THE MEDIEVAL AND OTTOMAN HAMMAMS OF ALGERIA; ELEMENTS FOR A HISTORICAL STUDY OF BATHS ARCHITECTURE IN NORTH AFRICA

Nabila Cherif-Seffadj

Abstract
 Algerian medinas (Islamic cities) have several traditional public baths (hammams). However, these hammams are the least known in the Maghreb countries. The first French archaeological surveys carried out on Islamic monuments and sites in Algeria, have found few historic baths in medieval towns. All along the highlands route, from Algiers (capital city of Algeria located in the North) to Tlemcen (city in the Western part of Algeria), these structures are found in all the cities founded after the Islamic religion expanded in the Western North Africa. These buildings are often associated to large mosques. In architectural history, these baths illustrate original spatial and organizational compositions under form proportions, methods of construction, ornamental elements and the technical skills of their builders.

The ancient traditions of bathing interpreted in this building type are an undeniable legacy. They are present through architectural typology and technical implementation reflecting the important architectural heritage of the great Roman cities in Algeria. Furthermore, these traditions and buildings evolved through different eras. Master builders, who left Andalusia to seek refuge in the Maghreb countries, added the construction and ornamentation skills and techniques brought from Muslim Spain, while the Ottomans contribution in the history of many urban cities is important. Hence, the dual appellation of the hammam as “Moorish bath” and “Turkish bath” in Algeria is the perfect illustration of the evolution of bath architecture in Algeria.

Keywords: Algeria; bath; water; Ottoman; Medieval.

Context and Historical Background
 In the fields of Islamic architectural history and archaeology, the majority of research works are devoted to mosques and palaces that constitute the major monuments and the expression of power in the Islamic city. However, rare are the research and studies on the traditional hammams; a typical building of the Islamic city “medina”, and often annexed to the mosque. The existence of these specific structures is mentioned in several studies and travellers accounts on the Islamic medina, but their studies are rather scarce and rare. Where they exist, they generally give an overall architectural description and fail to study and analyze the technical aspects and mechanisms that allow the functioning of the baths, such as water and heating systems. These studies are...
not of equal importance across the Muslim world. Indeed, if the knowledge of baths in the Levant countries (i.e. Egypt and Syria) is provided by numerous studies, it remains fragmented and lacks synthesizing. In contrast, baths of the Maghreb countries and especially Algeria are less known. Existing documentation mainly relates to Andalusian baths documented mainly and continuously by the data provided by archaeological excavations.

To the contrary of other countries in the Maghreb, Hammams of Algeria have not been surveyed nor investigated. There are however a few types known in the medieval towns proved by the first archaeological surveys and studies on French monuments and Muslim sites in Algeria. Studies of G. Marçais on Tlemcen and its region at the time of the Abdelwaddid, Ziyyanid and Mérinid dynasties (XIVe-XVe siècles) provide some guidance on these buildings such as hammam Sabbāghīn, Dār hammam al-Sultan and hammam Sīdī Bū Madyan in Al-ʿUbbād (Marcais, 1903:161-169 and Marcais, 1950:70-71). Similarly we note that references to baths are sometimes made in statements and reports in the French excavations conducted in the early nineteenth century in the cities of Tahart (8th-9th centuries), Agadir (late 8th century), Ashir (10th-11th centuries) and the Qalā of Banu Hammad (11th century) (Mattaoui, 1989; Golvin, 1962). Other medieval baths undoubtedly exist in other cities of Algeria, but they are not known, and researchers exploring the history and topography of these cities discover them accidently during site exploration and excavation.

For the Ottoman period, data is mainly available on Algiers baths, with several historical sources supported by the still existing architectural remains found in the old city or the “Casbah”. The political, social and economic importance of the city of Algiers, grow dramatically in the 16th century. This helped the preservation of the majority of its urban fabric including public baths and some major elements of the hydraulic system. The history of Algiers baths, like the majority of buildings in the city, is located between the 15th and the 19th century. This period, marked by the inclusion of the city to the Ottoman Empire, is characterized by a growing population and commercial importance. This important growth led to major urban and architectural activities.

