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ARCHITECTURAL DECORATION AND URBAN HISTORY IN *MAURETANIA TINGITANA* (MOROCCO)

- Volume I -

Text

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by

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LIST OF ABBREVIATIONS

Abbreviations of journals and series follow the system of the *Archäologische Bibliographie*.

AA = *Archäologischer Anzeiger*

Aarchit = *Archeologia dell'Architettura*

AEspA = *Archivo Español de Arqueología*

AJA = *American Journal of Archaeology*

Ampurias = *Ampurias: Revista de Arqueología, Prehistoria y Etnología*

ANRW = Aufstieg und Niedergang der Römischen Welt

AntAfr = *Antiquités Africaines*

AntTard = *Antiquité Tardive : Revue Internationale d'Histoire et d'Archéologie*

ArchCl = *Archeologia Classica*

BAAlger = *Bulletin d'Archéologie Algérienne*

Babesch = *Bulletin Antieke Beschaving. Annual Papers on Classical Archaeology*

BAMaroc = *Bulletin d'Archéologie Marocaine*

BAParis = *Bulletin Archéologique du Comité des Travaux Historiques et Scientifiques*

BAR = British Archaeological Reports: British Series

BAR IntSer = British Archaeological Reports: International Series

BEFAR = Bibliothèque des Écoles Françaises d'Athènes et de Rome

BEspOR = *Boletín de la Asociación Española de Orientalistas*

Britannia = *Britannia: A Journal of Romano-British and Kindred Studies*

BSR = *Papers of the British School at Rome*

CahByrsa = *Cahiers de Byrsa*

CEFR = Collection de l'École Française de Rome

CRAI = *Comptes Rendus de Séances de l'Académie des Inscriptions et Belles-Lettres*

DArch = *Dialoghi di Archeologia*

DialHistAnc = *Dialogues d'Histoire Ancienne*

Gallia = *Gallia : Fouilles et Monuments Archéologiques en France Métropolitaine*

Gladius = *Gladius: Estudios sobre Armas Antiguas, Armamento, Arte Militar y Vida Cultural en Oriente y Occidente*

Hespéris = *Hespéris : Archives Berbères et Bulletin de l'Institut des Hautes Études Marocaines*

Historia = *Historia: Zeitschrift für Alte Geschichte*

IA = Iberia Archaeologica

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IstForsch = Istanbuler Forschungen

IstMitt = *Istanbuler Mitteilungen*

JASc = *Journal of Archaeological Science*

JRA = *Journal of Roman Archaeology*

JRS = *Journal of Roman Studies*

Karthago = *Karthago : Revue d'Archéologie Mediterranéenne*

Ktema = *Ktema : Civilisations de l'Orient, de la Grèce et de Rome Antiques*

Latomus = *Latomus : Revue d'Études Latines*

LEAA = *Enciclopedia dell'Arte Antica Classica e Orientale*

LibSt = *Libyan Studies*

LibyaAnt = *Libya Antiqua*

MEFR = *Mélanges d'Archéologie et d'Histoire de l'École Française de Rome*

MEFRA = *Mélanges d'Archéologie et d'Histoire de l'École Française de Rome. Antiquité*

MelCasaVelazquez = *Mélanges de la Casa de Velázquez. Antiquité et moyen âge*

Mnemosyne = *Mnemosyne: A Journal of Classical Studies*

Öjh = *Jahreshefte des Österreichischen Archäologishen Instituts in Wien*

OxfJA = *Oxford Journal of Archaeology*

Pallas = *Pallas : Revue d'Études Antiques*

PF = Pergamenische Forschungen

PhoenixToronto = *The Phoenix. The Journal of the Classical Association of Canada*

Polis = *Polis: Revista de Ideas y Formas Políticas de la Antigüedad Clásica*

QuadALibia = *Quaderni di Archeologia della Libia*

RA = *Revue Archéologique*

REA = *Revue des Études Anciennes*

RendLinc = *Atti dell'Accademia Nazionale dei Lincei. Classe di Scienze Morali, Storiche e Filologiche. Rendiconti*

RIA = *Rivista dell'Istituto Nazionale d'Archeologia e Storia dell'Arte*

RM = *Mitteilungen des Deutschen Archäologischen Instituts. Römische Abteilung*

Saguntum = *Saguntum: Papeles del Laboratorio de Arqueología de Valencia*

StA = Studia Archaeologica

StHist = *Studia Historica. Historia Antigua*

StMagreb = *Studi Magrebini*

VicOr = *Vicino Oriente*

Zephyrus = *Zephyrus: Revista de Prehistoria y Arqueología*

ZPE = *Zeitschrift für Papyrologie und Epigraphik*

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GLOSSARY

The terminology adopted in this dissertation for describing buildings and architectural orders, architectural ornament, and decorative motifs is mainly based on the *Dictionnaire méthodique de l'architecture grecque et romaine* (*Dictionnaire* I-III). Other sources are indicated at the beginning of the Appendix (Volume II), together with detailed illustrations showing the features of the principal types of bases, capitals, and mouldings (Figs. A-J).

The following four terms, which had to be adapted or introduced here for the first time to describe specific architectural elements, are used throughout the text:

Pseudo-Corinthian: a variant of the Corinthian capital. It can feature a single tier of leaves, one or two tiers of plant leaves other than acanthus, or other elements diverging from the canonical shape. Some authors use the term "Corinthianizing" to describe this same variant (e.g. Wilson Jones 2003). Main references: *Dictionnaire* II, 99, note 339; Gans 1992; Camporeale 2008c, 229.

Pseudo-impost: a shape which recalls the form of the Byzantine impost capitals (Kautzsch 1936, 182-210; Minguzzi 2000, 143-58), though the dating of this Moroccan decoration appears to be earlier. The section of the kalathos is circular at the bottom and becomes square at the top. See in particular Chapter 4 and *Volubilis*'s Catalogue, note 1.

Pseudo-lotus: a type of capital documented only at *Banasa* and *Sala*. The kalathos features two tiers of lotus leaves, and schematic helices and volutes in the upper portion. This form is remotely reminiscent of the Egyptian "composite" capitals (Jéquier 1924, 267-71; McKenzie 2010, 125-38). Main references: Boube 1967, 332-6; Thouvenot 1971a, 250-3.

Water plant leaves: a group of leaves that can be associated with water plants, rounded or pointed in shape, appearing on some capitals. The leaves with rounded shape probably originate from Egyptian palm columns (Jéquier 1924, 196-201; Ferchiou 1989a, 243). Main references: *Dictionnaire* II, 99-100; Camporeale 2008c, 231-2.

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INTRODUCTION

This chapter is divided in three sections outlining the general structure and organization of this PhD thesis. The first section describes the main features of the Roman province selected for the study (*Mauretania Tingitana*), highlighting the research questions from which the project has originated and which it aims to answer thanks to the data analysis. The second part deals with the methodology employed during the fieldwork, and how data were later processed in the laboratory and through bibliographic research. The last section offers an overview of the subsequent chapters, explaining how the discussion is organized throughout the dissertation, and how the topics are divided and presented in each chapter.

CONTEXT AND RESEARCH QUESTIONS

The aim of this research is to provide a new contribution to the study of Roman provincial architectural decoration with the example of *Mauretania Tingitana*. This will involve the examination of the contexts where the ornament was used in the towns selected as case studies, to reconstruct the local urban history and that of the province as a whole. The time-frame encompasses the so-called late Mauretanian period (c. mid-first century BC), including the reign of Juba II and Ptolemy (25 BC – AD 40), and the first three centuries of Roman provincial domination (first to third century AD). A glimpse into Late Antiquity, mainly the fourth and fifth centuries AD, completes the historical overview.

A preliminary note is required. The label *Mauretania Tingitana* is used here as a conventional term to indicate the portion of northern Morocco set between the western Atlantic coast and the river Moulouya on the east. This name was introduced for the first time when the emperor Claudius carried out the provincial organization of this portion of North Africa in AD 42/43, separating *Mauretania Tingitana* (Morocco) from *Mauretania Caesariensis* (Algeria) – two territories that originally belonged together to the former Mauretanian kingdom (see Chapter 3).

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The data analysis is the outcome of *in situ* fieldwork in Morocco and bibliographic research. Four case studies were selected: *Volubilis* (Ksar Pharaoun); *Banasa* (Sidi Ali bou Djenoun); *Sala* (Chellah, Rabat); and *Lixus* (Tchemmich, Larache). The choice was made on the basis of the potential of information achievable from each site, on the amount of architectural decoration preserved (in the sites themselves, or in the annexed storehouses and museums), and on the accessibility and feasibility of undertaking field research there. The geographical location of these settlements allows us to consider them as a significant sample for undertaking a broader analysis at provincial level (Fig. 1.1). In order to expand further the focus of the research, other important sites are included and commented on in various parts of the discussion: *Tingi* (Tangier); *Zilil* (Dchar Jdid); and *Thamusida* (Sidi Ali ben Ahmed).

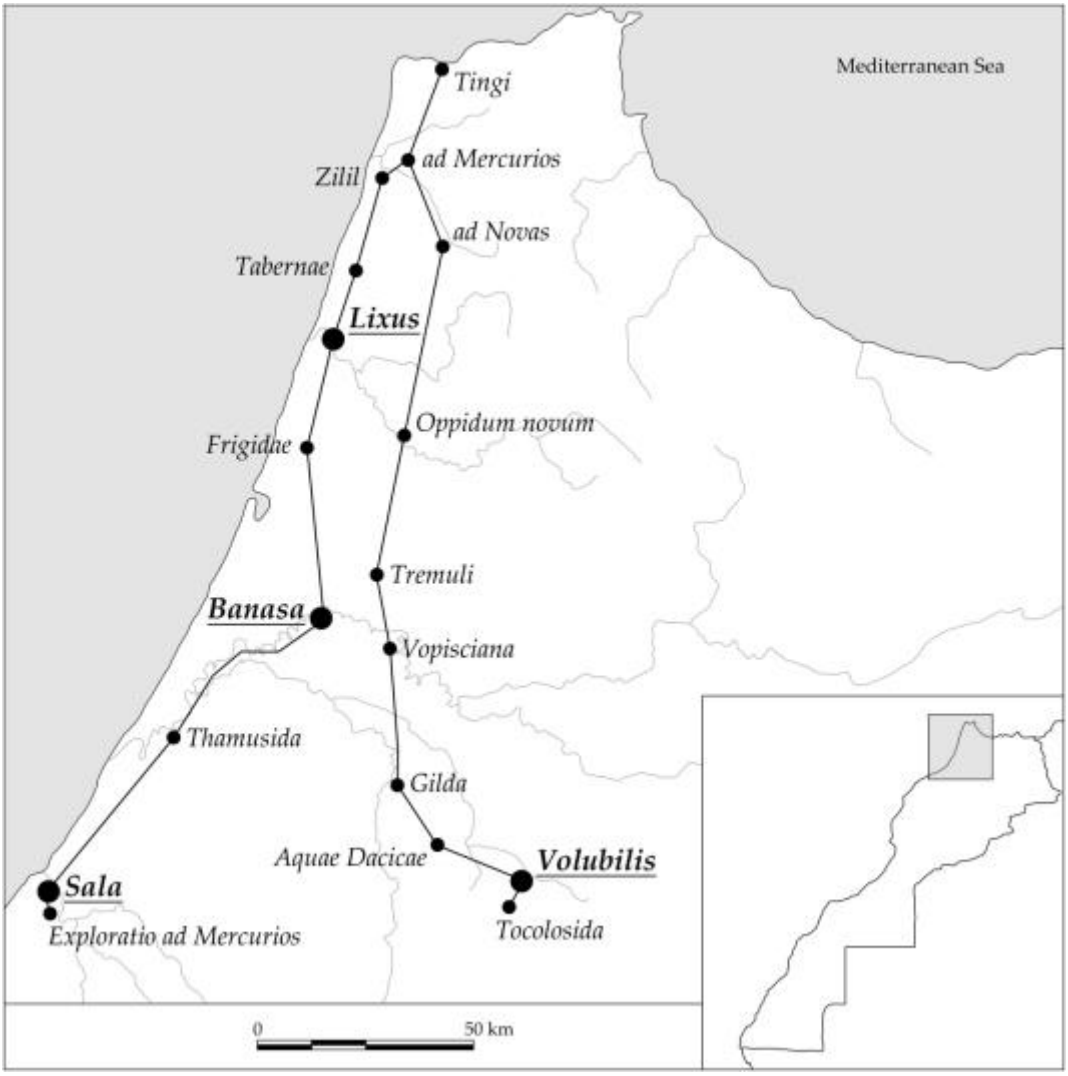

Fig. 1.1. Map of *Mauretania Tingitana* in the Roman era, highlighting the location of the four case studies: *Volubilis*, *Banasa*, *Sala*, and *Lixus*

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The reasons that determined the choice of *Tingitana* as the focus of this PhD research are many, but most of them depend on the peculiarities of the region. Our knowledge of this territory is based on archaeological excavations carried out mainly in the first half of the twentieth century (see Chapter 2). Nevertheless, many aspects have still to be investigated and others are subject to revisions. The position of *Tingitana* at the south-west edge of the Roman Empire has contributed to creating the image of a marginal province, practically outside the reach of the Mediterranean trade routes (e.g. Shaw 2006). In this context, urbanization has been often regarded as sporadic, episodic, and restricted to certain areas. Indeed, it is quite common to see *Tingitana* excluded, or only briefly treated, in more general studies on North Africa (see, for instance, Raven 1984; Briand-Ponsart and Hugoniot 2006; Le Bohec 2013). Moreover, its proximity to the Iberian peninsula and its inclusion in the Spanish diocese in Late Antiquity have made the situation even more complicated. In the literature, it is not always clearly stated whether *Tingitana* should be considered a sort of "Far West" of North Africa, or whether it should rather be seen as an appendix of Spain – with this latter idea being well represented by the "Círculo del Estrecho" economic theory (see Chapter 2).

In addition, studies on the architectural decoration, architecture, and urbanism of this province are very limited, as pointed out more in detail in Chapter 2. Contributions about architectural decoration are rare and out of date, with only a few exceptions (in particular Camporeale 2008c; Pensabene 2011). A similar situation applies to architectural studies, due to the lack of published material that should have appeared when these sites were first excavated. Especially in the case of public buildings, it is quite difficult to find any specific references in more general works on Roman architecture and urbanism (see, for instance, Ward-Perkins 1981; Bozzoni *et al.* 2009; Morachiello and Fontana 2009; Gros 2011; Gros and Torelli 2007). On the one hand, this scarcity of published material has represented an obstacle that had to be overcome during the course of the present research. On the other, this has surely provided further stimuli and an excellent opportunity to attempt to fill many of these gaps.

With regard to the research questions around which this project has developed, they should be divided in two complementary groups. The first comprises issues related to architectural decoration, mainly approached through the analysis of decorative motifs

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and carving features; the second group is focused on the urban context where this decoration was employed, i.e. buildings and public spaces.

Starting with the specific questions on the architectural ornament (Fig. 1.2), the most important aspect to investigate is the relationship between the decoration of *Tingitana* and that diffused in the rest of North Africa. It is acknowledged that, especially from the second century AD onwards, North Africa was subject to a strong influence of Roman official art, with Carthage acting as a promoter of Roman models. This was achieved through a large spread of marble decoration, particularly in *Africa Proconsularis* and *Mauretania Caesariensis*, that reproduced the motifs of late Flavian architectural decoration from Rome (Pensabene 1986, 364-7; 1989, 432, 437). In *Tripolitania*, at *Oea*, *Lepcis Magna* and *Sabratha*, the diffusion of Roman art was mainly represented by the adoption of Asiatic-type decoration (see, for instance, Pensabene 2001a; 2006; Bianchi 2009; Bianchi *et al.* 2015). Can we trace a similar pattern in *Tingitana*? Did Roman official art play a major role, or was the impact less marked here because of the geographical marginality of this territory? Finally, was marble architectural decoration diffused homogeneously across *Tingitana*, or was it confined to certain locations only?

However, it has also been acknowledged that Roman art did not replace entirely previous substrata. At *Lepcis Magna*, for instance, Alexandrian and Italic motifs are still identifiable in the Roman period (Ward-Perkins 1970; Bianchi 2005; Bigi, F. 2006). More in general, Punic and Hellenistic legacies retained a leading role, even in the late Roman era, when these pre-Roman decorative traditions resurfaced with even greater intensity (e.g. Brogan and Smith 1984, 209-13; Pensabene 2011). Apart from architectural decoration, this coexistence of different traditions in North Africa is also confirmed by the combined use of the Roman foot with the Punic and Royal Egyptian *cubitus* as the most popular length-units (see Ioppolo 1967; Barresi 1991; 2007). Is it possible to evaluate whether this Punic-Hellenistic substratum reached *Tingitana*? And, if so, which were the centres where such traditions were more deeply rooted?

Finally, the last question concerns the examples of architectural decoration that can be classified as "local productions". In this case the motifs cannot be attributed to one of the two categories described above, or at least they combine different features inspired by both models. Moving away from a traditional academic approach (the dichotomy "Roman official art" vs. "provincial art"), it is worth asking whether we can identify the origin and

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development of these motifs (see the observations in Kampen 2015). Is it possible to find parallels in the neighbouring regions, especially *Mauretania Caesariensis* and Spain? Did some towns in *Tingitana* have stronger local traditions than others, as well as more specialized ateliers that moved across the province with their products? Ultimately, can we rely entirely on stylistic criteria for dating this decoration, like in the case of official art, or should we be more cautious about their use (as pointed out in Freyberger 1990; Rohmann 1998; see also Pensabene 2001b, 399-400; Demma 2007, 195-203)?

Fig. 1.2. Capitals of *Tingitana*. A: *Sala*, Asiatic Corinthian capital (**Sal 2.18**); B: *Lixus*, Ionic capital of Punic-Hellenistic tradition (**Lix 2.3**); C: *Volubilis*, Corinthian capital of local style (**Vol 2.52**)

Moving to the context where the decoration was employed, the first question is related to chronological issues. Especially in the case of local-style ornament, further assistance for dating these elements can come from the buildings to which they belong. Whenever the building is dated by epigraphic evidence (e.g. the *capitolium* at *Sala*: *IAM* Suppl. 861) or, less commonly, by archaeological stratigraphy, this provides important information for dating its decoration. Do we need to revise certain assumptions about some examples of architectural decoration that, if considered outside its context of provenance, would rather be dated to later periods on the basis of a mere stylistic analysis (such as for Corinthian capitals with smooth leaves)? On the other hand, architectural decoration whose dating is more securely ascertained can help to date buildings for which any other chronological information is now lost.

Another key argument is to evaluate whether different types of ornament belonging to the categories identified (Roman official art, simplified variants of the official motifs, decoration of Punic-Hellenistic tradition, or local provincial creations) could coexist

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within the same building (private houses, public monuments, and public spaces), or if the presence of one group excluded the others. In both cases, the choice would reflect the perception of the urban *decor* by the local community. Can we identify categories of buildings, especially public monuments (Fig. 1.3), for which the same type of decoration was always used? Did each town make its choice independently from the others? Can we assess if the merging of architectural decoration belonging to different styles, and made from different materials, mirrored an equally mixed provincial society?

Finally, when looking at the urban history and development of urban trajectories through the time-frame considered, two broader questions arise. With regard to public buildings, is it possible to understand if the progressive embellishment of towns was directly linked to particular events, such as the promotion from *civitates* to *municipia*, and from *municipia* to *coloniae honorariae*? The evidence from other provinces, such as *Britannia*, seems to suggest that the relationship between urbanization and the status of towns should be downplayed. What can be said about *Tingitana*? Furthermore, who financed the construction of new buildings? Patronage initiatives can be usually ascribed to three groups: private citizens, local authorities, and emperors. Is there any evidence in *Tingitana* for recognizing their activity? Are there towns where one group had more importance than the others? Trying to answer these questions will give me the chance to outline a picture of urban life in ancient Morocco.

Fig. 1.3. *Volubilis*, arch of Caracalla and *porticus* along the *decumanus maximus*

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DATA COLLECTION AND METHODOLOGY

As will be illustrated in more detail in Chapter 2, architectural decoration has been treated only sporadically in the literature on *Tingitana*, with the vast majority of these materials being currently unpublished. This means that the data necessary for undertaking this PhD project had to be collected personally, and fieldwork in Morocco was required to build a data-set to process and analyse. The recording of data *in situ* was made possible thanks to the official permissions issued by the Ministère de la Culture du Royaume du Maroc (protocols no. 791 issued on 13 September 2011, and no. 294 issued on 6 April 2012), and thanks also to the kind support provided by Akerraz and the Institut des Sciences de l'Archéologie et du Patrimoine de Rabat (INSAP) that contributed to speeding up the bureaucratic procedures.

Apart from the work undertaken in the four locations representing the core case studies of this research (*Lixus*, *Volubilis*, *Banasa*, and *Sala*), visits included also the site of *Zilil* (Dchar Jdid) in northern Morocco, the Musée Archéologique de Rabat, the Musée Archéologique de Tétouan, and the Musée de la Kasbah de Tanger. The data collection was completed after four seasons of fieldwork: in September 2011 (*Sala*, *Lixus*, and Musée Archéologique de Rabat), in June (*Sala* and *Volubilis*) and September 2012 (*Lixus*, *Zilil*, *Volubilis*, Musée Archéologique de Tétouan, and Musée de la Kasbah de Tanger), and in May 2013 (*Banasa* and *Volubilis*). Finally, a last general survey of all the sites was carried out in September 2014, to check again some materials and measurements recorded during the previous seasons.

Two observations on the fieldwork activities need to be pointed out. The first regards the extent of the research at each site. At *Sala*, *Lixus* and *Banasa*, fieldwork involved the survey of the whole archaeological areas and the recording of the decoration preserved there. In the case of *Sala*, the sector brought to light by the past excavations is rather small (c. 1.2 ha), corresponding to the monumental district, plus a small portion of a productive installation: the forum and main public buildings (*capitolium*, other temples, "basilica/*curia Ulpia*", and baths). While the entire site of *Lixus* covers an area of c. 16 ha, excavations focused on the monumental district on the top of the hill (the so-called "quartier des temples" and the nearby buildings), in the area of the *garum* factories at the base of the hill, around the amphitheatre and baths, and in part of the northern district. *Banasa*'s

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urban area (c. 4 ha) was brought to light almost entirely during the excavations of the French Protectorate: this includes the forum and *kardo maximus* in the central part, and the southern, western and northern districts where private and public buildings, baths and commercial installations are found.

On the other hand, *Volubilis* covers a much larger area (c. 40 ha), the greater part of which was excavated in the Protectorate period. Such a larger extension involves the presence of an enormous number of examples of architectural decoration all over the site (thousands of pieces, just to try an approximation), the recording of which would have been impossible in the context of the present research. For this reason, I decided to focus the analysis on selected parts of the town: the forum and adjacent buildings (the basilica, the *capitolium* and its annexed piazza, and the so-called "*macellum*"); the gates of the city walls; the public baths; "temple B"; the arch of Caracalla; the *porticus* along the *decumanus maximus*; and the palace of Gordianus (as a significant building with both a private and public function). Observations on the decoration from the remaining buildings can be found in the text and among the parallels cited in the Catalogue, although these are based on published materials only. Finally, the number of architectural elements preserved at *Zilil* was too small to justify their inclusion in the Catalogue and among the case studies. Again, references to the evidence from this site are occasionally included in some parts of the discussion in the main text.

The second note concerns the environmental conditions under which the research was undertaken. Being located inside the ribat of Chellah, an area visited daily by tourists, the ruins of *Sala* are kept in a good state, with maintenance works being carried out at regular intervals. This has guaranteed an ideal condition for recording all the material preserved across the site. In contrast, at the other three sites some obstacles had to be overcome. While the forum and surrounding districts at *Banasa* were relatively clear from vegetation, the situation in the rest of the town was more problematic, especially in the north district and in the area occupied by the "grands thermes ouest" and the "thermes aux fresques". Therefore, it is possible that a few architectural elements were hidden by the vegetation during the two visits at this site and were not documented. A similar problem had to be faced at *Volubilis* in the area north of the basilica. During a preliminary visit in 2008, this spot was clear and some pieces of decoration (mainly cornices) were visible. However, during all the seasons of fieldwork from 2012 until 2014, the area was

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covered by a thicket that concealed these blocks, making their recording impossible. Finally, *Lixus* is the site that presented the most difficult conditions. With the exception of the central monumental district, all the rest of the hill is covered by a thick vegetation, particularly difficult to penetrate in the north sector where the *domus* of Mars and Rhea and the *domus* of Helios are located. A partial reclaiming of this area was carried out in 2012, thus revealing some of the hidden decoration, but additional material is almost certainly still hidden by the plants.

The data collection involved the recording of each piece of decoration (bases, capitals, entablatures and other mouldings) preserved at the sites, in the storehouses and in the museums. In order to have this task accomplished as quickly as possible, pro-forma sheets were used, organized by following these entries: (1) location and provenance of the decoration; (2) date of recording; (3) numbers of photographs; (4) progressive recording number given to each piece; (5) type of decoration; (6) type of material the decoration is made from; (7) placing within the site (*in situ* or not *in situ*); (8) associated plan of building; (9) state of preservation; (10) observations; (11) sketch drawing of the decoration and measurements; (12) notes.

Together with the recording sheets, plans of the sites and of the various buildings were used to record the position of the decoration. These were all personal adaptations of published material, which I have also used for the set of 23 folded plans included in the Appendix, re-drawn and edited with Autodesk AutoCAD® 2014 and Adobe Photoshop® CS6 Extended (the reference where the plans were sourced is indicated in the list at the beginning of the Appendix).

After the conclusion of the recording *in situ*, the second stage of the work was the creation of a typology of architectural decoration. The material is presented in the Appendix in the form of a Catalogue (Volume II). The layout is based on the most authoritative works in this field of studies, either in North Africa and in the rest of the Roman world (e.g. *Scavi di Ostia* VII; Ferchiou 1989a; Fischer 1990; Pensabene 1993; Mahler 2006; Camporeale 2008c). The structure, choice of parallels cited, and terminology adopted in the descriptions are fully explained in the first part of the Appendix. Here it is necessary to make some explanatory remarks, as guidelines for the consultation of both the Catalogue and the main text of the thesis.

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In the Catalogue are described bases and capitals only. Among all the materials recorded, these are the most diagnostic elements. Their decorative features, stylistic motifs, and regional variations provide the most important data for the study this PhD thesis aims to undertake. Moreover, the total number of decorative elements documented was far too great to be included in the present Catalogue, as their discussion would have also meant exceeding the word limit of the main text. I have thus chosen to use the rest of the evidence for future works – such as post-doctoral projects and articles to be submitted to dedicated journals. This does not mean that entablatures and other mouldings are excluded from discussion, but simply that they are not catalogued in the Appendix. References to and observations on these materials (especially cornice blocks) can be found in various parts of the text, as a supplementary set of data to complete the information drawn from bases and capitals.

The Catalogue is organized geographically and is divided into four sections which correspond to the related sites. To facilitate the recognition of the decoration, an acronym is placed in front of the Catalogue type number: Vol = *Volubilis*; Ban = *Banasa*; Sal = *Sala*; Lix = *Lixus*. The number of the decoration is made of two series: the first corresponds to the main subdivision (1 = base; 2 = capital); the second represents the typological order within the groups of bases and capitals. In order to ease the cross-referencing between the text and the Catalogue, and within the different sections of the Catalogue, numbers are typed in bold with a graphic marker in front of them (e.g. ►**Ban 2.36**).

A detailed photographic documentation is presented in the 43 plates at the end of the Appendix, and the most relevant figures are also included in the main text. The figures were processed through Adobe Photoshop® CS6 Extended, editing and improving the photographs taken *in situ*. These are all the outcome of my own work. Images taken or adapted from published material have been included in some parts of the main text, and the original source is indicated in the list of figures.

The results achieved with the fieldwork and cataloguing of architectural decoration were combined with the information on architecture and urbanism of the sites included in the research context. This part of the work was essentially based on the study of published materials, including Camporeale's PhD thesis on building techniques (Camporeale 2004-05). Whenever additional information was needed, or when the data published were

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incomplete or contradictory, I undertook autoptic analyses of the buildings to fill the gaps. However, it was not possible to carry out any new recording of this evidence (e.g. building techniques and study of masonry, architectural stratigraphy, or precision measurements to rectify inconsistencies in the plans), given the lack of suitable equipment (e.g. total station, GPS, or 3D laser scanners) and of a research team to help with the operations. Ultimately, this kind of documentation would have been incompatible with the timetable and solo fieldwork programmed for this PhD project.

The main shortcoming of the literature dealing with *Mauretania Tingitana* is the absence of any synthetic work on the province as a whole, and often even on the sites themselves – *Volubilis* and *Thamusida* being the better served ones (see Chapter 2). Reports of the excavations undertaken in these locations, during and after the Protectorate, are published in a variety of journals. This means that a significant amount of time had to be dedicated to the collection of bibliographic material. A list of publications on *Tingitana* was compiled by Brouquier-Reddé and Lenoir (2000). This provided a useful guide for selecting the most significant works to look at. However, all the more recent contributions appeared in the last 16 years had to be found independently.

PRESENTATION OF THE RESULTS

As indicated in the previous section, this dissertation is composed of two volumes: the main text (Volume I) and an Appendix (Volume II). The second volume includes the Catalogue of decoration, a set of 43 plates with graphic documentation of the architectural decoration, and 23 detailed plans of buildings (A4 and A3 format). The main features of the Appendix have been described above (more information is in the first part of the Appendix itself). The results of field and bibliographic research, the data analysis and comparative regional and inter-regional studies, together with the list of references cited in both volumes, are presented in the main text in the following chapters.

Chapters 2 and 3 offer a picture of the research context, setting the ground for the discussion in the rest of the volume. Chapter 2 provides a state of the art of research in Morocco and is divided into three sections. The first is a chronicle of archaeological research undertaken in this country, from the pioneering investigations by geographers

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and diplomats in the late nineteenth century, passing through the years of the French and Spanish Protectorates (1912-1956), and finally reaching the post-colonial era and the most recent works carried out by Moroccan and international teams (1956 to the present). This excursus is fundamental for understanding the dynamics that regulated excavations through time, for evaluating how different methodologies have influenced the preservation of the archaeological heritage, and for acknowledging the amount of information which in some cases has been lost, with particular regard to the late Roman and post-Roman phases. The second and third sections present an overview of the literature which deals with the architecture, urbanism, and architectural decoration of ancient Morocco. This critical review explains the potential and shortcomings of the studies available when this PhD project was started, and it illustrates the gaps I aim to fill with the present research.

Chapter 3 presents a synthesis of the history of *Mauretania Tingitana*. The time-frame encompassed is broad, from the Phoenician period up to Late Antiquity. The choice of including such an extended account of historical events was motivated by the necessity of explaining the persistence of pre-Roman legacies, mainly Punic and Hellenistic substrata, throughout the Mauretanian, Roman, and especially late Roman and Late Antique periods. This is a theme that will recur constantly in the text when discussing the features of locally-produced architectural ornament. Moreover, it was an excellent opportunity for describing the development of the urban layout and juridical statuses of towns during their various chronological phases. This historical analysis is not limited to the four case studies, but is also extended to the other sites of the province included in broader discussion sections: *Tingi*, *Zilil*, and *Thamusida*.

Chapters 4 to 7 focus on the analysis of the case studies: *Volubilis*, *Banasa*, *Sala*, and *Lixus*, respectively. The amount of information available for each site on architecture and architectural decoration, as well as on their urban development, is, unfortunately, not homogeneous. Furthermore, as illustrated in Chapter 3, the status of these towns changed through time, with the sole exception of *Banasa*. Any attempt to group them according to the categories of *civitates foederatae*, *municipia* or *coloniae* would have been an artificial classification, not taking into account these complex historical dynamics. Therefore, it would have not been suitable for the type of analysis presented here. For these reasons, I have preferred to dedicate a specific chapter to each town.

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Given the diversity of these sites, the organization of the respective chapters is subject to variations as well. However, in order to keep the overall structure as consistent as possible, a common pattern is followed. The architectural decoration is analysed together with the context it belongs to, when at all possible. This might be represented by a whole district, with a specific focus on the various buildings of which it is composed (such as the fora of *Volubilis* and *Banasa*), or by select groups of monuments standing aside from the others (e.g. the arch of Caracalla and *porticus* along the *decumanus maximus* at *Volubilis*). The discussion of each building/district is organized chronologically, from the (little) surviving evidence of the late Mauretanian era, moving to the period of Juba II and Ptolemy, culminating with the three central centuries of the Roman provincial era (first to third century AD) for which more data are available, and concluding with the late Roman and Late Antique phases (if any evidence is preserved). Unfortunately, this chronological subdivision cannot be identical for each site: for instance, it is almost impossible to trace any phases of post-third century occupation at *Banasa*, while, on the other hand, *Sala* offers a rather complete picture that covers all these phases.

There is also a conspicuous series of architectural decoration that cannot be surely associated with any buildings, either because these elements were moved across the sites in antiquity or in the Islamic period, or because they were brought to the storehouses and museums when the sites were excavated, especially in the first half of the twentieth century. However, despite the loss of the context of provenance, these pieces can still provide useful information for understanding the variation of the decorative motifs in the sites and at a regional/provincial level. That is why this isolated decoration is dedicated a specific section at the end of each chapter.

In conclusion, Chapter 8 presents a comparative analysis of the data, looking at the province of *Mauretania Tingitana* as a whole, as well as at the broader North African and Mediterranean area. It is divided into four parts. The first section approaches the architectural decoration of the four case studies by looking at the decorative motifs. This is relevant for identifying the continuity of pre-Roman traditions throughout the Roman period and beyond, for evaluating the importance of regionally developed styles (such as the typical motifs of *Volubilis*), and for assessing what was the role played by Roman official art in this process. This section deals also with the work of the stonemasons, trying to recognize the ateliers and their movements across the province – as in the case of the

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decoration made of Zerhoun limestone found at *Volubilis* and *Banasa*. The second section looks more in detail at building programmes, and at the variation and adaptation of architectural design principles. This will lead me to assess the importance of the various districts and their impact on the local community. For instance, the different layout of fora and other major buildings implied a different perception of these monuments and of their decoration. Moreover, this will help to identify towns, or even districts/buildings within the same town, where the combination of pre-Roman, local and Roman features were merged together. In the third section I analyse the evolution of townscapes, looking in more detail at the relationship between urban embellishment, rank of towns, and historical events. Finally, the last section draws some conclusions and outlines the potential future developments of the research. In particular, I examine the possibility of undertaking new field research, in collaboration with professional teams, to reconstruct the building process and costs of private and public architecture (mainly at *Volubilis*, but also at the other sites). I also indicate the importance of extending the research to the territories beyond the borders of the Roman Empire, investigating crucial zones such as the pre-desert areas of Libya and Fazzān.

A final note concerns the names and translation of terms. When referring to modern locations and names, I chose to use the transliteration of Moroccan Arabic, rather than Modern Standard Arabic, since this is used in the large majority of cited references – in particular French, Spanish and Italian literature. For instance, the word "oued" (river) is used instead of "wadi", which is normally more favoured among English speakers.

With regard to the names of buildings or districts, especially in the case of private architecture, the French nomenclature introduced when these sites were first excavated is still the most diffused today, even in the literature in other languages. Therefore, in order to avoid any confusion, I decided not to provide an English translation, but rather to adopt the original French names in quotation marks (e.g. "maison aux travaux d'Hercule" at *Volubilis*, "maison au diplôme de Domitien" at *Banasa*, etc.). The only exception applies to the so-called "palace of Gordianus" at *Volubilis*, which is the natural translation of the French "palais de Gordien".

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ARCHAEOLOGY, ARCHITECTURE, AND DECORATION IN MOROCCO: A *STATUS QUAESTIONIS*

Archaeological research in Morocco started with pioneering investigations by diplomats and geographers in the late nineteenth century, passed through French and Spanish colonialism in the first half of the twentieth century, and then found a new course after the independence of the country until the present.

This chapter presents an overview of Moroccan archaeology, describing the state of the art when the PhD work was started. The first three sections provide a synthesis of the history of archaeological investigations. The fourth section deals with the research undertaken on Mauretanian and Roman architecture and urbanism. The final section is dedicated to previous studies on architectural decoration, also anticipating some of the results achieved thanks to the present work and more fully discussed in Chapters 4-8.

THE DAWN OF ARCHAEOLOGICAL RESEARCH IN MOROCCO

In his commentary on the medieval historiography of Morocco, which collects evidence from the seventh to the sixteenth century, A. Siraj states that Arab authors dedicated only sporadic hints to the "passage" of the Romans in this region. All of them seem to know that Morocco was once a Byzantine possession. However, quite surprisingly, the historical antecedents and the existence of a Phoenician/Punic heritage, as well as that of a Roman province, are passed over almost entirely in silence (Siraj 1995, 222-31). The same situation is mirrored in the works of geographers, with Joannes Leo Africanus (1496-1548) being the only exception for his attempt to investigate the ancient (African, Roman, or "Gothic") origins of some settlements (Siraj 1992; 1995, 239-70; 2000, 820-1).

