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# The ancient Baths of Southern Syria in their Near Eastern Context. Introduction to the Balnéorient project

Thibaud Fournet

► **To cite this version:**

Thibaud Fournet. The ancient Baths of Southern Syria in their Near Eastern Context. Introduction to the Balnéorient project. International Frontinus-Symposium on the Technical and Cultural History of Ancient Baths , Frontinus-Gesellschaft, Mar 2009, Aachen, Germany. halshs-01800519

**HAL Id: halshs-01800519**

**<https://shs.hal.science/halshs-01800519v1>**

Submitted on 31 May 2018

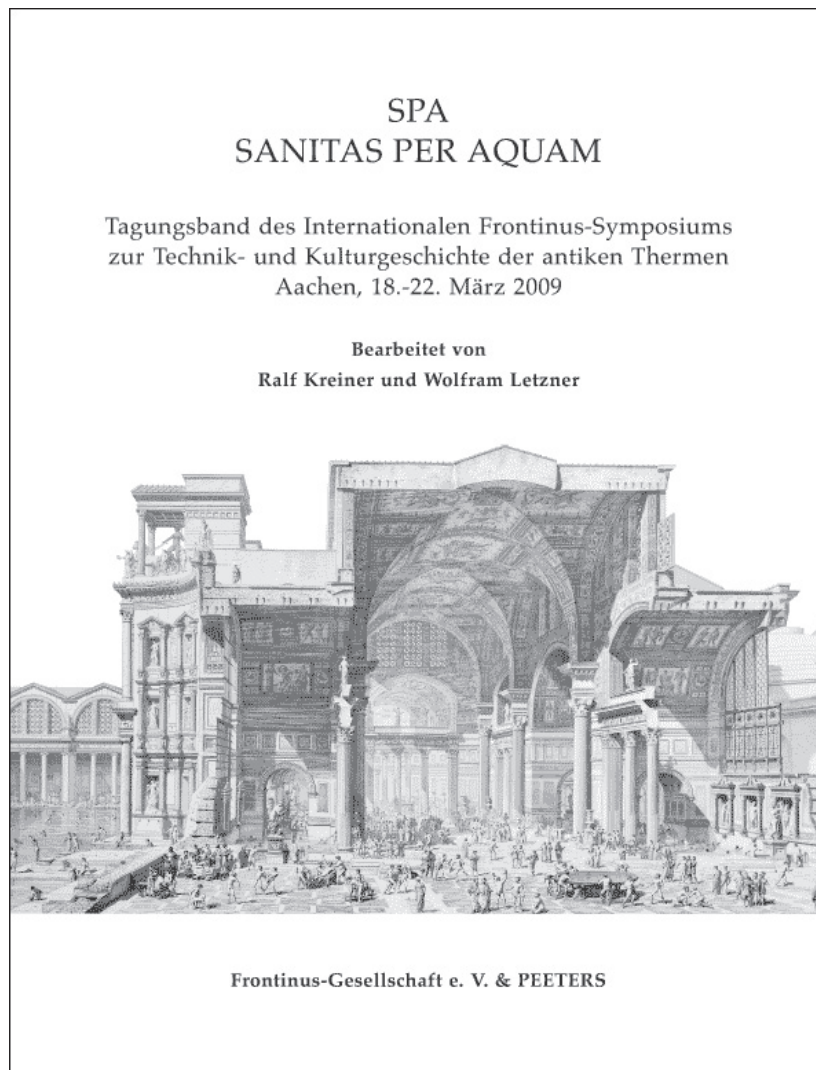
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**THE ANCIENT BATHS OF SOUTHERN SYRIA  
IN THEIR NEAR EASTERN CONTEXT**  
INTRODUCTION TO THE BALNÉORIENT PROJECT

Thibaud FOURNET

Version auteur de l'article publié dans  
*SANITAS PER AQUAM, Proceedings of the International Frontinus-  
Symposium on the Technical and Cultural History of Ancient Baths  
(Aachen, March 18-22, 2009)*, Leuven - Paris - Walpole, MA, 2012,  
p. 327-336.



Thibaud FOURNET (Ifpo / CNRS)

## **The ancient Baths of Southern Syria in their Near Eastern Context**

### Introduction to the Balnéorient project

This article developed out of four posters exhibited at the 2009 *Frontinus* Symposium with two objectives. First, to briefly present a collective research program, Balnéorient, which brings together since 2007, different scholars, mainly French, to write in common the history of collective bathing in the Middle East and Egypt areas from Ancient times until today; to focus on specific topics and problems, such as identifying and analyzing continuity patterns

The second objective was to select a region under the scope of the Balnéorient program, southern Syria, for which an architectural synthesis can be attempted, for Roman/late Antique periods as well as the first centuries of Islam, based on my work and those of other researchers.

It is necessary to stress that it is a work in progress, partly built on working hypotheses that may change depending on the progress of field works carried out in the entire Middle East. However, it already allows to complement and correct existing regional studies by analyzing new archaeological data and unpublished architectural studies.

The limits of this paper are obvious. Our approach is an architectural one and relies mainly on plans and technologies. The buildings under study cannot be presented but too briefly, due to the editing standards. Besides, the historical dimension of the practice, such as the links between bath, religion and society is only touched upon here. One must be aware of one thing: due to the complexity of the phenomenon, the variety of disciplines concerned with the practice, a genuine synthesis on bath history in the Middle East is a collective task.

## 1. The Balneorient project (<http://balneorient.hypotheses.org>)

Near East and Egypt are often considered as areas offering a unique possibility to observe the evolution of collective bathing through two millennia. However, they are seldom taken into account in the ever expanding bibliography on ancient baths. This is all the more illogical, since buildings, both ancient and mediaeval, are often in an exceptional state of conservation, and written sources provide plenty of information, for each period.

The Balneorient program<sup>1</sup> intends to collect these extremely rich sources of data and to emphasize their value. To fulfill this purpose scholars from all Mediterranean are cooperating to write in common the history of public and collective baths. Their aim is to analyze the evolution patterns of thermal practices, to focus on transitional periods and to insist on local adaptations and differences. Within this very broad chronological framework - from Bronze Age to present day - participants from all disciplines are in the process of creating a corpus of textual, archaeological and architectural data, as well as also recording in the field new archaeological and historical facts or heritage.