However, Algerian baths, from the Medieval or Ottoman eras, provide little information for epigraphy and archaeology. Scriptures and markings are usually absent. Hence, the precise dating and chronology, since their foundation to their abandonment are particularly difficult to establish. Their foundation and evolution through different time periods are related to the evolution of the city and the neighbourhood where they are located, or at most to the mosque they were annexed to, as this building usually holds accurately known dates of construction or redesign.

The chronological distinction between Medieval (8th to 15th century) and Ottoman baths (16th to 19th century) coincided with the distinction between two main types of baths, at the architectural and spatial organisation levels. The two main typologies are:

- Baths with straight linear extended plan (Andalusian type)
- Baths with compact centralized-radiant plan (Ottoman type)
The architectural culture of Algeria, from the 8th century to early 19th century, was indeed developed under the influence of two major artistic movements, opposed geographically in the Mediterranean basin, and which reflect the history of major urban cities. The first came from the West, is largely dominated by the culture of al-Andalus (Andalusia) until the 15th century. The second came from the East, and conveyed by the Ottoman Empire from the 16th to the beginning of the 19th century. These two cultural sources were grafted to the local traditions completed with the contribution of Roman antiquity in the design and construction of public baths.

This chronological division does not limit the influence of Andalusian architecture and culture to the 15th century only. Baths built during the Ottoman era and thereafter, were still influenced by Andalusian architecture. Indeed, in the case of Algiers, recent studies show that the contribution of Andalusia in the field of construction is an undeniable fact that relates Algiers epigraphic sources from the Ottoman period (Colin, 1901:35-42). The influx of this community expelled from Spain in the beginning of the 17th century, corresponds to the period of urban growth of the city. Its architectural framework and hydraulic system were developed at that period (Missoum, 1993 and 2003). European authors from that period attribute the construction of one of the largest aqueducts in the city to an Andalusian (Dan, 1649, V2:91); Usta Musa who at that time and according to Ottoman records was the fountains-master. During the Ottoman era, the “Fountains-institution” was the administration managing of all water related structures including baths (Devoulx, 1868: 278).

Usta Musa and his sons Ali and Ibrahim, who are also known in epigraphic sources have, as pointed out by Andre Raymond, formed a dynasty of architects “that marked the major projects of the city in the 17th century” (Raymond, 1985: 53).

The Medieval Bath (between the 8th and 15th centuries)

Hammam Tahart is the only medieval hammam found. It emerged in 1989 during excavations in the Rostomid city of Tahert (761-901). However, no surveys have been found concerning this structure. Three other baths, regarded as the oldest structures of this type in Algeria were found and are still in ruins. They represent the first witnesses of the great Islamic cities founded in Algeria and the Maghreb. The first bath Agadir was found near the mosque of the same name, near a gate called Bab al-Hammam (Marcais, 1903 and Bell, 1913: 470). The second bath, located in the city of Achir, the Zirid capital in the middle of the 10th century, was unearthed by Cpt. Rodet in 1908 (Rodet, 1908:86-104). The third and most important bath is found in the south wing of the palace of Qasr al-Bahr, probably built between the 11th and the middle of the 12th century. It is one of the most imposing structures in the town of the Hammadites “Qal’a Bani Hammad” (Golvin, 1962: 25-33).

In Tlemcen and its suburbs, and in Nedroma, some old baths still exist. They illustrate the architecture of baths in the western regions of Algeria during the early middle Ages. The first, very famous and is well known in the literature under the name of hammam al-Sabbâghîn (dyers bath). Old people of Tlemcen name it as hammam Sidi Ahmad al-Hasan Ban Ghumarî. It
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rises in the north-east of the city of Tlemcen, on a narrow street between Mascara Street and Ibn Khaldoun Street (Marçais, 1954). Although no document would allow the accurate dating of the building, Georges Marçais registered its founding in the late 11th century or 12th century, by comparison with similar baths architecture built in Andalusia in the same period (Marçais, 1954). A second bath built in the 12th century is located in the city of Nedroma (80 km from Tlemcen). It is called Hammam al-Bali (old bath). The name indicates that it is the oldest of its kind in the city. Its construction dates back either to the reign of the Almoravid Sultan “Yusuf “, who is the founder of the adjacent mosque, or to the reign of Abd al-Wadîd, who rebuilt its minaret and converted several buildings adjacent to the city (Bourouiba, 1983).

