabbah” whose meaning is “lizard female”. By chance or not, there are door knockers that present a lizard figure. In addition, we can find door knockers

having different forms for example: the iguana, represented an influential political family or someone descending from royalty without noble title. The nearer was the surname of noble range, the bigger was the iguana. The lion shape indicated that the person who lived there was a brave person, such as a serve in the military. Many door knockers of lions have been recognized in other geographies, like the Venetian, where its meaning is nobility. The owl gives you luck, it indicated that the house was of a lawyer or a doctor. The Fatima hand derives from the Arabian ancient “Hamsa”, known as “Khamsa” in the Romanized version or “Jamsa” in Spanish. Its meaning is five (5), that is linked to the five fingers of a hand. With the coming of Islam, the “Hamsa” started to be known as “Fatima hand”.

There is a legend that documents its denomination. It is said that Fatima, Mahoma prophet’s daughter, was preparing dinner for her husband Ali at their home when, suddenly, he arrived with his second wife. Fatima was so surprised and felt so much jealous that introduced her hand in a container that had boiling oil. Although her husband retired her hand, she was disabled for life. For this reason, Fatima’s father chose the symbol of his daughter’s hand to immortalize the incident. From that moment, it started to be considered an amulet against all bad, but also every finger started to represent the five Islam pillars (faith profession, prayer, alms, fast and Mecca pilgrimage). With the Islam spreading, the Fatima hand and its use as an amulet was spread between the Jew culture as Miriam hand (Moises and Aaron sibling) symbolizing each finger one of the five Torah books (Genesis, Exodus, Levitical, Numbers and Deuteronomy) and in the Christian called as Maria hand, because of the mother of God.

In our country, due to the years of the Muslim territory and the Arabic culture spread, the use of the Fatima hand was so extended, even after years of the end of its command, that the emperor Carlos V convened a special episcopal commission in 1526 so as to decree the prohibition of its use and that of all the amulets with right opened hand shape. However, that order must not have been very effective, because nowadays we can easily find a lot of models.

There are some of them that have a ring in the ring or middle finger. The meaning of this position indicated whether the proprietary daughter was marriageable (middle finger) or married (ring finger). Apparently, the door knocker was placed when the construction ended and the definitive wood door was installed. (Figure 3, 4, 5 and 6).



Figure 3. Fatima hand with middle finger ring door knocker in the 15th of Montsió Street of Barcelona. S. del Rio Photograph.



Figure 4. Fatima hand with ring finger ring door knocker in the 8th of Royal Square of Barcelona. S. del Rio Photograph.



Figure 5. Lion door knocker in the 1st of Porta Ferrissa Street of Barcelona. S. del Rio Photograph.

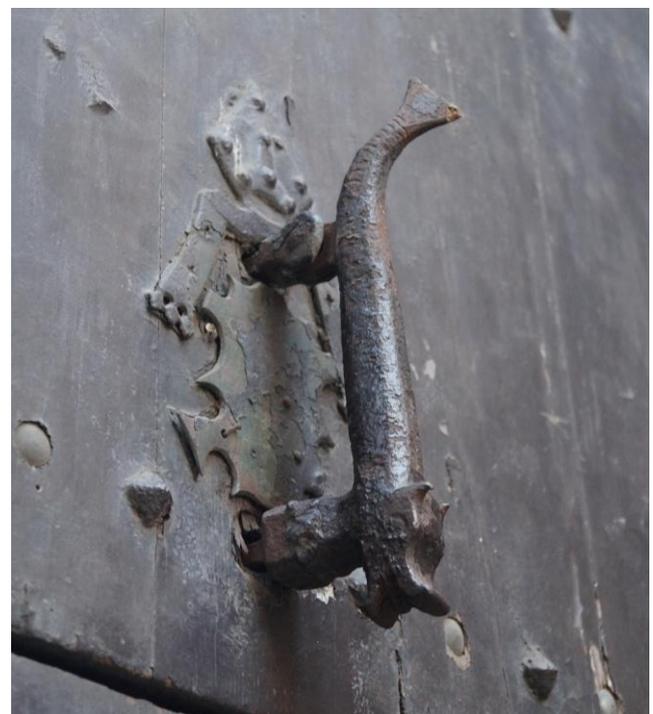


Figure 6. Lizard door knocker in the 5th of Bisbe Street of Barcelona. S. del Rio Photograph.

The Islamic villages also have door knockers in their doors but, in this case, the customs were

different. There are always two door knockers, one on the right for men and one on the left for women. The ones for men had phallic form and the ones for women had round form. Both sounded different, the ones for men had a deeper sound while the ones for women had a higher sound. Examples of three different door knockers destined to men, women and siblings have been found.