### *Corpus*

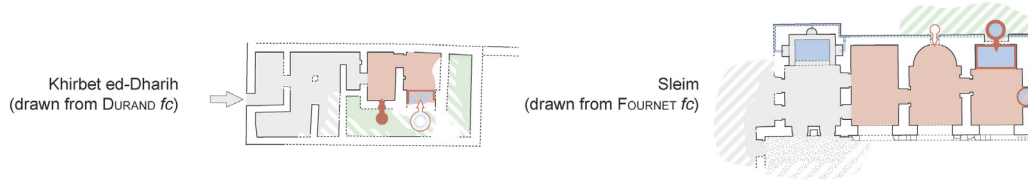
Baln orient aims first at writing the true history of bathing, by collecting and comparing different data sets. Therefore, besides translating and editing selected written sources (a Sourcebook is under preparation), it intends to define graphic standards for presenting architectural evidence, i.e. plans redrawn at the same scale, following common graphic norms and conventions which will facilitate group discussion and reinterpretation (**fig. 1a & 1b**).

These graphic standards elaborated collectively, help compare and contrast antique, medieval and modern architectural patterns, so far documented in a quite heterogeneous way. The short typology presented below for the small Eastern baths during Roman, Byzantine and Umayyad periods is one of the first result.

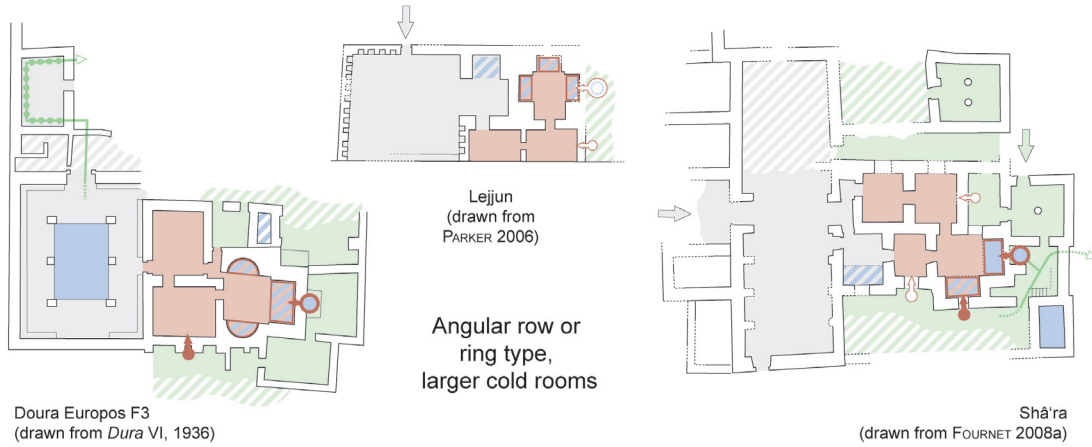
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<sup>1</sup> The Baln orient project is a three-years project funded by (2007-2009), and extended till May 2010, by the French National Agency for Research (ANR). Headed by Marie-Fran oise Bousac (Univ. Paris Ouest – Nanterre) it consists of four teams: 1) Maison de l’Orient et de la m diterran e (MOM) – in Lyon, supervisor M.-F. Bousac; 2) Institut fran ais du Proche-Orient (Ifpo), project supervisor T. Fournet (with G. Charpentier); 3) Paris 4 – Sorbonne, laboratory of Islamology, (Resp. : M. Barrucand till 2008 ; J.-P. Van Staevel thereafter ); 4) IREMAM (MMSH Aix-en-Provence), project supervisor Michel Tuschcherer. The IFAO (French Institute of Oriental Archaeology, Cairo) is also scientifically associated to the Baln orient project (supervisor for the IFAO: S. Denoix). Close cooperation agreements have been worked out with the General Directorate of Antiquities and Museums of Syria (DGAMS), which co-organises the 2009 symposium in Damascus, the Supreme Council of Antiquities (SCA, Egypt), the Department of Antiquities of Jordan and the Department of Antiquities of Lebanon