Two other baths are located in the town of Al-Ubbâd (town located about ten miles on the hills above Tlemcen, known as Sidi Bû Madyan). The Sidi Bû-Midian bath, located in the eastern side of the mosque of the same name and adjacent to large public latrines and the bath of Dar al-sultan built within a large palace next to the necropolis of Sidi Bû-Madyan. For Georges Marçais, there is every reason to consider these two contemporary baths, part of the Sidi Bû Madyan complex. The construction of the complex began during the reign of the Merinid sultans between 1339 -construction date of the Mosque of Abul Hasan Al- and 1370-construction date of the Qubba of the saint Sidi Bû Madyan by Yaghmurasân Ban Zîyyân (Marçais, 1950).

According to their architecture and their spatial functionality, medieval hammams can be subdivided into two groups:

- The first group, which includes the Qalá, Sidi Bû Madyan and Dar al-Sultan baths (Figures 2, 3 and 4) is characterized by the development of the plan along an axis on which the three parts of the hammam are organised; the cold room (bit al-Barda), the warm room (bit al-waste) and the hot room (bit al-skûna). In this scheme,

Figure 1: Plan of hammam Agadir (Captain Rodet, 1913).
Figure 2: Plan of hammam Qal’a des Banû Hammâd (Govin, 1962).
apart from the disrobing room which differ by its introverted architecture characterized by a central space of double height surrounded by a gallery, the cold, warm and hot rooms, shows a simple design, without any concern of monumental order. The rooms surrounding the central space are of rectangular shapes, arranged parallel to each other and covered with barrel vaults. These rooms, and especially the warm and hot rooms, have in common lateral annexes that give them a tripartite organization.

- The second group, exemplified by the Sabaghine and Al-Bali baths and also the partially reconstituted Agadir bath (Figures 1, 5 and 6), is characterized by a composition developed along two orthogonal axes. The first axis brings together the “unheated” parts of the bath (the disrobing and the cold room), and the second axis articulating the “heated” spaces (the warm and the hot room). In this type of bath, the warm room is the centre of the composition and the bath. It dominates the whole structure by its dimensions and its architecture; characterized by a central space surrounded by portico composed galleries and ornate by a water-basin in its centre.
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The Ottoman Baths of Algiers

Between the 16th and 19th century, several sources cited the large number of baths that were operating in the city of Algiers. But the majority of them do not give precise figures on these buildings, and also do not mention neither their location nor recount their history (Haedo, 1870). To the contrary, it is in the Ottoman administrative archives, which are kept in Algiers and in Aix-en Provence (France), that administrative and legal documents provide light on the urban history of Algiers and its buildings.

The two sets of documents known as “Bayt al-Mal and Baylîk (treasury and central administration of the state) and” Mahâkim al-Shar‘îyya (legal courts) provide extensive information in the city; on its structure, urban setting and the management of its buildings.

They contain numerous documents referring to the public baths, which provide their location in the city, and their history through urban and socio-economic status.

Investigations of these funds, supported and cross-checked with information from the manuscript by A. Devoulx, written between 1840 and 1870, made it possible to find forty baths, which entries range from the second half of the 16th century to the early 19th century (Ben Hamouche et Belkadi, 2003). The investigated Ottoman archives show that in 1830, and at the time of the French occupation of the city, the number of these buildings was 31, and twenty-four of them (or almost three-quarters) were demolished during the early decades of the French colonisation. The minutes and reports from 1833 on the work of the French Military Engineering show that this destruction was the result of successive
redevelopment and layout of the roads which often gave access to the public baths and fountains, but also to the total destruction of whole neighbourhoods.