If one wanted to fix a date for the beginning of "archaeological" investigations in Morocco, a good candidate is the year 1721, when the historiographer J. Windus took part in the British embassy to Fez, organized by King George I. Its primary aim was to negotiate the release of captain H. Boyde and his crew, captured by corsairs (Windus

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1725; de la Faye 1736; Chatelain 1937a, 5; Euzennat 1956; Lenoir, E. 2000, 940-1). In his description of the journey, published in the book *A Journey to Mequinez; the Residence of the Present Emperor of Fez and Morocco*, there are also notes about the ancient ruins at Ksar Pharaoun (Windus 1725, 86-9) – a rural location not far distant from the sacred Islamic town of Moulay Idriss, which was only much later identified with *Volubilis*. When they visited the site, Windus and Boyde made drawings of the still standing buildings, both depicting the arch of Caracalla and the judicial basilica (Figs. 2.1-2). Windus gave also further details about the arch's dedicatory inscription, of some elements of its decoration scattered on the ground and, in the background, of a gate which we can quite likely recognize as the north-east gate of the town, the so-called "porte de Tanger" (Thouvenot and Luquet 1978, 91-3).

Fig. 2.1. *Volubilis*: arch of Caracalla, basilica and gate drawn by J. Windus

Fig. 2.2. *Volubilis*: arch of Caracalla and basilica drawn by H. Boyde

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Windus and Boyde were not the only travellers to Morocco who described local amenities in this period (see Badia 2000). Their drawings, however, are particularly relevant for modern scholars because they portray the aspect of the ruins before the earthquake of Lisbon that probably caused their collapse in 1755 (Chatelain 1937b, 11-2; 1944, 188; Brouquier-Reddé and Lenoir 2005, 74; see also the observations in Chapter 4). The effects of this natural calamity on the buildings are clearly depicted by F. Freihern von Augustin (1838), about a century after Windus and Boyde had visited *Volubilis* (see Euzennat 1956, 329, 333, pls. 5a, 7a; Risse 2001, 8, fig. 6).

The birth of "modern" archaeology owes much to the work carried out at the end of the nineteenth century by C. Tissot, a French geographer and plenipotentiary minister in Morocco (Tissot 1876; 1878). Starting with the analysis of some easily recognizable toponyms (e.g. Tangier = *Tingi*) and with the information he gained from ancient sources (mostly the distances between towns provided by the *Itinerarium Antonini Augusti*), Tissot managed to identify many of the sites that are known today (Desjardins 1872, 364-7; Chatelain 1937a, 6; Rebuffat 2000, 865-71). Thanks to these data and to his field survey, he was able to reconstruct the first reliable maps of Roman towns and roads of *Mauretania Tingitana* (Fig. 2.3), which he published in his magisterial book *Recherches sur la géographie comparée de la Maurétanie Tingitane* (Tissot 1878). This work set the basis for all future research in the country.

The results of Tissot's work were immediately put into practice by another diplomat, H. de la Martinière, who travelled to Morocco by appointment of the French minister of public education between 1887 and 1891, and was then nominated general consul in Tangier in 1898. De la Martinière carried out some field research at *Volubilis* (see Lenoir, E. 2000, 944, note 14; Brouquier-Reddé and Lenoir 2005, 75), *Lixus* (de la Martinière 1890a; 1890b; 1891; 1892), and Dchar Jdid (de la Martinière 1889: this site was erroneously identified with the post station of *ad Mercuri* at that time, rather than with the colony of *Zilil*). He also visited *Banasa* and reported on the discovery of two capitals scattered on the ground (see Saladin 1890), one of which is now kept in the Andalusian gardens of the Kasbah des Oudayas in Rabat (see Catalogue and Chapter 5: ►**Ban 2.29**). A picturesque account of his travels in Morocco was published in the monograph *Souvenirs du Maroc*, where one also finds further information on the excavations at *Volubilis* and *Lixus* (de la Martinière 1919, 298-329).

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Fig. 2.3. Reconstructive maps of *Mauretania Tingitana* by C. Tissot. At the top: detail of the northern sector between Asilah and Tangier; at the bottom: roads and main settlements of the province, based on the *Itinerarium Antonini Augusti*

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In 1904 the French government promoted additional investigations, mainly in the region of Tangier, under the Mission Scientifique du Maroc (Gozalbes Cravioto 2008a, 34). The first head of the mission, the geologist G. Buchet, produced two short reports where we find interesting information on the ethnography, anthropology, geography and geology of Morocco, as well as on some archaeological discoveries around and within the city of Tangier (Buchet 1906; 1907; see also Ponsich 1970, 242). After that, the Mission Scientifique was directed by the diplomat E.-L. Michaux-Bellaire who carried on the research, and to whom the Musée de la Kasbah was initially dedicated (Ponsich 1960, 631). One of his most important achievements was the discovery of a Roman cemetery in the Marshan plain, just outside the western limit of Tangier's medina (Michaux-Bellaire and Buchet 1908). The results of his study were published some years later in the book *Tanger et sa zone* (Michaux-Bellaire 1921).

ARCHAEOLOGY DURING THE FRENCH AND SPANISH PROTECTORATES (1912-1956)

The most intensive period of excavations in Morocco coincided with the establishment of the French and Spanish Protectorates. Following the annexation of Algeria and Tunisia, with the Treaty of Fez (30 March 1912) Morocco passed under French administration. From a mere juridical standpoint, the country did not lose its authority as a sovereign state (hence the choice of the term "Protectorate" rather than "colony"), although its independence was *de facto* negated (Brignon *et al*. 1967, 341-2; Abitbol 2014, 481-2). A few months later (27 November 1912), another treaty between France and Spain recognized officially Spanish authority over the northern Atlantic and Mediterranean coast, thus creating a Spanish Protectorate over that area (Brignon *et al*. 1967, 345). Tangier was assigned the status of International Zone under the joint administration of France, Spain and Britain on 18 December 1923 (Brignon *et al*. 1967, 346). In addition to all colonial repercussions on the local society, this historical rupture between the north and the south of the country was – and somehow still is – well documented in the course of archaeological research. From that time on, French scholars dedicated their studies to the southern part of the region, while the Spanish concentrated their research in the north, with the border between the two Protectorates being established c. 20 km south of the harbour of Larache.

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At the end of World War I, two institutions were created to guarantee the preservation of the historical and archaeological heritage of the country: the Service des Antiquités (18 July 1918), as an organ under the jurisdiction of the French Protectorate, originally attached to the Service des Antiquités, Beaux-Arts et des Monuments Historiques, and the Junta Superior de Monumentos Históricos y Artísticos (22 April 1919), that operated in the Spanish territories (Lenoir, E. 2000, 957; Papi 2006, 540; Gozalbes Cravioto 2008a, 35). The competences of these institutions were rather generic, and their initial organization was also quite complicated, as one can understand from the following passages:

> "Le Service des Antiquités, créé par l'Arrêté résidentiel du 18 juillet 1918, est chargé de la recherche, de la conservation et de la mise en valeur de tous les monuments ou vestiges préislamiques, qu'il soient préhistoriques, protohistoriques, berbères, phéniciens, romains, vandales ou byzantins" (Chatelain 1937c, 23)

> "Fue en 1919 cuando se estableció en Tetuán la Junta Superior de Monumentos Históricos y Artísticos (J.S.M.H.A.) […] El retraso en la organización y en las investigaciones venía provocado por la escasez presupuestaria, por la falta de personal adecuado, así como por los problemas de resistencia marroquí al ejército español" (Gozalbes Cravioto and Parodi Álvarez 2011a, 179)

Archaeological research in these years aimed to investigate mainly prehistoric and Roman sites, while Islamic buildings were usually excluded due to their sanctity (Papi 2006, 540). However, some exceptions apply, such as the study of the Marinid ribat and mosque at Chellah – Rabat (Basset and Lévi-Provençal 1922a-b), or the first investigations on the monuments of Tétouan (see Gozalbes Cravioto 2005b).

The French Protectorate gave priority to the establishment of a topographic map of the country (1 : 100,000) and to some more detailed archaeological maps (1 : 50,000) of the sector within French administration, notably the region of *Volubilis* and the Gharb plain. The task was carried out by the Service Géographique de l'Armée, whose teams had already gained experience of archaeological survey in Algeria and Tunisia. The operations started before the formal creation of the Protectorate, on 20 February 1912. They were

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interrupted between 1914 and 1920, then were resumed and went on until the 1930s (Brouquier-Reddé 2000).

In reference to archaeological excavations, *Volubilis* was selected as the most significant site on which to concentrate the main efforts. In 1915 the Governor General H. Lyautey created a military post here and sent a group of German prisoners to undertake the works, under the supervision of officers of the army (Brouquier-Reddé and Lenoir 2005, 76). The lieutenant-archaeologist L. Chatelain, member of the École Française de Rome, was appointed head of the operations the same year and director of the Service des Antiquités in 1918 (Chatelain 1937a, 7; Brouquier-Reddé and Rebuffat 2004, 11). Under Chatelain, the vast majority of the site was unearthed and the standing buildings, in particular the judicial basilica (Fig. 2.4), were consolidated (Chatelain 1916; 1931b; 1937a). The works included the arbitrary restoration of the arch of Caracalla, completed between 1930 and 1932 (Chatelain 1937b), which gave the monument the aspect we still observe today (for new hypotheses of reconstruction: Domergue 1963-64a-b; Camporeale *et al*. 2008, 301-8; see also Chapter 4).

Fig. 2.4. *Volubilis*: basilica during the excavation of the forum started in 1915

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Fig. 2.5. *Volubilis*: aspect of the arch of Caracalla before the 1930-32 restorations

The excavations were carried out without employing a stratigraphic methodology, but simply removing the earth that covered the ruins. This caused the loss of any information on post-Roman occupation, as well as on the stratigraphic connections between layers and walls of buildings. One must say, however, that this methodology was scientifically accepted at that time and it characterized with almost no exceptions French and Italian colonial archaeology in North Africa in the first half of the twentieth century (see the remarks in Leone 2013, 3-4).

If we look at Chatelain's commentary on the beginning of the excavations at *Volubilis*, we find a quite anachronistic parallel between the presence of the French in Morocco at his time and the Romans in antiquity. From his remarks we can infer apologetic attitudes towards colonialism in North Africa, a rather typical approach of that period (on French and Italian colonialism see Mattingly 2011, 45-53):

> "Les souvenirs de l'antiquité, dans cette Afrique du Nord où nous sommes les continuateurs de Rome, sont plus près de nous que les monuments arabes du moyen-âge ou de l'époque contemporaine. […] Nous sommes, Français du Maroc, dans les conditions où se trouvaient vis-à-vis de la métropole les Romains d'Afrique. D'une part, l'impérieuse nécessité, pour ravitailler notre pays d'origine, de cultiver les terres, d'en

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> faire sortir des céréales en abondance. D'autre part, l'obligation primordiale de pacifier le territoire par l'établissement de postes militaires et par la formation de colonnes mobiles : l'armée protégeant l'agriculture, vérité banale qui toujours s'affirme et qui prend, au Maroc, un relief saisissant" (Chatelain 1937c, 24)

Despite these critiques, which can be advanced only as an *a posteriori* (post-colonial) judgement, the importance of Chatelain's work for the development of Moroccan archaeology is undeniable. As director of the Service des Antiquités, he promoted the publication of the journal *Publications du Service des Antiquités du Maroc*, the first issue of which was released in 1935. Furthermore, he dedicated many efforts to the study of other ancient sites and these results merged together in the monograph *Le Maroc des Romains* (Chatelain 1944; 1949), which remains still today the only archaeological synthesis on the Roman occupation of *Mauretania Tingitana*. Chatelain is also the author of the first corpus of Latin inscriptions found in Morocco, *Inscriptions latines du Maroc* (Chatelain 1942). As a tribute to Chatelain's achievements, the Musée Archéologique de Rabat was originally named after him (see Boube 1960, 619).

Chatelain's successor, R. Thouvenot, is considered the father of urban archaeology in Morocco (Blázquez 2000, 1100-4; Rebuffat 2000, 878). A member of the École Française de Rome and of the Institut des Hautes Études Hispaniques, as well as a professor of ancient history and archaeology at Poitiers, Thouvenot moved to Morocco where he was appointed inspector of the Service des Antiquités. The importance of Thouvenot's research is mainly linked with the work carried out at *Banasa* with the collaboration of the local curator, A. Luquet. Extensive excavations at this site started in 1933 and went on until 1954, bringing to light most of the colony's surface (Arharbi *et al*. 2001, 147). A first monograph was published in 1941, *Une colonie romaine de Maurétanie Tingitane : Valentia Banasa*, describing the results achieved mostly in the forum and neighbouring districts (Thouvenot 1941a; Fig. 2.6). Reports on the investigations in the other sectors were later published in the *Publications du Service des Antiquités du Maroc* (Thouvenot and Luquet 1951a-c; Thouvenot 1954a-e). Although his methodology did not contemplate the use of stratigraphic analyses, Thouvenot is generally praised for the more careful attention to the study of materials and their importance to reconstruct the history of ancient settlements (Gozalbes Cravioto *et al*. 2013, 267). On the other hand, the lack of documentation of

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archaeological layers at *Banasa* caused a loss of information which resembles the situation at *Volubilis* and prevents us from having a more complete, diachronic picture of the history of the site (see Chapter 5).

Fig. 2.6. *Banasa*: excavations of the forum and nearby buildings, c. 1933

Apart from the work at *Banasa*, Thouvenot also resumed the research of his predecessor at *Volubilis*. After various articles dealing with some houses and other buildings (Thouvenot 1941b; 1945a-e; 1948a-b), in 1949 he published an archaeological guide that provides an appreciable description of the ruins of *Volubilis* and the works of art displayed in the local museum at that time (Thouvenot 1949). Thouvenot's most renowned contribution, however, is the painstaking study of the palace of Gordianus and the "maison à la mosaïque de Vénus", completed by 1955 and published a few years later (Thouvenot 1958). A synthesis of the trajectories of Roman urbanism in *Tingitana*, summarizing his and other scholars' work across some 50 years of research in Morocco, appeared shortly before his death (Thouvenot 1979).

Finally, I should mention that in 1952 the Durham University Exploration Society organized a three-month expedition to French Morocco. The aim was to carry out a study of this part of the country, focusing on four research areas: geography; botany; zoology; and archaeology. The latter was directed by D.J. Smith and consisted of a survey along the

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southern frontier of *Tingitana*, from Rabat to Taza, resuming R. Cagnat's and H. Rouland-Mareschal's works (Cagnat 1913; Rouland-Mareschal 1924). The results of the survey were published as an archaeological report (Smith 1956), and the data collected on this occasion have provided useful information for more recent investigations on the military *limes* (see Euzennat 1989; Rebuffat 2000, 880).

The organization of archaeological research in the Spanish Protectorate, in the years between the creation of the Junta Superior (1919) and the appointment of M. Tarradell as head of the missions (1948), had to overcome various issues. This was caused by historical and political factors, such as the guerrilla warfare of the Rif tribes (1920-1926), the Spanish Civil War (1936-1939), and other difficulties especially in the early years of Franco's regime, as well as by the lack of resources and adequate personnel. The term "bricolage" to describe Spanish colonial archaeology, as recently suggested by Papi (2013, 801), provides a rather good picture of the situation.

The first investigations along the bank of the river Martín, just outside Tétouan (capital of the Spanish Protectorate), were directed by the explorer C.L. de Montalbán in 1921, and this research led to the discovery of the ruins of *Tamuda* (Gozalbes Cravioto 2008a, 36). Despite his lack of archaeological qualifications, Montalbán was appointed technician-assessor first (1922) and inspector of the Junta a few years later (1926). He has been generally considered with scepticism, because of his extravagant attitudes and disputable methodology of research. Apart from the *Mapa arqueológico de la zona del protectorado de España en Marruecos* (Montalbán 1933) and a few other contributions, the vast majority of his studies remained unpublished, since they were presented to the Junta as typewritten reports with attached photographs (Gozalbes Cravioto 2012, 225-6; Gozalbes Cravioto *et al*. 2013, 265). Some documents are preserved in the archive of the Musée Archéologique de Tétouan, but there is reason to believe more material has been dispersed, split between private collectors and other unknown destinations. Such is the case, for instance, of a photographic album that illustrates Montalbán's excavations at *Zilil* (Dchar Jdid) between 1939 and 1941, found for sale in an antiquarian bookshop at Rabat (Bouquiniste du Chellah) and recovered by the Università degli Studi di Siena in 2003 (published in Papi 2004-05). Among the 33 photographs contained in the dossier, there is one which details a small capital with water plant leaves, associated with a single-torus

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base, coming from one of the *domus* excavated at the site (Papi 2004-05, fig. 7). The capital is now displayed in the Musée de la Kasbah at Tangier, while the base is still kept in the storehouse at *Zilil*.

Although Montalbán has never met with the favour of the scientific community, one must acknowledge that his work has generated some positive results. Firstly, he was a pioneer of the use of aerial photography applied to archaeology, employed for the first time at *Lixus* in 1929 (Aranegui Gascó *et al*. 2010a, 17). Furthermore, his excavations at this site in the 1920s have set the basis for future research. The discovery of the *garum* factories at the base of the Tchemmich hill (see Aranegui Gascó *et al*. 1992, 8; Gozalbes Cravioto 2008a, 53; 2013, 82-3; Gozalbes Cravioto and Parodi Álvarez 2011a, 183) led to a more systematic publication by Ponsich and Tarradell (1965). Montalbán also brought to light the small Christian basilica (or mosque?) on the top of the hill, east of the so-called "quartier des temples" (Ponsich 1981, 113). Finally, he excavated some structures flanking the south-west edge of "temple F", referred to as "cámaras Montalbán" (see Aranegui Gascó *et al*. 2010a).

During the years of the Spanish Civil War and the initial period of Franco's dictatorship, the role of Montalbán started to diminish. The office of director of the Servicio de Excavaciones subsequently passed to P. Quintero Atauri – a historian, archaeologist, museum director and lover of ancient arts. Between 1940 and 1945, research was dedicated almost exclusively to the excavations of *Tamuda* and the results were presented yearly as *Memorias de Excavaciones* (see Gozalbes Cravioto and Parodi Álvarez 2011a, 187-91). The choice to concentrate all efforts at *Tamuda* was determined by the proximity of the site to Tétouan, and by the fact that Quintero Atauri's old age and advancing infirmity did not permit him long-distance travels across the country – he was 73 when he arrived in Morocco in 1939, and died at Tétouan in 1946 (Gozalbes Cravioto and Parodi Álvarez 2011a, 187). Quintero Atauri was assisted in his duties by the Augustinian priest C. Morán Bardón, who also supervised personally a season of fieldwork at *Tamuda* after Quintero Atauri's death (Gozalbes Cravioto and Parodi Álvarez 2011a, 188). Another figure who played an important role at the side of Quintero Atauri was the military officer, and so-called "factotum" of the protectorate, T. García Figueras. Among his various duties, he took care of modernizing the bureaucracy of the local archaeological institutions. In 1940 he also promoted the change of venue of the Musée

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Archéologique de Tétouan to the building where it is currently housed (Gozalbes Cravioto *et al*. 2013, 268).

A new phase of Spanish archaeology in Morocco coincided with the arrival of M. Tarradell, a professional archaeologist, in 1948. Tarradell is unanimously praised for his use of stratigraphic methodologies in field research and for the dissemination of most of the results achieved through scientific publications (Gozalbes Cravioto and Parodi Álvarez 2011b, 203-5; for a full list of Tarradell's publications see Brouquier-Reddé and Lenoir 2000, 1058-61). Apart from the excavations at *Tamuda* and *Lixus*, Tarradell carried out field survey in various sites of northern Morocco (see Gozalbes Cravioto 2008b). Fieldwork was undertaken at *Zilil* as well, unearthing some portions of the city walls, although these results remained unedited (see Gozalbes Cravioto and Parodi Álvarez 2011b, 204). Some photographs in Tarradell's archive at Barcelona show that one of the (unpublished) Ionic capitals displayed in the Musée Archéologique de Tétouan was recovered during these works. With regard to *Lixus*, excavations were carried out between 1948 and 1958 in various sectors of the Tchemmich (see Tarradell 1950; 1951; 1953; 1954a-b; 1957; 1958), mainly through the opening of sondages: the work in the so-called "sondeo del algarrobo" and "sondeo del olivo" (see Aranegui Gascó 2001a, 19-26); the resuming of the study of the "cámaras Montalbán" (unpublished, but known today thanks to his archive material: see Aranegui Gascó *et al*. 2010a, 21-30); and the discovery of the *domus* of Mars and Rhea, the *domus* of Helios, and the *domus* of the Three Graces (Aranegui Gascó *et al*. 1992, 13). The last activity of Tarradell at *Lixus* (in 1959 and 1960), before his departure from Morocco after he had been appointed professor at the Universitat de València in 1956, was the beginning of the excavations in the "quartier des temples" together with M. Ponsich. A preliminary study of this complex was published many years later by Ponsich alone, after all the structures had been brought to light (Ponsich 1981; see Chapter 7).

Among the other merits of Tarradell, one should mention the publication of an archaeological guide to *Lixus* and of the objects displayed in the Musée Archéologique de Tétouan (Tarradell 1959). Illustrative of Tarradell's scientific approach, the combination of archaeological discoveries with historical sources is well reflected in the content of his book *Marruecos Púnico* (Tarradell 1960). Encompassing a time-frame which goes actually far beyond what the title advertises (up to the reign of Juba II and Ptolemy: see Chapter

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3), the book is a synthesis of his fieldwork in northern Morocco and an attempt to use archaeological data for reconstructing ancient history (see Jodin 1964). While there has been some criticism of his broader historical models based upon sondages, as at *Lixus* (see Lenoir, M. 1992, 272-3), Tarradell's work undoubtedly provided a fresh approach for the development of Moroccan archaeology and for further investigations. Tarradell also introduced the much debated economic model of the "Círculo del Estrecho", highlighting the importance of the Strait of Gibraltar and the connections between Morocco and Spain in ancient times (Shaw 2006, 24-32; Gozalbes Cravioto and Parodi Álvarez 2011b, 206-7; Papi 2014, 204-5).

ARCHAEOLOGY AFTER THE INDEPENDENCE (1956 TO THE PRESENT)

The resistance of the Moroccan people against French and Spanish colonialism during the Protectorate took the form of both armed and political opposition, initially limited to the rural areas of the country and then extended to the urban communities (Brignon *et al*. 1967, 386-402). They peaked in the 1950s when the opposition became a widespread, national phenomenon. The independence of Morocco was finally declared after various negotiations in 1956. The jurisdiction of the French Protectorate, as ratified by the Treaty of Fez, was brought to an end on 2 March, followed shortly after by that of the Spanish Protectorate (7 April) and by the abolition of Tangier's International Zone on 29 October (Brignon *et al*. 1967, 405-8; Abitbol 2014, 651).

However, the end of the two Protectorates and the organization of the new Royaume du Maroc had repercussions for archaeological research. The political crisis between Spain and Morocco – also reflected by the departure of Tarradell – caused the cessation of any collaboration between the two countries (Gozalbes Cravioto 2012, 311). It would take more than 30 years before Spanish archaeologists resumed their investigations in Morocco (Aranegui Gascó *et al*. 1992, 7; Aranegui Gascó 2001a, 2). In contrast, French scholars were still directly involved in the management of archaeological institutions. Despite some initial troubles due to political instability (Euzennat 1959, 39), the Service des Antiquités maintained all its former duties, and its competences were also extended to the territories of the north (Papi 2006, 540).

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With the appointment of M. Euzennat as director of the Service des Antiquités (from 1954 to 1961), a reformation of various sectors was carried out. This included a reorganization of the administrative personnel and the museum collections at Rabat and Tangier, and the publication of the *Bulletin d'Archéologie Marocaine*, which replaced the previous periodical *Publications du Service des Antiquités du Maroc* (Euzennat 1959, 41-3; 1989, 11-2). A new season of excavations was promoted (Euzennat 1957b; 1960; El Khatib-Boujibar 1964a; 1966). The island of Mogador was investigated during three campaigns (1956-1958) directed by A. Jodin. The fieldwork led to the discovery of some early Phoenician/Punic structures and of a residential building probably datable to the reign of Juba II (Jodin 1966a; 1967). In 1958, J. Boube was assigned the supervision of the works at *Sala*, resuming the unpublished research by J. Borely at the time of the Protectorate, that had brought to light the "basilica/*curia Ulpia*" complex and the triumphal/honorific arch. Thanks to the new investigations (Fig. 2.7), the *capitolium*, the forum, and other buildings in the monumental district were discovered (Boube 1966c; 1967; 1990a; see Chapter 6), although a synthetic collection of these results was never published. More excavations focused on the cemeteries outside the ribat of Chellah, the publication of which had to face long tribulations and delays before being completed (Boube 1977; 1999; see also the review in Morel 2004).

Fig. 2.7. *Sala* – Chellah: excavation of the street on the upper terrace flanking the *capitolium* (1962)

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A team of the École Française de Rome, co-ordinated by R. Rebuffat, was charged with the excavations at the Roman military site of *Thamusida* between 1958 and 1962 (Rebuffat 1968-72), and the results were efficiently published in three volumes (*Thamusida* I-III). Finally, in the north of the country, M. Ponsich completed the excavations started with M. Tarradell in the "quartiers des temples" at *Lixus* (Ponsich 1981), followed by the discovery of the amphitheatre and the annexed baths on the eastern side of the hill (Ponsich 1966a; 1979). Ponsich was also in charge of the research in the region of Tangier, where he focused his studies both in various rural settlements and within the city itself (Ponsich 1967; 1970; 1982a).

More research in these years involved survey and aerial photography analyses, with the purpose of establishing an *Atlas Archéologique du Maroc* covering the most important parts of the country (Chevallier 1957, 7; Euzennat 1959, 45-7). Unfortunately, the quality of the investigations was different for each sector and the goal was only in part achieved (Euzennat 1989, 17). The results could not be published as a monograph, but just as short preliminary reports on the single regions investigated: Tangier (Ponsich 1964b); *Volubilis* (Luquet 1964b); *Lixus* (Ponsich 1966b); Tétouan (Tarradell 1966); and the Gharb plain (Luquet 1966; now see also Rebuffat and Limane 2011). Euzennat's personal research on the frontier and military settlements in the southern part of Morocco led to the publication of the book *Le limes de Tingitane* (Euzennat 1989), which is still today a comprehensive collection of evidence and a praiseworthy attempt to provide a synthetic outline of Roman military presence in *Tingitana* (see the review in Potter 1991).

With the successors of Euzennat as heads of the Service des Antiquités – N. El Khatib-Boujibar and M. Bekkari, respectively – archaeological research continued, although the extent of the works progressively diminished, as we can infer from their reports (El Khatib-Boujibar 1964a; 1966; Bekkari 1967; 1968-72). When J. Hassar-Benslimane became director of the Service de l'Archéologie in 1975 (as the old Service des Antiquités had been re-named the previous year: Hassar-Benslimane 1976, 243), the situation of Moroccan archaeology at that time is thus described:

> "Les recherches archéologiques préhistoriques et préislamiques qui, de tout temps avaient approvisionné le musée en objets à présenter au public, étaient moribondes.

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> L'archéologie islamique était presque inexistante […] Les publications marocaines étaient arrêtées depuis neuf ans […] La recherche archéologique avait été, jusqu'aux années soixante l'apanage de chercheurs étrangers, particulièrement français. Lorsque les derniers quittèrent le Maroc, aucune relève n'était assurée […] D'autre part, il y avait avec la France, un contentieux qui grevait l'établissement d'une coopération bilatérale juste et équitable" (Hassar-Benslimane 2001, 7)

The participation of Moroccan researchers had hitherto been relegated to very minor roles, no effective training for them being provided, and the most recent methodologies of analysis were practically unknown. Thanks to Hassar-Benslimane's initiative, many gaps could be filled through the modernization of the institutions, the re-organization of the museums, the self-formation of personnel and researchers, and the establishment of bilateral collaborations (Papi 2006, 541). In this regard, the new French-Moroccan research project at *Zilil* is emblematic. Starting with geophysical prospections in 1976, followed by regular excavations from 1977 onwards, the main aim of this field school was to provide Moroccan researchers with the tools to acquire a professional archaeological expertise (Akerraz *et al*. 1981-82, 173-4). The project was co-directed by N. El Khatib-Boujibar and M. Lenoir, and it went on until 1993. Unfortunately, only a single monograph dealing with the coin finds has been published so far (*Zilil* I), while for some brief accounts on the excavations only a few preliminary reports are available (Akerraz *et al*. 1981-82; 1987a; Lenoir, E. 2003; 2005).

The development of international collaborations was further enhanced by the creation of the Institut National des Sciences de l'Archéologie et du Patrimoine de Rabat (INSAP) on 31 January 1985, which replaced the former Service de l'Archéologie. Under the direction of J. Hassar-Benslimane first, and A. Akerraz since 2001 (until the present), INSAP has worked as the main mediator with the Ministère de la Culture du Royaume du Maroc. In order to promote the preservation and valorization of Morocco's archaeological heritage, new international research projects have started – many of them being still active today (Hassar-Benslimane 2001, 11-2). The new investigations at *Lixus* co-directed by INSAP and the Universitat de València (1995 to 2007) are particularly important in this context, not only from an archaeological standpoint, since they marked the re-opening of diplomatic relations between Spain and Morocco after the post-protectorate crisis. The

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results of this research – the resuming of the previous works in the "sondeo del algarrobo", in the "sondeo del olivo" and in the "cámaras Montalbán", and the opening of an excavation area in the "ladera sur" of the Tchemmich hill – were published recently as a series of three monographs (*Lixus* I-III; for reviews see Debergh 2003; Papi 2003a; 2013; Mugnai 2013). More research at *Lixus* has been carried out together with the Università di Sassari since 2003, focusing on the (questionable) identification of the Roman forum (see the preliminary report in Akerraz *et al*. 2009b). Finally, a collaborative project between INSAP, the Université Mohamed V de Rabat and the Università degli Studi di Siena started in 2010 with the aim to reconstruct the town topography, and the trajectory and chronology of the city walls.

Among the other archaeological projects, it is worth citing the research by INSAP and the Università degli Studi di Siena at *Thamusida* (1999-2009). Drawing from the 1960s excavations by the École Française de Rome (*Thamusida* I-III), the aim of the new project was to investigate *Thamusida*'s "long durée" of occupation, from the Mauretanian to the Islamic period, employing modern methodologies: geophysics prospections; topographic survey and DEM reconstructions; archaeometric analyses; study of building techniques; stratigraphic excavations; cataloguing and study of archaeological finds (Akerraz and Papi 2004; 2008). Apart from various reports and articles (e.g. Camporeale 2004; 2011; Papi 2003b; 2004; Papi and Vismara 2002; Akerraz *et al*. 2009a), three monographs have been published, as part of an intended series of six volumes (*SAbA* I-III; for a review of the first two books see Hobson 2011).

Finally, a collaboration with University College of London has led to the opening of an excavation area in the southern sector of *Volubilis* (fieldwork carried out from 2000 to 2005). Post-Roman and medieval phases of occupation have been identified here, dating to the seventh to ninth centuries. A synthetic publication has not appeared yet, although some results have been disseminated through preliminary reports (Limane and Fentress 2006; Fentress and Limane 2010).

STUDIES OF *MAURETANIA TINGITANA*'S ARCHITECTURE AND URBANISM

As outlined above, the excavations that took place in Morocco throughout the last century have contributed to the enhancement of the local archaeological heritage. The opening of

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many sites to visitors has certainly provided benefits for the Moroccan economy and for the perception of the country's history. *Volubilis* is playing a leading role, especially after its inclusion in the UNESCO World Heritage list, ratified on 6 December 1997. *Lixus* and *Sala* are drawing much attention as well, thanks to the fascination of their millenary history and to their proximity to modern locations – the Atlantic harbour of Larache and Rabat (capital of Morocco), respectively. Sites like *Banasa*, surely more unfortunate from a logistical standpoint, are nevertheless visited by a more selected audience, such as researchers and archaeological tours.

However, one must be aware of a certain discrepancy between the richness of this heritage and the quite limited number of scientific publications on Mauretanian-Roman architecture and urbanism. Two main reasons can be advanced to explain this gap. On the one hand is the non-stratigraphic methodology used when many of the sites were excavated, especially true for *Volubilis* and *Banasa*. The lack of recorded data from stratified contexts has made it harder to reconstruct the chronology of many buildings. Moreover, in most cases only a few courses of the walls are preserved – if they are not even levelled to the foundations – and they do not provide sufficient information alone to undertake this task. Secondly, accounts of the research at these sites have been published, if at all, with different standards of quality. If we look at the Protectorate excavations, we can find several reports about the works at *Volubilis* (see for instance Chatelain 1916; 1937a-b), although a general synthesis on the site as a whole is still lacking. *Banasa* was better served (see Thouvenot 1941a; 1954a-e; Thouvenot and Luquet 1951a-c), but the description of the monuments might have been much more comprehensive, if the lost stratigraphic data had been taken into account at that time. In the post-Protectorate period the situation did not really improve, given that for sites like *Sala* and *Zilil* no synthesis has ever been published. The best site published so far is, beyond any doubt, *Thamusida* (by the École Française de Rome and the Università degli Studi di Siena: see, respectively, *Thamusida* I-III and *SAbA* I-III).

The state of the art described above does not imply that no efforts at all have been made towards the investigation of ancient architecture and the development of urban sites in Morocco. However, the available contributions present some limits, either in terms of time-frame or geographical analysis. With regard to the first issue, a chronological dichotomy exists in the majority of published works: attention has been focused either on

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"Mauretanian" or "Roman" architectural evidence, with very little emphasis on the idea of "long durée" and all its implications for the development of urban trajectories within the sites considered. The years of the reign of Juba II and Ptolemy (25 BC – AD 40: see Chapter 3) have been regarded as a sort of artificial borderline to distinguish between pre-Roman and Roman architecture. As to the spatial frame encompassed, almost all these studies are localized to single towns of the province – in particular *Volubilis* – or even to single monuments. Some exceptions apply, as illustrated below, but even in these cases the frame is restricted to portions of the territory (mostly the southern part of the Roman province), with few attempts to look at the connections between the north and the south of *Tingitana*.

A first study of Roman urbanism was presented by R. Étienne (1960) in his book *Le quartier nord-est de Volubilis*. Focusing on the residential district of *Volubilis* which develops along the *decumanus maximus* (Fig. 2.8) and is enclosed by the "pentagonal" end of the city walls, the work details the results of the author's excavations in 1948, 1949 and 1953 (part of the study had been already described in Étienne 1954). The most praiseworthy aspect of the book is the combination of various features within the discussion: the research on the urban layout; the plans of buildings drawn by the author; the building techniques and materials identified; and the (brief) analysis of the decoration. The suggested chronology of the district within the third century AD (Étienne 1960, 147-50) has been questioned in later studies (see, for instance, Rebuffat 1968; Akerraz 1987; Makdoun 1994; Es-Sadra 2008), but the principal issues of such dating are mainly due to the non-stratigraphic methodology employed during the excavations.

Fig. 2.8. *Volubilis*, view of the north-east district along the *decumanus maximus*

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A few years later, J. Boube presented a contribution entitled *Documents d'architecture maurétanienne au Maroc*, published in the *Bulletin d'Archéologie Marocaine* (Boube 1967). The aim was to discuss a preliminary set of data on the evidence of Mauretanian architecture from three sites: *Sala*, *Banasa* and *Volubilis*. The analysis involved the study of building techniques, the outline of the evolution of the buildings' plan (in particular the temples in the fora of *Sala* and *Banasa*), and observations on some elements of architectural decoration. In reference to the conclusions drawn by Boube, some of his remarks can be confirmed by the archaeological evidence and are still acceptable today (e.g. the building phases of the "temple A" at *Sala*: see Chapter 6). In contrast, a dating in the Mauretanian period for other buildings is no longer workable; for instance, the so-called "building F", "temple B" and "temple C" at *Sala* should rather be dated to the Roman era (see Camporeale 2004-05, 240).

A severe critique of Boube's hypotheses was made by M. Euzennat and G. Hallier, almost 20 years later, in the article *Les forums de Tingitane*, published in *Antiquités Africaines* (Euzennat and Hallier 1986). With the aim to demonstrate the influence of Roman military architecture on the layout and development of the fora at *Banasa*, *Volubilis* and *Sala*, many points of the paper are a direct – and, sometimes, unjust – attack on Boube. The counterarguments of the authors need to be evaluated in a critical way. It is undeniable that the forum of *Banasa* follows the model of the tripartite "Lagerfora" (see Chapter 5). However, recent scholarship has agreed that civilian and military architecture simply shared the same model, while a direct influence of the army over civilian buildings is not always demonstrable (La Rocca 1998, 155; Gros and Torelli 2007, 384-8; Gros 2011, 220). With regard to *Sala* and *Volubilis*, this interpretation does not find any convincing confirmation in the archaeological evidence. The forum at *Sala* developed on three terraces on the slope of the hill, modified at different stages and corresponding to different phases, thus contradicting the "Lagerfora" model. At *Volubilis*, scepticism towards this reconstruction and other remarks by Euzennat and Hallier was pointed out by A. Akerraz, M. Lenoir and E. Lenoir in their contribution *Le forum de Volubilis*, which appeared shortly after (Akerraz *et al*. 1987b).