Small public baths of 1<sup>st</sup>-2<sup>nd</sup> century AD : linear row type



Small public baths of 3<sup>rd</sup> century AD



Small late roman and byzantine baths

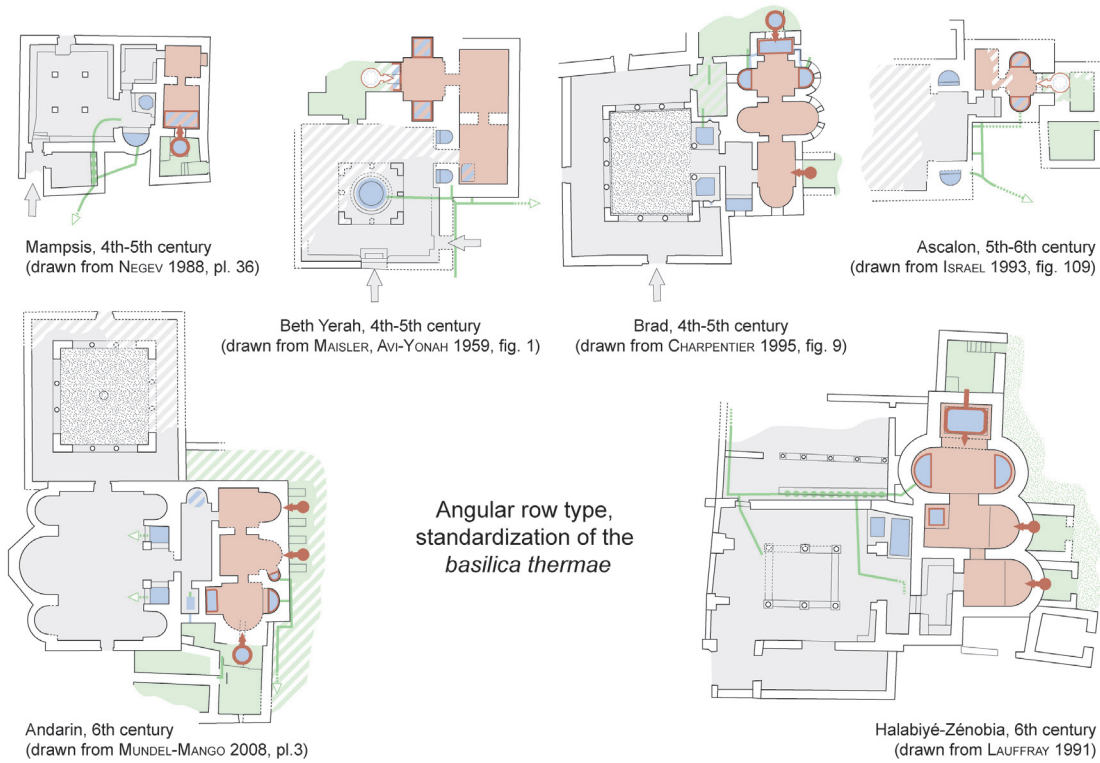
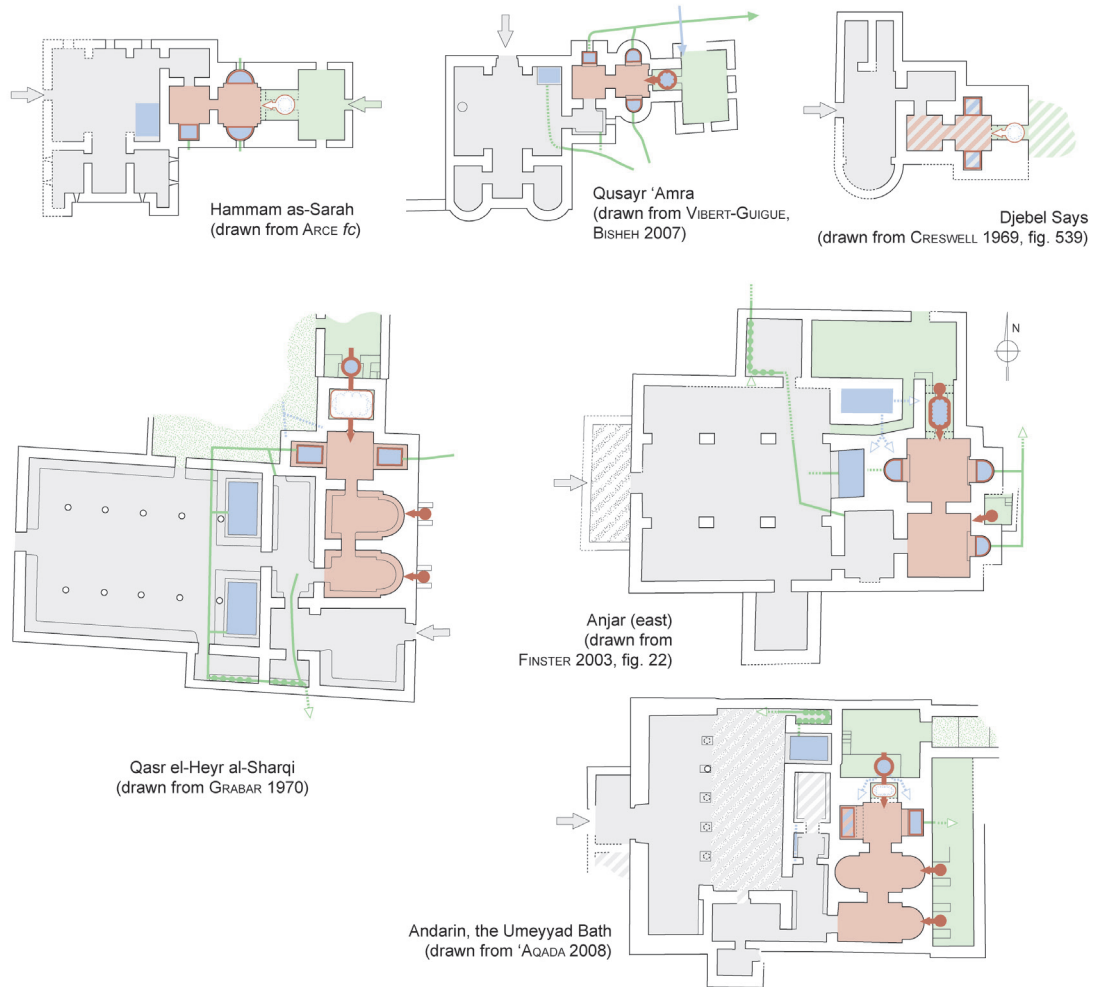
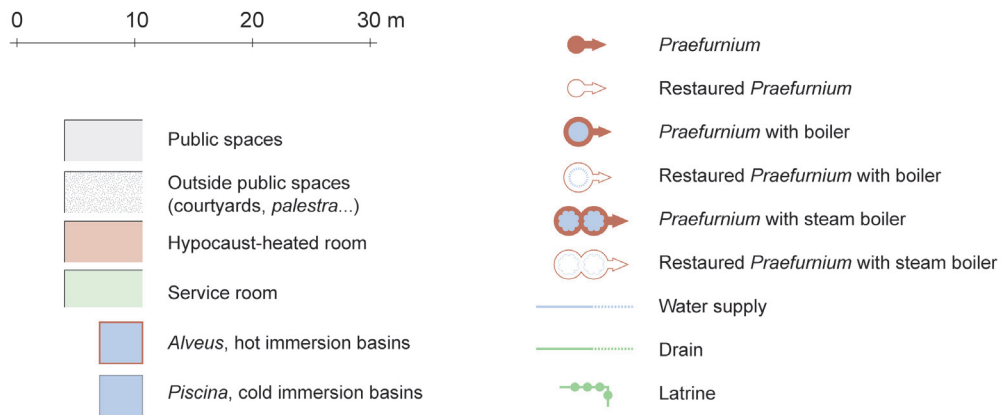


Fig. 1 – Near-Eastern Baths selective Typology. Roman, Byzantine and Umayyad periods (Th. Fournet)

Private and public baths of the umeyyad period (8<sup>th</sup> century AD)



Balnéorient's graphic conventions



### *Fieldwork*

A second major objective is to increase and renew the data available by funding and launching field works : archaeological soundings, architectural studies, surveys, archives analyses, etc. The Balneorient website lists all major fieldwork conducted by the group alone, or in collaboration with other teams, in Yemen, Saudi Arabia, Iraqi Kurdistan, Jordan, Syria, Lebanon and Egypt.