Only nine baths were located according to the historic sources following the on-site investigation and fieldwork; of which three have collapsed or are in an advanced state of decay. Five other structures were kept in good condition. These are the baths of Sidi Ramdan (Pre-Ottoman and probably 10-11th century as for the mosque of the same name), Hasan Basha Sidna (1550), Sirkâdjî (mid 17th century), al-Fwîta (mid-17th century) and Sidi 'Abd Allah (end 18th century). (Figures 7, 8, 9, 10 and 11). The sixth bath has totally disappeared today. However its survey drawings are kept at les Archives du Génie Militaire de Vincennes (France). It is called Hammam al-Yahud or al-Hammam Buza (circa. 1194 AH / 1780 AD). It was the bath used by the Jewish community of the city of Algiers at that time (Figure 12).
In terms of urban organization and its relationship to the public spaces, the Ottoman archive documents, particularly the establishment of Waqf, often mention the existence of premises adjacent to the public baths of the city. It is in many cases a home on the second floor of the bath called locally "ulwî" or sometimes even a big house. It was generally housing the manager of the bath as shown in the bath of Sidi ‘Abd Allah.

Public ovens (Khusha) or stores (makhzan) adjacent to the boiler and used to store the fuel constitute the other main annexes of the bath. The oven (furnace)-bath association, which no trace remains today in the few preserved baths of the city, was perhaps due to the common use of a heating system between two or three structures. Such a device still exists indeed in the bath inside the Beys Palace in the citadel (Seffadj N., 1991).

Several baths were also associated with one, two and sometimes several shops (Hwanit). The historic documents do not specify the reasons for this association. However, and through the
analysis of the accounting records found in the Ottoman archives, revenues of the stores that were attached to the hammam contributed to the functioning and maintenance of the bath and the pious foundation or public utility (waqf) to which they were often alienated by virtue of their high profitability.

All dependencies of the bath open onto the street leading to the hammam. They include the building of the bath itself, from which only the door or at most that of the entrance vestibule constitute its lonely visible facade on the street. Seen from outside, the baths of Algiers could be confused with any other house in the medina.

Examination of the architecture of the remaining historic baths of the city is not sufficient to establish a study of their architectural typology, but it nevertheless allows identifying some of their organizational and functional characteristics.

Apart from Sidi Ramdan bath, which has a different architecture, the dominant spatial organization characterizing the baths is the existence of two distinct zones of different temperatures:
• The cold zone: composed of the disrobing/rest room, which provides a space for the clients to change clothes and to rest after bathing.
• The heated zone: composed of the warm room (bit al-waste) and the hot room (bit al-skhûna).

Except hammam al-Yahud where the disrobing room has complicated spatial arrangements (Figure 12). This room generally consists of a central space with double height ceiling covered by a “shabbak” or timber roof. It is always preceded by the entrance vestibule, the skîfa. It is surrounded by elevated galleries and designed as sitting lounges (djalsâ).

The freshness and the relaxing feeling provided by the ambience in this space inspired its appellations as “bit al-q’âd” and “bit al-Barda” (literally “rest-room” and “cold-room”). The keeper accommodation develops on the upper floor of the central space patio. As it is presented, the rest room has the appearance of the ground floor of Algiers house, where its most common designation is “wast al-dar” or the central courtyard (Seffadj, Z., 1995: 162-179; Missoum, 2003: 204-220). As in most Algiers houses, the decoration is concentrated in this major room. It is made of ceramic motifs and varied colours, covering all the bases of the wall, as well as in the form of diverse arches, columns and capitals.

Inside the heated zone, The warm room is characterized by a modest and invariable architecture. With small dimensions, and its elongated rectangular shape, it is usually supporting a barrel vault as a cover. Hence, it is often reduced to the presence of latrines (knif or shishma) which gives it a mere transitional space feeling. From the thermal point of view, it ensures the balance of temperature between the changing/rest room and the hot room. The latter has a central spatial organization. The central space is designed with a massive marble platform (al-rkhâma) in the middle. Al-Rkhama is used for massages. Around the central space, there is one or two private rooms (bwîtât), in a kind of alcoves with marble basins fitted up (swâridj). The hot room is characterized by its square shape, its important dimensions and its octagonal dome pierced by small openings of geometric shapes (lamdâwi).
The dome as a major expression in the architecture of hot rooms looks even more monumental sometimes, as it is the case in the Hammam al-Búza and Hammam Sidi ‘Abd Allah (see figures 11 and 12). In these baths, it is indeed supported by four columns marking perfectly the central space of the room and covering al-Rkhama.