## 7. The “Pics i Repicons”: Sonor code between emitter and receiver

Both emitter and receiver users knew a type of secret codification to know which apartment they were calling for. This code consists of a series of blows known as “pics i repicons”. A “pic” is a single sharp blow and a “repicó” is a serial of three quick blows. The emitter produced as many “pics” as numbers of floors where the apartment was found, if he wanted to go to the first door. If it was in the second door, a “repicó” was added. For this reason, if the user wanted to go to the 3rd 2nd, the code was three “pics” and one “repicó”.

This system worked because the majority of flats of the “Barri Gòtic” of Barcelona generally had one or two doors per landing. As an exception, if the apartment was situated in the intermediate level, they made one “repicó” if it was the first door, and two “repicons” for the second one.

## 8. The door

The fine doors were generally made of mahogany, a material that worked very well as a resonator, because it amplified the impact of the door knocker to the lobby with a deep sound. Furthermore, there are doors of iron smelting used as gate. Nowadays, we can find some of them with the door knockers installed in the moment of the construction. In contrast to the others, the transmitted sound of these doors were very high and sharp. In the middle of the 20th century, the aluminum doors were in fashion. Consequently, a lot of homeowners replaced their ancient door with a modern one. It is said that the manufacturers went door to door offering to install the new aluminum door for free in exchange for the ancient mahogany and all the elements that it contained. Finally, they went to the antique shop and resold the door knockers for a modest price.

## 9. Opening

When the user realized that someone was calling them with the “pics i repicons”, they put their head out the window to the street, or in the case of not having visibility to the street, the user had to open the access door. The opening method of the access door from the landing was a little rudimentary. It consisted of a rope that went down the stairwell guided by a series of pulleys and in its end it was tied to a shelf. When stretching the rope, the shelf was raised and the door was opened.

## 10. Resonators and transmission elements

The sound produced in the door knocker when knocking it to the door, finds different paths of amplification and takes on colorations and resonances thanks to the proportions, reflections and diffusions of the constituent materials of the hall, stairwell and courtyard as it arrives to the interior window of the apartment. At the same time, the sound goes through the exterior path formed by the lobby and the street to arrive to the exterior window of the apartment. All these ingredients should be incorporated to the study to make it more exhaustive. (Figure 7).

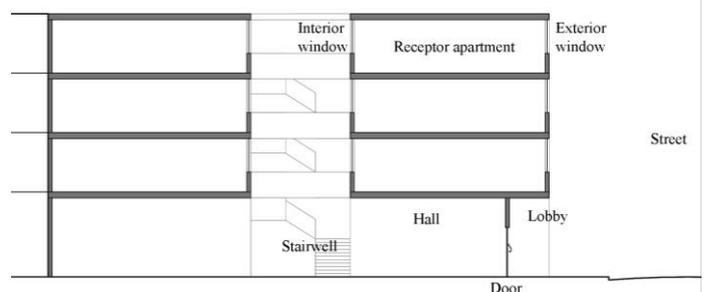


Figure 7. Transmission paths. Source: our own production.

## 11. Cataloguing codes

We have created a code to catalogue the studying material, both sonorous sources and means of transmission until it arrives to the receptor located into the apartment. It starts with the keys for a later geolocation, like it is the street, square or avenue, followed by the number or Postal Code and the name of the building if it is required. Afterwards, the first letter will define in the file card and annexes if the part addresses to Sketch (Dibujo), Photograph (Fotografía), Recording (Grabación), Video, Sonometric Measurements (Mediciones sonométricas), Surveys (Encuestas), etc.

## 12. Codes:

The location of each door knocker is established by: Street – n° - building name (if it has or is catalogued).

In addition, it contains the following information:

- a) Sketch (Plant [P], Elevation [A], Section [S], Foreshortening [E], Facade [F], Courtyard development [D])
- b) Photograph (Facade [F], Hallway [P], Door knocker [A]: Front [F], Lateral [L], Foreshortening [E], Back [P])
- c) Resonator (Interior: Hall [H], Stairwell [N], Interior courtyard [P], Interior window [VI], Receptor apartment [R]; Exterior: Lobby [Ve], Street [C], Exterior window [VE] Receptor apartment [R].
- d) Recordings in WAV quality and sonorous measurements with type I from the previously places mentioned. Minimum sonometric parameters (L Residual, L Origin Impact, L Receptor Impact) in dBA.
- e) File recordings. Promotion editions.
- f) Surveys and interviews.