### *Meetings*

Thirdly scientific events are organized on a regular basis, from international symposia and conferences, to training sessions for PHD students, or workshops. The meetings already held in Alexandria (2006) and Amman (2008), or to take place in Damascus (2009) fully demonstrate how cross exchanging information between specialists of Antiquity, Islamic world and of modern Middle Eastern societies could yield fruitful results.

## 2. The ancient Baths of Southern Syria in their Near Eastern Context

The second aim of this article is to present, through the study of several buildings in Southern Syria, a preliminary architectural synthesis on the evolution of thermal practices in the Roman province of *Arabia*, from its creation in 106 AD to the first century of Islam.

This fieldwork completes the results of G. Charpentier's expeditions to Northern Syria,<sup>2</sup> as well as those obtained by H. Broise at Bosra<sup>3</sup> and by S. Hoss on the baths of Palestine.<sup>4</sup> They help us to analyze with increasing precision and better understanding bathing practices in the Roman Eastern provinces (*Syria, Palaestina, Arabia*), which are still ill known despite the large number of buildings preserved and their often very good state of preservation.

The way monographs on thermal practices of Antiquity (such as Nielsen 1990 and Yegül 1992 in particular) interpreted bathing in the East were biased by this lack of documented evidence. However, recent works enable researchers to clarify several specific points and to reappraise some generally accepted conclusions.

The matter is still open for discussion and the synthesis presented below is still a rough simplification of sorts: a lot of fieldwork is being carried out on buildings still hardly documented or unpublished (at Apamea, Tyre, Jerash, Beit Mery, Tell Ash'ari, Petra, Andarin, Lattakia, Jebleh, Rasm el-Hajjal, Palmyra, al-Kalibiyya, etc.) and will very soon provide to scholars – above all those working for the collective Balnéorient project – more relevant and precise information on the history of baths in the East.

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2 CHARPENTIER 1995

3 *Bosra guide* 2007

4 Hoss 2005

## Near Eastern Baths: a typological Approach

Out of a total of more than two hundred and fifty public and private baths brought to light in the Near East (Syria, Jordan, Lebanon, Palestine/Israel), 170 have their layout sufficiently preserved to be included within a typological study. Too often roughly dated in an approximate manner, they can be nevertheless divided into three clearly chronologically distinct sub-sets: Hellenistic and Herodian private baths (35 buildings), baths of the Roman and Byzantine period (118 constructions) and baths of the Umayyad period (17 constructions).

Except for private baths, most of the Near East thermal baths of Antiquity were built between the second and sixth century AD and can be divided into two sub-groups: 1. great monumental *thermae* erected in urban settings (with a surface area between 5,000 and 9,000 sq. m., orange squares on the map), and 2. small baths operating for some neighbourhood or village, of much more modest dimensions (between 200 and 1,500 sq. m., orange circles).

Often located in the countryside, in small settlements or in military installations, the small baths are better known than the larger urban ones, which is quite unsettling. As a result scientific work depended on some very well-preserved baths of the Byzantine period, which lead for a long time to a distorted interpretation of thermal practices in the Orient. For instance these small "late" baths were considered as the successors of the monumental *thermae* of the Roman imperial period ; and were assumed to have gradually replaced the former ones. Both groups actually – the small baths and the huge *thermae* – are attested ever since collective bathing was initiated in the Middle East; they went through parallel transformation processes until the major breaks of the first centuries of Islam.

## A late adoption

During the Hellenistic period bathing practices spread all around the Mediterranean, after developing in Greece for a few centuries. The huge number of buildings discovered in Sicily, Italy, Greece, Cyprus and – above all – in Ptolemaic Egypt<sup>5</sup>, fully demonstrate that the Greek bath was a great success and the relative uniformity of practices during this period.

However, Levant apparently did not adopt bathing practices at this time: archaeological fieldworks, numerous in Palestine, would not have missed buildings characterized by rotundas, *tholoi*. Yet only a few isolated hip-bathtubs of Hellenistic date have been discovered to this day, within private housing belonging to expatriate settlers or wealthy landowners.<sup>6</sup> Preexisting Jewish ritual baths or individual bathrooms in these areas cannot explain this surprising absence, which is still more striking outside Palestine, in the future province of Arabia. The role played by the Jewish religion in the late adoption of the public bath, often

<sup>5</sup> FOURNET-REDON 2009

<sup>6</sup> HOSS 2005, mainly in Beth-Zur (Kh. Et-Tubeiqqa), Cat. n° 24.



put forward, must be pushed aside. As already suggested by S. Hoss all the entire area was reluctant, beyond the religious aspects peculiar to Judaism. Obviously Hellenization in the East concerned just a restricted elite.

This lack of popular support to thermal practices can be observed also a century or two later, at the beginning of the Roman period: baths built in Herodian palaces, following Italian architectural models,<sup>7</sup> could have entailed the spread of thermal practices in Orient. These baths, however, were built only as part of a protocole whose main role was to reflect the greatness of Rome: in the first and second century BC, these practices were far from being shared by the lower classes. As a consequence, the palatial baths had no direct descendants, except for some private installations in rich residences of the Nabatean kingdom.<sup>8</sup>

Several coastal cities were adorned with baths shortly after (for instance Antioch during the reigns of Cesar and Tiberius), but Roman bathing traditions firmly took root in the East only in the second century AD, at a time when monumental urban programs were developed and another type of building, the theatre, not previously attested in these Hellenized regions, started being built.