A French-Moroccan project started in 1995 under the name "Mission Temples", directed by V. Brouquier-Reddé, A. El Khayari and A. Ichkhakh, resuming the study of sacred buildings in *Mauretania Tingitana*, particularly at *Volubilis*, *Banasa*, *Lixus* and

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Thamusida (Brouquier-Reddé *et al*. 2001). The work involved the analysis of published and archival material, and *in situ* research to draw new plans and reconstructed elevations of the buildings. Regrettably, after 15 years since the conclusion of the works, no synthetic publication has yet appeared. Preliminary results on "temple B" at *Volubilis* (originally published in Morestin 1980), the temple with seven *cellae* at *Banasa* (see Thouvenot 1941a; Boube 1967), and the "quartier des temples" at *Lixus* (Ponsich 1981) have been presented, providing at least an outline of the authors' hypotheses on the development of these buildings (Brouquier-Reddé *et al*. 1998; 2004; 2006; 2008; 2010).

More recently, a comprehensive study on the building techniques of *Sala*, *Banasa* and *Thamusida* was carried out by S. Camporeale as a PhD project with the Università degli Studi di Siena (Camporeale 2004-05). Combining a direct analysis of the techniques with the observations achievable from the architectural stratigraphy of buildings, this work is a significant contribution for improving our knowledge of the urban history of the three sites. Moreover, given that stratigraphic data are now lost, this type of investigation represents the only reliable means to attempt a reconstruction of the buildings' chronology and evolution. The techniques recognized at *Thamusida* were published recently in the first volume of the series *SAbA* (Camporeale 2008a) – followed by other articles that develop further aspects of the research, such as the introduction of the use of mortar and rubble by the Roman army in *Tingitana* (Camporeale 2011; Gliozzo *et al*. 2011). With regard to the results of the research at *Sala* and *Banasa*, these can be presently found only in the unpublished PhD thesis – that can be consulted at the Dipartimento di Scienze Storiche e dei Beni Culturali, Università degli Studi di Siena – although a monograph is in preparation.

Other recent studies have been focused on specific buildings or districts within the towns. For instance, during the Spanish-Moroccan collaboration at *Lixus*, part of the research was dedicated to the re-interpretation of the "quartier des temples" (Fig. 2.9), revisiting M. Ponsich's identification of the district as a series of sanctuaries (Ponsich 1981). The study, undertaken by C. Aranegui Gascó and R. Mar, led them to advance the hypothesis that this whole complex should be rather identified as a palace of Juba II (Aranegui Gascó and Mar 2008; 2009; 2010; Aranegui Gascó 2012). However, various contradictions between the plan reconstructed by the authors and the architectural evidence preserved *in situ*, as well as inconsistencies about the suggested chronology (see

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the detailed remarks in Chapter 7), suggest that this identification should be discarded, or at least in large part revised (see Mugnai 2013, 168; Papi 2013, 804-7). Such an hypothesis also conflicts with the preliminary results of the "Mission Temples" (see Brouquier-Reddé *et al*. 2006; 2008).

Fig. 2.9. *Lixus*, "quartier des temples". In the middle is "temple F" with its (reconstructed) *porticus*, and some of the annexes on the right-hand side; the oued Loukkos and the town of Larache are visible in the background

Finally, a field of study that has developed quite recently in Morocco concerns the calculation of costs and manpower for ancient building projects, following the pioneering works undertaken at Rome and Ostia (DeLaine 1997; 2001; 2006; 2015), in Spain (Mar and Pensabene 2010), and in *Asia Minor* (Barresi 2003, 151-204). A first contribution was presented by S. Camporeale on the building process of the "maison aux deux pressoirs" at *Volubilis* (Camporeale *et al*. 2008). This article also contains a survey by E. Papi of inscriptions related to construction works and public buildings, and a new reconstruction of the elevation of the arch of Caracalla by L. Passalacqua, drawing from the previous hypothesis by C. Domergue (1963-64a-b). More recently, J. Domingo Magaña has discussed the construction project of the *capitolium* at *Volubilis*, combining information from epigraphic evidence (*IAM* 355) with a calculation of the costs of building materials (Domingo Magaña 2012a-b; see also the remarks, and critiques, in Chapters 4 and 8).

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RESEARCH ON ARCHITECTURAL DECORATION IN MOROCCO

Studies of architectural decoration in Morocco are extremely limited. As observed above for architecture and urbanism, also for the study of the buildings' ornament there is a discrepancy between the quantity of potential data available and the amount of published works dedicated to this topic. Just to cite one example, some 500 capitals are preserved at *Volubilis* within the site and in the storehouse (approximate number based on Faddadi 1991: see *infra*), but no full catalogue has ever been published. The fact is even more striking when one considers that in other North African sites, for which such catalogues exist, the number of architectural elements is often smaller. At *Lepcis Magna*, for instance, 351 capitals of early Roman date have been recently recorded (Mahler 2006; excluding the Severan marble decoration). *Caesarea*, in *Mauretania Caesariensis*, counts 203 capitals including both marble and local stone products (Pensabene 1982a), while at *Uchi Maius* (Tunisia) the number is reduced to only 24 pieces (Teatini 1997).

Without any doubt this situation offered me a unique possibility for undertaking *in situ* research and recording first-hand data during this PhD project. However, the main shortcoming of such a scarcity of published material is the impossibility of drawing a comprehensive list of parallels across the province, especially with regard to smaller sites where it was not possible to carry out field research. Having said that, the documentation contained in the few previous works on architectural decoration in Morocco has provided useful hints for confirming or refuting old hypotheses on the origins, influences and dating of the decorative motifs. As illustrated below, apart from two recent contributions (Camporeale 2008c; Pensabene 2011), the majority of all the other publications predate the 1970s. Therefore, when these were published, many major works that have set the basis for the study of architectural decoration in the Greek and Roman world, including North Africa, had not appeared yet (e.g. Heilmeyer 1970; *Scavi di Ostia* VII, Pensabene 1982a; 1993; Herrmann 1988; Ferchiou 1989a).

Following a strict chronological order in the list of works reviewed here, the first article on Moroccan architectural decoration was R. Thouvenot's *Chapiteaux romains tardifs de Tingitane et d'Espagne*, published in the *Publications du Service des Antiquités du Maroc* (Thouvenot 1938). The aim was to identify stylistic parallels between Morocco (*Volubilis*)

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and Spain (Seville, Cordoba, and Italica) in the late Roman and Late Antique eras. Although the sample considered by the author was reduced to a few capitals only, and the tradition of studies on the topic had not developed yet, this study was nevertheless praiseworthy at that time. Indeed, relations between the decorative motifs in these territories at the two ends of the Strait of Gibraltar can be recognized from the late third century AD onwards (see Chapter 8 and Catalogue: ►**Vol 2.63**; ►**Vol 2.71-73**; see also Domingo Magaña 2008).

A few years later J. O'Farrell, curator of the archaeological site of *Volubilis*, presented in the same periodical a *Note sur les chapiteaux de Volubilis* (O'Farrell 1941). Without any attempts to speculate on their dating, the author proposed a basic classification based on four groups: (1) "Ionic" or "proto-Ionic", such as the capitals from the colonnade of the palace of Gordianus (►**Vol 2.3**); (2) "Ionic-Corinthianizing", or "composite" (e.g. ►**Vol 2.57-58**); (3) "Corinthian" or "Corinthianizing", like the capitals of the basilica (►**Vol 2.4-7**); (4) "pseudo-Corinthian", namely the capitals from the so-called "*macellum*" (►**Vol 2.60-61**). As detailed in the Catalogue, the typology used in my work is more articulated than the one presented by O'Farrell. More attention is paid to the shape of the acanthus leaves and to the other components: cauliculi, calyces, helices and volutes, abacus, and axial motifs. However, O'Farrell's groups represent a preliminary classification still acceptable today.

In the same year Thouvenot dedicated a few pages of his book *Une colonie romaine de Maurétanie Tingitane : Valentia Banasa* to a brief description of the decoration, which included some remarks on particular capitals so far discovered (Thouvenot 1941a, 31-40). Among them are a double pilaster capital with smooth leaves (►**Ban 2.13**) and the more refined Corinthian examples with *acanthus mollis* leaves belonging to the "maison à la mosaïque de Vénus" along the *kardo maximus* (►**Ban 2.23-25**) (Fig. 2.10a-c). The author's conclusions indicated that the "impoverishment" of the stylistic motif would suggest a chronology around the late second century AD or even third century (Thouvenot 1941a, 34). However, a re-examination of these capitals (Fig. 2.10) in the light of more recent studies (see in particular Pensabene 1986; 1989 on the diffusion of Roman official art in North Africa) shows that a dating to the mid-second century AD is more convincing (this chronology is also confirmed by the dating of the "maison à la mosaïque de Vénus": see Catalogue and Chapter 5). As pointed out above, this example illustrates the limits of the

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studies on architectural decoration published before this discipline had developed from the 1970s onwards.

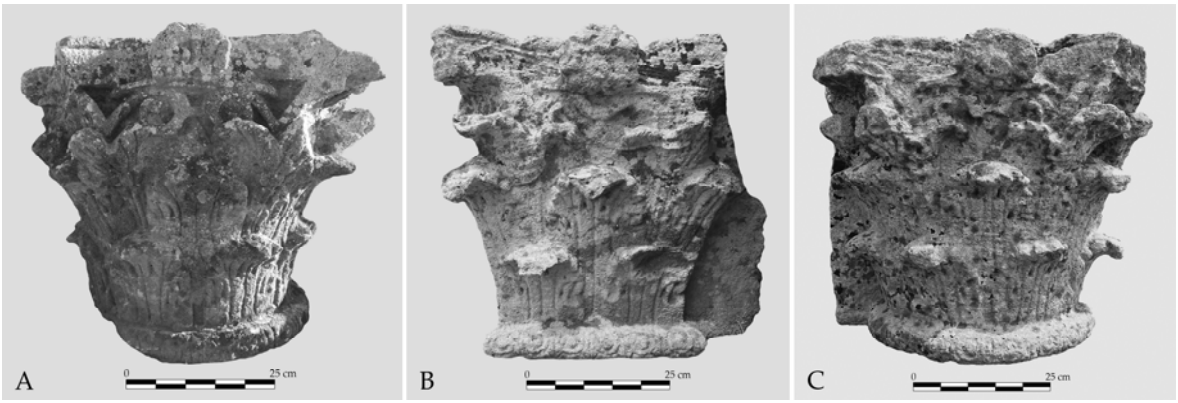

Fig. 2.10. *Banasa*, Corinthian capitals with *acanthus mollis* from the colonnade of the "maison à la mosaïque de Vénus" (**Ban 2.23-25**)

Subsequent to Thouvenot's work, architectural decoration was not dealt with for some 20 years. A very brief reference to some examples from *Volubilis* is found in Étienne's book *Le quartier nord-est de Volubilis* (Étienne 1960, 129-35). A more substantial contribution was presented by Boube (1967, 318-40) in his *Documents d'architecture maurétanienne au Maroc*, where he grouped some elements of decoration from *Sala*, *Banasa* and *Volubilis* according to three architectural orders: (1) Ionic order of Greek-Punic tradition; (2) Corinthian order, or, more precisely, pseudo-Corinthian; (3) pseudo-lotus order. As to their chronology, Boube stated that it encompassed the first century BC to early first century AD. Again, this needs to be re-evaluated. As to the Ionic order, represented by two capitals at *Sala* (►**Sal 2.3**) associated with an Egyptian gorge cornice, a pre-Roman or early Roman dating is still acceptable (see Chapter 6). This is confirmed, for instance, by the parallels with the "Tombeau de la Chrétienne" in Algeria (Christofle 1951) and by various capitals from *Lepcis Magna* (Mahler 2006, 158-62, nos. 107-38 IK). On the other hand, the decorative features of the pseudo-Corinthian capitals (►**Vol 2.60-61**) and the pseudo-lotus ones (►**Sal 2.22**; ►**Ban 2.41-43**) suggest later chronologies (see Chapters 4-6).

In 1971 Thouvenot presented two short contributions on *Banasa* and *Volubilis*. The first, entitled *Sur quelques chapiteaux singuliers de Banasa*, was published in the *Bulletin Archéologique du Comité des Travaux Historiques et Scientifiques* (Thouvenot 1971a). It focused on three types of capitals, described here in the Catalogue with the following

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nomenclature: (1) tronco-conical capitals (►**Ban 2.44-45**); (2) pseudo-Corinthian capitals with water plant leaves (►**Ban 2.40**); (3) pseudo-lotus capitals (►**Ban 2.41-43**). Thouvenot did not provide a typological classification and his remarks were limited to some decorative features only. With regard to the pseudo-lotus capitals, Boube's original chronology was slightly revised, suggesting a dating within the early first century AD. The second contribution, *Notes sur des chapiteaux de Volubilis*, was presented in the *Revue Archéologique* (Thouvenot 1971b) and can be described as a "random" selection of capitals, the interest of which was raised by the presence of more or less peculiar characteristics. Nothing is said about their dating, and the most significant observations regard two Corinthian or pseudo-Corinthian capitals with three tiers of acanthus leaves, for which a good description and measurements were provided.

Volubilis was once again brought to the attention of the scientific community when A. Jodin published his book *Volubilis regia Iubae* (Jodin 1987). This aimed to outline the early history of the town before *Tingitana* was organized as a Roman province by the emperor Claudius. This work combines information drawn from literary sources, architectural analyses, studies on the metrology and local length-units (on this topic see also Jodin 1975), and some pottery evidence. A chapter is dedicated to the orders of architecture and the decoration (Jodin 1987, 85-104), which reprises in part some contents of a previous article (Jodin 1977). The conclusions advanced in the book have already been criticized by J.-M. Lassère and G. Hallier (1989), whose remarks apply quite well to the putative pre-Claudian architectural ornament attested at *Volubilis* according to the author. In particular, Jodin's speculations on a late Mauretanian dating for the pseudo-Corinthian (►**Vol 2.60-61**), tronco-pyramidal (►**Vol 2.63**), and pseudo-impost capitals (►**Vol 2.71-73**) (Fig. 2.11a-b) must be rejected, since their decorative features would rather favour placing them in the late Roman period. The same observations can be made about the Attic bases without plinth and two tori of the same diameter (Fig. 2.11c), for which Jodin created the bizarre name of "bases trochlées". A pre-Roman, or early Roman, chronology for all the bases bearing these features should be discarded. It is true some of these bases are datable to this period – see, for instance, the base from the pre-Roman layers of the forum at *Sala* (►**Sal 1.24**). However, many other examples from *Volubilis* can be found *in situ* in buildings dating to the third century AD (►**Vol 1.36-38** and ►**Vol 1.41-43** in the palace of Gordianus; ►**Vol 1.44** from the *porticus* along the *decumanus maximus*; ►**Vol 1.45-46** in the

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basilica; and ►**Vol 1.47-49** in the piazza of the *capitolium*). One should rather think of a type of decoration first introduced in the late Mauretanian era, which also survived throughout the Roman period (see in particular Chapters 4 and 8).

Fig. 2.11. Decoration from *Volubilis*. A: smooth pseudo-impost capital (**Vol 2.64**); B: decorated pseudo-impost capital (**Vol 2.72**); C: Attic base without plinth (**Vol 1.38**)

A study of the capitals from *Volubilis* was carried out by B. Faddadi at the end of the 1980s, as a PhD project supervised by P.-A. Février. A thesis was then submitted at the Université d'Aix-Marseille, entitled *Chapiteaux de Volubilis : Étude du décor architectural* (Faddadi 1991). However, almost 25 years later, the thesis has remained unpublished and the author has never disseminated any of his results. The Ministère de la Culture du Royaume du Maroc and INSAP are well aware of this situation, and for this reason they have authorized an *ex novo* study of *Volubilis*'s decoration as part of my PhD research. A typewritten copy of Faddadi's thesis is kept in the archive of the Conservation at *Volubilis* and it was made accessible thanks to the kind permission of M. Atki, current curator of the site. The thesis contains a classification of the capitals (c. 80 per cent of the whole text) according to their architectural order and decorative features. However, for the Corinthian and pseudo-Corinthian capitals, attention is essentially paid to the different types of acanthus only, while many of the other features are regarded as less diagnostic and are described quite briefly. For this reason, Faddadi's classification has not been adopted in the present Catalogue and the description of the capitals is based on autoptic analyses and personal recording (see also Chapter 1). The only exception applies to the measurements of the pieces repositioned *in situ* on the outer façade of the basilica and on the arch of Caracalla (►**Vol 2.8**; ►**Vol 2.11**; and ►**Vol 2.23**), which were impossible to record; in this case the measurements are those reported by Faddadi (the full reference is

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indicated in the text). As to Faddadi's conclusions, I must observe that some of his remarks are coloured by the assumption that *Volubilis* was totally deserted in the late third century AD, when the Roman army retreated from the southern part of *Tingitana*. Therefore, the chronology of all the capitals is artificially confined within the first three centuries of Roman occupation, while, in reality, some decorative motifs suggest a longer time-frame (see Chapters 4 and 8).

After Jodin's book and Faddadi's thesis, some 20 years had to pass before two new studies on the architectural decoration of Morocco appeared. The first is Camporeale's catalogue of architectural decoration found at *Thamusida* during the French excavations and the more recent Italo-Moroccan research, included in the first volume of the *SAbA* series (Camporeale 2008c). The second is Pensabene's paper *Tradizioni punico-ellenistiche a Volubilis. I capitelli corinzi e compositi*, published in *Archeologia Classica* (Pensabene 2011). Both these articles have provided a significant impulse in undertaking the current PhD research, and their different – though complementary – approach to the discipline has contributed to shaping my work.

Camporeale's catalogue includes 86 examples of architectural ornament (bases, capitals, and mouldings). The types are accurately described through a series of entries, the layout of which has been adopted with only minor variations here. The spatial distribution of the decoration across the site is also illustrated. The chronology is based mostly on the dating of the buildings where the decoration is found. These data are enhanced, when possible, by the author's personal analysis of local building materials, masonry and building techniques (Camporeale 2008a). Other remarks concern the carving techniques, the outcome of which was influenced by the more or less developed technologies used by the different ateliers of carvers across the province, and the (putative) attribution of some of these pieces to the activity of stonemasons being part of, or working for, the Roman army (Camporeale 2008c, 236-44). The only shortcoming of the study, justifiable by the fact that the author is not a specialist of the discipline, is the lack of a detailed commentary on the stylistic features recognizable at *Thamusida*, which could have highlighted the similarities with other sites of the province. However, this is precisely one of the gaps that the present work is aiming to fill. In this context, *Thamusida* is a key site for identifying these parallels and for assessing the circulation of building materials, techniques and ateliers of stonemasons.

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Finally, Pensabene's paper adopts the opposite approach, since the ornament is analysed by looking at the decorative features. The study focuses on a set of capitals from *Volubilis* selected according to two criteria: (1) their belonging to both private and public buildings datable with some certainty; (2) the occurrence of motifs that can demonstrate the persistence of a Punic-Hellenistic substratum in the Roman era (see Pensabene 2011, 209). No systematic catalogue is provided, and the remarks are based on a general survey carried out by the author. Only groups of capitals with macroscopic characteristics are taken into account, leaving space for further in-depth research on more articulated sub-groups, types and variants. For instance, the capitals of the basilica's inner colonnades are divided in two types only (Pensabene 2011, 212-4, figs. 8-9), while in my work I have recognized five types (►**Vol 2.4**; ►**Vol 2.6**; ►**Vol 2.17**; ►**Vol 2.19-20**). Pensabene's study is praiseworthy for identifying the Corinthian and composite capitals of *Volubilis* as very peculiar productions, rather than mere provincial imitations of Roman decoration, resulting from a mixture of decorative traditions – Roman official art, pre-Roman legacies, and local motifs (see Chapter 4). Among these features are the recurrence of three calyces springing from the leaves of the second tier, the presence of a rhomboid motif at the corners of the abacus, and the replacement of the axial fleuron with a mask, a shell, or a disc, just to cite some examples. The main indicator of the persistence of Hellenistic traditions is the choice of carving prickly acanthus leaves, or pointed folioles, in some of these capitals (e.g. the capitals at the entrance of the piazza of the *capitolium*: Pensabene 2011, 217-8, fig. 13; ►**Vol 2.35-38**; as well as other capitals repositioned on the top of the columns in the same piazza: Fig. 2.12). The role played by Punic-Hellenistic legacies in the decoration of *Tingitana* is indeed a "Leitmotif" of this thesis.

Fig. 2.12. *Volubilis*: Corinthian capitals with pointed folioles (**Vol 2.43**; **Vol 2.49**; **Vol 2.55**)

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In addition, Pensabene directed some words to the capitals interpreted by Jodin as a group of pre-Roman ornament (see *supra*), and defined in the Catalogue here as smooth and decorated "pseudo-impost" capitals. Rejecting Jodin's dating to the Mauretanian period, Pensabene hypothesized that these capitals may be a local re-interpretation of the impost capitals produced at Constantinople in the fifth and sixth centuries AD (Pensabene 2011, 254-7, fig. 61). Such a late chronology, however, creates some problems, given the absence of any later forms of African red slip ware, or any other finds datable to this period, at *Volubilis* (see Chapter 4). Furthermore, the smooth examples are found in buildings with a much earlier dating, such as numerous houses along the *decumanus* and the judicial basilica (see ►**Vol 2.68**). On the other hand, the decorated variants appear to have a later chronology. As the parallels with some decoration in Spain would confirm (see ►**Vol 2.71-73**), the motifs of these capitals hint towards a chronology in the late Roman period, probably towards the late third century AD or fourth century.

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MAURETANIA TINGITANA: A HISTORICAL OVERVIEW

Tingitana's history needs to be understood as the result of many components: Phoenician, Punic and local African substrata, influences coming from the Hellenistic world and, ultimately, the role played by the Roman domination over this land. Different legacies were merged together when Rome organized this territory as a client kingdom first (25 BC), and as an imperial province later (AD 42/43).

This chapter outlines the principal historical events that contributed to shaping *Tingitana*'s culture and society from the Phoenician period to Late Antiquity. Particular attention is dedicated to the evolution of the principal towns, by looking at how their urbanism and urban communities were bound up in these historical dynamics.

THE PHOENICIAN AND PUNIC ERAS (TWELFTH TO FOURTH CENTURY BC)

The presence of Phoenician colonists from Tyre who allegedly reached the Moroccan shores in the twelfth/eleventh century BC is a mixture of history and legend. Herodotus comments on the trade between Phoenicians and local tribes that took the form of a bizarre "silent barter" (*Historiae*, IV.196). Some centuries later, Pliny reports that *Lixus* was identified with the mythical Gardens of the Hesperides (*Naturalis Historia*, V.1.3) and that it could claim the existence of a sanctuary of Hercules more ancient than that of *Gades* in Spain (*Naturalis Historia*, XIX.23.63). With the addition of *Utica*, these towns have been traditionally considered as the earliest Phoenician colonies in the western Mediterranean and in the Atlantic Ocean (Tarradell 1951, 186-7; 1954b, 112-8). It has been suggested that *Lixus*'s foundation might date back to the eleventh or ninth century BC, even predating Carthage itself (Carcopino 1943, 49-56). Archaeological investigations, however, have found no evidence datable before the eighth century BC (Tarradell 1960, 140-59; Aranegui Gascó 2001c; Brouquier-Reddé *et al*. 2010, 40-8).

Although *emporia* were probably established in Morocco, the architectural remains of these settlements are evanescent. In the region of *Tingi*, some burials were initially dated

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from the eighth to fifth century BC (Ponsich 1967, 23-4; 1970, 67-168), although this chronology has been criticized and is no longer acceptable (El Azifi 1995; Papi 2014, 208-9). Going down the Atlantic coastline, Phoenician amphorae, red-slip and painted wares dating to the seventh century BC are known at *Lixus* (Tarradell 1960, 144-55; El Khayari 2004, 150; Carmona González *et al*. 2010, 73-93), and some fragments of the same type of pottery were discovered at *Sala* as well (Boube 1999, 15). The island of Mogador, in front of Essaouira (c. 450 km south of Rabat), was visited by Phoenician sailors who built some permanent structures and left some pottery and other objects (Jodin 1957; 1966a; López Pardo 1992; El Khayari 2004, 151-2).

The period beginning in the sixth-fifth century BC is conventionally named "Punic", although sometimes the phrase "Phoenician-Punic" is used (see Tarradell 1960, 228). By this time the influence of Carthage was growing stronger over the Numidian and Mauretanian territories, leaving signs of Punic material culture which contributed to the development of these lands for the next centuries (Camps 1980, 148-57). It was at one time believed that pottery of this period had been found at *Tingi* and in its hinterland, in particular at the productive centre of Kouass (Ponsich 1970, 169-83). However, according to new research and re-examination of these materials, it seems that the chronology of the earlier phases should be revised, because the pottery recovered does not predate the second/first century BC (see Bridoux 2008, 375). On the other hand, phases of this early period have been recognized in some smaller settlements of northern Morocco, such as Sidi Abdselam (Tarradell 1960, 86-95; Bridoux 2008, 371-2). On the Atlantic coast, Punic phases datable to the sixth and fifth centuries BC have also been identified at *Lixus* thanks to the discovery of pottery and some architectural remains (El Khayari 2004, 155; Bonet Rosado *et al*. 2005; Aranegui Gascó *et al*. 2010b). At Mogador, however, the occupation by the Phoenicians/Carthaginians apparently came to an end in the sixth century BC (Jodin 1966a, 187-93).

An additional mention of sites like *Tingi* and *Lixus* in the fifth century BC can be found in the Periplus of Hanno (Rebuffat 1976). This document, known only through a Greek translation of the tenth century AD, collects the notes left by the Carthaginian king Hanno while sailing round Africa. It was meant to record all the possessions of Carthage along the African shores. However, the historical value of the text has been questioned (see Carcopino 1943, 73-105; Tarradell 1960, 241-7; Papi 2014, 210-1), since it contains

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fictitious details and inaccuracies, such as the exaggerated number of 30,000 colonists who were supposed to have taken part in the expedition.

As to the economic life of this period, ancient sources refer to fish sauce (*garum*) and purple dye as the two main productions attributed to the Phoenicians and Carthaginians. However, these assumptions need still to be confirmed by archaeological evidence. As a matter of fact, none of the productive centres related to the processing of these products in Morocco predates the end of the first century BC or the early first century AD (Ponsich and Tarradell 1965, 113-4).

THE MAURETANIAN KINGDOMS (FOURTH TO FIRST CENTURY BC)

According to Roman authors, the indigenous peoples of ancient Morocco were known as *Mauri*, or *Maurusii*, from which came the name *Mauretania* (Sallust, *Bellum Iugurthinum*, XIX.7; Pliny, *Naturalis Historia*, V.1.17). However, this category represented only an attempt to group together a variety of different peoples (*nationes*), each of them composed of tribal-ethnic clans (*gentes*) and located in different areas across the Mauretanian lands. Many of their names are known to us: among the most important were the *Mazikes*, the *Zegrenses*, the *Baquates* and the *Autololes* (see Hamdoune 1993; 1995; Migliario 1999; Rebuffat 2001b; 2011).

The existence of kingdoms that gradually consolidated their power over these peoples might date back to the fourth century BC, although very little evidence can support this hypothesis (Camps 1980, 108-10; Gozalbes Cravioto 2010, 123-6). It is not easy to define the geographical limits within which the sovereigns wielded their authority. Making a parallel with the (later) Numidian kingdom of Massinissa, it has been suggested that the jurisdiction of the Mauretanian sovereigns was based on semi-nomadic ethnic groups rather than on fixed land borders, and that the exercise of power by the king was mediated by local chiefs (Migliario 1999, 434-9). A capital in the sense of a single centre of power was extraneous to these kingdoms. Several towns, referred to by the adjective *regiae*, probably served as residences of the kings and of their itinerant court (Coltelloni-Trannoy 1997, 78-81). As to the social background of these peoples, it was influenced by the contact with the Punic world. Local and Punic features were combined together in the society, from pottery and handicrafts to political institutions. That is why the term "Punic-

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Mauretanian" has been often used to describe these cultures (Tarradell 1959, 21; Ponsich 1981, 134; *contra* Euzennat 1965, 261; Papi 2014, 202-3).

The first king we have historical evidence for is Baga, who seemingly reigned in the western part of *Mauretania* – the future *Mauretania Tingitana* – between the end of the third and the second century BC (Livy, *Ab Urbe condita*, XXIII.5.11-12: "*in Mauretaniam Baga ea tempestate rex Maurorum erat*"). He was also an ally of Massinissa at the time of his campaign to claim the kingdom of *Numidia* (Tarradell 1960, 275-8; Camps 1991a; Gozalbes Cravioto 2010, 126-9).

At the end of the war between Rome and the Numidian king Jugurtha (112-105 BC), the territory spanning from the western border of *Numidia* to the Atlantic coast of Morocco was wholly under the rule of Bocchus I (Sallust, *Bellum Iugurthinum*, XIX.7). Scholars agree that he belonged to the Mauretanian dynasty, but it is unknown whether he was Baga's son or his grandson, although the second possibility seems more likely (Camps 1991b; Majdoub 2006, 259-61; Gozalbes Cravioto 2010, 132). Being an ally of his son-in-law Jugurtha at an early stage of the conflict, Bocchus later opted for alliance with Rome. It was thanks to this betrayal of Jugurtha and the loyalty demonstrated to Rome that he obtained the control over the entire region as a reward (Le Glay *et al*. 2009, 124-5; Le Bohec 2013, 42-3).

At Bocchus's death, c. 80 BC, it seems that the kingdom passed to his son Sosus, or Mastanesosus, whose existence has been long debated (see Camps 1991b, 1545-6). The name appears on Mauretanian bronze coins with the legend REX BOCCHVS on the obverse, and SOSI F *vel* SOS FI on the reverse. A first hypothesis, now discarded, placed this coin production in the years of the interregnum, 33-25 BC (Mazard 1955, 67-9, nos. 118-21). The current interpretation, however, predates these coins to the time of Bocchus II, thus allowing us to place Sosus between the reigns of Bocchus I and Bocchus II, c. 80-49 BC (Majdoub 2006, 264-5; Gozalbes Cravioto 2010, 139-42).

We know that in 49 BC, seemingly when Sosus died, the realm was divided into two parts for his sons. Bocchus II became king of the territory set between the rivers *Mulucha* (Moulouya) and *Ampsaga* (Oued el Kebir), while Bogud was assigned the western portion, corresponding to present Morocco (Fig. 3.1). *Iol*, the future *Caesarea* (Cherchel, Algeria), was established as the main capital of Bocchus in the east, while *Tingi* became the capital of Bogud in the west.

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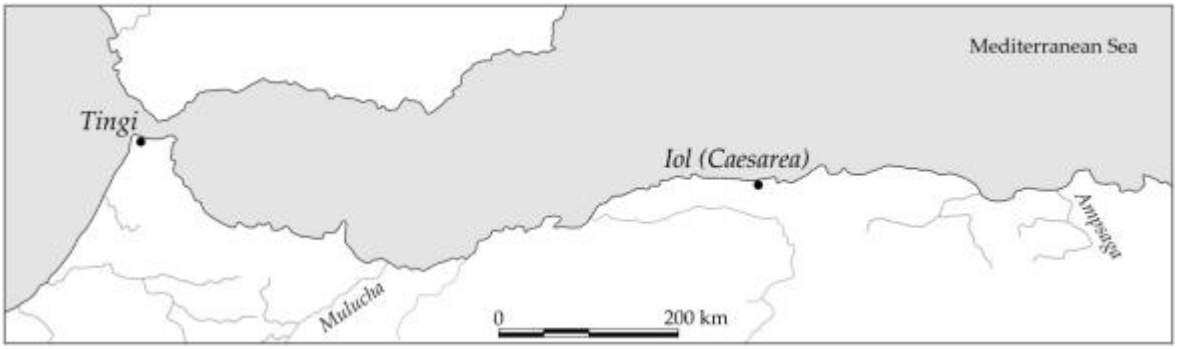

Fig. 3.1. The kingdom of *Mauretania* under Bogud and Bocchus II

This division of *Mauretania* lasted until the civil war between Antony and Octavian. On this occasion Bogud was unfortunate in choosing Antony's side and, after a revolt of his own people at *Tingi* in 38 BC, he had to forsake the kingdom which passed to his brother Bocchus, Octavian's ally (Camps 1991c; Coltelloni-Trannoy 2011, 90-1). Following these events, *Mauretania* was reunified under the rule of a sole sovereign. As a reward for its loyalty to Octavian, *Tingi* was granted Roman citizenship and promoted to the status of *municipium* (Hamdoune 1994). However, Bocchus benefited from this situation for only five years (Majdoub 2000, 1726). At his death in 33 BC, he was the last descendant of the Mauretanian dynasty. Having left no natural heirs, and being mindful of the benefices obtained from Octavian a few years before, he willed his kingdom to Rome (Lassère 1977, 221; Coltelloni-Trannoy 1997, 19-22).

The policy adopted by Rome in *Mauretania*, which led to the acquisition of this territory through an official will made by a client king, is not an exceptional case in the course of Roman history. For instance, one can observe a similar pattern in another province of North Africa: *Cyrenaica* (eastern Libya). In 155 BC, the local sovereign Ptolemy Physcon made a will that would have bequeathed his kingdom to Rome in case of his death without heirs (Braund 1984, 129-31). The necessity of seeking the protection of Rome was motivated by the rivalry with his brother Ptolemy Philometor, ruler of neighbouring Egypt at that time. In fact, the eventuality did not come to pass, as Ptolemy Physcon eventually prevailed over his brother and did have heirs at last. However, Rome had to wait only a few years. In 96 BC, his successor Ptolemy Apion left no heirs at his death, and since the original will was still valid, *Cyrenaica* was finally annexed into the Roman domain (Laronde 1987, 455-85; Roller 2003, 272-3; Kenrick 2013, 5). In a similar way, and again profiting from local dynastic struggles, Rome had gained possession of

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the eastern kingdom of Pergamum in 134 BC thanks to the will made by Attalus III (Braund 1984, 131-2).

With Bocchus ended the Mauretanian era. However, the interrelations between the Mauretanian and Punic cultures kept playing an important role, surviving also in the Roman era. This "encounter of cultures" is to some extent traceable in the archaeological record. More than 800 Punic *stelae* have been recovered at *Volubilis*, most of which come from the so-called "temple B" or "temple of Saturn" (Morestin 1980, 141-254; Brouquier-Reddé *et al*. 1999). The local population made use of Punic pottery, datable at least to the beginning of the first century BC (Euzennat 1957, 51). Further evidence is provided by the existence of the office of *sufetes* in the local *cursus honorum* (see *IAM* 448), and by the use of the *cubitus* as a most popular length-unit (Jodin 1987, 105-28; Barresi 2007, 23). Looking at a broader Mauretanian context, survivals of architectural decoration influenced by Punic motifs can be found at various sites: Egyptian gorge cornices and Ionic capitals of Punic-Hellenistic tradition at *Lixus*, *Sala* (►**Lix 2.3-4**; ►**Sal 2.3**), and again at *Volubilis*, although these motifs witnessed a continuity of use during the Roman period as well (see *infra*). At *Lixus* there is also a fragmented architectural *cippus* of Punic-Egyptian tradition (Fig. 3.2), recycled in a (late Roman?) wall in the south-eastern sector of the Tchemmich hill (on this kind of decoration see Lézine 1960, 35-41).

Fig. 3.2. Punic-Egyptian architectural *cippus* re-employed in a later wall at *Lixus*

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The majority of Mauretanian coins bear neo-Punic legends – later replaced by a bilingual, neo-Punic and Latin formula – and Punic symbols (see Marion 1972). At *Lixus*, for instance, the legends MP'L LKŠ (production of *Lixus*), MP'M LKŠ (atelier of *Lixus*?) and LKŠ are documented (Mazard 1955, 189-92; Callegarin and Ripollès 2010).

Towards the final years of this period, from the second century BC onwards, urbanization tendencies are recognizable at several sites (Fig. 3.3). *Tamuda*, in the north of Morocco (c. 5 km south of Tétouan), was probably founded at this time and was shaped according to Hellenistic urban planning (Tarradell 1960, 116-7; Euzennat 1965, 264; Bernal Casasola *et al*. 2012, 2457), although some recent research has also suggested that the earliest urban phases might date back to the third century BC (Bridoux 2008, 372). The indigenous settlement at Dchar Jdid, later replaced by the Roman colony of *Zilil*, shows a Mauretanian phase datable to within the first century BC in the so-called "citadelle" (*Zilil* I, 8; Akerraz *et al*. 1981-82, 191-7; Bridoux 2008, 376-7). Something similar happened at *Banasa*, in the Gharb valley, where evidence of a pre-Roman occupation has been brought to light (Thouvenot 1954b; Euzennat 1965, 265-6; Luquet 1964a; Girard 1984; Arharbi and Lenoir 2004; 2006; Bridoux 2008, 384). At *Thamusida* a small village developed in the second-first century BC, before being obliterated by the foundation of the Roman military fort and annexed *vicus* (Euzennat 1965, 266; Papi and Vismara 2002, 49-53; Camporeale 2008a, 128-30, fig. 41; Akerraz *et al*. 2009a).