## 13. File card model

It is shown in table I

Patrimonio sonoro cultural de aldbas y picaportes en el Barrio Gòtic de Barcelona		
Proyecto de colaboración en el Departamento de "Tecnología de l'Arquitectura"		Dirección: Francesc Daumal i Domènec
Escola Tècnica Superior d'Arquitectura de Barcelona (ETSAB-LPCC) BarcelonaTech		Realització: Sandra del Río Borrini
<b>FICHA ALDABA:</b>		
DESCRIPCIÓN DE LA ALDABA:		
1	Estilo:	Modernista Art nouveau Minimalista Otros Sin estilo definido
2	Materiales:	Latón Hierro Cobre Pintado Otros (acero inoxidable, galvanizado, etc)
3	Forma (simbología):	
4	Partes dimensiones:	Placa Españón Martillo Tubo Sistema de anclaje Arandela metálica Sistema antirobo
5	Función:	Llamador Estrujar puerta
6	Localización:	Sólo puerta de acceso Ambas puertas Otra localización
7	Usuario:	Todo el público Distinción por sexo y edad
8	Altura colocación:	m.
9	Coexistencia con otra aldaba:	Altura de ellas
10	Fabricante:	Marca Modelo Desconocido
<b>ELEMENTOS QUE INTERVIENEN EN EL PROCESO DE COMUNICACIÓN</b>		
1	Vestíbulo	Materiales Dimensiones
2	Puerta	Materiales Dimensiones Grosor Particiones
3	Hall	Materiales Dimensiones
4	Interior receptor	Materiales Dimensiones
5	Patio escaleras	Materiales Dimensiones
6	Ventana interior	Materiales Dimensiones
7	Calle	Materiales Dimensiones
8	Ventana exterior	Materiales Dimensiones
<b>MATERIAL GRÁFICO Y DE AUDIO</b>		
Fotografías:		código F
Dibujos:		código D
Vídeos:		código V
Grabaciones:		código G
Mediciones sonométricas:		código M
Encuestas:		código E

Table I. File card model. Source: our own production.

## 14. Surveys and crossing of results

We are working on the survey to leave the traditional postulates of Swede method [5]. We think that the huge informative load of the sonorous communication with the door knockers should stand out. We are preparing the material for the qualitative surveys relating to the following final questions: Are these elements valued by the users or are they rejecting them? Should they be protected or not?

## 15. Architectonic ratios

It has been necessary to develop new parameters and architectonic-acoustic definers in order to link the greater or lesser existence of door knockers in every urban localization, as well as the density of the existent door knockers and the ones that have disappeared (for its evident signs). We have discussed whether the density should be based on the plots of land, on the existing doors or on the police number of every street. (Figure 8).

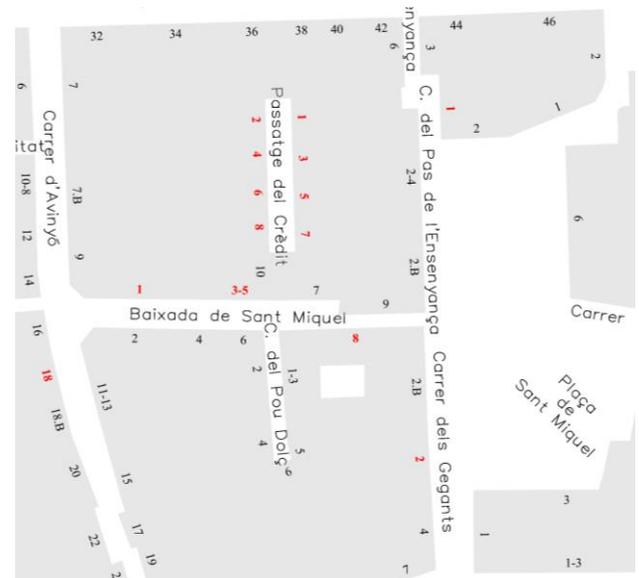


Figure 8. Density of door knockers based on the police number of the Passeig del crèdit street (90%) and Baixada de Sant Miquel street (50%) of the “Barri Gòtic” of Barcelona. Source: our own production.

## 16. Conclusions

First of all, it is confirmed that in general the users of door knockers consider that they should be maintained and even protected. However, the user does not always know the origin of the symbolic value of every piece, its meaning as an architectural element nor even the blow codes to identify

efficiently the apartment when there is more than one flat for landing.

Concerning its physical presence in the analyzed sector, it is observed that there still are sectors with very high densities, evidencing that the utilization of this elements has been preserved to the present day.

By way of general conclusion, but waiting for the end of the investigation, we can indicate that the door knockers are elements that should be preserved and carefully continued to be studied, because they are still one of the voices for the building communication, for this reason, their existence proves their own authenticity [6].

## References

[1] ISO 12913:1:2014 Acoustics—Soundscape—Part 1: Definition and Conceptual Framework; International Association for Standardization: Geneva, Switzerland, 2014.

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