This late introduction was nevertheless successful and long-lasting: in less than a century all cities and a large number of Syrian and Arabian lesser towns were equipped with thermal installations, from the Euphrates shores to the confines of Arabia.

### Small Roman and Byzantine Baths

Small baths, often assimilated to late transitional baths whose evolution lead to the Arab hammam, are relatively ill known in the Roman period. The most ancient public buildings of that type (apart from Herodian and Nabatean private baths, limited in both time and space) are located in Capernaum (first century AD), at En Gedi (between 70 and 132 AD) in Palestine,<sup>9</sup> at Khirbet ed-Darih (end 1<sup>st</sup> AD – beginning 2<sup>nd</sup> AD) in Jordan and at Sleim in Southern Syria.<sup>10</sup> At Sleim, the bath may be assigned to the end of the first century AD or to the beginning of the second thanks considering construction techniques and architectural context, and is wonderfully preserved. It is laid out in an axial row scheme (*apodyterium – frigidarium – tepidarium – dstrictarium/laconicum – caldarium*), which runs parallel to a courtyard. The political and cultural context for this bath – probably built slightly before the creation of the province of *Arabia* – remains unclear, but architectural models and heating techniques are obviously western imports. Without any feature suggesting a local thermal practice, it confirms that the Hellenistic bath model was not adopted in the future province of *Arabia*.

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7 HOSS 2005, NETZER 1999

8 The best known examples, roughly assigned to the 1st AD are in Petra (Zantur and Wadi Musa, see AUGÉ [*forthcoming*]) and Wadi Rum (DUDLEY, REEVES 1997).

9 HOSS 2005

10 FOURNET [*forthcoming*]

Baths later than those of Sleim or Khibet ed-Dahrih differ from this imported model. Plans gradually evolve the same way, from Doura Europos on the Euphrates<sup>11</sup> to Shâ'ra in the Lejja (Trachonitis)<sup>12</sup>, and apparently confirm the role of the army in the spreading of thermal practices to the new boundaries of the Roman Empire. These examples, dated to the third century AD, are laid out on a classical ring or row type plan, and look like a "miniature" adaptation of larger buildings built during the same period in neighbouring cities. Heating techniques with a hypocaust and a boiler stand by traditional patterns.

On the contrary, the cold room becomes larger and increasingly important in terms of surface, when compared to the heated sector of the baths. This evolution is obvious in two examples, Lejja in Jordan<sup>13</sup> and Kalibiya in Palmyrene<sup>14</sup>, the former at least in a military context. This trend is already pronounced in the third century and becomes systematic in the fourth; more than the disappearance of the *palestra*, it is obviously the main characteristic of Near Eastern Byzantine small baths. Most often provided with one or two immersion basins, this room remains a *frigidarium*, but its function goes well beyond this: it is used as a resting room, a cloakroom, a meeting place, and thus becomes the most important room of bathhouses. At the same time the heated rooms tend to be smaller and less; collective *piscinae* are gradually replaced by individual tubs. This size decreasing of hot rooms and immersion basins has often be interpreted as an economic choice, to reduce the operating costs of buildings. However such a conclusion is hardly convincing in a rural setting often prosperous. This change in practices rather reflects a change in mentalities : people now bathe individually, even if they still do it in a same place and at the same time as others<sup>15</sup>.

The transformation process in heating techniques also starts rather early and develops quite gradually, from the fifth century AD onwards, with the installation of steam diffusion devices in the heated rooms<sup>16</sup>. This innovation, added to the reduction in size of tubs, marks the birth of the hammam, both in Oriens and in Egypt, whose main characteristic is heating through steam rather than through the hypocaust's dry heat (**fig. 2**). The reduction in volume of the hot rooms follows and favours this evolution towards steam baths.

At the beginning of the eighth century AD, during the Umayyad period, the baths built in the entire Near East are in all aspects similar to some examples of the sixth century, in which steam production and large cold rooms are associated. Therefore the hypothesis of a technical or architectural break linked to the Moslem conquest must be abandoned when confronted to these observations.<sup>17</sup>

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11 Dura VI

12 FOURNET 2008

13 PARKER 2006

14 This building, excavated since 2008 by the Syrian Directorate of Antiquities of Palmyra (Ing. W. As'ad), is shortly presented on the Balnéorient website. It will be presented in detail at the conference in Damascus, November 2009.

15 THEBERT 2003

16 CHARPENTIER 1995, see also an Egyptian example in Castel 2009

17 CHARPENTIER 1995

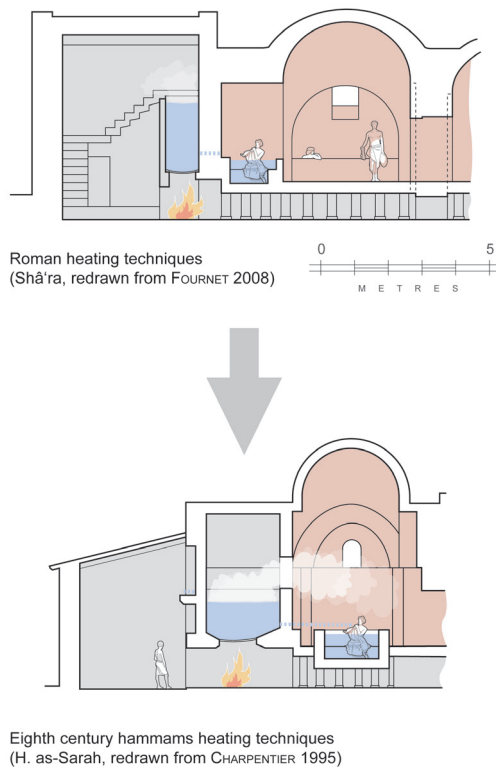


Fig. 2 – From Roman Baths to Hammam: Evolution of Heating Techniques (Th. Fournet, after FOURNET 2008a and CHARPENTIER 1995)

As for forms the social role of the bath does not change either. The magnificent Umayyad private or semi-private baths built in luxurious residences have long given the impression of a change in the status of bathers, of a return to a bath intended mainly for the elite ; but others examples, whose number is increasingly growing, tend to demonstrate that on the contrary, the masses keep going to the baths in town, and will do it until the medieval and modern hammams.