More archaeological evidence comes from various spots on the hill of *Lixus* (Tarradell 1959, 33-8; Ponsich 1981, 134-6; Bridoux 2008, 380; Albelda Borrás *et al*. 2010) and from rural settlements in the region of *Tingi* (Ponsich 1970, 183-222). At *Volubilis*, building phases around the early first century BC seem to be recognizable in "temple B" (Ponsich 1976, 142-4; Brouquier-Reddé *et al*. 1998, 70-1; 1999, 348-9; 2001, 188-9), in the most ancient layers of the forum area (Akerraz *et al*. 1987b, 212-3; Jodin 1987, 163-70), in the south-west district (Jodin 1966b; Euzennat 1989, 201-10), and perhaps in a small altar belonging to a sacred building later obliterated by the piazza of the Roman *capitolium* (Behel 1997, 42-3, 50-1; see Chapter 4). Although not as evident as once believed (see Boube 1967), some traces of Mauretanian architecture can be found at *Sala*. These include the first phase of the so-called "temple A" or "temple with five *cellae*" (when only three *cellae* existed at that time), and a wall made of pseudo-isodomic masonry visible under the foundations of the "basilica/*curia Ulpia*" (Camporeale 2004-05, 219-20, 215-6).

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Fig. 3.3. Map of western *Mauretania* in the second-first century BC, showing the principal towns, settlements and rivers

THE ROMAN INTERREGNUM (33-25 BC)

When Bocchus made his will, it is unclear whether he donated the kingdom of *Mauretania* to Octavian or to the Roman state. This also creates some difficulties in understanding what was Octavian's original policy towards this territory: to organize it as a Roman province, or rather to establish a (temporary) client kingdom? Historical sources are ambiguous on this subject. However, we know that one of the key-points of Octavian's propaganda against Antony was the disapproval of his rival's affable attitude towards client kings in the East – and this could be interpreted as a good point in favour of the first option (Coltelloni-Trannoy 1997, 23).

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When Rome inherited the land from Bocchus, Octavian had still to achieve his success over Antony at Actium. In the immediate aftermath of the battle, the re-organization of Rome's social and political institutions turned out to be matters of enough importance to keep Octavian's mind occupied. These reasons could explain the historical development of *Mauretania* in this period. Although the original plan might have been to create a province, the outcome at the end was a sort of "hybrid" status (Coltelloni-Trannoy 1997, 27). Direct control by Rome of the region lasted for only eight years (33-25 BC): a short time frame referred to as the "interregnum". Octavian's choice was thus to postpone any ultimate decision, and to adopt a temporary government which a few years later led to the establishment of the client kingdom of Juba II (see *infra*).

In these eight years, coins bearing legends with Octavian/Augustus's titles were minted in *Mauretania* (Mazard 1955, 69-70, nos. 122-4), but no names of magistrates or governors are known. The only traceable sign of Roman intervention at this time was in the foundation of veteran *coloniae* (Lassère 1977, 222-33; Majdoub 2000, 1729). Nine were created in eastern *Mauretania* (Algeria), all of them with the title of *colonia Iulia Augusta*: *Cartenna*, *Gunugu*, *Zucchabar*, *Aquae Calidae*, *Rusguniae*, *Rusazus*, *Tupusuctu*, *Saldae*, and *Igilgili*. Only three were founded in western *Mauretania* (Morocco): *Iulia Valentia Banasa*, *Iulia Constantia Zilil*, and *Iulia Babba Campestris*. As to their chronology, it has been suggested that those of eastern *Mauretania* should be dated after 27 BC, judging by the presence of the term *Augusta* in their names and according to both literary and epigraphic evidence. The absence of this adjective from the names of the western colonies could be considered as a clue to dating their foundation before Octavian acquired the title of Augustus. Though rather convincing, this assumption cannot be completely proved, since we do not know if the eastern colonies had the title of *Augustae* from the very moment of their foundation, or if they received it as a honorary reward at a later stage (Mackie 1983, 337-41). Moreover, there are some examples of colonies founded by Augustus after 27 BC which bear the sole title *Iulia*, or have the double nomenclature *Iulia* and *Iulia Augusta*, such as *Buthroton*, on the coast of Epirus (see Coltelloni-Trannoy 1997, 123-4, and notes 28-9). This explains why the literature provides different chronologies for the Moroccan foundations: 33-25 BC; 33-27 BC; or 31-27 BC. The third option, however, seems the most plausible and is the most commonly accepted. In fact, it is quite unlikely that any new veteran *coloniae* were created before the conclusion of the war between Octavian and

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Antony in 31 BC, at which point a large number of soldiers were discharged from their duties and a remarkable quantity of land had thus to be allocated (Coltelloni-Trannoy 1997, 23).

In reference to the location of the Moroccan colonies, *Banasa* and *Zilil* have been correctly identified with the sites of Sidi Ali bou Djenoun and Dchar Jdid, respectively (on their first identification see Tissot 1878, 277-9; Akerraz *et al*. 1987a). On the other hand, *Babba* is still an unsolved mystery and it has been a subject of speculation for many years (for recent reviews of the debate see Gozalbes Cravioto 2011a, 259-62; Hassab 2012). Initially sought in the region east of the oued Loukkos, the attention of researchers was then moved southwards, between this river and the oued Sebou, and between this latter and the oued Rdom (Rebuffat 1967; Euzennat 1976a). Two proposed locations are Souk el Djemaa (Boube 1983-84a) and Sidi Saïd (Rebuffat 1986a, 641-4). There is also a third (rather unlikely) possibility, advanced by J.E.H. Spaul (1994a) who suggested that *Babba* should be identified with the ruins of Sidi Ali ben Ahmed. Through literature and archaeological excavations, it is known that this location corresponds to the military *vicus* of *Thamusida* (Chatelain 1944, 76-81; *Thamusida* I, 1-59; Akerraz and Papi 2008, IX-XIX). However, after re-analysing a local inscription which contains the only known reference to the name *colonia Babbensis* (*IAM* Suppl. 250), Spaul claimed that, in the first two centuries of the Empire, Sidi Ali ben Ahmed was known as *Babba*, and that only in the third century AD would it finally acquire the name *Thamusida*. Although suggestive, this hypothesis must be discarded in the light of the most recent archaeological discoveries. The urban layout of *Thamusida* is now clear thanks to geomagnetic prospections (see Cerri 2008). Indeed, while it recalls the form of a small civilian settlement associated to a military garrison, it is definitely incompatible with that of a Roman colony – not least is the absence of a forum.

New conjectures have attempted to place *Babba* again in the north-eastern part of Morocco (Euzennat 1991a). Some scholars have suggested the site of Asada as a potential candidate (Siraj 1995, 534-44), others that of Azib Slaoui (Hassab 2012, 862). However, given the current state of research, all these hypotheses can be accepted or discarded as more or less plausible, but nothing more precise can be said until tangible archaeological evidence is finally brought to light.

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THE CLIENT KINGDOMS OF JUBA II AND PTOLEMY (25 BC – AD 40)

The short Roman interregnum was meant to prepare the country for a new form of government, a "compromise" between autonomy and provincial submission. In 25 BC the kingdom was entrusted to Juba II, son of Juba I the last king of *Numidia* (Coltelloni-Trannoy 2003, 3925-6). With this action Rome made sure that the territory was ruled by a client king whose personality had been shaped according to Roman custom and ideology. Educating client kings at Rome was a common practice between the late Republic and the early Imperial period: Tigranes the younger from Armenia, Antiochos and Seleucos of Syria, and Herod's sons Alexander and Aristobulus from Judaea are other royal princes who spent some part of their youth in Rome with the same purpose (Coltelloni-Trannoy 1997, 33-4, and note 22). It is likely that Tincomarus too travelled from *Britannia* to Rome where he was educated for a while (Creighton 2000, 92-3; Mattingly 2007, 73). It seems that this relationship between the Roman state and the client kings was not regulated by any specific jurisdiction, since the term "client king" itself is not cited in ancient sources. However, it clearly recalls the forms of patronage diffused among the Roman society and the "unequal" roles of patrons and clients (Braund 1984, 23-4; Roller 2003, 267-8; see also Coltelloni-Trannoy 2005).

After the defeat of Juba I at Thapsus in 46 BC, at the end of the war between Caesar and Pompey, his son Juba II was brought to Rome as part of Caesar's booty (Suetonius, *Caesar*, XXXVII; Plutarch, *Caesar*, LV; Romanelli 1959, 128). From the age of five he was educated as a noble Roman citizen – he was known thereafter with the name *Caius Iulius Iuba* – and, perhaps, he was raised in the house of Octavia, sister of Octavian (Roller 2003, 64-5). This would explain his close friendship with Augustus. At Rome he received a meticulous education that made him become a renowned writer, poet, historian, and geographer (Pliny, *Naturalis Historia*, V.1.16: "*studiorum claritate memorabilior etiam quam regno*"; see also Plutarch, *Caesar*, LV; Fittschen 1979b, 228-9; Roller 2003, 163-82; Gozalbes Cravioto 2011b). He also developed a love for Hellenistic art, and this represented a significant feature in the course of his reign.

When he took the throne, Juba was evidently a promoter of both Hellenistic and Roman culture. It is surely significant that he had been granted the kingship of an African territory (*Mauretania*) other than his original home country. This gives a rather good idea

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of the complexity of Roman policy in provincial government, and it can also explain the mixed feelings that the Mauretanian peoples had towards their new king. In any case, Juba's reign (25 BC – AD 23) represented for this territory a period of important acquisitions. The penetration of Hellenistic culture had a strong influence on local art, handicraft and architecture, overlapping with the Punic heritage. This Hellenistic façade was also reinforced by Juba's marriage with the Egyptian princess Cleopatra Selene, daughter of Cleopatra and Mark Antony, who had also been raised at Rome for some years (Roller 2003, 82-4). Their marriage took place in 19 BC, and from that time on Cleopatra was officially designated as queen and associated with Juba in the rule of *Mauretania* – a privilege that clearly recalled the Egyptian dynastic traditions (Coltelloni-Trannoy 2003, 3926). Her name, written in Greek (ΚΛΕΟΠΑΤΡΑ ΒΑCΙΛΙCCΑ, with the peculiar lunate sigma), can be found on the reverse of coins with the Latin formula REX IVBA on the obverse (Mazard 1955, 108-20, nos. 297-374; Grenier 2001, 103-5). In other cases, her name is repeated on both sides without that of her husband (Mazard 1955, 125, nos. 392-5). When the marriage of Juba and Cleopatra was celebrated under the auspices of Rome, the establishment of an allied royal dynasty in *Mauretania* was ensured, with mutual benefits for both the parts (Brett and Fentress 1996, 43-6; Coltelloni-Trannoy 1997, 33-45).

During these years, the concept of itinerant royal court was probably maintained and various towns must have hosted palaces of the king. According to a recent hypothesis, the structures of the "quartier des temples" in *Lixus*'s monumental district are to be re-interpreted as a royal palace of Juba (Aranegui Gascó and Mar 2009; 2010, 240-52; Aranegui Gascó 2012). However, both the suggested chronology and several details of the palace's reconstructed plan are questionable, since they contradict the archaeological and architectural evidence visible on the ground (Mugnai 2013, 168; Papi 2013, 804-7; see Chapter 7). On the other hand, it would not be surprising if such a complex existed at *Tingi*, although the almost total loss of archaeological evidence within the modern city of Tangier prevents us from advancing any further speculation. It is plausible that *Volubilis* was a town where the king had one of his residences. Excavations have brought to light some (scarce) evidence of a construction phase of this period under the third century structures of the so-called "palace of Gordianus". However, these discoveries alone are not sufficient to prove the existence of a royal palace (Thouvenot 1958, 41-4; Jodin 1987,

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159-63) and nothing seems to justify the identification of *Volubilis* as a *regia Iubae*, a capital of the Mauretanian kingdom (this hypothesis was first advanced by Carcopino 1935; 1943, 167-90; *contra* Gascou 1978, 121-4; Christol and Gascou 1980; Coltelloni-Trannoy 1997, 81-8; 2003, 3929-30; see also the observations in Chapter 4).

It is unquestionable that one main political centre existed and it served as the official capital of the kingdom: *Caesarea*. This town was an *ex novo* creation, which replaced the previous settlement of *Iol* in eastern *Mauretania* (depicted as "*aliquando ignobilis*" by Pomponius Mela, *Chorographia*, I.30). The choice of the name *Caesarea* was a direct tribute to Juba's patron, Augustus. We cannot outline the evolution of its juridical status across this period, but we know that it was promoted to *colonia honoraria* at the time of Claudius (Pliny, *Naturalis Historia*, V.1.20: "*Caesarea, ante vocitatum Iol, Iubae regia a Divo Claudio coloniae iure donata*").

The urban layout is not entirely known, because the ancient ruins lie today under the modern town of Cherchel. However, some archaeological evidence is still visible on the ground (Fig. 3.4). Both the models of Rome and Alexandria certainly influenced the planning of *Caesarea* (Amedick 2012, 33-6), although Roman building traditions seem to be more marked than the Hellenistic ones (Coltelloni-Trannoy 1997, 149-50). The theatre, placed in a central position of the town, shows the typical features of the Italic theatres: semi-circular *orchestra* and linear *frons scaenae* (Leveau 1984, 33-6; Coltelloni-Trannoy 1997, 151-3). This building, together with the amphitheatre (Leveau 1983, 349-51; 1984, 36-9), can be dated to the main construction phase under the reign of Juba (Golvin and Leveau 1979, 832; Coltelloni-Trannoy 1997, 151; 2003, 3930-31; Gros 2011, 291; Froning 2012). Other important public buildings, belonging to later phases, are the aqueduct – showing construction phases of the first and second century AD (Leveau and Paillet 1976, 150-3; Leveau 1984, 57-63) – and the thermal complexes (c. end of the second – beginning of the third century AD: Leveau 1984, 51-55; Thébert 2003, 191-4). A portion of the forum has been discovered, but the results of the excavations suggest that the complex should be dated to the Severan era (Benseddik and Potter 1986; 1993, 376-7; Potter 1985, 461-2; 1995, 32-4; Walker 1990, 139-40). Therefore, one cannot exclude either the possibility that this complex might represent an enlargement of the previous forum of Juba (Benseddik and Potter 1993, 376), or that the original forum should be located someplace else in the town (Leveau 1984, 40-2).

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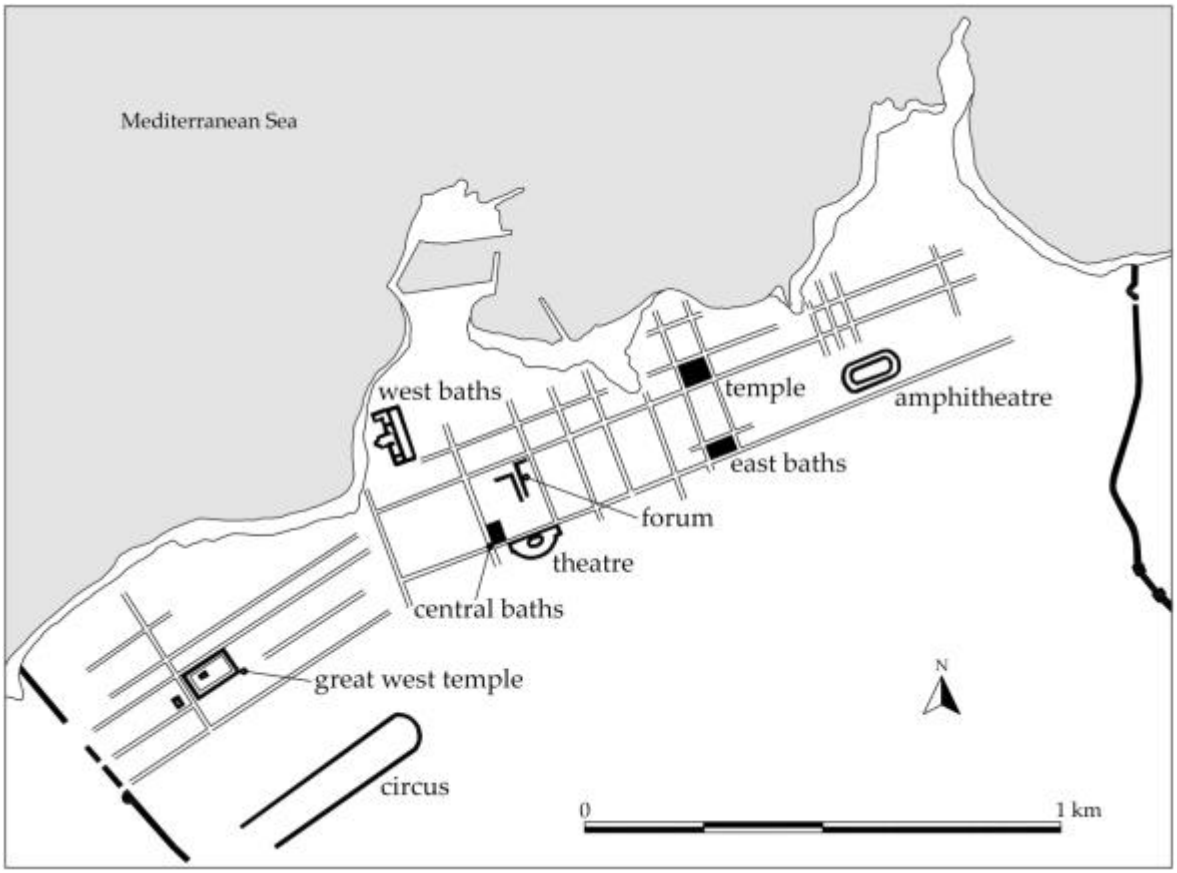

Fig. 3.4. Plan of *Caesarea* with location of known ancient buildings

Caesarea is also a context of primary importance for evaluating the development of architectural decoration and Roman official art in the early Empire. When Juba founded his capital, skilled stonemasons from Rome moved there together with the precious marble of *Luna* (Pensabene 1982b, 119; 1986, 297). This was the material employed for carving the majority of capitals, bases and entablatures dated to the period of Juba and his successor Ptolemy (Pensabene 1982a-b; 2004, 428-30). Though little is known about their original setting, the Corinthian capitals of *Caesarea* have provided remarkable information on the decorative traditions of this period. Together with the evidence from Rome, Ostia, Aquileia (Heilmeyer 1970; *Scavi di Ostia* VII; Cavalieri Manasse 1978), and other sites of Latium (Mesolella 2012) and Gaul (Gros 2004), they have contributed to improving our understanding of their stylistic evolution across the late Republic and the Augustan/Julio-Claudian eras (Pensabene 1982a, 20-33, 69-71). The close resemblance these pieces bear to the capitals and entablatures of the forum of Augustus and the temple of Mars Ultor (Figs. 3.5-6) (Ganzert 1996, 151-8), the temple of Castor and Pollux (Strong 1962, 12-8; Sande 2008, 147-76), and the basilica *Aemilia* in Rome (Lipps 2011, 63-70), is relevant for

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evaluating the power of prestigious stone decoration in a provincial context (Zanker 1990, 297-333; Pensabene and Gasparini 2015, 97-8). On the one hand, official decoration served as a means to spread the propaganda and adhesion to Roman ideology promoted by Augustus on *Mauretania* and on the rest of North Africa. On the other, Juba – and his son Ptolemy after him – took advantage from this situation to present himself as a second Augustus in front of his people, and thus to legitimate the power he had achieved over *Mauretania* from his patron (Pensabene 1982a, 69; Coltelloni-Trannoy 1992, 76-7).

Fig. 3.5. Marble Corinthian capitals. Left-hand side: *Caesarea*, west baths; right-hand side: Rome, forum of Augustus, temple of Mars Ultor

Fig. 3.6. Marble cornice blocks. Left-hand side: *Caesarea*, west baths; right-hand side: Rome, forum of Augustus

The urban layout and the rich decoration of *Caesarea* attest to the adoption of a Roman lifestyle by the king and the local élites. The model proposed by this town aimed at advertising the (more or less evident) penetration of Roman culture in the African land of *Mauretania*: to explain this role, the appropriate phrase of "ville vitrine" has been used (Leveau 1984, 24). Although almost nothing can be said about *Tingi* at this same stage, it

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seems that western *Mauretania* did not have a leading centre that could resemble *Caesarea* in promoting Juba's (and Augustus's) propaganda. However, this task was accomplished through the diffusion of Hellenistic art and decoration. The bronze portrait of Juba recovered at *Volubilis*, now displayed at the Musée Archéologique de Rabat, is an excellent example (Boube-Piccot 1969, 69-75, pls. 1-6; Fittschen 1979a, 213-4, pl. 58). Another smaller piece, made of Pentelic marble, comes from *Sala* (Boube 1966a; Landwehr 2007, 74, 99, fig. 11). Bronze statuary, vessels and components of domestic furniture have been found in many Moroccan sites (Boube-Piccot 1995, 72-3; 2014; for a comprehensive catalogue see Boube-Piccot 1969; 1975). Hellenistic motifs, joined with Punic traditions, were a peculiar feature of the production of Corinthian and composite capitals at *Volubilis* in the following centuries (see Pensabene 2011). Finally, the iconographic repertoire of Juba's coinage was closely bound to the themes of power and Augustan propaganda: the Capricorn, the *cornucopia*, the royal eagle, the temple (or *curia*), the Victory and the triumphal trophies, are all symbols recalling the concepts of *pax Augusta* and dominion over the *orbis terrarum* (Fishwick 1985; Coltelloni-Trannoy 1997, 166-8). One should observe that the same iconography was adopted for the coinage of other peripheral territories, such as *Britannia*, where the establishment of royal dynasties allied with Rome played a key role as in *Mauretania* (Creighton 2000, 92-125, fig. 4.12; Mattingly 2007, 69-74).

Apart from these social and political achievements, Juba's reign also witnessed revolts of local peoples, in particular along the border between *Mauretania* and *Numidia*. A first uprising was caused by the *Gaetules* in 20-21 or 20-19 BC, extended to the *Garamantes* in the Sahara, and was suppressed after a military campaign led by L. Cornelius Balbus (Briand-Ponsart and Hugoniot 2006, 50-1). A more lasting pacification was gained only through the intervention of Cornelius Lentulus Cossus in AD 6, who might have been aided by Juba himself (Coltelloni-Trannoy 1997, 48-9). After a short period of calm, more revolts took place following the death of Augustus. This social instability characterized the last years of Juba's reign and beyond (Roller 2003, 106-14).

When Juba died in AD 23, the kingdom passed to his son Ptolemy. This line of direct succession had been approved and authorized by Rome even before Juba's death, and for this reason Juba had associated Ptolemy in the government of *Mauretania* since AD 19 (Coltelloni-Trannoy 2003, 3937). When he was confirmed as king in AD 24, Ptolemy

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inherited the title of *rex socius et amicus* (Tacitus, *Annales*, IV.24-6). The characteristics of his reign can be described as a continuity of Juba's, since his practice of power was equally inspired by loyalty towards Rome. At the same time, he took care of completing the major buildings at *Caesarea* and in the other towns. The penetration of Hellenistic and Roman culture in this territory was as marked as in the previous years (Boube 1990b, 356-9; Coltelloni-Trannoy 1997, 153, 161-6).

Ptolemy, however, did not have the same authority as his father and the exercise of power over *Mauretania* was more problematic. This is reflected in the outbreak of inner revolts and their outcome. Following the unrest started by the rebel Tacfarinas and the *Musulamii* in AD 17, later joined by the *Gaetules* and *Garamantes*, the Mauretanian peoples profited from the situation to revolt against Ptolemy's installation (see Brett and Fentress 1996, 46-7; Coltelloni-Trannoy 1997, 50-3; Briand-Ponsart and Hugoniot 2006, 53; Le Bohec 2013, 57-9; Wolff 2014).

These events and the negative portrait depicted by ancient authors have contributed to creating the image of Ptolemy as a weak king in the majority of modern literature (for a review of this subject see Gozalbes Cravioto 2005a, 190-1). As far as we are allowed to know from Roman sources, it seems that he was more interested in luxuries than in the government of his kingdom, and perhaps too young and naive to carry out this task (Tacitus, *Annales*, IV.24: "*Ptolemaeo, Iubae filio, iuventa incurioso*"). This "inexperience" has also been used to explain – rather unconvincingly – the course of actions which led to his death in Lyon (AD 39/40) on orders of Caligula. However, many aspects of Ptolemy's assassination are unclear (Gozalbes Cravioto 2005a, 199-203). Suetonius says that the murder was motivated by Caligula's jealousy for Ptolemy's ostentatious purple mantle (*Caligula*, XXXV.2). More realistically, the reason could be the emperor's suspicion of his involvement, together with other members of the royal family, in the conspiracy of Lepidus and Gaeticulus (Fishwick 1971, 472-3; Fishwick and Shaw 1976; Coltelloni-Trannoy 1997, 58; see also Lenoir, M. 2001). This explanation is the most reasonable, if considered in a broader political sense (Vanacker 2013b, 739-40; Aït Amara 2014, 72-4). The client kingdom of *Mauretania* was only a temporary solution adopted at the time of Augustus and the incorporation of this land into the Imperial domain was only a matter of time (Gozalbes Cravioto 2005a, 200-1). Therefore, Caligula had an excellent opportunity to achieve a double goal: to annex a new territory, which meant personal glory for the

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emperor in front of the Roman state, and to get rid of anyone who could have tried to plot against him – even if only in the emperor's mind.

Following Ptolemy's death, *Mauretania* was taken into direct control by Rome. The annexation of this land was the last piece of a puzzle that enabled Rome to gain full control of the North African continent (Briand-Ponsart and Hugoniot 2006, 55). From a juridical standpoint, this transition of power from a client king to the Roman emperor was presented as a legitimate inheritance, given that both Caligula and Ptolemy shared the same ancestor in Mark Antony (Papi and Vismara 2002, 23).

THE REVOLT OF AEDEMON (AD 40-41)

Despite the acquisition of *Mauretania*, its provincial organization had to be postponed for a couple of years. After the episode of Lyon, a new uprising burst out involving the Mauretanian peoples under the leadership of Aedemon (Coltelloni-Trannoy 1997, 60; Vanacker 2013a, 714). There is still an air of mystery about him, due to the fact that we have little historical information. Only Pliny provides an account of the events that took place at this time, stating that Aedemon was a freedman of Ptolemy and that he led the insurrection to avenge his patron's murder (Pliny, *Naturalis Historia*, V.1.11: "*Ptolemaeum regem a Caio Caesare interemptum ulciscente liberto Aedemone*"). It seems that Aedemon had an important role at Ptolemy's court, being perhaps one of his main ministers (Gascou 1985, 165). However, it is not clear what were the real purposes from which the revolt originated: just to avenge the murdered king, as Pliny says, or to try a coup d'état against Rome? Moreover, we do not know how many men fought alongside Aedemon. Given that Ptolemy was not loved by all the peoples of *Mauretania*, it has been suggested that Aedemon could count only on a small number of rebels (Fishwick 1971, 474-8; see also the remarks in Vanacker 2013a, 709). There is also a lack of evidence to understand whether the revolt had any significant effects on eastern *Mauretania* (Coltelloni-Trannoy 1997, 61-2; 2014, 90-1; Vanacker 2013a, 713).

On the other hand, the consequences of this uprising in western *Mauretania* were quite hard. An inscription from *Volubilis* (*IAM* 448), dated post AD 54, provides additional details to Pliny's narrative (Cuq 1918; 1920; Chatelain 1944, 143-50; Lenoir, M. 1989; Panetier 2002, 48-51). It is a honorific base found in the forum (Fig. 3.7) and dedicated to

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M. Valerius Severus, son of Bostar, who commanded a unit of local auxiliary troops in the war against Aedemon: *praef(ecto) auxilior(um) adversus Aedemo/nem oppressum bello* (lines 6-7). The base records the benefices obtained from the deified emperor Claudius. First of all, the grant of Roman citizenship was made to the inhabitants of *Volubilis* (i.e. the promotion to *municipium*: Gascou 1982a, 148-50). Then came the acknowledgement of their marriages and the exemption from paying the *tributum* for ten years (lines 11-14: *civitatem Ro/manam et conubium cum pere/grinis mulieribus, immunitatem / annorum X*). New dwellers were sent to the town (line 14: *incolas*) in order to overcome the recession caused by the war. Finally, the local ruling class obtained the right to claim the possessions of those citizens who had died in the war without leaving any heirs (lines 14-16: *bona civium bel/lo interfectorum quorum here/des non extabant*).

Fig. 3.7. Base of M. Valerius Severus at *Volubilis*, with close-up detail of the text

Although the insurrection lasted for only six to nine months, the text of this inscription suggests that *Volubilis* and its hinterland suffered damage (Coltelloni-Trannoy 1997, 61). However, it is difficult to determine the real extent of these events without precise archaeological information. According to a survey carried out in the countryside, it seems that some rural sites were abandoned at this time, although some others witnessed a continuity of occupation through the Roman era. These remarks, however, are based on the chronology of the surveyed pottery (Akerraz and Lenoir 1990, 228-9), and it is difficult

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to draw broader historical conclusions from this limited set of data alone. As to *Volubilis* itself, the hypothesis of a siege of the town with subsequent massacre of the population (Gascou 1978, 113) does not find any confirmation in the archaeological record (Lenoir, M. 1989, 101-2). Traces of burning have been identified in layers dated to between the pre-Roman period and the age of Claudius in a test-pit near "temple C" (Euzennat 1957a, 51; see also Majdoub 1994, 286). However, trying to relate this limited evidence to the effects of the revolt is just a matter of speculation (see Chapters 4 and 8).

Arguments in support of a widespread war across western *Mauretania* have been advanced by looking at the archaeological discoveries in some northern sites. Again, one must be careful when evaluating these data. The temptation to link together traces of disruption in the archaeological record with broader historical events can be misleading (Rebuffat 2001a, 39). In the countryside around *Tingi* some settlements and farms were likely abandoned (but then reoccupied), judging by layers of burning and pottery dated to this period (Ponsich 1964a, 240, 244). However, as for *Volubilis*, even if a temporary disruption is documented, it is not sufficient to prove a direct correlation with Aedemon's revolt. We do not know if *Tingi* was involved at all in the war, or if traces of destruction can be identified within the urban walls. The grant of the status of *colonia honoraria* by Claudius could be explained as a possible consequence of the town's loyalty to Rome (Hamdoune 1994; 2011, 52), but one can also remark that this promotion could simply be related to the provincial organization (see *infra*).

At *Lixus* traces of burning have been found in sondages across the site and this was initially explained as a consequence of the war (Tarradell 1954a, 343-4; 1959, 38; 1960, 159). The extent of this destruction has been questioned more recently, since the monumental district does not show any disruption, or traces of abandonment, until at least the third century AD (Lenoir, M 1992, 272-3). It has also been argued that the status of *colonia* granted to *Lixus* by Claudius (Pliny, *Naturalis Historia*, V.1.2: "*colonia a Claudio Caesare facta*") could imply a colonial deduction after the damages suffered by the town, with the arrive of new dwellers (Gascou 1981, 228). This suggestion, however, is now generally discarded. It seems more likely that *Lixus*, like *Tingi*, was promoted to the rank of *colonia honoraria* (Hamdoune 1994; 2011, 52).

On the other hand, the archaeological evidence from *Tamuda* is much more compelling. Judging by the architectural remains, the numerous layers of burning all over

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the site and the chronology of the pottery, we know that the town was completely destroyed and deserted at this stage, perhaps as a sort of *damnatio memoriae* for taking Aedemon's side. A military fort replaced the civilian settlement in the Roman period (Tarradell 1960, 118-9). This building was originally believed to date to Trajan/Hadrian's reign (Lenoir, M. 1991, 361), but recent archaeological research dates the construction to the time of Claudius (Bernal Casasola *et al*. 2012, 2465). It also underwent continuous restorations throughout the second-third centuries AD (Gozalbes Cravioto 2009, 1576-81; Bernal Casasola *et al*. 2012, 2469).

Unfortunately, we do not know who was initially at the head of Rome's forces during the suppression of Aedemon's revolt, nor which troops from other regions of North Africa (or from Spain?) were summoned and moved to *Mauretania*. Another uprising, led by the Berber chieftain Salabos, took place in the pre-Saharan zone in AD 41-42 and it might have reached the Atlas mountains as well. Two generals, C. Suetonius Paulinus and Cn. Hosidius Geta, were successively in charge of the military operations and they both celebrated a triumph. However, the information provided by ancient authors is rather contradictory and it seems that Aedemeon's and Salabos's insurrections happened at different times (Coltelloni-Trannoy 1997, 64). It is generally accepted that the war was already concluded with Rome's victory at the beginning of AD 41, and that Aedemon himself had died during the conflict (Fishwick 1971, 480).

THE ROMAN PROVINCIAL ERA (FIRST TO THIRD CENTURY AD)

The conclusion of the hostilities gave Rome full control of the territory. Claudius was now emperor after Caligula's murder, and, after taking care to conclude the war, he inherited the province of *Mauretania* from his predecessor. Still it was necessary to evaluate what kind of political organization would suit this region best. With his attention split between the reformation of Rome's central bureaucracy and the planning of the imminent conquest of Britain (Le Glay *et al*. 2009, 285-6), Claudius opted for a division that lasted until the Vandal invasion. Two provinces were created: *Mauretania Tingitana*, corresponding to the western portion up to the Atlantic coast, and *Mauretania Caesariensis*, spanning eastwards as far as the *limes* with *Africa Proconsularis* (Romanelli 1959, 266-7; Papi and Vismara 2002, 23; Le Bohec 2013, 60). The exact date of the division is not clear – maybe in AD 42, or at

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some point in 43 (Fishwick 1971, 480-4; Coltelloni-Trannoy 1997, 64, and note 64). The border between the two provinces was established along the river Moulouya, recalling the ancient division between the kingdoms of Bogud and Bocchus.

The name attributed to the provinces derived from the respective capitals, *Tingi* and *Caesarea*, which were promoted to *coloniae honorariae* at this time (see *supra*; Leveau 1984, 90; Hamdoune 1994). Through the content of a fragmentary inscription from *Tingi* (*IAM* 6) and a brief passage of Pliny (*Naturalis Historia*, XIII.95), we know that these territories were also named *Mauretania ulterior* (*eademque Tingitana*) and *Mauretania citerior* (*eademque Caesariensis*). This argument was advanced after the revision of a previous hypothesis by Carcopino (1943, 181-6), who had suggested that western *Mauretania* was divided in two parts: *Mauretania ulterior* and *Mauretania Tingitana* (see Romanelli 1959, 267-8; Desanges 1960; Coltelloni-Trannoy 2011, 96-7).

Carcopino was also the first to propose that *Volubilis*, instead of *Tingi*, was the *de facto* capital of *Tingitana*, giving thus continuity to its putative role as *regia Iubae* (Carcopino 1935; 1943, 176-90). This suggestion is now almost unanimously rejected (see Gascou 1978, 121-2; Ghazi - Ben Maïssa 1994, 260-1; Coltelloni-Trannoy 1997, 81-8; Lassère 2015, 487) on the basis of various counterarguments. Firstly, we are prevented from having a clear understanding of *Tingi*'s urbanism, for the ancient town has been swallowed by modern Tangier. Therefore, a palace of the governor, such as the putative one at *Volubilis*, might have existed at *Tingi*. Secondly, *Volubilis* was only a *municipium* at this stage, while *Tingi*, like *Caesarea*, was a *colonia* – a status more likely to be attributed to a provincial capital (see the observations by Gascou in *IAM*, 18). Finally, the location of *Volubilis* in the deep hinterland of the province was not the best choice to guarantee easy communications between the governor and Rome. In contrast, *Tingi* (again, like *Caesarea*) had a convenient harbour on the Mediterranean coast.

A further confirmation of *Tingi*'s importance in the Roman era might come from the presence of imported marble decoration, which is instead absent at *Volubilis*. Among the finds recovered in the late nineteenth- and early twentieth-century excavations are a head of the emperor Galba and a female statue dated to Trajan's reign (Chatelain 1935; 1944, 39-43; Ponsich 1970, 245-6, pls. 77-8; 1982a, 808, pls. 18-9). According to some brief reports, numerous Corinthian capitals and columns of remarkable size were unearthed, probably belonging to a temple (see Ponsich 1970, 242; 1982a, 807), although only two capitals are

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still kept in the local Musée de la Kasbah. One of them is a roughed-out piece with smooth leaves (c. second century AD); the second clearly belongs to the Roman official style of late Flavian tradition, diffused all over the most important centres of North Africa through the mediation of Carthage (Pensabene 1986, 364-7; 1989, 432, 437; see the remarks in Chapter 8).