The bwîtât, usually two or three are distinguished in their architecture by domes or cross-vaults. They generate by their arrangement, a symmetrical composition of the furnace. In most cases, they surround al-barma (the hot water tank) that communicates with the furnace through an open niche. These monumental provisions are absent from hammam Sidi Ramdan (Figure 7). In fact, and apart from the changing room that has undergone recent refurbishments, the bath itself consists of three successive rooms instead of two observed in other hammams. The difference is the existence of a cold room located between the warm room and the changing room.

The bath has also elongated, straight, and parallel vaulted rooms. They are simple in order and of the same dimensions. They have a tripartite division, strengthened in the warm room by two side bwitat, surrounding the barma. All these characteristics exist in the Algerian baths of the medieval towns of Agadir, Achir, Qalâ of Banu Hammad, Tlemcen, Sidi Bûmadyan and Nedroma. The history of this bath in the city of Algiers dates back to the pre-Ottoman period and confirms its affiliation to the architecture of Algérían medieval baths.

The name of hammam Sidi Ramdan relates to the nearby mosque. The history of the latter has never been established with accuracy. However, and according to Devoulx, the founding of the mosque dates back before the arrival of the Ottomans in Algiers. Whereas, the oldest title of the property indicates a very old building dating back to the year 959AH / 1551-52AD (Devoulx, 1870: 172). Its earlier establishment is also suggested by its location near the Zirid citadelle “Al-Qasba al-Qadima.
and the district housing the tombs of Berber rulers (Qbûr ULAD al-sultan) dated in the 10th century. Sidi Ramdan bath associated with the mosque and the Berber Qasba is mentioned in the manuscript of Husin Ban Radjab written in 1704. This manuscript indicates that the building existed in 925AH / 1519AD, to the time of the sovereign Ishaq Bash, who was sent to Algiers by Sultan Bayazid Khan (Delphin, 1922: 219). This confirms the presence of hammam Sidi Ramdan in the city at the beginning of the Ottoman period and confirms its foundation prior to the arrival of the Turks.

**Technicalities of the Heating and Water Systems**

Algerian baths from the medieval era and Algiers bath from the Ottoman era used the same heating system and water piping devices. They do not seem to have varied from the 10th century until the Ottoman period. They remained in the ancient tradition, no doubt perpetuated by the Andalusian master-builders in all cities of Algeria. These techniques and devices remain in operating conditions, ensuring the functioning of the hammams in Algiers. Investigating Algiers hammams allows the observation of similarities with the medieval bath described in the historic sources and travellers’ accounts.

The water distribution system, heating and steam devices are housed at the rear of the hammam building and are accessible through the furnace entrance (see figures 13-14). They consist of a system of two communicating tanks arranged one beside the other. This device is similar to that observed in the baths of Damascus and Andalusia (Ecochard-Le Coeur, 1942: 27-29). From this perspective, Algiers baths have not deviated from this principle of using a double tanks boiler system and have not reproduced the single tank boiler used in all Ottoman baths, as observed by Edmon Pauty in two Moroccan baths from the Merinid period (mid-14th century): Hammām Tal’a in Salé et Hammām al-‘Alū in Rabat Ammam’Alū (Pauty, 1944: 215-225).

![Figure 13: Cross section of hammam Sirkâdji](Cherif-Seffadj. N, 1996).

![Figure 14: Cross section of hammam Hasan Bâshâ Sidnâ à Alger](Cherif-Seffadj. N, 1996).
In the heating system using two tanks, the biggest one plays the role of a water storage tank. It receives water from the outside to circulate it to the basins of the hot room through copper pipes. A portion of this water is discharged into the second tank, of smaller size, plays the role of the boiler since it was fixed over the heat-point (fire) located inside the oven/furnace. It contains boiling water, which is conducted to the hot water basins through pipes that file along with that of the cold water. The production of steam is provided by the evaporation of water from the boiler which communicates with the oven through an opening arranged above the basin. The low height of this area prevents the steam from escaping vertically, and from the cooling down. Hence it allows the steam to spread in the hot room without losing its density. The hot water that flows in the basins continuously spreads on the floor and also contributes to the production of steam.