### Urban Thermae

Urban monumental baths built in city centers are not attested earlier than the second century AD in the province of Arabia and probably follow/adapt models already existing on the Mediterranean coast, in Beirut or Antioch for instance. More than the adoption of thermal practices, the construction of these huge baths – as well as of theatres and other monuments previously unknown in Orient – reflects how deeply concerned about promoting its image is the new political, economic and cultural power. The baths were meant to be a living image of an urban or provincial power seeking fame on an imperial scale.

The buildings still preserved are nevertheless different from imperial models fashionable in Rome, Asia Minor or North Africa. The fact that builders did not reproduce the large symmetrical plans of imperial baths and restrained themselves to more modest and non-symmetrical outlines might be the result of a cautious attitude in a recently Romanized province. In the western part of the Roman Empire, these more modest plans were abandoned for bathing buildings built on a

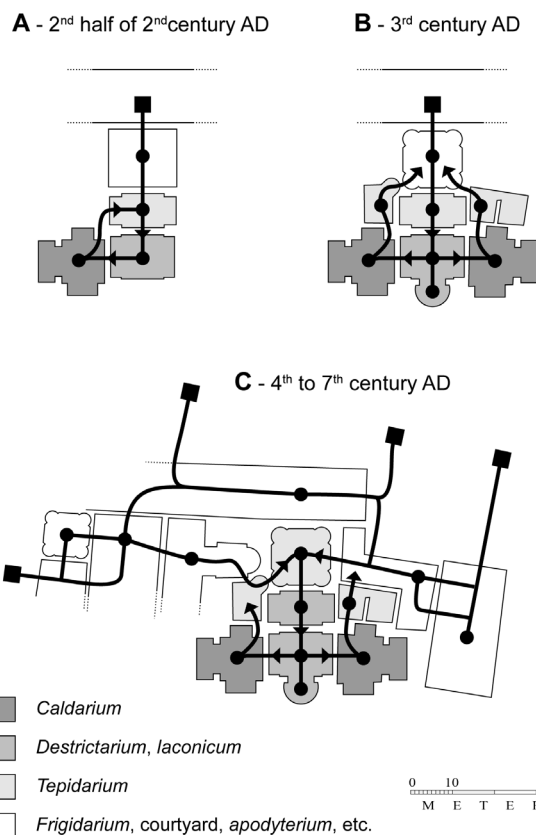


Fig. 3 - Architectural Development of the Southern Baths in Bosra from 2<sup>nd</sup> to 6<sup>th</sup> c. AD (Th. Fournet, after *Bosra guide*, 2007, p.222)

large scale. One may also assume that extensions were planned from the start, but could not be completed within an already dense urban fabric.

In any case Eastern societies turned to bath. The adoption of baths obviously had long-lasting effects; bathhouses built in the second century BC are enlarged to a monumental scale in the third: by increasing twofold the number of hot rooms local builders follow imperial type of lay out whilst doubling their capacity (**fig. 3**). The Southern baths at Bosra studied by H. Broise,<sup>18</sup> or the central baths in the same city,<sup>19</sup> illustrate this splitting process that one can also find more or less clearly in other cities of the area (Oriental baths at Jerash,<sup>20</sup> Hammat Gader<sup>21</sup> or Scythopolis,<sup>22</sup> etc...).

The development of these buildings, both in terms of size and number, illustrates the success of monumental baths ; it is also the result of competition and emulation between neighbouring cities. Bathhouses built at that time and until the end of the fourth century all adopt from the start an imperial symmetrical plan.

<sup>18</sup> *Bosra guide* 2007, p.219-224.

<sup>19</sup> *Bosra guide* 2007, p. 243-253.

<sup>20</sup> LEPAON 2008

<sup>21</sup> BROISE 2003

<sup>22</sup> MAZOR 1999

The Shahba-Philippopolis baths in Southern Syria are a case in point: the town was the birthplace of Emperor Philip the Arab; this small regional centre was the focus of an impressive town building cycle during the four years of his rule (244 à 249 AD). Baths founded during this short period were laid out according to an ambitious plan of imperial type, disproportionate when considering that Shahba was nothing more than a village. After Philip's death, the baths, still in construction, underwent a radical change in the building scheme: only a small part of the initially planned building was completed, while the remainder of the project did not go beyond foundation level. The circulation patterns initially planned were also modified: the impressive façade behind the double *natatio*, itself surrounded by a portico, just gives access to a modest ring type bath. A specific political context explains why this evolution is so different of that in Bosra, but the unfinished initial project perfectly fits the global trend observed in the provinces of Syria and Arabia in the third century AD: the imperial type of baths was from now on ubiquitous.

### **The *thermae* of the byzantine period**

Because the eastern monumental baths were hardly known, in particular in their later stages, it was suggested either that these large buildings declined from the fourth century AD onwards,<sup>23</sup> or that a capacity to change was restricted to small baths at the expense of monumental *thermae*. This view is now denied by studies carried out on Southern Syrian baths and some other ones in the area. Far from declining, buildings in this period reached their maximal extension. The huge symmetrical compositions and plans created in the third and fourth centuries increased even more in magnitude with the addition of peripheral facilities (latrines, porticoes, pools, etc...), which made the baths even more impressively monumental.

The baths were even at times completely reconstructed and enlarged following an earthquake, as was the case in Beth Shean in the fifth century.<sup>24</sup> The large porticoed courtyards at Bosra, also to be found at Jerash, Beth Shean, Palmyra, or on an even more monumental scale in Tyre, are relevant examples of this trend. These marble or mosaic-paved *palestrae* lost all relation whatsoever to sports: their main function appears to perpetuate one of the canonical elements of the Roman model, the latter tentatively reproduced in the cities' centers, also lately modeled according to classical cities.

The vitality of urban thermal practices in the Byzantine period (from the fourth to the early sixth century AD) was paralleled by the emergence in the countryside of a new model of baths heralding the hammam. Far from being opposed, these two trends tend rather to demonstrate the increasing popularity of this institution in the Late Antique Near East, despite the sharp criticism of the "Fathers of the Church".