Both *Mauretaniae* were designated as procuratorial provinces. Each was administered by a *procurator Augusti* who could be recruited either from the equestrian order or from the military *primipilares* (Magioncalda 1989, 34; Spaul 1994c, 255). When looking at the *cursus honorum* of the known governors, one understands that the office in *Caesariensis* was more prestigious than the respective one in *Tingitana* – the latter being listed among the first titles of the ascending career, and always before the office in *Caesariensis* when the *procurator* governed successively in both provinces (Magioncalda 1989, 53-4, 71-9; see also Magioncalda 2006 for a recent update of the epigraphic evidence). Though debatable and not unanimously accepted, the two provinces might have been reunified under the rule of a single governor (*procurator utraeque Mauretaniae*) for a limited time between AD 202 and 211 (see *CIL* VIII 9366, 9371 from *Caesarea*; *IAM* 354 from *Volubilis*; *Thamusida* III, 139; Magioncalda 1989, 63-4).

The geographical distinction between *Tingitana* and *Caesariensis* determined also a separate historical course. Very little is known about inland connections. Some authors have supported the idea that such a road system existed and was constantly used in the Roman period (Carcopino 1943, 233-44), while others have questioned this possibility (Marion 1960a, 447). So far no convincing archaeological evidence has been found on the ground, and the existence of roads crossing the border and connecting the two lands through the Taza Gap has been generally discarded (Shaw 2006, 9-10). On the other hand, the presence of beaten tracks, still invisible archaeologically, cannot be excluded (Thouvenot 1962; Rebuffat 1971, 52-4): such a system of ground communications has been recognized, for instance, in the hinterland of *Tingitana* connecting the two main roads together (see *infra*). However, it is likely that most of the movements between the two provinces, and especially between the respective capitals, occurred chiefly by sea following the maritime route mentioned by the *Itinerarium Antonini Augusti* (Hamdoune 2002, 1431). Long distances, insecurity, and the possible presence of raiders in the vast region at the border of *Tingitana* and *Caesariensis* could also represent an obstacle for safe

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travel. For this reason we can assume land communications were used more seldom (Coltelloni-Trannoy 1997, 76-8).

The problem of inland itineraries is also connected with the open question about the existence of settlements in the area set between *Volubilis* and the border with *Caesariensis*. Scattered finds which might provide clues about Roman presence in this zone come from a spot along the oued Bou Hellou (c. 50 km east of Fez): a fragmentary inscription dedicated to the *Victoria Augusta* (*IAM* 841), two Corinthian capitals, an Attic base and a few other moulded stone blocks (Rebuffat 1971, 41-3; Euzennat 1978). It is not clear, however, whether these are *in situ* finds or not. Even if this portion of the hinterland was not wholly uninhabited, the distribution of urban sites in *Tingitana* was concentrated mainly in the eastern sector of the territory, closer to the Atlantic coast, with *Tingi* facing the Strait of Gibraltar.

Thanks to the analysis and revision of the distances between towns reported by Pliny and the *Itinerarium Antonini*, it has been possible to reconstruct the viability of the routes and the location of the main centres in the province (Fig. 3.8) (see Euzennat 1962; Rebuffat 1967). Going down from *Tingi*, the road reached the post station of *ad Mercurios* or *ad Mercuri templum*, where it was split into two separate roads (Lenoir, M 1993; see also Akerraz and El Khayari 2000, 1645-8): a western itinerary which followed a route closer to the Atlantic coast, leading south to *Sala* and to the last outpost of *Exploratio ad Mercurios* (Khedis: see Akerraz 2002); and an inland itinerary which reached *Volubilis* and the military site of *Tocolosida* (Bled Takourart: Euzennat 1989, 240-55). As already mentioned above, there were also secondary roads that linked the two main itineraries, such as the tracks identified in the Gharb valley north of *Thamusida*, which led to *Gilda* and to Sidi Saïd (Akerraz *et al*. 1995, 239-59; see also Camporeale 2008a, 155-6 on the possible use of these tracks for the transport of building materials in the area between *Sala*, *Volubilis*, *Banasa* and *Thamusida*). *Tingitana*'s road system had a quite simple layout, but nonetheless it was well-structured, since it enabled communications along the north-south and east-west axis – the larger gap being only in the south of the province between *Sala* and *Volubilis*, although the existence of secondary tracks in this part should not be excluded *a priori*. This suggests that the idea of towns which were "few in number, adumbrated in size and extent, and isolated from each other" (as indicated by Shaw 1986, 69) should be somehow revised.

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Fig. 3.8. Location of towns, post stations and main itineraries in *Mauretania Tingitana*, according to the *Itinerarium Antonini Augusti*

The mid-first to early third centuries AD witnessed the most notable phases of urban development across the province (Fig. 3.9). As pointed out, *Tingi*'s urbanism is far from being wholly understood. The forum area may coincide with the "petit Socco" square in Tangier's medina, and this identification would also enable us to locate the *decumanus maximus* (Ponsich 1970, 241-5; 1982a, 807-8). Not far distant from the Great Mosque, an imperial inscription was found at the end of the nineteenth century (*IAM* 5; Buchet 1906, 19), together with the foundations of a large building, and numerous columns and capitals perhaps suggesting the presence of a temple (Chatelain 1944, 38-9; Ponsich 1970, 242; 1982a, 808-9). Excavations have generated more precise information about the gates and necropolis, and this has given us at least an idea of the limits and extension of the ancient town (Ponsich 1970, 230-41).

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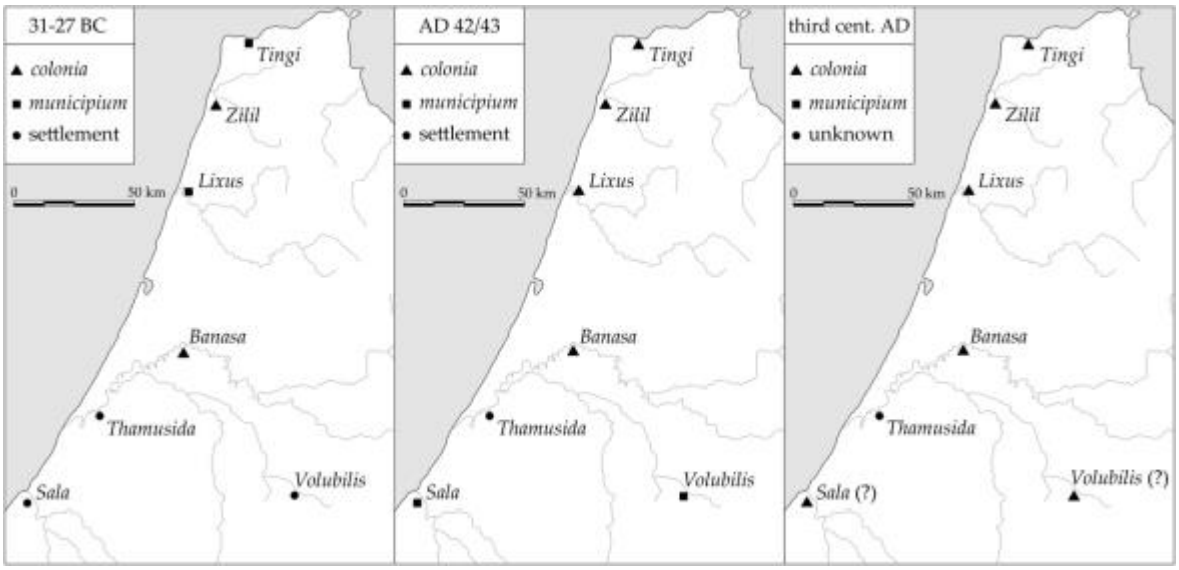

Fig. 3.9. Evolution of the juridical status of towns in *Mauretania Tingitana* from the first century BC (late Mauretanian era) to the third century AD (Roman provincial era)

The Roman period has not been the main focus of attention at *Lixus*, and that is why this time-frame has been ironically referred to as a "belle endormie" (Lenoir, M. 1992, 271). However, the major building phases of the so-called "quartier des temples" should date to the second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164-6). A similar chronology can be attributed to the *domus* of Mars and Rhea and to the *domus* of Helios, located in the upper part of the hill (Tarradell 1959, 60-2; Lenoir, M. 1992, 275-6). The dating of the amphitheatre is more controversial: it is either attributed to the beginning of the first century AD, during Juba's reign (Ponsich 1979, 321); to c. AD 70-120 (Lenoir, M. 1992, 278); or to the end of the third century AD (Hallier 2003, 372). The third option seems the least acceptable, while a chronology in the mid-imperial age is more convincing (see Pichot 2012, 111). Equally uncertain is the dating of the baths annexed to this building, and it is debated whether they predate the construction of the amphitheatre or *vice versa* (Lenoir, E. 1992, 292-5; Thébert 2003, 261-3; Pichot 2012, 112). The original circuit of the city walls should probably date to the first century BC, with enlargements carried out throughout the Roman era (Ponsich 1982b, 844-5; Lenoir, E. 1992, 289-92).

Banasa underwent important changes that transformed the look of the military colony founded by Octavian. The forum was entirely re-built in the early second century AD (Thouvenot 1954b, 16), and is regarded as an example of tripartite "Lagerfora" (Euzennat and Hallier 1986, 78-82; Gros 2011, 221). It includes a central piazza with colonnades on

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the long sides, a basilica, and a temple with seven *cellae* (originally composed of three *cellae* only) (Brouquier-Reddé *et al*. 2004). Along the *kardo maximus*, not far distant from the forum, one finds the "maison à la mosaïque de Venus" with its majestic entrance: a chronology around the third century AD was initially proposed, but more recent research, and the analysis of its architectural decoration (►**Ban 2.23-25**), would suggest a dating in the first half of second century (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203). Other important buildings are the "thermes du nord", the "petits thermes de l'ouest", the "grands thermes ouest", and the "thermes aux fresques" – these latter dating to the mid- or late second century AD (Arharbi *et al*. 2001, 149; Thébert 2003, 257-8). In the north-west district is a large building interpreted as a "*macellum*", though its identification is debated (Thouvenot and Luquet 1951c, 96-7). A residential quarter developed in the northern sector (Thouvenot 1954e), while the north-eastern sector was occupied by productive installations (Thouvenot 1954c).

Although its urban layout is not as comprehensively known as that of *Banasa*, *Zilil* – the second known colony of Octavian – was involved in important construction works throughout the late first to early third century AD. The large temple in the middle of the town's upper terrace, perhaps built in the early Augustan period, was re-arranged and enlarged in the mid-first century AD and in the second half of the second century (*Zilil* I, 9; Lenoir, E. 2005, 69). The public baths on the lower terrace were built at the end of the first century and enlarged in the second century AD, also showing some building phases datable to the Severan period. To the mid-second century AD we can also attribute the construction of a cistern that supplied the baths with water (Lenoir, M. and Lenoir, E. 1997, 1118; Lenoir, E. 2005, 69-70). The city walls date to the second half of the second century (*Zilil* I, 9), although they were restored at later stages. Finally, three *domus* show a plan similar to that of other residential buildings in *Tingitana*, perhaps datable to between the mid-second and the early third centuries AD (Papi 2004-05, 331; Lenoir, E. 2005, 70).

In the south of the province, *Sala* was probably promoted to *municipium* during the reign of Claudius together with *Volubilis* (see *infra*). This hypothesis is based on the fact that the *Claudia* voting-tribe, granted for the first time by the emperor to the citizens of *Volubilis*, is also mentioned in various inscriptions from *Sala* (Marion 1950; Gascou 1991; Boube 2009; Coltelloni-Trannoy 2001, 148). A paved piazza was added in front of "temple A", possibly around the end of the first or early second century AD. Then, throughout the

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first half of the second century, other public buildings were progressively erected: the *capitolium*, dedicated at the beginning of Hadrian's reign, c. AD 120 (Boube 1990a, 240; Quinn and Wilson 2013, 151; *IAM* Suppl. 861); the so-called "basilica/*curia Ulpia*" complex with annexed *nymphaeum* (Boube 1999, 18); the baths near the forum (Boube 1999, 18; also showing later phases: Thébert 2003, 348-9); and the triumphal/honorific arch set between the *capitolium* and the "basilica/*curia Ulpia*". The inscription of M. Sulpicius Felix (*IAM* 307) provides some clues about the construction of the city walls in AD 144 (Rebuffat 1974b, 501-6; 1994, 187; Boube 1979-80, 128-30; see also Harmand 1966; Pons Pujol 2012; 2013). The presence of the formula *munic*(*ipii*) *Sal*(*ensis*) in the text also confirms that the town was a *municipium* when the inscription was dedicated. At the beginning of the third century, the *Itinerarium Antonini* mentions the name *Salaconia*, interpreted as a corruption of *Sala colonia*, but so far no further evidence has been found to support the hypothesis of a status promotion, or when it occurred (Boube 1999, 13).

The urban layout of *Volubilis* was enhanced throughout the provincial period. The major building phases of the forum date from the mid-late first century AD onwards, and culminated with the majestic works during the reign of Septimius Severus and Caracalla (Akerraz *et al*. 1987b, 212-9). To this last stage we can date the construction of the *capitolium* with the annexed piazza and *porticus* (AD 217: Barton 1982, 321; Risse 2001, 44; Camporeale *et al*. 2008, 290; Quinn and Wilson 2013, 160; *IAM* 355), of the basilica (c. AD 210 to 216/217: Euzennat 1956, 334; Luquet 1967, 408; Risse 2001, 37-8; Gros 2011, 257), and of the arch of Caracalla (AD 216/217: Risse 2001, 52; Camporeale *et al*. 2008, 290; *IAM* 390-1). A progressive development from the late first century AD to the third century can be traced in the south-west sector (Cartocci 2002, 78) and in the north-east residential district (for the proposed chronologies, and revisions, see: Étienne 1960, 143-50; Rebuffat 1968; Akerraz 1987; Makdoun 1994; 1996; 1999; Ichkhakh 2006, 2210-5; Es-Sadra 2008, 473-4). The city walls date to the reign of Marcus Aurelius and Lucius Verus (AD 168/169: Rebuffat 1974b, 510-2; Di Vita-Evrard 1987, 219-20; Camporeale *et al*. 2008, 289-90; *IAM* 382-3). Among the later building activities one must mention the large-scale restoration of the palace of Gordianus, AD 238-241 (Thouvenot 1958, 9; Camporeale *et al*. 2008, 286; *IAM* 404). Like *Sala*, the *Itinerarium Antonini* gives *Volubilis* the status of *colonia*. Although some attempts have been made to verify this information (e.g. Le Bohec 1989, 340, 355, notes 8, 9, 83), no epigraphic evidence can unquestionably confirm when, or if, this promotion was

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achieved. It should also be remarked that Pliny (*Naturalis Historia*, V.1.5) describes both *Sala* and *Volubilis* as *oppida*, while it is known that at least the second was a *municipium* at that time (see *supra*: *IAM* 448).

The economic life of towns in *Tingitana* during the first three centuries of the Empire was rather prosperous. *Garum* was one of the main resources. Numerous factories have been located along the Atlantic coast, such as at *Cotta*, Tahadart, Kouass, *Lixus* and *Thamusida* (Ponsich and Tarradell 1965, 9-77; Pons Pujol 2000, 1254-6; 2009, 100-9), and perhaps some others in the hinterland at *Banasa* (Cerri 2007, 34-5). More productive sites are to be found in *Baetica*, on the opposite shore of the Strait of Gibraltar. This concentration along the Spanish and Moroccan shores assured the western Mediterranean a leadership in the production and trade of salted fish (Cerri 2007, 33-4). The chronology of the factories in *Tingitana* does not seem to predate the Augustan era. However, since ancient authors mention the existence of this industry in the previous centuries, it has been suggested that a major transformation of the productive process and of the factories themselves took place under the reign of Juba II, continuing throughout the Roman period (Ponsich and Tarradell 1965, 114). As shown by amphorae and *tituli picti*, the products of *Tingitana* had a large market. The *tituli picti* bear the names of the two most important productive centres, *Lixus* and *Tingi* (see Cerri 2006; 2007, 37-9). Related to *garum* production was that of purple dye. On the island of Mogador some vats have been found which might have been used in rotation for the manufacturing of both fish sauces and purple (Jodin 1967, 256-7; see also Ponsich 1988, 40-3, 50-5; Cerri 2007, 33). These factories were established during the reign of Juba and continued their activity throughout the provincial era.

Olive oil was another important product of the local economy (Pons Pujol 2000, 1261), although the scale of production and exportations is not comparable with that of *Africa Proconsularis* (Raven 1984, 98-100; Mattingly 1995, 138-40; Hobson 2015). Unfortunately, evidence attesting to the existence of manufactures is not homogeneously distributed in *Tingitana*. Artefacts related to olive pressing have been found at *Thamusida* (Bigi, L. 2013a-c), but no installations have been identified (Pons Pujol 2000, 1264; 2009, 57). Evidence from *Lixus* and *Tingi* is even more scarce (Pons Pujol 2000, 1262-4). Three installations are known at *Sala* (Hansali and Ammar 2010), while at *Banasa* there are 11 establishments (Alaioud 2004, 1901). *Volubilis* had an unparalleled leadership in *Tingitana* for olive oil

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production, with some 68 installations discovered across the site (Akerraz and Lenoir 1981-82; Behel 1996; Lenoir, M. 1996; Pons Pujol 2009, 57-61).

Crops had a major importance too, and granaries can be found at *Banasa*, *Volubilis* and *Thamusida* (Papi and Martorella 2007; Rebuffat 2010). Metals, precious wood, and beasts for circus entertainment were other goods exported from *Tingitana* (Papi and Vismara 2002, 27-34). Wine must have been important as well, according to ancient authors and numismatic sources (Pons Pujol 2009, 87-96); however, this production is still untraceable in the archaeological record (Papi 2010, 690). As to the importations, amphorae, fine wares, glass vessels, metal artefacts and marbles were the main products (Papi 2010, 659). A separate mention should be dedicated to Hispanic sigillata ware, since its spread over *Tingitana* shows the importance of the relationships with *Baetica* (Morel 2006, also on the presence of Spanish amphorae; see also Boube 1965; 1999, 96-104).

With regard to the social background, *Tingitana* was a very heterogeneous context: Roman citizens, auxiliary soldiers enlisted in the provincial garrison, local people, and indigenous peoples living at, and beyond, the borders (Rebuffat 2001a, 46). Political stability was often troubled by more or less widespread insurrections (see *supra*). Apart from the use of military force when inevitable, diplomacy and negotiation were the main instruments employed by Rome to keep the situation under control (Mattingly 1992, 53). The relations between Romans and natives, and the mutual benefits, give us clues to understanding the policy of integration adopted by Rome in this marginal province of the Empire.

A primary source for studying these relationships is the renowned *Tabula Banasitana* (*IAM* 94). This bronze tablet was recovered at *Banasa* in 1957 just outside a small apsidal building, perhaps the local *curia* (Balty 1991, 127-9) on the eastern side of the forum. Given the importance of its content, it is likely that it was displayed in this public space. The inscription has provided important information about the process of enrolment into Roman citizenship of local élites, and the details of the text have been discussed on several occasions (Seston and Euzennat 1961; 1971; Sherwin-White 1973; Williams 1975; Di Vita-Evrard 1988). The *Tabula* collects three documents: (1) a letter of Marcus Aurelius and Lucius Verus, c. AD 168/169, addressed to the provincial governor Coiedius Maximus (lines 1-13), where the joint emperors grant Roman citizenship to Iulianus, a notable of the *Zegrenses* people, and to his wife and sons; (2) a letter of Marcus Aurelius and Commodus,

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AD 176/177, requesting further information from the governor Vallius Maximianus (lines 14-21), which confirms indirectly the grant of Roman citizenship to Aurelius Iulianus, *princeps gentium Zegrensium* (line 16), and to his family; (3) an extract of the imperial register, AD 177, signed by 12 witnesses (lines 22-53), which records the content and beneficiaries of the previous award. The award of Roman citizenship did not change the status of the person within the community (line 13: *salvo iure gentis*), nor any of his juridical obligations (Jacques and Scheid 2008, 271). At the same time it did not recognize any exemption or reduction from the payment of taxes to the Roman state (lines 37-8: *sine diminutione tributorum et vectigali/um populi et fisci*; Sherwin-White 1973, 91-3; Euzennat 1995, 250-1; Le Bohec 2013, 71).

More information about the negotiations between Rome and local peoples comes from the so-called *arae pacis* of *Volubilis* (*IAM* 348-50, 357-61, 376, 384, 402). These consist of a set of 11 inscriptions whose dating ranges from c. AD 170 to 280. Their content follows a standardized formula, also involving religious rituality (Shaw 1986, 71). Some scholars have believed that these inscriptions were set up to record the establishment of peace after recurring ravages carried out by the *Baquates* against the Roman community of *Volubilis* (Sigman 1977, 429-34). Others have preferred a more cautious approach, stating that moments of tension arose only when the *Baquates* were joined by other populations, such as the *Bavares* (Frézouls 1957, 115-6; 1980, 75-82). The most widely accepted idea nowadays is that these altars commemorated the renewal of agreements between Romans and *Baquates*. They were set up when a new leader was elected, and the purpose of the *foedus* was to guarantee the pacific coexistence of the two communities (see, in order: Romanelli 1962, 1364-6; Shaw 1986, 74; Christol 1988, 307-8; Mattingly 1992, 54-5; 2011, 87; Fentress 1993, 370; Euzennat 1995, 249-50; Rebuffat 2001a, 36; Briand-Ponsart and Hugoniot 2006, 251-2; Le Bohec 2013, 69; Hamdoune 2014, 430-1).

The use of diplomacy, however, was not always sufficient. Pliny brings to our attention that *Sala*'s hinterland was menaced by the brigandage of the *Autololes* (*Naturalis Historia*, V.1.5: "*iam solitudinibus vicinum elephantorumque gregibus infestum, multo tamen magis Autololum gente*"). The inscription of M. Sulpicius Felix (*IAM* 307) records that a defence (the city walls) had to be erected to provide protection to the inhabitants (right side of the base, lines 14-5: *municipium infestioribus locis maximo murorum opere minimo sumtu ambiendo*;

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see Rebuffat 1974b, 501-4; Gozalbes Cravioto 2002, 474-5). The construction of walls in other southern settlements (*Volubilis*, *Thamusida*, *Tocolosida*) towards the second half of the second century AD has been often considered as a direct consequence of the growing insecurity across the province (Hallier 1986, 620). There have been attempts to relate this supposed crisis to the revolts which took place in *Mauretania Caesariensis* under Antoninus Pius (Carcopino 1943, 224-8; Bénabou 1976, 144-55), the quelling of which necessitated troops from other provinces being moved temporarily to North Africa (Christol 1981). However, it is now believed that these military operations were limited to the western part of *Caesariensis*, without involving *Tingitana* at all (Rebuffat 2001a, 37; Le Bohec 2013, 69-70). It has also been remarked that wall circuits could rather be a means to enhance the *dignitas* of towns (Rebuffat 1974b, 512-4; 1986b, 351-2). The only known example of walls built because of periodic ravages and insecurity is that of *Sala*. At *Volubilis*, the twin inscriptions recording the dedication of the walls (*IAM* 382-3) simply state that these works were financed by the local citizens: *inpensa pub*(*lica*) *fecerunt* (Rebuffat 2001a, 37-8). Similar considerations apply to the northern sites of the province. There is no information about the walls at *Tingi* and *Zilil*, while the Roman-period circuit at *Lixus* was probably an extension of the previous one (see *supra*).

However, Rome had to put military effort into maintaining her control over the province. A network of military forts and watch-towers was built around the main towns comprised in the triangle *Tingi-Sala-Volubilis* (for an overview see Akerraz *et al*. 1986, 223-38; Rebuffat 1987; 2001a, 39-41; Limane and Rebuffat 1992). The southern border of the *limes*, or at least the portion within *Sala*'s region, was also protected by a linear defence, the so-called "*fossa*" (Rouland-Mareschal 1924; Rebuffat 1979-80; Euzennat 1989, 127-73). Soldiers were a major component of the provincial community. A list of auxiliary troops garrisoned here can be drawn from inscriptions and military diplomas (see Roxan 1973; Rebuffat 1998; Spaul 1994b, 10-1; 2000, 7; Papi 2003b; 2004; Akerraz *et al*. 2008, 288-93). It has been calculated that the total number of soldiers in *Tingitana* between AD 131 and 156/157 should be around 8,480 men (Spaul 2000, 525). According to Le Bohec (2013, 105), they were reduced – rather unlikely – to 5,000 men, while for Brouquier-Reddé and Lenoir (2005, 81) the estimated number is raised to up to 10,000.

The establishment of forts determined the development of civilian settlements nearby (*vici*). Such is the case of *Thamusida*, where the fort was built in the second half of the first

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century AD (Camporeale 2011, 173) and the other buildings – *insulae*, temples, granaries, baths, and a *domus* – belong to successive phases (Camporeale 2008a, 131-8). We know that *cohors II Syrorum* (*milliaria equitata sagittaria civium Romanorum*) was probably the first unit garrisoned here (Marion 1960; Akerraz *et al*. 2008, 275-7; Camporeale 2008b, 203-4, fig. 6, no. 6), then replaced by *ala Gemelliana* in the mid-second century AD (Akerraz *et al*. 2008, 277-8; Camporeale 2008b, 201-3, figs. 4-5, no. 5; Mugnai 2011, 302-3; Mugnai *et al*. 2013, 371, 380). Although *Thamusida* is undoubtedly the best known military site of *Tingitana*, similar settlement patterns can be recognized also at Aïn Schkour (Euzennat 1989, 255-74, 309-29) and *Tocolosida* (Euzennat 1989, 240-55, 293-309).

TINGITANA IN LATE ANTIQUITY (END OF THE THIRD TO SIXTH CENTURY AD)

Our knowledge of Late Antique *Tingitana* is, sadly, evanescent. It suffers from a gap in the archaeological record, due to the lack of interest towards this period, which determined the course of field investigations in the first half of the twentieth century (Papi 2002, 704; see also Chapter 2). Therefore, we miss a crucial set of data that could have improved our understanding of *Tingitana*'s history after the first three centuries of Roman domination and before the Islamic conquest of North Africa.

To have at least an outline of life and social/political organization in this province during Late Antiquity, one must put together small pieces of information from historical sources (e.g. the *Itinerarium Antonini*, the *Notitia Dignitatum*, and the *Ravennatis Anonymi Cosmographia*) and from the few material remains. A study of Late Antique *Tingitana* has been attempted by N. Villaverde Vega (2001). Though praiseworthy for the complexity of themes treated, the main shortcomings are the over-estimation of scarce archaeological evidence (see Papi 2002, 706) and some references to old data that need to be revised: for instance, two capitals from *Banasa* attributed to the sixth century AD (Villaverde Vega 2001, 147) rather date to the late second – early third century (see ►**Ban 2.29**).

The available documentation suggests that the second half of the third century AD was a hard period for *Tingitana*, as for the Empire as a whole. Signs of instability and depression can be recognized in the shrinking of local production and in the decline of some towns (Papi and Vismara 2002, 35). Several *garum* factories on the coast were abandoned at this time: at *Lixus*, although the installations were restored at some point in

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the fourth century (Ponsich and Tarradell 1965, 37; Villaverde Vega 2001, 128-30); at *Cotta*, where the fish salting industry was replaced by farms (Villaverde Vega 2001, 88); and at Tahadart, where the factories were obliterated by cemeteries (Ponsich and Tarradell 1965, 54-5, pl. 25, fig. 34).

Growing social tensions and breaches in the relationships between Romans and local communities were another "Leitmotif" of the late third century, both in *Tingitana* and in the rest of North Africa (Briand-Ponsart and Hugoniot 2006, 245-53). Although one should not imagine the Roman government as in a state of constant warfare, the situation was indeed reaching a breaking point at this stage. This could be explained by the massive use of diplomacy to attempt to maintain the situation under control, as shown by the number of *arae pacis* at *Volubilis* and the increased frequency of their dedication in these years (Mattingly 1992, 53-5). Despite all these efforts, insecurity and the too demanding costs of peace obliged Rome to opt for a drastic solution. Between AD 282 and 291, the army retreated from the southern *limes* and the garrisons abandoned the settlements in this region (Villaverde Vega 2001, 270; Papi and Vismara 2002, 35; Hassab 2014, 317-8). This decision has been regarded as one of the few cases in which Rome had to concede defeat to "cut its losses" (Shaw 1986, 69).

The retreat had two immediate consequences. Firstly, a new *limes* was established northwards following the course of the oued Loukkos (Fig. 3.10). This military installation seems to have remained unaltered until the fifth century AD (Rebuffat 1992, 368-9). The provincial garrison had to be re-organized in this sector (Rebuffat 2001a, 41-2; Villaverde Vega 2001, 278-81). Some of the previous auxiliary troops were maintained, while some others were created *ex novo* or renamed (for example, the *ala Herculea* garrisoned at *Tamuda* can be probably identified with the former *ala Augusta Gallorum*: Spaul 1994b, 52-4). New forts were also founded in this northern zone (e.g. El Benián = *Pacatiana*?: see Rebuffat 1987, 35-6; Villaverde Vega 2001, 499-504; a recent survey has identified the remains of late Roman forts at Lamdanna and El Mers: Akerraz 2011, 553-5). Moreover, all the towns and settlements located in the south of the province came to be technically beyond the borders of the Roman Empire and of its jurisdiction. This did not mean the sudden end of life, nor a *tabula rasa* of Roman legacies. However, while centres like *Sala* and *Volubilis* do not show a major disruption, others suffered more directly the effects of the army's retreat (*Banasa* and *Thamusida*: see *infra*).

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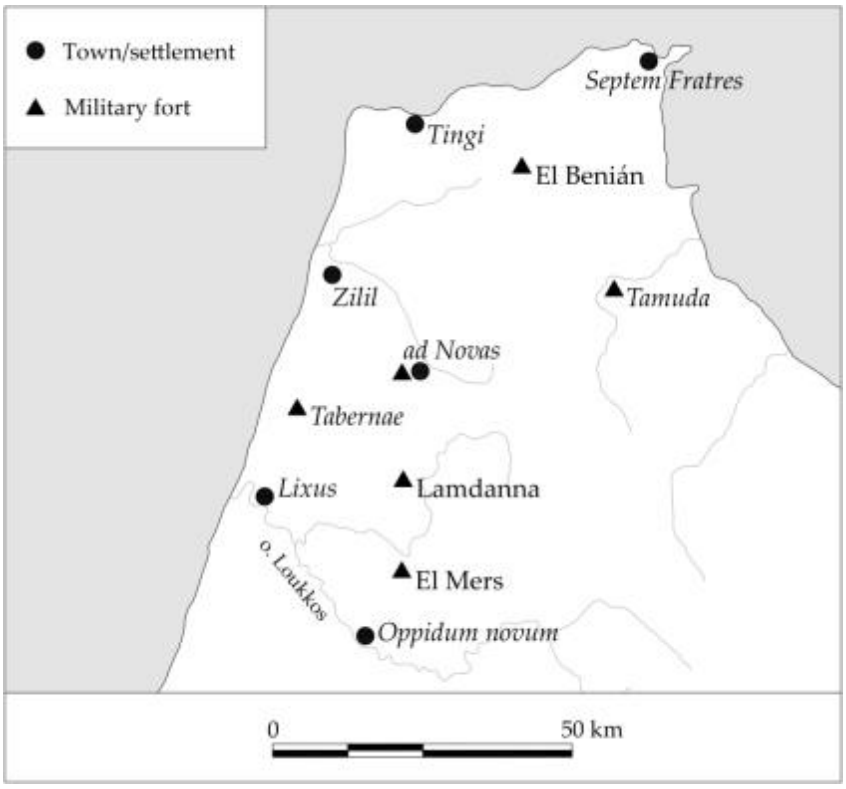

Fig. 3.10. Northern sector of *Mauretania Tingitana*, under Roman administration after AD 282/291

A further change in the political structures of the province happened when Diocletian carried out his reformation of territorial authorities all over the Empire, c. AD 296-298 (Le Glay *et al*. 2009, 496-7). As a result of the re-organization of provincial possessions, *Mauretania Tingitana* was attached to the diocese of Spain and *Mauretania Caesariensis* to that of Africa (Thouvenot 1954f, 386; Briand-Ponsart and Hugoniot 2006, 286-7; Le Bohec 2013, 208). The historical rupture between the two *Mauretaniae*, started with the creation of the two provinces in AD 42/43, was further emphasized in Late Antiquity. In contrast, the already strong connection between *Tingitana* and southern Spain was reinforced. *Tingitana* was thus meant to be a buffer state to prevent any troubles or rebellions from reaching Spain from Africa (López Pardo 1991, 446-7; Papi and Vismara 2002, 35).

The reign of Constantine witnessed the re-organization of the praetorian prefectship (ca. AD 324), which was deprived of any military function and was charged with civilian duties (Le Glay *et al*. 2009, 497). *Tingitana*, as well as all the other territories of the Empire, was included in a tripartite, hierarchical administration: the province itself, the (Spanish) diocese, and the (Gaulish) prefectship (Briand-Ponsart and Hugoniot 2006, 288).

From the beginning of the fifth century AD onwards, our knowledge of *Tingitana* is even more patchy. After having consolidated their power in southern Spain, the Vandals

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crossed the Strait of Gibraltar around AD 420 and reached Morocco. They established a stronghold at *Septem Fratres* (modern Ceuta: see Hassab 2014, 319) and from there began their expansion to the rest of North Africa (Merrills and Miles 2010, 50-5). Nowadays the idea that their kingdom caused the destruction of Classical civilization is no longer workable, while the most current research points out that the Vandals assimilated many traditions of the later Roman Empire (see Merrills and Miles 2010, 204-27; Leone 2013, 83-119; Modéran 2014). Recent archaeological and historical scholarship has focused the attention on settlement patterns and urban life in North Africa from the establishment of the Vandal kingdom to the Byzantine re-conquest in the sixth century (for an overview see Merrills 2004, 8-19; on the transformations of urban centres in *Zeugitana*, *Byzacena* and *Tripolitania* see Leone 2007). However, despite the attempts to extend this line of research to *Tingitana*, one must admit that, for the time being, the scarcity of data is preventing us from having a comprehensive picture of this territory as a whole (see the remarks in Papi 2002, 706; Lenoir, E. 2003, 178).

Although this lack of documentation is an obstacle to understanding the changes (or decline?) of *Tingitana* from the late Roman to the Byzantine era, some information can be collected here and there. With regard to *Tingi*, the archaeological finds of this period are as scarce as those of the early Roman era: some fourth/fifth-century ceramic and glass lamps, coins from Diocletian to Constans II's reign (Villaverde Vega 2001, 85), and four Christian inscriptions (*IAM* 16, 21, 26, 28; Ponsich 1970, 359-62). The remains of a putative Christian basilica were found c. 700 m south-east of the "grand Socco" (Euzennat 1974, 187-90; Villaverde Vega 2001, 330; Lenoir, E. 2003, 173-4). The attribution of some portions of the medina's walls to either the Roman, late Roman, or Islamic period is still debated (see Akerraz 1997; 2011, 541-2; El Boudjay 2000; Villaverde Vega 2001, 82).

The most significant evidence of urban transformation at *Lixus* comes from the wall circuit (third/fourth century AD?) which crosses the "quartier des temples", cutting out the upper part of the hill (Tarradell 1959, 62-3; Lenoir, E. 1986, 344; 1992, 292; Villaverde Vega 2001, 122; Akerraz 2011, 544). Another example comes from the small thermal complex in the monumental district ("thermes J") that might have been enlarged in the fourth century AD and kept in use until the sixth century (Ponsich 1981, 109-11; Lenoir, E. 1992, 295-8). A debated building is the basilica/mosque: some authors have regarded it as

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a basilica later converted into a mosque (Tarradell 1954b, 135-8; 1959, 63-4; Ponsich 1981, 113-22; Villaverde Vega 2001, 332-4), while others have preferred to identify it as an Islamic mosque only (Euzennat 1974, 175-81; Lenoir, E. 2003, 176; Brouquier-Reddé *et al*. 2006; 2171; 2008, 136-7).

Zilil shows interesting Late Antique phases, although they are concentrated in a short time-frame. The town was destroyed between AD 238 and the mid-fourth century AD, but it was rebuilt soon after (the coin series would suggest a date around AD 355-360: *Zilil* I, 9, 57). The most remarkable building of this second phase is a Christian basilica with three aisles, the walls of which featured recycled capitals and bases (now lost) from previous buildings (Lenoir, E. 2003, 167-71, fig. 5). The reuse of materials is documented elsewhere, as shown by some inscribed altars in a watch tower of the city walls (Lenoir, E. 2003, 168-9, fig. 2; 2005, 71). However, the discovery of layers with traces of burning all over the town suggests that *Zilil* was destroyed again – this time permanently – in the early fifth century AD (*Zilil* I, 11; Lenoir, E. 2003, 173; 2005, 71).