The system of heating in the medieval and Ottoman baths of Algiers, which is similar in all respects to that of the Andalusian and Moroccan baths does not extend beyond the hot room. The flow of hot air under the floor is only a principle; the hypocaust system, that is found in the majority of baths in the Islamic world with the exception of Damascus baths built before the 12th century, in which hypocausts were extended to benefit of a chimney expanding under the warm and hot rooms. This device is also used in the bath of the royal palace of Comares in the Alhambra in Granada, which has the monumentality of the warm room as it is the case in the baths of Damascus. Such architectural provisions for the warm room (larger dimensions) have probably prompted the designers of this structure to extend the heating system under the ground of the warm room. However, and even though some warm rooms have large dimensions, which is an unusual aspect in Islamic baths, they do not always have an extension of the heating tunnels. This fact has been evidenced by the examples in hammam al-Sabaghine in Tlemcen, and hammam Al-Bali in Nedroma; where drawing chimneys are embedded in the common wall between the furnace and the warm room, thereby reducing under-floor heating.

In the majority of Algerian baths, and similarly to the ancient Roman Baths, the floor of the hot room uses hypocaust tunnels to circulate the steam coming from the furnace. It is covered with slabs of shale coated with marble. The heat from the flames drawn through the hypocaust spreads over the surface with an efficient circulation thanks to the two chimneys arranged on the opposite side of the hot room. The chimney located in the walls of the furnace also contributes to spreading the heat using their position in the common wall with the warm room. In fact they ensure an average temperature for this room.

**Conclusion**

The study of the architecture of Algerian baths, under the framework of the general baths development in the Islamic world confirms the existence of inspiration and derivation from the Andalusian and Ottoman bathing cultures. Effectively, the Andalusian bath models seem to be predominant until the 15th century, while the Ottoman models are predominant from the 16th to the 19th century. Two architectural typologies and spatial organizations are found in the medieval baths of Algeria. The straight
The mono-axial elongated layout and the compact dual-axial layout correspond to the baths of Andalusia. They have in common the existence of a cold room which represents the ancient frigidarium. All of these baths are characterized by a simple design marked by the parallel linear positioning of the elongated rooms, and covered with barrel vaults.

The second type represented in the Algerian medieval baths is the warm room. This room is the central space of the hammam. It has a square shape, whose centre consists of a patio bordered by two or three arches on each side. The columns defining the central square support an octagonal dome, while the galleries are covered with barrel vaults and sometimes cross vaults.

In terms of architecture, baths of Algiers were rather modest compared to the monumental structures built in the Levant (i.e. Turkey, Egypt and Syria). The lack of any exterior architectural treatment specific to these buildings is due to the fact that they are most often integrated into a set of dependencies on the street (store, warehouse, public oven), or arranged within a set of housing units at ground floor level.

Algiers baths, as of for the Ottoman baths of Turkey, contain only one transit room between the hot room and the changing room. The cold room existed only in the medieval baths. Hence the hot room becomes dominant in both its size and its architectural style. This is one of the major differences between Eastern baths (Greek and Byzantine) and Western baths, which have their roots in the practice of ancient Greek and Roman baths. The entrance vestibule, the changing and rest room of an Algiers bath is the perfect reflection of the Algiers courtyard houses, with its colonnaded galleries. Similarly it can be easily noticeable that the entrance hall of the bath is in the same configuration as the skifa of a house, a buffer space between the public space of the street and the interior private spaces. But all these analogies with oriental baths do not disguise the own typologies and characteristics of Algiers baths.

References


Nabila Cherif-Seffadj
Nabila Cherif-Seffadj is an architect and lecturer/researcher at the polytechnic School of Architecture & Urbanism – EPAU, Algiers. Dr. Nabila Cherif-Seffadj is a research associate at the Laboratory CNRS-UMR Medieval Islam (Université de Sorbonne Paris IV), and member of the Balneorient project: Balanea, themes et hammams, Origine et devenir du bain collectif dans le bassin oriental de la Méditerranée. HISQ MA (UMR 5189- CNRS Lyon 2 Lumière) ; Institut de Recherche sur l’Architecture Antique (FR 2777- Aix-en Provence) et l’IFPO de Beyrouth.