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23 YEGÜL 1992

24 MAZOR 1999

### Bathing in Cities during Islam's first Century

The expansion of huge baths was a phenomenon lasting in cities until the sixth century, when the economic crisis affecting the entire region started to have effects on these buildings which, albeit not developing in dynamic form, nevertheless continued to function until the mid-eighth century, at the end of the Ummayyad period. It seems that the *thermae* survived only because of an "architectural inertia" linked to their scale and size, as well as their place at the centre of cities.

Recent fieldwork carried out at Bosra (Southern Baths), at Jerash (Central Baths),<sup>25</sup> Apamea (Northern Baths)<sup>26</sup> or in Petra (Great Temple Baths),<sup>27</sup> and analyses of the evolution of great baths during the seventh and eighth century AD, allow one to gradually differentiate main trends. The decrease in size of pools, transformed into individual tubs, or of heated rooms (through the abandonment of certain hearths or of entire sectors), tend to bring the *thermae* closer to countryside models, despite a disproportionate architectural overlay inherited from previous periods.

At the beginning of the eighth century AD, the baths also remained an urban phenomenon, even if examples of buildings founded during this period are quite rare in comparison to the baths associated to "Desert Castles". At Anjar, a new city founded at the beginning of the eighth century, the bath was considered as one of the necessary facilities in a newly-built town. At Andarin, in the Syrian steppe, entirely new baths were also constructed during the Ummayyad period,<sup>28</sup> some tens of meters away from the Proto-Byzantine building destroyed by an earthquake and reoccupied by craftsmen's installations.<sup>29</sup> In both cases, baths are listed among the vital facilities offered by city life. These two examples, to which should be added Qasr el-Hayr el-Sharqi also located in an urban setting, show that architectural models were perfect replicas of those characterizing baths of the countryside. The plan of these Ummayyad urban foundations is identical or scarcely larger to those of hammam baths of the "Desert Castles". In both cases, the steam bath technique had been adopted.

At Anjar, the two baths were constructed in the periphery of the city, aside from the main street, far from the political and religious heart formed by the palace-mosque group. At Jerash, the Byzantine "Central Baths", transformed during the seventh century, were destroyed at the beginning of the eighth century when the great Friday mosque was founded.<sup>30</sup> These two examples appear to indicate that in the Ummayyad period the baths' role in the cities and in mentalities had evolved: baths kept their social importance, but their urban dimension inherited from Rome, their role as a showcase of classical culture, often put forward in order

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25 BLANKE [forthcoming]

26 VIVIERS, VOKAER 2009

27 JOUKOWSKI 2007

28 'AQADA 2008

29 MUNDEL-MANGO 2008

30 BLANKES [forthcoming]

to explain the size of imperial period buildings, eventually disappeared from the cities having survived throughout the Proto-Byzantine period. It is nevertheless preserved in palace baths, but on a more private and reduced scale, in cold rooms which still reflect this care for power representation.

The economic crisis of the sixth century, followed by the Ummayyad period conquests, did not initiate a break but rather gave the opportunity to bridge the gap that had formed between urban baths on the one hand, and rural and private ones on the other. The distinction between large and small-scale baths observed during all Antiquity lost all meaning at the end of the Ummayyad period; all baths followed the same architectural model leading to the Mediaeval hammam. The technique of steam production gradually improved and rendered unnecessary hypocaust devices and heating walls. These were transformed into nothing but a small group of heating canals. Likewise, thanks to these technical improvements, immersion baths were progressively replaced by steam baths, a factor explaining the disappearance of tubs in favor of basins and vats.

This transformation of techniques and monuments allows one to follow the evolution of thermal practices, but raises non-architectural issues: what role did religion, both Christian and Muslim, play in these evolutions? What place did economic constraints, usually put forward to explain the reduction in size of basins and the adoption of the steam bath, have in the evolution towards the hammam? These are questions that, amongst others, the Balnéorient program attempts to answer, both collectively and by applying results from several complementary fields. The archaeological and architectural study will enable a reconstruction of practices that other approaches will probably explain.

## Bibliography :

### 'AQADA 2008

R. 'AQADA, 'The Umayyad Bath in Andarin' (in arabic), *Adiyat Halab* 11-12, 2008, 223-234.

### ARCE [forthcoming]

I. ARCE, 'The Umayyad baths at Amman Citadel and Hammam al-Sarah. Analysis and interpretation' in M.F. Boussac, J.-F. Salles, *Bains d'outre Jourdain, Actes du colloque Balnéorient de Amman, mai 2008*, Ifpo [forthcoming in 2010].

### AUGÉ [forthcoming]

Chr. AUGÉ, 'Des bains à Pétra ?' in M.F. Boussac, J.-F. Salles, *Bains d'outre Jourdain, Actes du colloque Balnéorient de Amman, mai 2008*, Ifpo [forthcoming in 2010].

### BLANKE [forthcoming]

L. BLANKE, 'The Central Baths in Gerasa in Context', in M.F. Boussac, J.-F. Salles, *Bains d'outre Jourdain, Actes du colloque Balnéorient de Amman, mai 2008*, Ifpo [forthcoming in 2010].

### Bosra guide 2007

J. DENTZER-FEYDY, M. VALLERIN, T. FOURNET, Kh. & A. MOUKDAD, *Bosra, aux portes de l'Arabie*, Guides archéologiques de l'Ifpo n° 5, Ifpo, 2007.

### BROISE 2003

H. BROISE, 'À propos des bains d'Hammat Gader', *Syria* 80 (2003), 217-236.

### CASTEL 2009

G. CASTEL, 'Le bain nord de Karanis', in M.-F. Boussac, T. Fournet, B. Redon, eds., *Le bain collectif en Egypte, origine, évolution et actualité des pratiques, Actes du colloque Balnéorient d'Alexandrie, déc. 2006*, IFAO-Le Caire, 2009, p. 197-245.

### CHARPENTIER 1995

G. CHARPENTIER, 'Les petits bains proto-byzantins de la Syrie du Nord', *Topoi* 5 (1995), 249-267.

### CRESWELL 1969

K.A.C. CRESWELL, *Early Muslim Architecture, Umayyads, A.D. 622-750*, Vol. I, Part II, Oxford 1969.