As mentioned above, the retreat of the army from the south of the province had direct repercussions on *Banasa* and *Thamusida*. The only finds discovered at *Banasa* which can be dated after the third century AD are a few fragments of pottery, some metal artefacts, and a Byzantine lamp (Papi 2002, 705). Unfortunately, due to the methodology of the Protectorate excavations and the loss of stratigraphic information, we cannot tell whether buildings featured any Late Antique layers (see Chapter 2). On the other hand, urban tendencies are more easily understandable at *Thamusida*. When the garrison abandoned the fort, the local community kept living in the *vicus*, as testified by some (limited) building activities (Camporeale 2008a, 138-9, fig. 49). However, the economy saw a rapid decline (Papi 2002, 705-6), and the majority of ceramic finds from this period to the Islamic era belong to local productions only.

Sala's situation might be exceptional due to its importance as a centre for the control of the Atlantic routes. Thanks to the *Notitia Dignitatum*, we know that an anonymous *cohors* was garrisoned in the *castellum Sala* in the fourth century AD (Boube 1999, 19; Villaverde Vega 2001, 183). In the forum were found two inscriptions dedicated to Constantine and perhaps Constantine II (*IAM* 304b, 305). A few other finds confirm the presence of an urban community in the fourth/fifth and sixth centuries: some lamps, seals, amphorae, pottery with Christian motifs and graffiti, mosaics (Boube 1999, 19), and two

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Visigoth and Byzantine belt buckles (Boube 1983-84b, 294-5). There are almost no data regarding the monumental district. The *capitolium* was obliterated by a cemetery in the fourth century, and the area converted into a dump (Boube 1966c, 28-9). The discovery in the storehouse of a composite capital with fine-toothed acanthus (►**Sal 2.21**) – a typical production of Constantinople datable to between the second half of the fifth and the early sixth century (Kautzsch 1936, 115-39; Harrazi, 1982, 172-5; Pensabene 1986, 397) – adds a small piece of information about building activities, or at least restorations of existing buildings, in the Byzantine period (see Chapter 6).

At some point in the sixth century AD, *Volubilis* was divided into two parts by a wall circuit (Akerraz 1985; 2011, 555-7). The sector located south-west of these walls shows buildings datable from the seventh to ninth century AD (Fentress and Limane 2010). The north-eastern part of the town was used for burying the dead (Lenoir, E. 1985, 428). However, before this date (and post AD 285), the north-eastern residential district, as well as portions of the south-west and monumental districts, were involved in some restorations and reuse of public and private spaces (Étienne 1960, 154; Akerraz 1985, 431-4; Lenoir, E. 1985, 428; Es-Sadra 2012, 644-51). The occupation of Roman buildings in Late Antiquity (e.g. the palace of Gordianus, the "thermes du nord", and some *domus*) may be confirmed by the existence of tronco-pyramidal capitals (►**Vol 2.60**) and decorated pseudo-impost capitals (►**Vol 2.71-73**), the motifs of which would hint towards a chronology within the late third to fourth century AD (see Chapter 4). The fourth- to sixth-century period is documented by isolated finds only: glass and ceramic lamps, some pottery, bronzes, coins (Villaverde Vega 2001, 160-6, 171-2), and inscriptions (*IAM* 506, 603, 608, 619). On the other hand, the remains of a small Late Antique building, near the "maison au compas", do not appear to be identifiable with a Christian basilica, as initially suggested (Euzennat 1974, 181-7; Villaverde Vega 2001, 334-5).

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CASE STUDY: *VOLUBILIS*

This chapter discusses the evidence recorded at *Volubilis* (Fig. 4.1), selected as the opening case study. The analysis focuses on the town districts examined during the fieldwork. These are divided into four sections: the forum and annexed buildings; the piazza of the *capitolium*; the arch of Caracalla and *porticus* along the *decumanus maximus*; and the palace of Gordianus. References to other surveyed buildings (e.g. "temple B", the gates of the city walls, the "thermes du nord", etc.) are included in these sections as well, together with the parts of the town where fieldwork was not undertaken, in particular the *domus* of the north-east district. The fifth section deals with a group of decoration – pseudo-impost capitals – which show peculiar features. The last section contains concluding remarks on the evidence discussed.

FORUM AND ANNEXED BUILDINGS

The first district described is that of the forum. Annexed to it are the judicial basilica on the north-east end, the so-called "*macellum*" or "bâtiment ouest" to the south, and the "thermes du capitole" at the south-west corner of the basilica. The piazza of the *capitolium*, which represents an appendix to the forum, is analysed in the next section.

The aspect of the forum (Fig. 4.2) is the outcome of progressive transformations that culminated with the majestic works undertaken under the Severans. The chronology is based on the study of the preserved structures (see, in particular, Euzennat and Hallier 1986, 82-7; Akerraz *et al*. 1987b) and on the dating of nearby buildings, for which precise epigraphic evidence exists: the arch of Caracalla (AD 216/217) and the *capitolium* (AD 217). The excavations in this district, as well as in many other parts of the town, were directed by Chatelain during the early years of the Protectorate (Chatelain 1916; 1937a; 1944, 167-9; see also Euzennat and Hallier 1986, 82, note 37, with bibliographic review). Regrettably the methodology employed at that time did not contemplate the analysis of archaeological stratigraphy and much information was lost.

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Fig. 4.1. *Volubilis*, plan of central and north-east districts. 1: forum; 2: "*macellum*"; 3: basilica; 4: *capitolium*; 5: "temple B"; 6: "temple C"; 7: arch of Caracalla; 8: "thermes du nord"; 9: "maison aux colonnes" ; 10: "maison aux travaux d'Hercule"; 11: palace of Gordianus; 12: "porte de Tanger"

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In its final stage, the forum comprised a paved area accessible only to pedestrians from three passages: on the north side (north-west corner of the basilica), through three steps at the end of the street leading to the crossroads of the *decumanus maximus* and to the arch of Caracalla; on the opposite side, via a narrow corridor that connected it with the piazza of the *capitolium*; and, finally, on the south-west side, through a gateway with four steps that led to the street below flanking the "*macellum*". According to the study carried out by Akerraz, E. Lenoir and M. Lenoir (Akerraz *et al*. 1987b), we can outline four main phases: (1) the construction of two twin temples in the Mauretanian period, around the end of the second – early first century BC; (2) an intermediate stage, of uncertain chronology, during which the "*macellum*" seems to have been built; (3) the obliteration of the Mauretanian buildings, with the construction of a piazza with *porticus*, probably towards the mid to late first century AD; (4) the final stage, when the *porticus* disappeared and the basilica was added, c. AD 210 – 216/217.

Fig. 4.2. *Volubilis*, forum: piazza viewed from the north side, west façade of the basilica, and "tribune aux harangues" on the opposite side

The earliest known architectural element is a small Ionic capital, discovered outside the forum (Boube 1966b, 109). Unfortunately the capital could not be found anymore when I undertook the present research. However, thanks to the published photographs, we can

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observe that it belongs to a type of Punic-Hellenistic tradition, first described by Lézine (1960, 76-80). Boube suggested a dating in Juba's reign and hypothesized that it might have come from one of the twin Mauretanian temples in the forum (Boube 1966b, 112). Although it was not discovered *in situ*, this hypothesis seems plausible – especially if considered in the light of a similar element from *Sala* (►**Sal 2.3**), probably associated with the late Mauretanian phase of "temple A", c. mid/second half of the first century BC (Boube 1967, 320, 328-30, 348-52; 1999, 16). Two other capitals, which belong to the same Punic-Hellenistic style, were discovered at *Lixus* (►**Lix 2.3-4**; see the observations in the Catalogue and Chapter 7).

It was not possible to identify any other traces of Mauretanian decoration within the forum, since all the rest of the preserved ornament dates to the Roman period. Among these materials, a group of pseudo-Corinthian capitals with water plant leaves probably predate the Severan phase. The series is composed of six column capitals currently placed inside the "*macellum*" (►**Vol 2.60**), plus one half-column capital in a building nearby (►**Vol 2.61**). These capitals, all made of sandstone, were initially interpreted as a pre-Roman decoration (Boube 1967, 330-1), but a closer look at their stylistic features would suggest otherwise. In particular, the shape of the leaves recalls some capitals from the military fort at *Thamusida*, dated to the second half of the first century AD (Camporeale 2008c, 229, type 5.1, fig. 21), as well as the decoration of some Trajanic cornices from *Lepcis Magna* (Mahler 2006, 235, pls. 106-7, nos. 827-33 KG). It is quite likely, therefore, that the capitals from *Volubilis* may have a similar chronology. Moreover, this type is attested elsewhere at the site (Fig. 4.3a-c), such as at the "maison aux demi-colonnes" and inside "temple B" (►**Vol 2.62**, not *in situ*).

Fig. 4.3. *Volubilis*, pseudo-Corinthian capitals with water plant leaves. A: forum area (**Vol 2.60**); B: peristyle of the "maison aux demi-colonnes"; C: "temple B" (**Vol 2.62**)

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The change of certain features – such as the kalathos becoming shallower, or the overall simplification of the carving – would hint towards a progressive evolution/schematization of their shape from the mid/late first century AD up to the third century.

The setting of these capitals is not certain. It is possible that they belonged to the "*macellum*", which witnessed many building phases from the late first century BC to the early third century AD (Akerraz *et al*. 1987b, 212). Otherwise, as suggested by Euzennat and Hallier (1986, 86-7, fig. 6), they might be attributed to the *porticus* of the piazza, later obliterated by the Severan phase. If so, one may also advance the hypothesis that they were recycled someplace else when the *porticus* was replaced by the later buildings. One should also observe that various identical capitals are now scattered on the street leading to the "porte à deux baies" in the southern portion of the town – perhaps in connection with the Islamic occupation of that sector?

As indicated above, the construction of the *porticus* has been dated to the late first century AD (Akerraz *et al*. 1987b, 215). However, it is worth considering the evidence from a (lost) fragmentary building inscription, discovered south of the basilica, and probably belonging to the forum (*IAM* 498). The inscription is dated to Nero's reign, AD 57/58 (lines 1-4). It gives us information on construction works, [---] *et porticu*[*m*], carried out by the soldiers of the *coh*(*ors*) *Asturum et Cal*[*laecorum*] (lines 4-5), garrisoned at Aïn Schkour, not far distant from *Volubilis* (Camporeale *et al*. 2008, 288-9). We do not know which building was mentioned in the text, but we should not discard the possibility that the *porticu*[*s*] could be the one in the forum, thus hinting towards a slightly earlier dating than initially proposed.

Not much can be said about the other buildings in the first and second centuries AD. The so-called "tribune aux harangues" (Chatelain 1944, 177-9), on the southern side of the forum (Fig. 4.2), has yielded a fragmentary dedicatory inscription (*IAM* 343) dated to the first century AD on the basis of the letters' shape. Perhaps the structure was used as a podium for a small temple of Concordia, as the inscription may suggest: *Co*[*ncord*(*iae*)?] *municipium Volubilitanum decreto decurionum ded*(*icavit*) (Chatelain 1944, 177-9; Camporeale *et al*. 2008, 289). It was then enlarged in the Severan era, with a new dedication to the imperial family (*IAM* 387). Nothing of its decoration is left, apart from the basement framed on three sides by a reversed *cyma recta*. Even less information comes from the so-

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called "thermes du capitole" (Thouvenot 1968-72, 189-94). One can only observe that the main phase should be placed in the late first – early second century AD, with progressive enlargements until the mid-second century (Akerraz et al. 1987b, 215; Thébert 2003, 276), thus negating any direct connection with the construction of the *capitolium*, which took place more than 50 years later (see *infra*).

All the rest of the evidence recorded comes from the most imposing building of the district: the judicial basilica (Fig. 4.4). Despite the absence of a dedicatory inscription, it is almost unanimously accepted that it was part of the works promoted by the Severans to enhance the monumental district. This is confirmed by the relative chronology of the forum's building phases and by the link with the buildings nearby, the *capitolium* and arch of Caracalla, which formed a homogeneous complex (see, in order: Euzennat 1956, 334; Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Panetier 2002, 76; Camporeale *et al*. 2008, 290). The construction of the basilica, perhaps started around AD 210, was likely completed between AD 216/217 (dedication of the arch of Caracalla: *IAM* 390-1) and AD 217 (dedication of the *capitolium*: *IAM* 355).

Fig. 4.4. *Volubilis*, basilica: view from the north side

Together with the arch of Caracalla, the main walls of the basilica were still standing when Windus and Boyde visited the site in 1721 (see Chapter 2, Figs. 2.1-2). Even after the earthquake of Lisbon in 1755, the northern and southern walls did not collapse. That was the aspect of the building when Chatelain started the excavation of the forum in 1915 (see

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Chapter 2, Fig. 2.4). After some consolidation works in 1916 (Chatelain 1944, 189-90), the basilica was then involved in a project of anastylosis carried out by Luquet (1967), thanks to which the western façade and four columns of the nave were re-erected. The original blocks and architectural elements of Zerhoun limestone were employed, while the gaps in the masonry were filled with bricks.

The basilica has a rectangular plan (42.2 x 22.3 m), divided into three aisles. The central aisle measures 29.6 x 10.6 m, with two apses (11 x 3.6 m) at the north and south sides. The lateral aisles are 4.3 m wide, separated on the two long axes by seven columns on each side placed on pedestals (total height: 7.08 m). Two more columns, at the north and south sides respectively, close this internal rectangle (or peristyle). The corners of the apses feature engaged half-columns. The west façade shows eight archways and is decorated on the outer side with 13 engaged half-columns. The inner side, as well as the other three façades, is decorated with pilasters.

The column and half-column bases of the nave and apses are all of the standard Attic type (►**Vol 1.27-28**), with a reversed cavetto above the upper torus. A single base without cavetto (►**Vol 1.16**) has been repositioned onto one of the pedestals, but its smaller size suggests that it rather belonged to the upper storey. Though poorly preserved, the half-column bases on the outer west façade (►**Vol 1.24**) slightly diverge from this scheme, since the upper torus has the same diameter as the lower torus. Again, an exception is represented by the half-column base at the south-west corner (►**Vol 1.25**), with its lower torus being underlined by a square-cut groove and the upper torus being slightly smaller. The pilaster bases of the inner façades (►**Vol 1.45-46**) bear more diagnostic information. They all have tori of the same diameter and are not provided with the plinth at the bottom, which is replaced by two fillets. Only one of them (►**Vol 1.46**), along the east façade, is joined to a fluted shaft, while in all the other cases the shaft is smooth. The absence of the plinth – a feature that recurs in numerous bases at *Volubilis* and in other sites of *Tingitana* – enables us to reassess the assumption that Attic bases without plinth in North Africa were a decoration of the pre-Imperial period, as originally suggested by Lézine (1960, 93). Further evidence from *Volubilis* (see *infra*) and from the other case studies (*Banasa*, *Sala*, and *Lixus*: see Chapters 5-7 and Catalogue) demonstrates that one must be cautious when dating this type of base through stylistic criteria only (see the final remarks in Chapter 8).

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Numerous Corinthian capitals with smooth leaves are preserved. Those of the inner colonnade can be divided into five types (►**Vol 2.4**; ►**Vol 2.6**; ►**Vol 2.17**; ►**Vol 2.19-20**), plus another half-column capital probably belonging to the apse, now placed outside the building (►**Vol 2.7**). Through the comparison with the size of bases and shafts, the capitals ►**Vol 2.4**, ►**Vol 2.6**, ►**Vol 2.7** and ►**Vol 2.19** can be associated to the colonnade of the ground floor, while the capitals ►**Vol 2.17** and ►**Vol 2.20** probably belonged to the upper storey. Among the capitals repositioned on the top of the half-columns along the outer west façade, three types are recognizable (►**Vol 2.8-10**).

In terms of stylistic features, the capitals of the inner colonnade ►**Vol 2.4**, ►**Vol 2.6** and ►**Vol 2.7** can be grouped together with the capitals of the west façade ►**Vol 2.8** and ►**Vol 2.10,** while the capital ►**Vol 2.9** is closer to the decoration of the *capitolium*. The overall design (Fig. 4.5a) points towards their identification as a simplified version of official-style Corinthian capitals, as suggested by the smooth leaves and the schematic abacus and fleuron. Such simplifications – also a means to speed up production – occur elsewhere in the Roman world: see, for instance, the capitals in the "terme di Mitra" at Ostia, imported from Portus (Pensabene 2007a, 394, pl. 104.6). However, the markedly open V shape of calyces, helices and volutes, as well as their flattened profile, should be regarded as a characteristic of local Volubilitan decoration (see Pensabene 2011, 214).

A similar pattern can be identified in one of the capitals of the upper storey (►**Vol 2.20**), where the main differences are represented by the double collars at the top of the cauliculi and by the presence of a fleuron stem. In contrast, the second capital from the upper storey (►**Vol 2.17**) (Fig. 4.5b) shows a more plastic carving and, in general, a closer resemblance to Roman official decoration (Pensabene 2011, 213). In the latter case, the stonemason had a more direct contact with the Romano-Carthaginian artistic trends diffused in North Africa – as confirmed by the parallels identified at *Caesarea* (Pensabene 1982a, 63-4, 73, pl. 63-4, nos. 182-5) and *Uchi Maius* (Teatini 1997, 374-6, nos. 12-3).

The capital ►**Vol 2.19** is the example that better illustrates the merging of official and local art (Fig. 4.5c). Despite an overall look recalling the shape of the other capitals of the same colonnade, here one can recognize very specific features of the local style. The first detail is the presence of a rope-pattern decoration on the collars at the top of the cauliculi. The second, more striking, feature is the rhomboid motif under the corners of the abacus at the edge of the volutes (perhaps an open calyx seen from the top?). This motif is one of

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the most recurring characteristics of Corinthian capitals produced at *Volubilis* (see *infra*) – an element that diverges completely from canonical artistic forms, not attested elsewhere in the Roman world.

Fig. 4.5. *Volubilis*, basilica: Corinthian capitals with smooth leaves. A: ground floor (**Vol 2.4**); B: upper storey (**Vol 2.17**); C: ground floor (**Vol 2.19**)

A further observation regards the south and north sides of the building. Since these walls never collapsed, the pilasters and entablatures on the inner sides are preserved at full height. At the top of the pilasters one finds smooth pseudo-impost capitals (►**Vol 2.68**), which will be commented on in the fifth section. The entablature is made of two rows of blocks (Luquet 1967, 437-9, fig. 7) (Fig. 4.6). The lower row is decorated with an Ionic *kymation*, underlined by dentils and crowned by a cavetto. The eggs of the *kymation* have a peculiar biconvex shape with outer case and are separated by tongues, which are replaced in some blocks by schematic darts (e.g. the cornices repositioned along the west façade). The blocks of the upper row feature an ovolo, a row of square dentils, and a *cyma recta*, all separated by fillets.

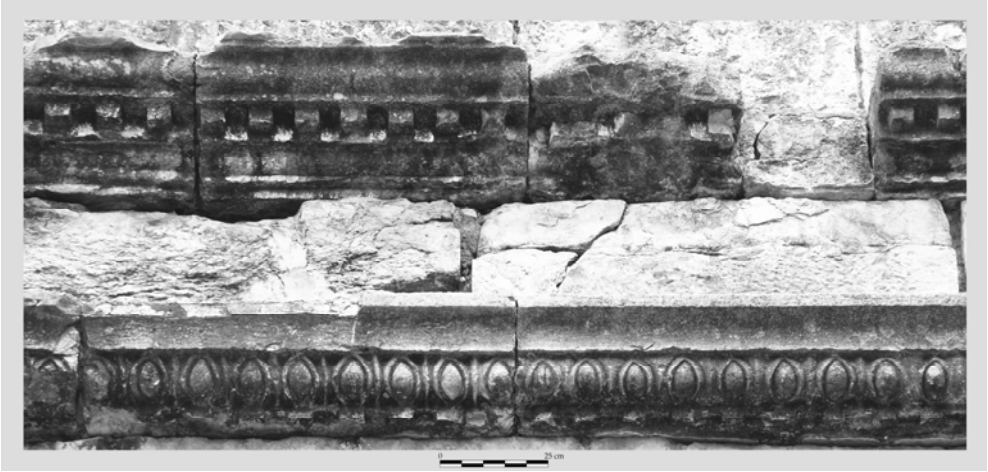

Fig. 4.6. *Volubilis*, basilica: cornices *in situ* along the north wall (inner side)

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PIAZZA OF THE *CAPITOLIUM*

To the southern side of the basilica is attached the piazza of the *capitolium* (Fig. 4.7). Like the forum, this area was wholly unearthed during Chatelain's excavations, started in 1924, about which we have only scant information (Chatelain 1929, 259; 1944, 200-2). The piazza is a paved rectangular space, 38 x 33 m, oriented south-north. In addition to the passage via the forum, two corridors are placed at the east and west sides, with monumental piers at the entrance on both the inner and outer sides. The area also shows colonnades on the long axes: 12 columns on each side, plus one engaged half-column attached to the wall at the southern end of the area.

Fig. 4.7. *Volubilis*: *capitolium* (with altar) and part of the colonnades of the *porticus*

Along the east side, five rooms open on the piazza with pilasters at their entrance. On the opposite side only two rooms exist in the southern portion, while the northern part is occupied by the "thermes du capitole". Inside the third room on the east side are the remains of a shrine, or altar, belonging to a sanctuary of uncertain chronology (second or first century BC?), which occupied this area before the *capitolium* was built. While the rest of the temple was obliterated by the later constructions, the shrine was left in place (Behel 1997, 34-7, fig. 4). Some column drums were discovered, together with a (lost) Tuscan capital or base (Boube 1967, 289), an architectural *cippus*, and a small votive column (Behel

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1997, 37-42, pls. 5-8). The fifth room, at the southern end, is shaped as a chapel with apsidal wall. The discovery of an altar with the inscription *Veneri Aug*(*ustae*) / *sacrum* (*IAM* 367) has suggested an identification of this room as a small temple of Venus (Brouquier-Reddé and Rebuffat 1998).

The *capitolium* is placed against the southern wall of the piazza. The temple is set on a podium (22.2 x 14.1 m) with 13 steps on its front. At the moment of discovery, only the first four steps and the foundations of the *cella* (11 x 8.5 m) were preserved (see Chatelain 1949, pl. 29). The current aspect of the monument is the result of the anastylosis undertaken by Luquet in 1962. Regrettably, unlike the works with the basilica, this restoration was quite arbitrary. In effect, in its reconstructed form, the *capitolium* has the appearance of a tetrastyle temple. The main reason that determined this choice was the impossibility of finding a sufficient number of bases, column drums and capitals to justify the existence of 14 columns and two half-columns (Luquet 1964c, 354-5). However, in accordance with the later critiques by Euzennat (1976f, 989), it seems that the *capitolium* was rather a hexastyle, peripteral temple *sine postico*. At the left-hand side of the podium is a small square room (3.6 x 3.25 m) that incorporates the southern part of the *porticus*. This appears to be a later construction, although its function is uncertain (perhaps another temple: see Thouvenot 1968-72, 184). A rectangular altar (2.1 x 2.5 m) is placed in front of the temple, with three steps on the side facing the temple and a pedestal decorated with a reversed *cyma recta* on the other three sides.

The dating of the *capitolium* is confirmed by the dedicatory inscription (*IAM* 355). The monument was inaugurated by the provincial governor M. Aurellius Sebastenus (line 8), commissioned by the *res* [*pu*]*blic*(*a*) *V*[*ol*(*ubilitanorum*)] (line 6), and dedicated to Macrinus between April and December 217 (lines 1-3) (Camporeale *et al*. 2008, 290). The inscription also mentions the amount of money spent for these works: *kap*[*itoliu*]*m ex* ((*sestertium*)) *C*[…] *milib*(*us*) [*n*(*ummum*)]. The spacing of the letters allows the restoration of *C*[*CCC*] *milib*(*us*) = 400,000 sesterces. This sum did not include the costs for the architectural decoration: *add*[*itis signis*? *cete*]*risque ornament*[*is*] (Pensabene 2011, 209, note 22). Two calculations of the total costs by Domingo Magaña (2012a-b) have provided discrepant values: a minimum of 111,120 sesterces vs. a maximum of 782,247. Both these results, however, seem to be coloured by the use of imprecise measurements for the plan of the temple (11 x 8.5 m), which rather correspond to the size of the *cella*.

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The colonnade (reconstructed height: 6.02 m) belongs to the Corinthian order. Both the columns on the front of the temple and the half-column at the right-hand side of the *cella* feature Attic bases (►**Vol 1.13-14**), whose standardized profile recalls closely the piece from the upper storey of the basilica (►**Vol 1.16**). The capitals repositioned on the top of the columns have smooth leaves. They are divided into two types (►**Vol 2.21** and ►**Vol 2.22**), based on the different shape of the helices (Fig. 4.8a-b). Like the capitals of the basilica, the overall design represents an attempt to reproduce simplified Roman official forms. However, some details of the carving attest to the will of the stonemasons to introduce local motifs as well. This is evident when one looks at the second small cauliculus springing from the top of the lower one, placed between the half-leaves of the calyx (see also Pensabene 2011, 211-2). In contrast, the half-column capital set against the wall of the *cella* (►**Vol 2.18**) follows a different pattern (Fig. 4.8c). It is almost identical to the second capital from the basilica's upper storey (►**Vol 2.17**), and it shows the same inspiration from the Romano-Carthaginian models. The similarity of these two capitals – with the example from the *capitolium* being dated by the temple's inscription – as well as the identification of parallels at *Caesarea* and *Uchi Maius* (see *supra*), all dated to the early third century AD, provide further evidence to support a dating of the basilica to the Severan period.

Fig. 4.8. *Volubilis*, *capitolium*: Corinthian capitals with smooth leaves. A: colonnade (**Vol 2.21**); B: colonnade (**Vol 2.22**); C: right-hand wall of the *cella* (**Vol 2.18**)

The area annexed to the temple – with the two corridors and monumental entrances, the rooms opening on the piazza, and the lateral colonnades – was part of the same building project as the *capitolium*. We do not know for certain if all these constructions were inaugurated together in AD 217. However, even if one allows some more years after the

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dedication of the temple, it is likely that the works were completed by the first quarter of the third century. A restoration of this area was undertaken in 1955 (see Luquet 1964c, 351), during which seven columns of the *porticus* were re-erected: four on the west side and three on the east side (total height, including pedestals: c. 4 m).

With regard to the architectural decoration, it would be no exaggeration to consider it as a powerful display of local art. The orthodox design of Attic bases and Corinthian capitals is completely altered, replaced by peculiar features and motifs that can be rightly seen as the expression of a typical Volubilitan style, the repertoire of which was in part influenced by the persistence of pre-Roman legacies. The effect of this decoration on the local community must have been particularly striking. These elements were merged together in a public context where the ornament of the other buildings – the basilica and *capitolium* – tended instead to adhere more or less closely to the official models, or at least to represent a compromise between local and Roman art (see Chapter 8). Apart from the piazza of the *capitolium*, these motifs are widespread across the town and are particularly evident in the ornament of private buildings, such as the *domus* of the north-east district (Étienne 1960, 129-39; Pensabene 2011, 226-54; for more detailed information, see the parallels in the Catalogue).

Both the Attic half-column and pilaster bases belonging to the piers of the east corridor (►**Vol 1.29-32**) are provided with a high plinth, decorated with either *kantharoi*, stars inscribed in a circle, and small male figurines. Other distinctive characteristics are represented by the shape of the tori with a marked trapezoidal profile and by the presence of a high scotia (Fig. 4.9a). Similar features, though the plinth is less developed in height, can be observed in the bases at the entrance to room 3 and room 5 on the same side of the piazza (►**Vol 1.33-35**). Such a peculiar design cannot be explained as a misinterpretation of Roman canonical forms, but rather as a precise will to create an autonomous type of ornament. It is important to notice that bases with a similar shape, though the plinth is undecorated, are also present at *Banasa* (►**Ban 1.3-4**), *Sala* (►**Sal 1.22**), and *Lixus* (►**Lix 1.12**), suggesting that the models adopted by the stonemasons at *Volubilis* were diffused at a broader provincial level. The Attic bases of the other rooms on both sides of the piazza (►**Vol 1.21-23**), as well as those from the corridor on the west side (►**Vol 1.19-20**), show a similar pattern, since in most cases the trapezoidal-shaped tori and the high scotia are found together. The half-column (►**Vol 1.6**) and column bases (►**Vol 1.1-3**; ►**Vol 1.5**) of

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the *porticus* are perhaps the elements that better attempt to reproduce a more orthodox and standardized form, although in many cases the scotia tends to be quite developed in height. Finally, the pilaster bases positioned on the outer side of the west corridor (►**Vol 1.47-48**) and those from the small room at the left-hand side of the *capitolium* (►**Vol 1.39**; ►**Vol 1.49**) do not have a plinth, quite similar to the bases of the inner walls of the nearby basilica (►**Vol 1.45-46**).

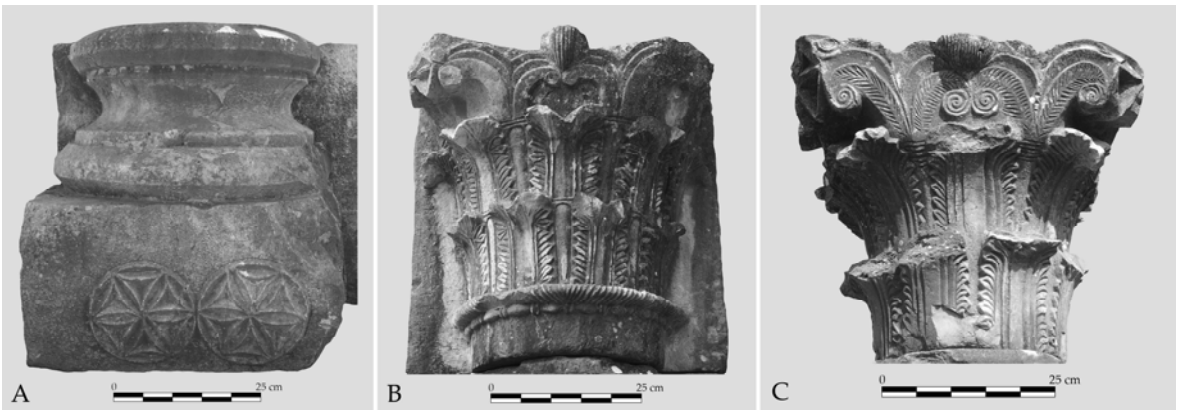

Fig. 4.9. *Volubilis*, piazza of the *capitolium*. A: Attic base, east entrance (**Vol 1.29**); B: Corinthian capital, west entrance (**Vol 2.42**); C: Corinthian capital, west colonnade (**Vol 2.49**)

The capitals can be classified as Corinthian, even though it is easier to identify the elements of local artistic tradition than the aspects recalling the canonical architectural order. As detailed in the Catalogue, the division adopted in this study is based on the shape of the acanthus, which represents the most easily identifiable feature, in accordance also with authoritative scholarship on architectural decoration: "group 2" (►**Vol 2.35-38**; ►**Vol 2.40**); "group 3" (►**Vol 2.42-43**; ►**Vol 2.45-47**); "group 4" (►**Vol 2.49-52**); and "group 5" (►**Vol 2.53-56**). Only a single pilaster capital (►**Vol 2.12**), probably from one of the rooms on the west side of the piazza, has smooth leaves and is identical to another capital from the *porticus* along the *decumanus maximus* (see *infra*).

The first characteristic one can notice while looking at these capitals is that they are all different in terms of carving details. Two hypotheses can be advanced to try to explain this apparently peculiar choice. The first possibility is that different ateliers of carvers worked together at the same building project, perhaps to speed up the construction process. Otherwise, one should admit that a great independence and artistic creativity were granted to the single stonemasons even within the same atelier. Furthermore, such

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heterogeneity did not seem to create any problems for the persons who financed the project (quite likely the *res publica Volubilitanorum*, as for the *capitolium*), nor for the local inhabitants who gathered in this area every day. It should also be remarked that the use of ornament with different decorative features, especially visible in the capitals, is not a phenomenon restricted to this district of the town only. As will be illustrated in more detail in the fourth section, an identical situation is documented in the palace of Gordianus. The houses of the north-east district follow a similar pattern (Pensabene 2011, 226-54). Therefore, it seems quite evident that this "freedom" from artistic conventions was an essential component of the local style and taste, and should be understood from this perspective (see the observations in Chapter 8).

Despite the variability of the carving, almost all the capitals from the *porticus* and monumental entrances to the piazza show a similar combination of motifs typical of the productions of *Volubilis*. The groups of acanthus listed above refer to the differences in the overall shape of the leaves. However, a general pattern can be recognized in all these examples (Fig. 4.9b-c), since the leaves are composed of small, pointed folioles with a more or less naturalistic design. One should agree with Pensabene who saw in the form of this acanthus a continuity of the Hellenistic prickly acanthus – a pre-Roman legacy that survived throughout the Roman imperial era (Pensabene 2011, 217). The features observable in the upper part of the capitals, however, have nothing to do with decorative traditions influenced by a Hellenistic or Punic heritage, since they find no parallels elsewhere in North Africa, or in any other province of the Roman Empire. On the contrary, they are a specific characteristic – a sort of "factory mark" – of the products executed by the local stonemasons (see also Chapter 8). The first peculiarity is represented by the three calyces springing in succession one from another, replacing the canonical calyces-helices-volutes system (see, for instance, ►**Vol 2.35**; ►**Vol 2.45**; ►**Vol 2.49**). The second element, already pointed out for one capital from the basilica (►**Vol 2.19**), is the motif placed at the edge of the "volutes" under the corners of the abacus, which may take the form of a rhomb (►**Vol 2.53**), a shape made of two trapezes joined together (►**Vol 2.52**), or a star inscribed inside a square (►**Vol 2.51**). The axial motif in the middle of the abacus takes different shapes as well, with the orthodox fleuron being the least popular: a shell (►**Vol 2.47**) or a mask (►**Vol 2.53**) are two of the most common examples. Moreover, in all these examples, and in the majority of capitals across the whole site, the abacus is

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reduced to a thin fillet, almost undistinguishable from the top of the kalathos. Another recurring feature is the decorated astragal at the bottom of the capital, underlined by a bead-and-reel motif – or by other decorations, such as strings of dentils. This is observable in the half-column and pilaster capitals on the piers at the west entrance to the piazza (►**Vol 2.42-43**) (Fig. 4.7b) – found elsewhere at *Volubilis*, sometimes replaced by analogous decorations applied to the upper and lower ends of the column shaft, like in the "maison aux colonnes" (Pensabene 2011, 226-39, figs. 26-7, 29, 31).

Numerous cornice blocks are piled on the ground at the right-hand side of the podium of the *capitolium*. Their size and profiles are different, and it is not easy to understand to which buildings they belonged (Thouvenot 1968-72, 188). Some blocks decorated on one side with an Ionic *kymation* with eggs and tongues (Fig. 4.10a) are quite similar to the cornices of the basilica. It is possible they might be associated with that building, although we must also keep in mind the analogies between some architectural elements from the basilica and the *capitolium* (e.g. the capitals ►**Vol 2.17** and ►**Vol 2.18**). The smaller pieces might belong to the *porticus*, while it is very difficult to understand if the larger blocks come from the entablature of the *capitolium*. A recurring profile of these cornices is constituted by a *cyma recta* with a large upper throat (Fig. 4.10b) – an "alteration" of orthodox proportions that recalls the bases with high plinth and high scotia at the east entrance to the piazza (►**Vol 1.29-32**; see *supra*). The majority of the remaining blocks have less diagnostic features, such as a standardized *cyma recta* with lower and upper rows of dentils (Fig. 4.10c), which prevent me for the time being from advancing any hypotheses about their provenance.

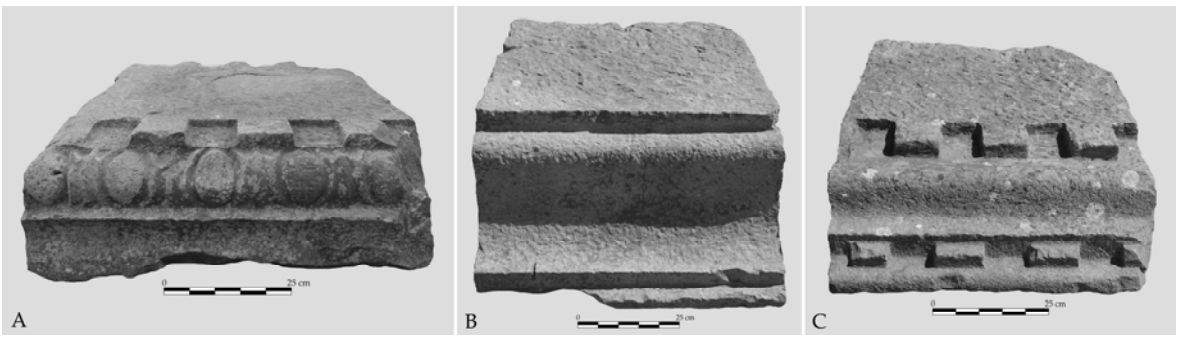

Fig. 4.10. *Volubilis*, piazza of the *capitolium*: cornice blocks. A: cornice with Ionic *kymation*; B: cornice with *cyma recta* and large upper throat; C: cornice with *cyma recta* and dentils

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ARCH OF CARACALLA AND *PORTICUS* ALONG THE *DECUMANUS MAXIMUS*

This section focuses on the decoration from two buildings located along the *decumanus maximus*: the arch of Caracalla, which marks the intersection with the road leading to the forum, and the *porticus* flanking the *decumanus* in front of the "maison aux travaux d'Hercule". These are not the only monumental buildings of the district; the "maison aux colonnes", with its majestic entrance (Thouvenot 1945c, 132-45; Pensabene 2011, 226-39), and the "thermes du nord" (Thouvenot 1945e, 156-65; Thébert 2003, 273-5) are two other examples. The arch and the *porticus*, however, are the monuments that better allow me to examine the relationship of their decoration with the other main public buildings, i.e. the basilica and *capitolium*.