### DUDLEY, REEVES 1997

D. DUDLEY, M.B. REEVES, 'The Wadi Ramm Recovery Project: Preliminary Report of the 1996 Season' in J.L. Butrica (Ed): *Echos du Monde Classique/Classical Views* XLI n°16-1. Winnipeg.

### Dura VI

*The Excavations at Dura-Europos*, Yale University, Académie des Inscriptions et Belles Lettres, Preliminary Report of Sixth Season of Work, October 1932-March 1933, 1936.



## DURAND [forthcoming]

C. DURAND, 'Les bains nabatéo-romains de Khirbet edh-Dharieh (Jordanie)', in M.F. Boussac, J.-F. Salles, *Bains d'outre Jourdain, Actes du colloque Balnéorient de Amman, mai 2008*, Ifpo [forthcoming in 2010].

## FINSTER 2003

B. FINSTER, Researches in 'Anjar, *Baal* 7, 2003, 227-229.

## FOURNET 2008a

T. Fournet, 'Les bains romains de Shâ'ra, interprétation et hypothèses', *Annales Archéologique Arabes Syriennes* 47-48 (2004-2005) [2008], 159-178.

## FOURNET 2008b

T. Fournet, 'Les thermes du centre à Bosra : fonctionnement et dispositifs techniques d'un grand édifice thermal romano-byzantin de Syrie du Sud', in *L'eau. Enjeux, usages et représentations, Actes du Quatrième colloque de la Maison René-Ginouvès, (Nanterre 2007)*, 2008, p. 115-125.

## FOURNET forthcoming

T. Fournet, 'Les bains romains de Sleim (*Selæma*), analyse architecturale et proposition de chronologie', in *Cultures du Hauran, Actes du colloque Ifpo-DGAMS de Damas* (oct. 2007) [forthcoming in 2010].

## FOURNET-REDON 2009

T. Fournet, B. Redon, 'Taposiris Magna et le bain de tradition hellénique en Egypte', in M.-F. Boussac, T. Fournet, B. Redon eds., *Le bain collectif en Egypte, origine, évolution et actualité des pratiques, Actes du colloque Balnéorient d'Alexandrie, déc. 2006*, IFAO-Le Caire, 2009, p. 113-137.

## GRABAR 1970

O. GRABAR, *City in the Desert. Qasr el Hayr East*, Cambridge, Mass. 1970, p. 90-97.

## HOSS 2005

S. HOSS, *Baths and Bathing. The culture of bathing and the baths and thermae in Palestine from the Hasmoneans to the Moslem conquest*, BAR int. series 1346, 2005.

## ISRAEL 1993

Y. ISRAEL, Ashqelon, *ESI* 13, 1993, 100-105.

## JOUKOWSKY, 2007

M.S. JOUKOWSKY, *Petra Great Temple, Volume II: Archaeological Contexts of the Remains and Excavations; Brown University Excavations in Jordan at the Petra Great Temple, 1993-2007*, Brown University Petra Exploration Fund.

## LAUFFRAY 1991

J. LAUFFRAY, *Halabiyya-Zenobia*, BAH 138, vol. 2 Paris, P. Geuthner, 1991.

## LEPAON 2008

T. LEPAON, 'Les édifices balnéaires de Gerasa de la Décapole : premières observations', *Syria* 85 (2008), p. 51 à 70.

## MAISLER, AVI-YONAH 1959

B. MAISLER, M. AVI-YONAH, The excavations at Beth Yerah (Khirbet el-Kerak) 1944-1945, *IEJ* 9, 1959.

## MAZOR 1999

G. MAZOR, 'Public baths in Roman and Byzantine Nysa-Scythopolis (Bet She'an)', in *Roman Baths and Bathing, Proceedings of the First International Conference on Roman Baths held at Bath (1992)*, JRA Sup. Series 37, J. DeLaine & D. E. Johnston eds., 1999, p. 293-302.

## MUNDEL-MANGO 2008

M. MUNDEL-MANGO, 'Baths, reservoirs and water use at Androna in late antiquity and the early Islamic period' in K. Bartl, ed., *Residences, castles, settlements. Transformation processes from late antiquity to early Islam in Bilad al Sham* (German Archaeological Institute, Damascus, 2008).

## NEGEV 1988

A. NEGEV, *The Architecture of Mampsis, Final Report. Vol. 1: The Middle and Late Nabatean Periods*, QEDem 26, 1988.

## NETZER 1999

E. NETZER, 'Herodian bath-houses', in *Roman Baths and Bathing, Proceedings of the First International Conference on Roman Baths held at Bath (1992)*, JRA Sup. Series 37, J. DeLaine & D. E. Johnston eds., 1999, p. 47-55.

## NIELSEN 1990

I. NIELSEN, *Thermae et Balnea, The Architecture and Cultural History of Roman Public Baths*, Aarhus University Press 1990.

## PARKER 2006

S. T. PARKER, *The Roman Frontier in Central Jordan. Final Report on the Limes Arabicus Project, 1980-1989*. Dumbarton Oaks Research Library and Collection. Washington. 2006.

## THEBERT 2003

Y. THEBERT, *Thermes romains d'Afrique du Nord et leur contexte méditerranéen. Etudes d'histoire et d'archéologie*, BEFAR 315, 2003.

## VIBERT-GUIGUE, BISHEH 2007

J.-C. VIBERT-GUIGUE, Gh. BISHEH, *Les peintures de Qusayr'Amra. Un bain omeyyade dans la bâdiya jordanienne*, BAH 179 - Department of Antiquities of Jordan, 2007.

## VIVIERS, VOKAER 2009

D. VIVIERS, A. VOKAER, 'Travaux de la mission archéologique belge à Apamée de Syrie. XLle campagne, 2007', *RBP* 86, 2008, p. 115-150, pl. I-XX.

## YEGÜL 1992

K. F. YEGÜL, *Baths and Bathing in Classical Antiquity*, Cambridge (Mass.), 1992.