The arch of Caracalla was portrayed in two drawings by Windus and Boyde before the earthquake of Lisbon (Windus 1725; de la Faye 1736; Euzennat 1956; see Chapter 2, Figs. 2.1-2), and by Freihern von Augustin (1838) after the entablature and archway had collapsed. The present aspect (Fig. 4.11) is the outcome of the restorations undertaken by Chatelain in 1930-32, about which we have only a brief account (Chatelain 1931b, 293; 1937b, 21; 1944, 194-5). Chatelain was well aware of the existence of these drawings (see Chatelain 1937a, 5-6; 1944, 193-4), but, for some apparently inexplicable reason, they were not taken into account as a guideline for the restorations. As a result, various mistakes were made during the anastylosis.

Fig. 4.11. *Volubilis*, arch of Caracalla: east façade (present state)

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A first alternative reconstruction of the elevation was proposed in the 1960s by Domergue (Fig. 4.12a), who pointed out that the frieze between the architrave and the cornice should be composed of four rows of blocks – as shown in all the drawings, before and after the earthquake, rather than just one as it appears at the present after Chatelain's restorations. Domergue also attempted a hypothetical repositioning of the elements of decoration found on the ground around the monument (Domergue 1963-64a-b; 1966). More recently, a revision of this reconstruction was made by Passalacqua (Camporeale *et al*. 2008, 301-8, figs. 18-20). According to this new study, the dedicatory inscription, which was positioned by Domergue in the central part of the frieze, should rather be placed on the attic (Fig. 4.12b). Although it does not take into account the architectural decoration of the arch, this new hypothesis seems more convincing, judging by the thorough analysis of design principles presented in support of this alternative interpretation.

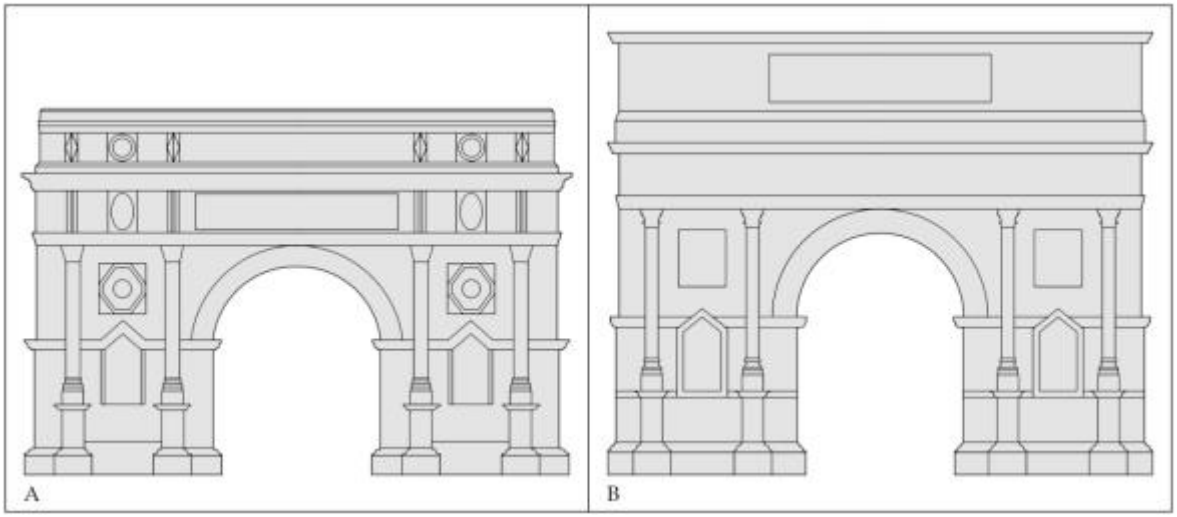

Fig. 4.12. *Volubilis*, arch of Caracalla: conjectural reconstructions of the elevation. A: hypothesis by Domergue; B: hypothesis by Passalacqua

The dedicatory inscription (*IAM* 390-1) provides important data. The same text was engraved on two slabs on both sides of the monument. One of these was repositioned by Chatelain on the top of the arch on the east façade, with all the approximations described above, while some fragments of the other inscription are still lying on the ground. The arch was dedicated to Caracalla and his mother Julia Domna between AD 216 and 217 (lines 1-4). Like the *capitolium*, it was commissioned by the *res p*(*ublica*) *Vo*[*lubil*]*itanoru*[*m*] (line 4) and inaugurated by the governor M. Aurellius Sebastenus (lines 4-5). The text

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states that the monument was a gift by the citizens of *Volubilis* to honour the emperor's generosity (lines 4-5): [*o*]*b singularem eius* [*erg*]*a universos* [*et novam*] / *supra omnes* [*retro prin*]*cipes indu*[*lgentiam*]. The interpretation most commonly accepted today is that these lines refer to the remission of the outstanding taxes to all the inhabitants of the province (Domergue 1963-64a, 222-9; Camporeale *at al*. 2008, 290; Cassibry 2014, 84), as testified by a bronze inscription from *Banasa* dated to AD 215/216 (*IAM* 100; Thouvenot 1946). The monument was crowned by a group of bronze statuary depicting Caracalla on a chariot with six horses: *arcum* / *c*[*u*]*m seiugibus e*[*t orname*]*ntis omnibus* (lines 4-5).

The eight columns of the arch, four on each side, are positioned on high moulded pedestals and belong to the Corinthian order. Seven Attic column bases are preserved (►**Vol 1.12**; one base from the west façade is lost), showing a rather standard design apart from the flattened profile of the tori. Three pilaster bases are set behind the respective columns, but their positioning and the poor preservation made recording impossible; it seems, however, that their profile is almost identical to those of the column bases. The two column capitals repositioned *in situ* on the east façade (►**Vol 2.23**) could be related to the pieces from the *capitolium*, if we look at the overall design (►**Vol 2.21-22**; see *supra*). Again, the adoption of an official-style ornament is merged here with the introduction of local variations: the set of three calyces, the rhomb at the edge of the "volutes", and the reduced size of the abacus (Fig. 4.13a). In contrast, the pilaster examples behind the columns (►**Vol 2.11**) reproduce more closely official forms, since the canonical succession of cauliculi, calyces, helices and volutes is maintained.

Something must also be said about the decorative reliefs belonging to the arch. As a result of the 1930-32 restorations, four roundels now occupy the space above the niches on the gateposts of both façades, but this was not their original position. The drawings of both Windus and Boyde depict two large rhomboidal-shaped decorations with a circle inscribed, placed in that precise spot, some fragments of which lie on the ground at the right-hand side of the building. As to the busts carved inside the roundels, it was initially believed that they might depict the members of the Severan family (Septimius Severus, Julia Domna, Geta and Caracalla: Thouvenot 1936, 179), but this hypothesis can now be rejected. According to Domergue (1966), a personification of the four Seasons should be recognized, with the roundels on the east façade depicting the Summer and Autumn, respectively (Fig. 4.13b-c).

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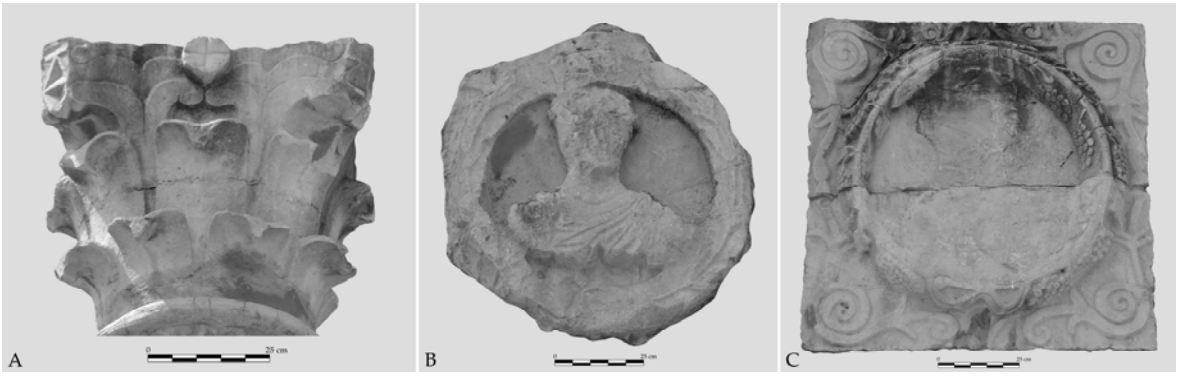

Fig. 4.13. *Volubilis*, arch of Caracalla: decoration. A: Corinthian column capital with smooth leaves (**Vol 2.23**); B-C: roundels with putative representation of Seasons (Summer and Autumn?)

A large number of fragmentary reliefs are piled at the right-hand side of the arch and in the adjacent area (Fig. 4.14): slabs with shields, arms and armour carved on their surface; war trophies and *signa*; human figures; rhomboid and rectangular shapes; etc. Their positioning on the arch, however, is uncertain. Domergue's reconstruction (Domergue 1963-64a, 208-18, pl. 12) should perhaps be revised in the light of the new hypothetical elevation of the monument (see *supra*). As to the carving style of the roundels, his suggestion that this decoration was influenced by that of private buildings, in particular by their mosaics, is quite convincing (Domergue 1963-64a, 214). This would be a further confirmation of the mixture of official and local styles in public buildings, as described above for the decoration of the *capitolium* and annexed piazza. Finally, a large bronze fragment of a damascened mantle, now at the Musée Archéologique de Rabat, might be attributed to the statue of Caracalla on the chariot set on the top of the arch (Boube-Piccot 1966; 1969, 87-104, pls. 16-39; see also Chatelain 1944, 284).

Fig. 4.14. *Volubilis*, arch of Caracalla: fragments of reliefs scattered on the ground

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The second monument discussed here, the *porticus* on the left side of the *decumanus maximus*, develops along this street from the intersection with the so-called "*kardo* II north", where the "maison aux travaux d'Hercule" is located. It follows the *decumanus* uphill reaching the south corner of the palace of Gordianus, where it is replaced by an Ionic colonnade (see *infra*). The three archways visible today (Fig. 4.15) correspond to the south end of the monument. During the excavations of the French Protectorate only the lower parts of the pillars were still standing, as documented by a photograph, surrounded by blocks of the entablature on the ground (Chatelain 1949, pl. 15: bottom image). We can assume that restorations were undertaken in those years, although no account of this survives. However, it seems that the present aspect of the *porticus*, unlike the arch of Caracalla, should be considered a good reconstruction of the original elevation (see also the remarks in Thouvenot 1948a, 92, note 1).

Fig. 4.15. *Volubilis*, *porticus* along the *decumanus maximus*

The chronology is uncertain due to the lack of any epigraphic evidence recording the construction of this building. Moreover, the loss of stratigraphic data when the north-east district was excavated is a serious issue for dating the structures in this sector. Different opinions have been advanced since Étienne (1960, 147-50) first suggested that the district had almost entirely developed within the third century AD. The urban layout of this part of the town is also connected with the particular pentagonal shape of the city walls, dated

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to AD 168/169 (*IAM* 382-3), and with the chronology of the aqueduct (see Akerraz 1987; Lenoir, E. 2009, 79-80). The issue is whether the various *domus* should predate one or both these constructions, or *vice versa* (reviews of the debate can be found in Thébert 2003, 270-1; Camporeale *et al*. 2008, 292). The problem cannot be solved here, indeed this question was outside the scope of the present study. As to the (approximate) dating of the *porticus*, it is worth taking into account some considerations on the "maison aux travaux d'Hercule" to which it is linked. According to Thouvenot (1948a, 107-8), the first building phase of the house should be placed in the late Flavian – early Antonine period, followed by transformations in the Severan era that aimed to heighten the harmony between this building and the *decumanus*. A similar chronology in the late Antonine – early Severan period was also supported by Étienne (1960, 34). The decision to build a *porticus* flanking that side of the street provided the means to create a link, i.e. an architectural harmony, between the *decumanus* and the houses. Therefore, despite the absence of any definitive evidence, a dating of the *porticus* to the end of the second century AD, or to the early third century, seems quite realistic.

With regard to its decoration, each pillar is provided with pilasters (height: c. 4 m) on the side looking towards the street, while the rear is undecorated. The pilasters are interrupted approximately at mid-height by a cornice formed by a *cyma reversa*, *cyma recta*, and quarter round, all separated by fillets. On the top of the cornices are set the archways. The bases of the pilasters are of the Attic type without plinth (►**Vol 1.44**); the profile of the tori is trapezoidal and the lower torus is larger than the upper torus. This shape appears to be a compromise between standard Attic bases, with plinth and tori of different size, and some of the pieces recorded, for instance, in the basilica (►**Vol 1.45-46**) and in the piazza of the *capitolium* (►**Vol 1.39**; ►**Vol 1.47-49**). The connection with the ornament of the basilica is more evident when one looks at the capitals. These are all Corinthian with smooth leaves, divided into five types (►**Vol 2.12-16**) according to the variations of the carving, visible especially in the decoration of the cauliculi. Despite these small differences, the capitals can be considered a single group. The similarity with many capitals of the basilica (►**Vol 2.4**; ►**Vol 2.6**; ►**Vol 2.8**; ►**Vol 2.10**) is confirmed by the V-shaped calyces, helices and volutes, and by their flattened carving (Fig. 4.16a). This decoration, therefore, reproduced a simplified version of the official Corinthian style. Local re-interpretations are nevertheless identifiable in the reduced size of the abacus and

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in the presence of a torus at the bottom of the kalathos – formally belonging to the shaft, but carved here in the same block of the capital. It is also worth observing that at the southern corner of the *porticus*, at the intersection with the *kardo*, is set a large independent pier with four half-columns attached, the capitals of which show the well-recognizable three calyces typical of the Volubilitan style (►**Vol 2.24-26**). Once again we are in the presence of official-like ornament and elements of local tradition employed together in the same public context.

Finally, along the frieze of the *porticus* have been repositioned (probably in their original setting) two reliefs with busts of human figures. Their identification, however, is not certain. The first figure (Fig. 4.16b) wears a plumed helmet and is armed with a spear and an oval shield. According to Thouvenot (1948a, 92), one should recognize a female (?) personification of Rome. The same hypothesis is supported by Risse (2001, 70, fig. 102), but the figure is considered, more realistically, a man. The second bust (Fig. 4.16c), surely a female figure, has been interpreted as a depiction of Africa, although this remains only conjectural (Thouvenot 1948a, 92-3; Risse 2001, 70, 103).

Fig. 4.16. *Volubilis*, *porticus* along the *decumanus*: decoration. A: Corinthian capital with smooth leaves (**Vol 2.13**); B: male or female bust (Rome?); C: female bust (Africa?)

PALACE OF GORDIANUS

The large building known as the "palace of Gordianus" is positioned approximately halfway along the *decumanus maximus*, on the left side of the street. The southern perimeter wall of the palace abuts the "maison à l'ouest du palais du Governeur" (Étienne 1954, 128-54; 1960, 46-9), while to the north it is separated by a secondary *kardo* from the

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"maison à la disciplina" (Thouvenot 1973-75). It is one of the first buildings discovered in this area during the early years of the Protectorate (Chatelain 1922, 28-30; Thouvenot 1958, 9). The label "palace of Gordianus" – adapted from the French "palais de Gordien" or, sometimes, "palais du Governeur" – has been used for referring to this building since 1921, when an inscription was discovered at the entrance of the building. The text (*IAM* 404) records the restoration of the house thanks to the initiative, and financing, of the emperor Gordianus III (lines 1-3). The building had to be reconstructed from the foundations due to the extensive damage (lines 3-5): *domum cum balineo / vetustate conlapsam / a solo restituit*. The works were executed by the *procurator* and *prolegatus* M. Ulpius Victor (lines 6-7) between AD 238 and 241 (on this chronology see also *IAM* 357, which mentions the involvement of the governor in the negotiations with the *Baquates*). It is believed that the palace was used as a residence for the provincial governors (*domus publica*) when they visited *Volubilis* for renewing treaties with the neighbouring peoples or for inaugurating buildings (Carcopino 1943, 188-9; Camporeale *et al*. 2008, 286). However, although the use of the building as a gubernatorial residence is probable on this evidence, other periodic functions/occupants cannot be excluded.

Fig. 4.17. *Volubilis*, palace of Gordianus: entrance with Ionic colonnade on the front

The ruins of the palace visible today (Fig. 4.17) are those belonging to its reconstruction *a solo* in the mid-third century AD. Thanks to some sondages in the south-west portion of the building, it was possible to identify some of the previous foundations and to attempt a

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reconstruction of the initial layout (Thouvenot 1958, 41-3, fig. 6). Despite the hypothesis by Carcopino that the early palace was a residence of Juba II in the putative capital of his kingdom (*Volubilis regia Iubae*: Carcopino 1935; 1943, 167), no evidence was ever found dating back to this period. Judging by the masonry of the walls and the associated finds, it seems that the first building phase cannot predate the mid-first century AD, at the earliest (Thouvenot 1958, 45). All the architectural elements preserved should be attributed to the later reconstruction, as illustrated below.

In reference to the layout of the third-century palace, this is a large construction that covers an area of 69 x 74 m, including the colonnade on the front (Thouvenot 1958, 9). The entrance, decorated by fluted pilasters with Attic bases without plinth (►**Vol 1.43**), is located towards the southern edge of the building, opening on the *decumanus*. The frontal façade of the palace is occupied by small *tabernae*, like all the other houses in the north-east district. From the entrance, three peristyles are arranged in a row, two of which are decorated with fountains. A large number of rooms of different size open on the various corridors. In the north-east part of the building are located the baths, as mentioned in the inscription (*domus cum balineo*). The southern side of the baths is flanked by a large room with a productive installation with olive oil presses. The presence of such presses inside aristocratic houses was a common feature of domestic architecture at *Volubilis* (see Akerraz and Lenoir 1981-82).

The front of the palace is separated from the *decumanus* by a majestic Ionic colonnade (15 columns in total) that replaces the *porticus* with archways set in the southern part of the street. Seven of these columns (total height: c. 4.1 m) have been re-erected on the pedestals, but we have no information at all about the restorations. The columns have Attic bases with plinth (►**Vol 1.15**), whose scotia tends to be quite developed in height, like many basess in the piazza of the *capitolium* (see *supra*). In contrast, the Ionic capitals (►**Vol 2.3**) do not show any of the local decorative features described so far (Fig. 4.18a), and can be regarded with no hesitation as the closest reproduction of official-style decoration at *Volubilis* (Pensabene 2011, 257). The presence of three eggs with darts in the *kymation*, the simplified half-palmettes, and the *balteus* in the middle of the *pulvini* being represented by two vertical tori, are all typical elements of third-century productions at Rome and in the provinces (Herrmann 1988, 10-20; see also Beykan 2012, 29-35, on some products of this period from Proconnesus). While no traces of the architrave and frieze

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from the colonnade are preserved, various cornice blocks are placed on the ground in front of the pedestals. Their profile is represented by a large *cyma recta* highlighted by a fascia and fillets. The lower surface of the projecting end is decorated with various motifs (Fig. 4.18b-c). Many of these recall the decorations used for Corinthian capitals (e.g. a schematic fleuron, a shell, or a disc), as well as other shapes such as animal figurines, *kantharoi*, or Saturn's moon symbol. I can thus conclude that not only different ateliers of stonemasons could work together at the same building project (as evident for the *porticus* of the *capitolium*), but also when single elements of a building, like columns, had to be produced. It is quite clear that two different ateliers with different artistic background can be identified. The carvers who sculpted the Attic bases might belong to the same workshop of those who worked at the cornices, since in both instances we find elements of the Volubilitan style: the high scotia of the bases and the motifs of the cornices. On the other hand, the stonemasons who carved the Ionic capitals were more open to the official models of that time – an influence that might have been determined, for example, by their contact with North African itinerant ateliers (on the existence of such ateliers in *Africa Proconsularis* see Ferchiou 1983; 1989b; 2003).

Fig. 4.18. *Volubilis*, palace of Gordianus: decoration from the colonnade. A: Ionic capital (**Vol 2.3**); B: cornice with animal figurine (a bird between two columns); C: cornice with shell motif

The decoration inside the palace is equally mixed in terms of stylistic features. In addition to the bases at the entrance mentioned above (►**Vol 1.43**), there are more Attic bases without plinth in other rooms of the building (►**Vol 1.36-38**; ►**Vol 1.41-42**). If one also looks at the evidence discussed in the previous sections (basilica, piazza of the *capitolium*, and *porticus* along the *decumanus*), plus some additional elements found elsewhere across the site (e.g. from "temple B": ►**Vol 1.40**), it is clear that this kind of decoration was particularly popular at *Volubilis* (Fig. 4.19a-c). I have already observed that Attic bases

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without plinth cannot be artificially confined to the pre-Roman period, as once believed, and the evidence from the palace of Gordianus represents perhaps the latest attestation of such ornament at the site. With regard to the Attic bases with plinth (►**Vol 1.1**; ►**Vol 1.5**; ►**Vol 1.7**; ►**Vol 1.10-11**; ►**Vol 1.17**; ►**Vol 1.26**), their profile is generally standardized, although the bases ►**Vol 1.5**, ►**Vol 1.7** and ►**Vol 1.26** may be treated separately due to the presence, once again, of a high scotia.

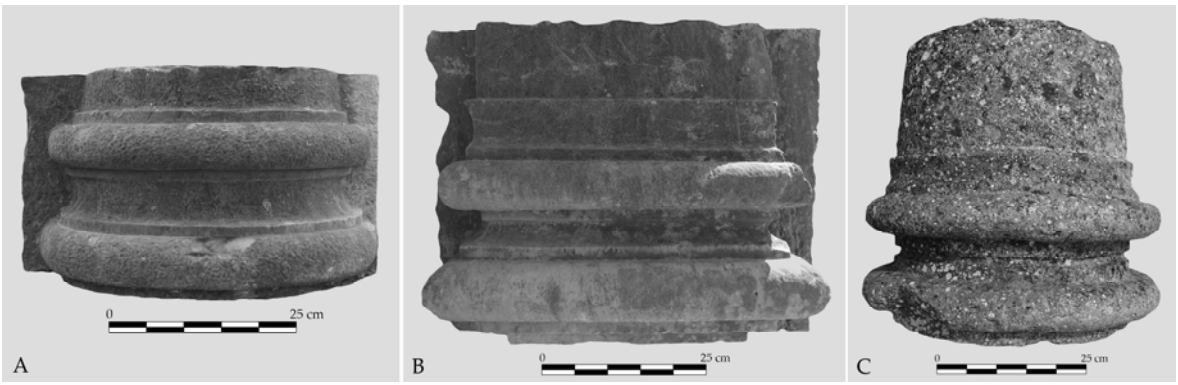

Fig. 4.19. *Volubilis*, Attic bases without plinth. A: palace of Gordianus (**Vol 1.36**); B: piazza of the *capitolium* (**Vol 1.47**); C: "temple B" (**Vol 1.40**)

The Ionic order is limited to the outer colonnade, while the Corinthian style was preferred inside the palace, as in the majority of buildings at *Volubilis*. At the entrance and inside the peristyles one finds, not *in situ*, some pilaster capitals with smooth leaves (►**Vol 2.5**), almost identical to the capitals from the basilica's lower colonnade (►**Vol 2.4**) and to which the same considerations apply. A small half-column capital (►**Vol 2.39**), scattered on the ground along the corridor, shows acanthus leaves belonging to the "group 2" described above. Overall it is quite similar to the examples of the same group from the piazza of the *capitolium* (►**Vol 2.35-38**), although in this case the leaves have a more naturalistic design.

The most significant series of Corinthian capitals from this building is constituted by six pilaster capitals (►**Vol 2.30**; ►**Vol 2.32-34**) and one column capital (►**Vol 2.31**) with "group 1" acanthus. The details and accuracy of the carving varies for each piece, but their design follows a common pattern. It is worth examining in more detail here the pilaster capital ►**Vol 2.30** (Fig. 4.20a), carved on the rear side of the same block of the capital with smooth leaves ►**Vol 2.5**. The bottom of the kalathos is richly decorated with

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an Ionic *kymation* and an astragal with bead-and-reel motif separated by a fillet, recalling the pieces from the west entrance in the piazza of the *capitolium* (►**Vol 2.42-43**). In the upper kalathos one finds cauliculi with a rope-pattern decoration on their collars, together with the three calyces and the rhomboid motif under the corners of the abacus. The latter, unlike the vast majority of capitals from *Volubilis*, is well-developed in height with a large cavetto crowned by a fillet. The acanthus leaves show side-leaflets with pointed lobes separated through triangular eyelets, representing a direct reproduction of the Hellenistic prickly acanthus, as confirmed by other capitals where triangular and circular eyelets are merged together. One of these examples comes from the "maison aux gros pilastres" (Étienne 1960, 86-9, 134, pl. 88, fig. 5), now displayed in the Musée Archéologique de Rabat, and can be regarded as the most excellent example of quality carving executed by local craftsmen (Fig. 4.20b). The second parallel is represented by a capital lying on the ground in front of the south-east gate of the city walls (►**Vol 2.29**) (Fig. 4.20c), probably part of the gate's decoration – an element that would provide a precise dating to AD 168/169 (see *IAM* 382-3). The point-shaped folioles of the capitals from the *porticus* of the *capitolium* drew inspiration from the Hellenistic acanthus (see *supra*; Pensabene 2011, 217). In the examples described here, however, the persistence of this pre-Roman decorative tradition is even more evident, since the shape of the acanthus adheres loyally to the Hellenistic model. This demonstrates that this legacy was deeply rooted within the stonemasons' background and their know-how. Such a phenomenon of pre-Roman traditions surviving in the Roman era is not restricted to *Volubilis*. One should remember, for instance, that Corinthian capitals from Athens dating to the second century AD were still provided with Hellenistic-like circular eyelets (Walker 1979).

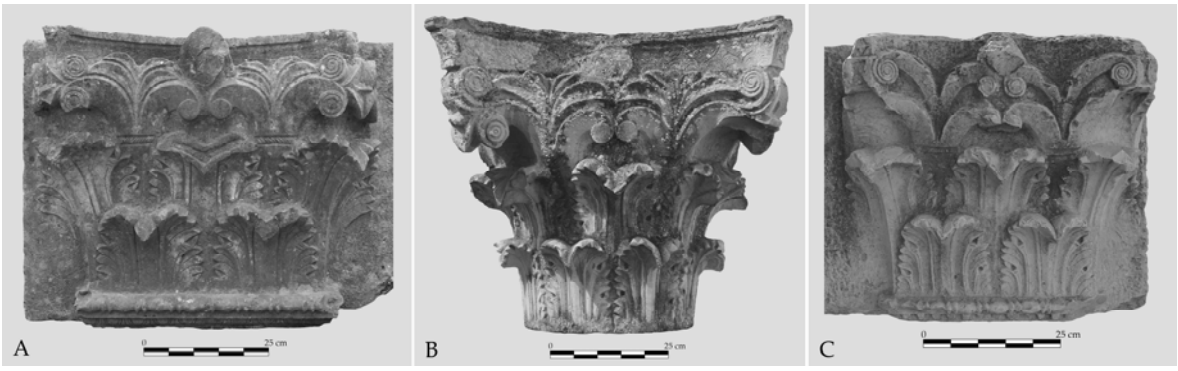

Fig. 4.20. *Volubilis*, Corinthian capitals with "group 1" acanthus. A: palace of Gordianus (**Vol 2.30**); B: "maison aux gros pilastres"; C: city walls, south-east gate (**Vol 2.29**)

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Inside the first peristyle one can observe a small composite capital probably belonging to the decoration of that room (►**Vol 2.58**). Another example (►**Vol 2.57**) is carved together with a Corinthian capital (►**Vol 2.48**), as part of a heart-shaped pier located outside the building, between the Ionic colonnade and the *decumanus* – though its association with the palace is not certain. In both cases the echinus is shaped as a flat fascia, separated from the kalathos by a thin astragal with a bead-and-reel motif. The Ionic *kymation* is quite schematic, like the flutes on the surface of the kalathos underneath. The lateral volutes are also reduced in size (Fig. 4.21). All these simplifications of the carving would suggest that the design of the composite capital was perhaps not fully understood by the stonemasons, or that it simply did not meet the local artistic taste. As a matter of fact, composite capitals are not frequently employed at *Volubilis*, with the exception of the "maison aux colonnes" (Pensabene 2011, 229-30, 232, figs. 26, 31), nor in the province as a whole – indeed only three examples are known at *Banasa* (►**Ban 2.31-33**), plus one imported Byzantine capital at *Sala* (►**Sal 2.21**).

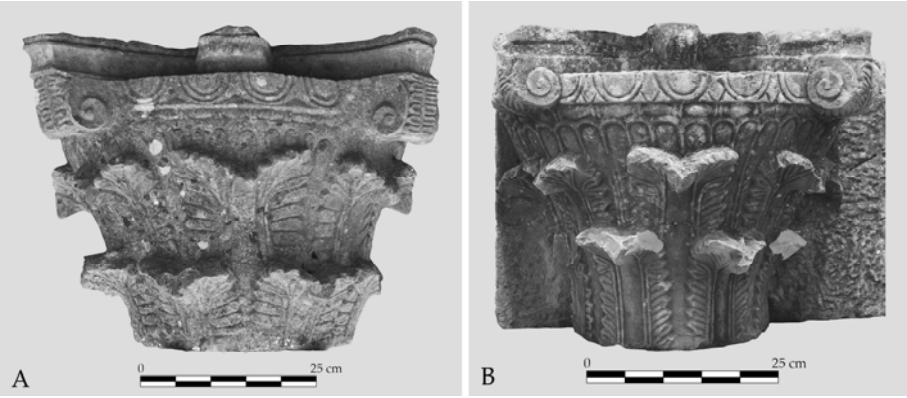

Fig. 4.21. *Volubilis*, composite capitals. A: palace of Gordianus (**Vol 2.58**); B: *decumanus maximus*, outside the palace (**Vol 2.57**)

THE PRODUCTION OF PSEUDO-IMPOST CAPITALS

This section focuses on a group of capitals (►**Vol 2.64-73**), for which I have adopted the label "pseudo-impost". The name was chosen due to their particular shape: the kalathos, provided with a circular section at the bottom, becomes square at the top (see *Volubilis*'s Catalogue, note 1). These capitals belong to some of the buildings described above, but I preferred to discuss them independently in order to better illustrate the issues related to

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their decorative style and chronology. They are divided into two sub-groups (Fig. 4.22): smooth pseudo-impost capitals (►**Vol 2.64-70**) and pseudo-impost capitals with Corinthian-Ionic motifs (►**Vol 2.71-73**).

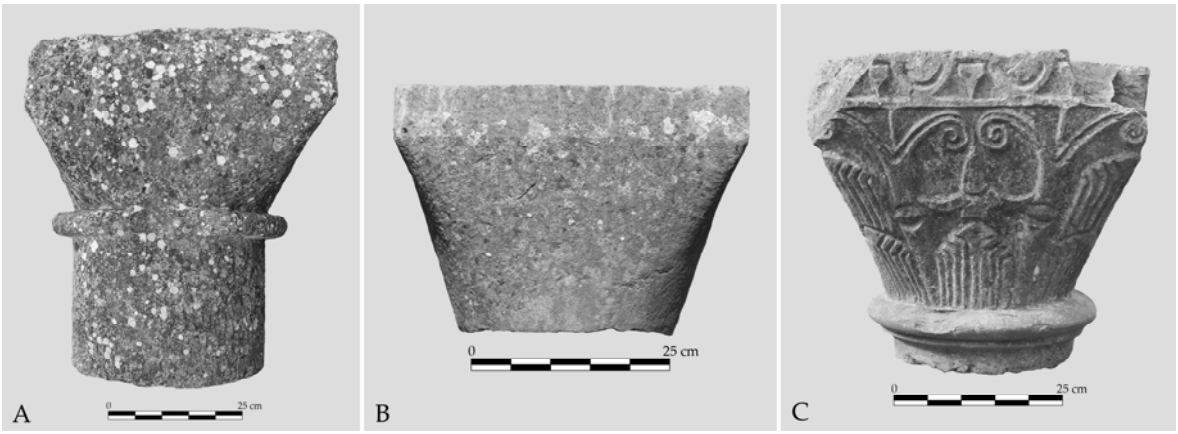

Fig. 4.22. *Volubilis*, smooth and decorated pseudo-impost capitals. A: "temple B" (**Vol 2.67**); B: "thermes du nord" (**Vol 2.64**); C: palace of Gordianus (**Vol 2.71**)

A first analysis of these capitals, referred to as "chapiteaux en tronc de pyramide", was attempted by Jodin (1977, 309; 1987, 96-7; see also Chapter 2), who came to the conclusion that they should be considered a pre-Roman type of ornament with influences from the Tuscan order. However, in addition to the general critiques already advanced in reference to Jodin's study of the putative pre-Claudian *Volubilis* (Lassère and Hallier 1989), it is now possible to discard such hypothesis in the light of further considerations. These capitals are found in numerous buildings: in the basilica (►**Vol 2.68**), "temple B" (►**Vol 2.67**), "thermes du nord" (►**Vol 2.64-66**; ►**Vol 2.72**), palace of Gordianus (►**Vol 2.69-73**), and in many houses of the north-east and south-east districts (see the parallels in the Catalogue). While some of them are made of the same sandstone used (not exclusively) in some early constructions at *Volubilis*, the Zerhoun limestone was employed for the majority of these capitals. It is acknowledged that the intensive use of this material for building purposes did not begin before the second century AD, reaching an apex in the third century (see, in order: Étienne 1952; Feray and Paskoff 1966; Boube 1967, 270; Jodin 1968-72, 133). Moreover, with regard to the decorated examples, the hybrid Corinthian-Ionic (and other) motifs employed cannot be regarded as prototypes of the canonical styles, but rather as a local modification and re-interpretation of the ornament diffused across the Mediterranean.

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More recently, Pensabene dedicated a brief paragraph of his article on *Volubilis* to the smooth and decorated capitals from the "thermes du nord" (Pensabene 2011, 254-7). On this occasion he associated the shape of these elements with that of the Byzantine impost capitals from Constantinople, advancing a similar dating towards the fifth-sixth century AD. According to him, the smooth pieces would resemble the roughed-out products exported from Proconnesus, while the decorated ones would represent a local variation, or misinterpretation, of the typical motifs of the impost capitals: basket shapes, vegetal intaglios, or Christian symbols. While the similarity between the two shapes is quite convincing (hence the label "pseudo-impost" introduced here), however, such a late chronology poses some problems. The first issue is caused by the extreme scarcity of archaeological finds from *Volubilis* datable to this period. Only a few glass and ceramic lamps of the fourth-fifth century AD are known (Villaverde Vega 2001, 163-5) – further confirmed by the apparent lack of any forms of late African red slip ware, as reported by Fentress (pers. comm.), who examined the materials kept inside the storehouse (see also Chapter 2). Furthermore, the diffusion of these capitals (mostly smooth forms) in many buildings across the site invites a cautious approach, since it appears that no late building phases can be recognized. The most striking example is represented by the *in situ* pilaster capitals from the south and north sides of the basilica (►**Vol 2.68**). Given that these walls had never collapsed, their contemporaneity with the rest of the Severan building is assured (see *supra*).

In order to try to find an explanation for the discrepancy between the impost-like shape of these capitals and their chronology, one should focus on the production process. At the same time, the two sub-groups (smooth and decorated capitals) should be analysed separately. As to the smooth pseudo-impost examples (►**Vol 2.64-70**), their surface was apparently not covered with stucco, thus ruling out the possibility that decorations might have been painted on them. It is worth taking into account the research by Asgari on the stages of workmanship of the capitals from Proconnesus (Asgari 1988; 1995). In particular, the results of the study on the production of roughed-out impost capitals at the quarries led her to conclude that "even though the impost capital was an innovation of the sixth century, it was no new shape for the Proconnesian quarries, because this basket-type in rough form was nothing but the earliest step in the shaping of Corinthian capitals […] Thus the basket shape was a familiar form with a long tradition on the island and could,

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therefore, also be mass-produced" (Asgari 1995, 285, figs. 11, 19). Furthermore, the shape of some roughed-out capitals from the quarries at *Luna*, datable to the early Roman Imperial era, is not so different from the pieces from *Volubilis* (Cagnana 2014, 169, fig. 7). It is thus possible to infer that smooth pseudo-impost capitals might have been created as an intermediate stage of workmanship – a process similar to that of Corinthian and composite capitals with smooth leaves in the second and third centuries AD (see Pensabene 1986, 387). This would also explain why these forms can be associated with buildings datable as early as the end of the second – mid-third century AD, such as the "thermes du nord" (see Lenoir, E. 1991, 153-8; Thébert 2003, 273).

With regard to the decorated examples (►**Vol 2.71-73**), it seems that a stylistic analysis can provide interesting information. The peculiar Corinthian and Ionic motifs merged together as part of this ornament are not attested in any of the other architectural elements produced at *Volubilis*. They diverge entirely from the typical motifs recognized in the majority of Corinthian capitals discussed above (i.e. prickly acanthus, three calyces in succession, rhomboid motifs under the corners of the abacus, etc.). The shape of the palm leaves and the calyces would rather recall some capitals from Spain, which may have represented a model for this decoration (e.g. Gutiérrez-Behemerid 1992, 201-2, no. 891; Domingo Magaña 2011, 120-1, nos. 11-3). Therefore, I can hypothesize that the local craftsmen decided to adopt an alternative decorative style at some point and applied it to the already known pseudo-impost forms. It is possible that this represented one of the latest stages of their production, not long before *Volubilis* was abandoned. In support of this hypothesis I can cite the evidence from the palace of Gordianus. The three decorated pseudo-impost capitals found in this building (►**Vol 2.71-73**) are all placed in a small room at the north-east corner. They are associated with Attic bases (►**Vol 1.17**), whose moulded pedestals are clearly recycled in upside-down position (see also Thouvenot 1958, 30). The phenomenon of reusing materials is not documented elsewhere in the palace. One cannot exclude, therefore, that this room was the target of further restorations after the reconstruction of the palace in the mid-third century AD – perhaps at some point at the end of the third century, if not even later in the fourth century AD. The use of pseudo-impost capitals with Corinthian-Ionic motifs in this room may be explained by the fact that this kind of ornament was produced in that period, employed here together with recycled materials (the bases and pedestals).

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Looking at the (few) other examples found at *Volubilis*, one can attempt a hypothetic "evolution" from smooth to decorated pseudo-impost forms. One of the earliest stages, perhaps even contemporary with the smooth forms, might be represented by an isolated capital, of unknown provenance, where only the abacus is decorated with a row of biconvex leaves (Fig. 4.23a). Afterwards, the decoration might have become more elaborated and personalized (Fig. 4.23b), with the introduction of palm leaves and motifs such as the *kantharos*, recognizable also in a tronco-pyramidal capital placed (not *in situ*) on the perimeter wall of the baths of Gallienus (►**Vol 2.63**). At the same time (or maybe slightly later?), the form acquired its ultimate design with palm leaves and Corinthian-Ionic motifs – surely the most recurrent decoration among the examples described here, also documented in other buildings across the site (Fig. 4.23c).

Fig. 4.23. *Volubilis*, decorated pseudo-impost capitals. A: abacus with biconvex leaves (unknown provenance); B: palm leaves, *kantharos*, and abacus with biconvex leaves (*insula* 12); C: palm leaves and Corinthian-Ionic motifs (*insula* 12)

CONCLUDING REMARKS

The evidence discussed in the previous sections allows me to advance some conclusions on *Volubilis* and its architectural decoration, which will then be commented on more in depth, and compared with the data from the other sites, in Chapter 8.

The first, striking feature that emerges from the analysis of architectural elements is the extreme scarcity of pre-Roman (Mauretanian) ornament. The list of pieces that can be attributed to this period is very small indeed: one Ionic capital of Punic-Hellenistic tradition probably coming from the forum (Boube 1966b), and one Tuscan capital/base

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belonging to the sanctuary obliterated by the construction of the piazza of the *capitolium* (Boube 1967, 289). To complete this review, I should cite three blocks of Egyptian gorge cornices found in the *insulae* 3, 16 and 19 of the south-west district, probably dating to the pre-Roman era (Jodin 1975, 31; 1987, 103, pl. 9.1). In reference to the various elements once referred to as pre-Roman decoration – Attic bases without plinth, pseudo-Corinthian capitals with water plant leaves, and pseudo-impost capitals (Boube 1967, 330-1; Jodin 1987, 90-103) – it is now clear that such a chronology is no longer acceptable. Even if one looks at the south-west district of the town (not included in the fieldwork carried out for this research), where the Mauretanian settlement was located (see Boube 1967; Jodin 1987), only the foundations of walls of this period are preserved. It is difficult to have an idea of the elevation of those buildings, because nothing of their ornament survives. In conclusion, these isolated architectural elements cannot be used to support the hypothesis that *Volubilis* was a *regia Iubae* (Carcopino 1935; 1943, 167-90). Moreover, the lack of any evidence datable to this period from the palace of Gordianus – once believed to be a palace of Juba II in its first construction phase (Carcopino 1935; 1943, 167) – confirms all the issues of such a theory.

With regard to Roman-period architecture and decoration, it seems that the urban layout of *Volubilis* developed progressively, though quite slowly. The first construction phase of the forum – the piazza with a *porticus* to which the pseudo-Corinthian capitals ►**Vol 2.60-61** might be attributed – can perhaps be associated with the promotion of the town to *municipium* in AD 44 (*IAM* 448). However, it took quite a long time for these works to be completed – the dating spans from AD 57/58 to the late first century AD (see *supra*). Judging by the data analysed during this research, I have not found any other evidence of public buildings that can be directly linked with this promotion. At the same time, it is not possible to find any archaeological trace of the event that brought *Volubilis* to be awarded the status of *municipium*: Aedemon's uprising (AD 40-41). During the excavations of "temple C" in 1956, now entirely re-buried and covered by vegetation, some traces of burning were documented in first-century layers (Euzennat 1957a, 51; see Chapter 3). This limited set of evidence, however, is not sufficient to prove that the town was burned and sacked during the war.

The much-debated chronology of the north-east district prevents us from having a clear picture of the evolution of this sector, although it would not be surprising if (at least)

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some of the *domus* had been already built towards the mid-second century AD (on the putative early chronology of the district, see in particular: Akerraz 1987, 457; Akerraz and Lenoir 1990, 213-9; Makdoun 1994; 1996; 1999). Apart from a temple of uncertain location, built by the *cultores domus Augustae* and dedicated in AD 157/158 (*IAM* 377; Camporeale *et al*. 2008, 289; Brahmi 2010), the earliest constructions recognizable through tangible architectural remains, and surely dated thanks to epigraphic evidence, are the city walls, AD 168/169 (*IAM* 382-3), to which only the Corinthian capital ►**Vol 2.29** can be probably associated. The apex of building interventions was from the end of the second century AD (construction of the *porticus* along the *decumanus maximus*?) to the early third century, when the monumental district was enhanced by the construction of the most important buildings: the basilica (c. Severan period), the arch of Caracalla (AD 216/217), and the *capitolium* (AD 217). The piazza with *porticus* annexed to the *capitolium* was probably completed at the same stage, or only slightly later. One should include in this series of interventions the reconstruction of the palace of Gordianus (AD 238-241), probably serving as residence of the provincial governors when they stayed at *Volubilis*.

According to the *Itinerarium Antonini Augusti*, c. early third century AD, *Volubilis* should have been promoted to *colonia honoraria* by that time. It has been suggested that the programme of urban enhancement undertaken under the Severans might be linked with this promotion (e.g. Thouvenot 1949, 38; Pensabene 2011, 206-7; Domingo Magaña 2012a, 388). The hypothesis is plausible, but cannot be proved. No epigraphic evidence has been found to confirm that *Volubilis* was promoted to *colonia*, and the information reported by ancient sources is not always reliable (see, for instance, Pliny's inaccuracies described in Chapter 3). Furthermore, the development of urban trajectories and the monumental embellishment in the other towns of *Tingitana* under study (*Banasa*, *Sala*, and *Lixus*) do not appear to be linked with a change of their juridical statuses (see also Chapter 8).

Apart from the discussion about a potential status promotion, it is evident that *Volubilis* witnessed a phase of urban boom from the second century AD to the early third century. It goes without saying that this involved a large demand for architectural decoration. The intensive production of Corinthian capitals (definitely the most popular order at the site), which had perhaps already started with the development of the north-east district, was further increased towards the end of the second century AD. Specialized artisans were

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required to meet the demand and to make sure buildings were completed in time for their inauguration. It would be no exaggeration to regard their products as the result of a phenomenon of large-scale production. The organization of these ateliers and the formation of craftsmen, however, were quite heterogeneous. I have observed that each atelier (and, possibly, each stonemason) was granted a large independence, well documented by the variety of carving styles and decorative motifs. A group of these carvers was more deeply influenced than others by the official Romano-Carthaginian models, as shown, for instance, by two Corinthian capitals from the basilica and *capitolium* (►**Vol 2.17-18**), as well as by the Ionic capitals from the colonnade in front of the palace of Gordianus (►**Vol 2.3**). In other cases, the overall design of capitals taking inspiration from official-style decoration was combined with local features, as indicated by examples from the basilica (e.g. ►**Vol 2.4**), but, even more evidently, by the decoration of the *capitolium* (►**Vol 2.21-22**), the arch of Caracalla (►**Vol 2.23**), and the *porticus* along the *decumanus* (►**Vol 2.12-16**). A conspicuous group of capitals is represented by those examples where the Volubilitan style is predominant, with the most significant examples from the piazza of the *capitolium* (►**Vol 2.35-38**; ►**Vol 2.40**; ►**Vol 2.42-43**; ►**Vol 2.45-47**; ►**Vol 2.49-56**) and the palace of Gordianus (►**Vol 2.30-34**). The adoption of local-style decoration is also attested in the case of private architecture. These motifs are easily recognizable in the houses of the north-east district, such as the "maison aux colonnes", the "maison de Flavius Germanus", the "maison à l'éphèbe" and the "maison aux travaux d'Hercule", to cite a few examples (see Pensabene 2011, 226-54).

The analysis of these architectural elements illustrates clearly two points. Firstly, in reference to the pieces where the Volubilitan style is identifiable, it has been possible to demonstrate that their carving was much indebted to pre-Roman traditions (see also the remarks in Pensabene 2011). In particular, it is the shape of the acanthus that attests to the continuity of such legacies. This can be represented either by a faithful adhesion to the Hellenistic model (see the capitals with "group 1" acanthus from the south-east gate of the city walls and the palace of Gordianus: ►**Vol 2.29-34**), or by local re-elaborations where, nevertheless, the influence of the Hellenistic prickly acanthus is still clear (i.e. the capitals with "group 2" to "group 5" acanthus found in various parts of the town, especially in the piazza of the *capitolium*: see *supra*). This is particularly relevant, since it allows me to attempt to fill some gaps due to the lack of pre-Roman decoration at *Volubilis*. While it is

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true that archaeology has provided only scant evidence datable to the Mauretanian era (see *supra*), one can infer that the Punic-Hellenistic motifs, which continued to be used in Roman-period productions, started to penetrate the local background at that time.

The second point concerns the relationship between the different types of ornament (decoration more or less influenced by the Romano-Carthaginian models vs. decoration of Volubilitan and Punic-Hellenistic style) and the buildings where they were employed. If one looks at the evidence discussed, it is impossible to link a certain type of ornament to a specific building or public space. Even in the case of constructions where the majority of their decoration attempts to reproduce official models, such as in the basilica, one can still find examples that diverge from the general pattern (see ►**Vol 2.19**). The most striking example to illustrate this point comes from the *capitolium* and annexed spaces, where the contrast between the ornament of the temple and that of the surrounding piazza is clearly manifest – both for the types of capitals and bases used.

Finally, the research undertaken at *Volubilis* has also attempted to identify some of the later productions. While dating pseudo-impost capitals to the Byzantine era (fifth to sixth century AD) poses various problems, it is possible that the decorated capitals (►**Vol 2.71-73**) represented a type of decoration introduced by craftsmen at a later stage: c. late third century, or even fourth century AD. Perhaps these new forms were created after the period when the intensive production of Corinthian capitals was concentrated, second century AD to early/mid-third century. On the one hand, I must be cautious about drawing any definitive conclusions, given the reduced amount of evidence and the fact that these arguments are based primarily on stylistic criteria. However, the comparative analysis between these motifs and those of earlier productions, as well as the identification of parallels elsewhere (mainly in Spain), would support these observations. It is to be hoped that, thanks to future research and new excavations, more evidence is found – possibly from stratigraphically dated contexts – in order to confirm (or discard) this hypothesis.

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CASE STUDY: *BANASA*

This second case study details the results of the analysis undertaken at *Banasa*. The town (c. 4 ha) (Fig. 5.1) is much smaller than *Volubilis* (c. 40 ha); the archaeological remains are less imposing and the architectural record less complete. The sections of this chapter focus on the districts of the town, rather than on single monuments, starting with the forum and nearby buildings, then moving to the north-west and north districts, and finally to the south-west, south-east and south districts. A group of architectural elements, produced at *Volubilis* and imported to *Banasa*, is commented on in the fourth section.

FORUM AREA AND NEARBY BUILDINGS

The forum is located in the central part of the town, following canonical rules for Roman *coloniae*. It was the first sector investigated during the excavations of the Protectorate (1933-1950) supervised by Thouvenot and Luquet. As previously observed (Chapter 2), the lack of documentation of archaeological stratigraphy at this site represents a problem. However, the forum received more careful attention when it was excavated and the analysis of the materials can establish a chronology of the complex. It is possible to understand its evolution from the foundation of the *colonia* (c. 31-27 BC) through the third century AD (see, in order, Thouvenot 1941a, 7-14; 1954b; Euzennat and Hallier 1986, 78-82; Brouquier-Reddé *et al*. 2004).

The first building phase is documented by an edifice on the south side, identified as a temple with three *cellae* set on a podium (18-18.5 m wide, 1.85 m high). This construction obliterated some mud-brick structures which, according to the materials discovered, should be dated to the first half of the first century BC and probably belonged to a Mauretanian settlement predating the colony (Brouquier-Reddé *et al*. 2004, 1890). The foundations of a building underneath the later piazza should perhaps be associated with the same phase (Thouvenot 1954b, 13-4; Boube 1967, 277-9), but the chronology is less precise (Brouquier-Reddé *et al*. 2004, 1887).

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Fig. 5.1. *Banasa,* plan of the site. 1: forum; 2 : temple with seven *cellae* ; 3: *curia* ; 4: "grandes thermes ouest"; 5: "*macellum*"; 6: "maison de Fonteius"; 7: "maison aux quatre piliers"; 8: "thermes du nord"; 9: "maison au génie de l'abondance"; 10: "maison M2"; 11: "maison M3"; 12: "maison M4"; 13: "maison M5"; 14: "maison du diplôme de Domitien"; 15: "maison à l'aureus de Juba II"; 16: "maison à la mosaïque de Vénus"; 17: "thermes aux fresques"; 18: "thermes sud"

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It was initially proposed to identify the temple as the *capitolium* of the Augustan colony (Chatelain 1934, 108; 1937c, 32; Thouvenot 1941a, 10-1; 1954b, 15). A marble head of Juno was also discovered (Thouvenot 1932), although it was found out of context. The early chronology of the building, however, casts doubt on such a hypothesis, since *capitolia* in North Africa normally do not predate the second century AD (Brouquier-Reddé *et al*. 2004, 1896; Quinn and Wilson 2013, 150-67).

The whole area was subject to a monumental enlargement towards the end of the first century AD – early second century AD. After the conclusion of these works, the complex comprised a trapezoidal space enclosed by walls (67 to 70 m long, and 37 to 40 m wide), the layout of which is still easily discernible today (Fig. 5.2). The area was accessible from three gates in the west, east and north sides, respectively. The east and north gates have been re-erected during recent restoration works in 2008.

Fig. 5.2. *Banasa*, forum: view from the south-east side

The second-century complex is an example of the tripartite forum with all its defining features: a temple set against one of the short sides; a central piazza with colonnades on the long sides; and a basilica on the opposite side. In their article on the fora of *Tingitana*, Euzennat and Hallier (1986) emphasized the importance of military architecture in shaping the layout of these buildings, with particular reference to the forum at *Banasa*. The identification of the latter as a tripartite forum is undisputable, but the role of the *principia* of military forts in shaping civilian constructions is more controversial. Gros argues that civilian tripartite fora and military *principia* simply shared the same model

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and design principles. Therefore, it is inappropriate to assume that these types of fora were influenced by military architecture in all of the territories of the Roman world (Gros 2011, 220; Gros and Torelli 2007, 388; see also Frakes 2014, 252-3).

The chronology is confirmed by evidence recovered from the temple at the southern side. This building represents an enlargement of the earlier structure, whose original three *cellae* were flanked by additional rooms at this stage, reaching a total of seven *cellae* (Brouquier-Reddé *et al*. 2004, 1891-6). Like the forum, the temple has a trapezoidal shape (38.5 to 40 m long, and 18.3 to 18.5 wide). It is placed on a high podium with a *pronaos*, connected to the lower piazza through a staircase on the front (Fig. 5.3). Some coins were discovered in the foundation trench of one of the second-phase *cellae*, with the latest dating to Trajan's reign (AD 104-110) and thus providing a reliable *terminus post quem* (Thouvenot 1954b, 17-9; Brouquier-Reddé *et al*. 2004, 1895-6).

Fig. 5.3. *Banasa*, forum. Left hand side: podium and *pronaos* of the temple with seven *cellae*; right-hand side: hypothetical reconstruction of the pseudo-lotus colonnade of the temple

Nothing has survived of the decoration of the first phase. Two large capitals, made of calcarenite and described as "pseudo-lotus" (►**Ban 2.42**), are currently placed on the podium of the temple (Fig. 5.4a). Boube (1967, 334-6) advanced a dating towards the mid-first century BC, based on his observations on a similar capital from *Sala* (►**Sal 2.22**; see

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also Chapter 6). Thouvenot (1971a, 252-3) proposed a chronology around the beginning of the first century AD, though not supported by any precise evidence. In contrast, Euzennat and Hallier (1986, 82) dated them to the late Roman period, c. third century AD. The latter dating would be confirmed by the analogies between these capitals and another one, now lost, set at the entrance of the so-called "*macellum*" in the north-west district (Fig. 5.4c), probably belonging to a later third-century phase of the building. At the same time, the parallel with another smaller capital (►**Ban 2.41**), found not distant from the "*macellum*" and decorated with schematic helices and volutes (Fig. 5.4b), led the two scholars to discard an Egyptian origin for these pieces, as proposed by Boube, and regarded them as a provincial type of "corinthien abâtardi".

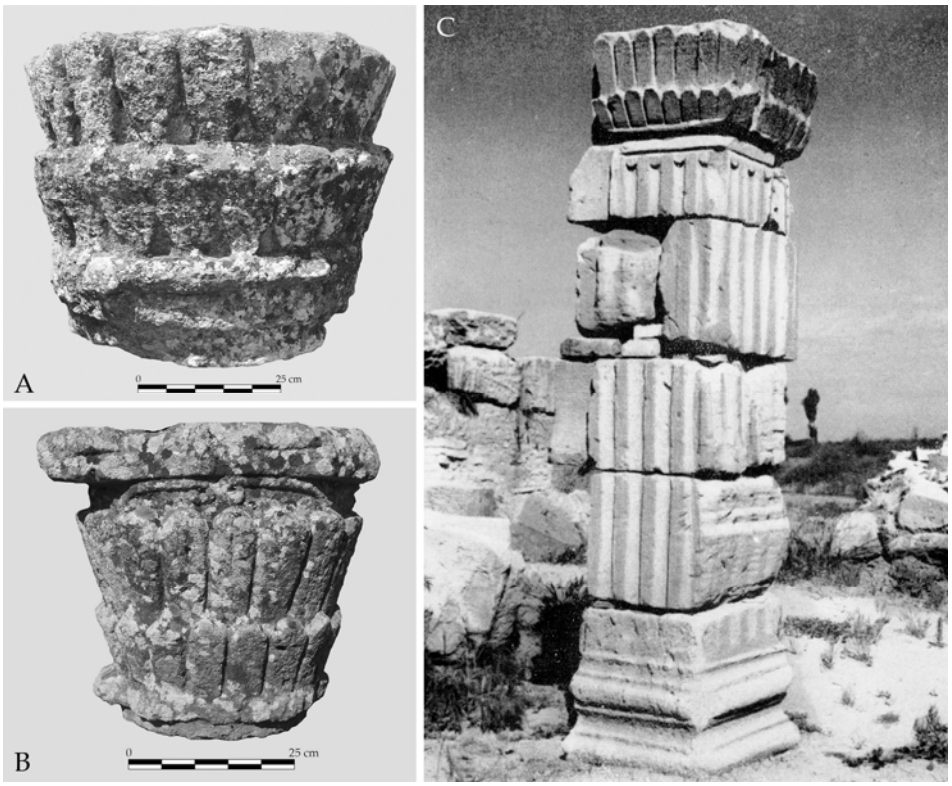

Fig. 5.4. *Banasa*, pseudo-lotus capitals. A: forum, temple with seven *cellae* (**Ban 2.42**); B: *taberna* near the "*macellum*" (**Ban 2.41**); C: entrance to the "*macellum*"

I agree with Euzennat and Hallier that these capitals cannot be regarded as Mauretanian or pre-Roman. The atrophied helices and volutes, and the reduced kalathos of the smaller capital support their arguments. As a general rule, valid for Corinthian capitals, the height of the tiers of leaves tended to rise with time, while the upper part of the kalathos progressively shrank. From the mid-late second century AD onwards, one can observe an

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advancing schematization of calyces, helices and volutes (*Scavi di Ostia* VII, 207, 235-8). It is possible that these capitals followed a similar pattern, hinting towards a chronology not earlier than the second half of the second century AD. It is also evident that the two elements from the forum, the lost capital from the "*macellum*", and another capital recycled in a wall of the "maison aux quatre piliers" (►**Ban 2.43**) were probably carved from two separate blocks. This would explain the absence of helices, volutes and abacus in the larger capitals – all features present in the smaller capital. With regard to the origin of this form, I would accept Boube's suggestion of an Egyptian influence, and for this reason his label "pseudo-lotus" is used here. Further evidence from *Banasa* and other sites of the province (see *infra*) suggests that other architectural elements were probably inspired from a similar Egyptian legacy (see also Chapter 8).

Considering that these capitals do not appear to be datable before the mid-late second century AD, if not even later, one should bear in mind the possibility that the examples from the temple with seven *cellae* related to a third building phase. Thouvenot himself had suggested the existence of a later phase, c. third century AD, confirmed by the recovery of recycled stone blocks and a coin of Severus Alexander probably from the re-paved floor (Thouvenot 1954b, 16; Brouquier-Reddé *et al*. 2004, 1896). On the other hand, if such restorations took place, apparently they did not involve the perimeter and partition walls of the temple. A survey of building techniques carried out recently by Camporeale (2004-05, 145) has shown that the enlargement of the temple was completed during a single phase. However, this does not rule out the possibility that only the colonnade of the *pronaos* could have been re-made at a later stage.

Regrettably the entablature has not survived, making it impossible to reconstruct all aspects of the temple's elevation. However, two Attic bases with plinth (►**Ban 1.3**) and various column drums of compatible size have been recovered together with the capitals. A first reconstruction of the colonnade (Euzennat and Hallier 1986, 81, fig. 5) has proved to be inaccurate, since the drawing depicts a column with an Attic base without plinth and tori with the same diameter. This base (►**Ban 1.19**) is placed on the podium close to the two other bases. However, the diameter of the shaft at the top (59.5 cm) is much smaller than the diameter at the base of the capitals (67.5 cm), demonstrating these architectural elements do not match. In contrast, the two Attic bases with plinth are perfectly compatible (Ø of the upper torus: 88 cm), allowing me to rectify the elevation of

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the colonnade (Fig. 5.3), with an approximate height of 5.42 m. These measurements and the ratio with the length of the *pronaos* (38.5 m) suggest two possible reconstructions: an octastyle temple, with a wooden entablature compatible with a larger intercolumniation, or, more likely, a decastyle edifice with a stone entablature. As to the base without plinth, it must have belonged to some other building, and it was moved here perhaps after the abandonment of this area. This is not surprising, since a roughed-out capital is also placed on the podium of the temple (►**Ban 2.47**), and its early stage of workmanship indicates it was not ready to be used.

The piazza in front of the temple had a *porticus* on both long sides. The bases of the columns are of the Attic type without plinth, with tori with identical diameter and a shallow square-cut moulding replacing the orthodox scotia (►**Ban 1.28**) (Fig. 5.5a). During the recent restorations, 22 of these bases were repositioned *in situ*, while an isolated base lies on the ground. The two ends of the colonnade attached to the podium of the temple are decorated with half-columns, whose Attic bases (►**Ban 1.29**) are identical to the other column bases. As observed for *Volubilis* (e.g. ►**Vol 1.36-38**; ►**Vol 1.41-43**; ►**Vol 1.45-46**; see Chapter 4), Attic bases without plinth, once believed to be a typical feature of pre-Roman architecture, were also used in Roman-period buildings. These bases from the forum at *Banasa*, dated to the early second century AD, are a further confirmation.

The outer façade of the gate along the north side is decorated with pilasters, above which is set an archway. The left-hand pilaster has an Attic base (►**Ban 1.22**) similar to the bases of the piazza. The base of the right-hand pilaster (►**Ban 1.36**) (Fig. 5.5b), however, has a high square-cut moulding between the tori, reminiscent of the alteration of standard proportions well documented at *Volubilis* (see, for instance, the bases with high scotia in the piazza of the *capitolium*: ►**Vol 1.29-32**).

At the top of the pilasters, underneath the archway, are visible two Corinthian capitals, whose poor state of preservation made recording impossible, although evidently they were decorated with smooth leaves. Given the presence of these capitals, it has been assumed that the columns of the *porticus* of the piazza belonged to the Corinthian order as well (see Brouquier-Reddé *et al*. 2004, 1894), although no Corinthian capitals have been found inside the forum. In contrast, three Tuscan capitals with a torus-shaped echinus are attested (►**Ban 2.1-3**) (Fig. 5.5c). Two of them were clumsily positioned upside down on

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pedestals of the colonnade, next to the Attic bases, during the recent restorations (►**Ban 2.1-2**). The third example (►**Ban 2.3**) is found not *in situ* inside the small apsidal building (the putative *curia*) on the east side of the forum. Only a brief comment was dedicated to one of these capitals by Lézine (1955, 14, pl. 1, no. 6), but the circumstances of its discovery remain unknown. One cannot exclude that the capitals might have been associated with the structures predating the second-century enlargement of the forum. Their measurements, however, would make them compatible with the columns of the *porticus*. Unfortunately their design does not provide chronological information. A similar capital from *Sala* is probably datable to the late Mauretanian period (►**Sal 2.2**; see Chapter 6), while examples discovered elsewhere at *Banasa* seem to have chronologies from the late first century AD to the second century (►**Ban 2.3-7**). Also a group of isolated capitals outside the basilica at *Volubilis*, made of Zerhoun limestone, should be dated towards the second century AD (►**Vol 2.1**). Therefore, if these capitals belonged to the first phase (c. 31-27 BC), they might have been recycled when the *porticus* was built. Otherwise, the parallels within the province show that this type of Tuscan capital was used for a long period, without any relevant changes of its shape, and it would not be exceptional to date the capitals from *Banasa* to the second century AD.

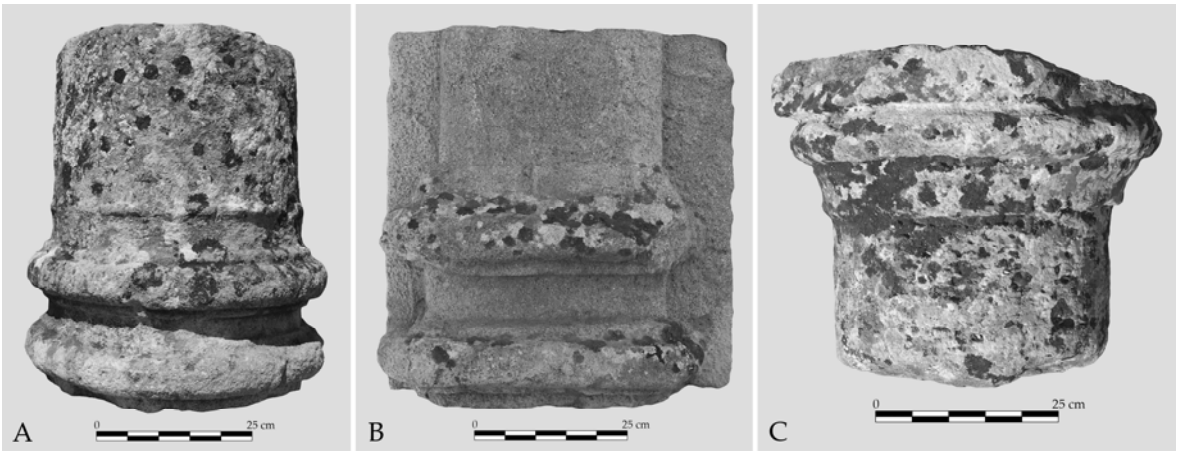

Fig. 5.5. *Banasa*, forum. A: Attic base without plinth, *porticus* (**Ban 1.28**); B: Attic base without plinth, north gate (**Ban 1.36**); C: Tuscan capital, *porticus* (?) (**Ban 2.1**)

From this overview, it is clear that the architectural orders of the forum were quite heterogeneous: Corinthian pilasters at the north gate; an inner *porticus* featuring Attic bases without plinth and (probably) Tuscan capitals; and a majestic colonnade with

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pseudo-lotus capitals on the front of the temple with seven *cellae*. Although the columns of the temple might belong to a later phase, and the (putative) original order is unknown, their association with the forum is significant. The most important public space of a Roman colony – the forum – was overlooked here at *Banasa* by a large temple, whose architectural decoration had nothing to do with the official art of the Empire, or with the Romano-Carthaginian models diffused across North Africa. On the contrary, this peculiar pseudo-lotus style is a type of decoration that does not find any exact parallels outside *Tingitana*. Even though a remote Egyptian, or Alexandrian, origin is recognizable in the shape of the lotus leaves (see also Chapter 8), the overall design of these capitals should be regarded as a local artistic creation.

No epigraphic evidence from the temple has survived. Some altars dedicated to Isis, Juno and Minerva (*IAM* 86-8), as well as a dedication to a *flaminica* (*IAM* 131), were discovered during the excavations, but none can be directly linked with the temple. The identification as a *capitolium* does not appear to be workable (see *supra*). Was it then a temple dedicated to the ruling emperors and their families (see Euzennat and Hallier 1986, 94-6; Brouquier-Reddé *et al*. 2004, 1897)? The so-called "temple A" in the forum at *Sala*, which shows an architectural layout rather similar to the temple of *Banasa*, was originally dedicated to the client kings Juba II and Ptolemy, and later probably to the Roman emperors (see Chapter 6). This parallel could support an analogous situation at *Banasa*, although more data are needed.

The two most significant inscriptions were found close to the apsidal building along the east side of the forum, traditionally identified as a *curia* (Balty 1991, 127-9). The first inscription is a small fragment of a marble slab, probably belonging to the façade of this building: [--- *faciendum c*]*urav*[*it vel -erunt*] / [*d*(*ecreto*)] *d*(*ecurionum*) (*IAM* 137; Thouvenot 1941a, 13, 77, no. 31). Regrettably, it does not give any details about the identity of the patron or the construction works. The second inscription is the famous bronze plaque known as *Tabula Banasitana* (*IAM* 94), which collects three documents dating from AD 168/169 to 177, and has provided important information on the process of enrolment into Roman citizenship (see Chapter 3). Through the study of architectural stratigraphy and building techniques, Camporeale has shown that this apsidal building predates the other constructions in the forum. The type of masonry recorded in the perimeter wall, made of stones of different size without mortar, was employed at *Banasa* in the Mauretanian

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period, before the creation of the Augustan colony (Camporeale 2004-05, 143, 200). This discovery casts doubt on the identification of the building as a Roman *curia*. However, it is possible that a pre-existent structure was incorporated in the second-century forum. The inscription on its façade, therefore, might refer to its restoration, or re-dedication, by the local authorities in this period.

Some final observations concern three capitals found outside the south-west side of the forum, not distant from the entrance to the "grands thermes ouest". Two of these are twin Corinthian capitals (►**Ban 2.13**) carved on the front of the same pilaster block (Fig. 5.6a). Their large size would make them compatible with a monumental building such as the "grandes thermes ouest". However, no other trace of the baths' architectural decoration has survived, making it impossible to prove this hypothesis. Some cornice blocks and small fragmented brick columns were discovered during the excavation, but are now lost (Thouvenot and Luquet 1951a, 19-21, pl. 15, fig. 2). Overall, the design of the Corinthian capitals is rather simplified: smooth and flattened leaves, calyces springing without any cauliculi underneath, and abacus reduced to a single fillet. A torus is carved at the base of the capitals. The presence of this moulding is a recurring characteristic of the decoration at *Banasa*. The other features of these twin capitals would suggest their classification as a simplified variant of the Corinthian style – quite similar to the majority of capitals from the basilica at *Volubilis* (►**Vol 2.4**; ►**Vol 2.6-8**; ►**Vol 2.10**). The chronology, unfortunately, is uncertain. If one accepted the association with the "grands thermes ouest", it would be possible to advance an approximate dating to the late first – early second century AD (Camporeale 2004-05, 202).

The second capital found in this spot is a pseudo-Corinthian example, of remarkable size, with water plant leaves (►**Ban 2.35**) (Fig. 5.6b). The provenance is unknown, but the size suggests that it must have belonged to a public building. The shape of the leaves and the presence of a marked rim recall the capitals from the "*macellum*" at *Volubilis* (►**Vol 2.60-61**), perhaps belonging to the *porticus* of the pre-Severan forum, c. second half to late first century AD (see Chapter 4). Another, less precise, parallel is represented by a small column capital from a *domus* at *Zilil* (Papi 2004-05, fig. 7), of uncertain chronology (Fig. 5.6c). The leaves also recall two half-column capitals from the *principia* of the military fort at *Thamusida*, probably datable to the second half of the first century AD (Camporeale

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2008c, 229, type 5.1, fig. 21). Despite the difficulties of determining the provenance and of securely dating the capital from *Banasa*, its discovery casts more light on the existence of motifs influenced by Egyptian-like decoration in this town. The origins of these water plant leaves, like the pseudo-lotus capitals described above (►**Ban 2.41-43**), may be traced in the persistence of Hellenistic and Alexandrian substrata that contributed to the creation of local-style ornament.

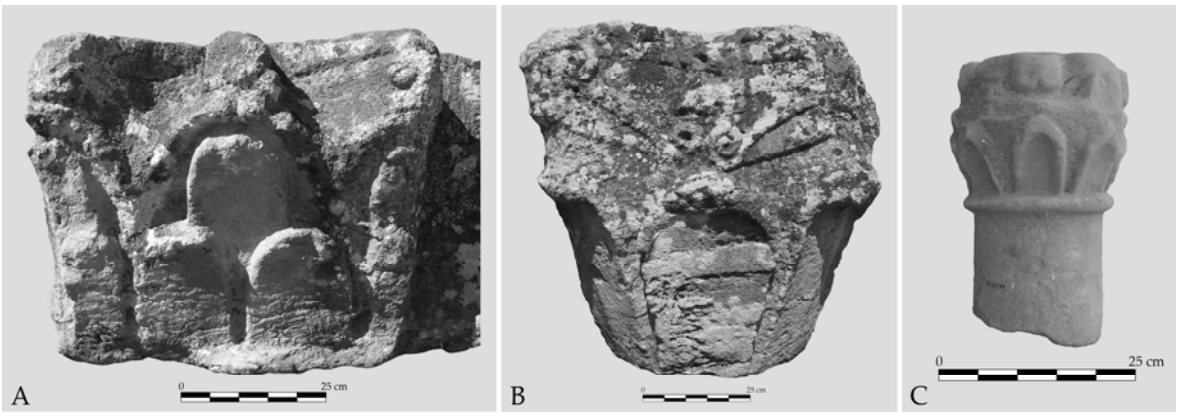

Fig. 5.6. Capitals. A: *Banasa*, Corinthian capital with smooth leaves (**Ban 2.13**); B: *Banasa*, pseudo-Corinthian capital with water plant leaves (**Ban 2.35**); C: *Zilil*, pseudo-Corinthian capital with water plant leaves (Musée de la Kasbah de Tanger)

NORTH-WEST AND NORTH DISTRICTS

In this section are grouped the buildings in the north-west and north districts of the town, developing along the intersection between the *kardo maximus* and a secondary *decumanus*. The excavations in these sectors were carried out without recording the archaeological stratigraphy and only brief accounts were published (Thouvenot 1954c; Thouvenot and Luquet 1951a, 33-49; 1951c). Given the lack of evidence, an approximate dating of the two districts must rely only on information from building techniques, types of masonry, and architectural stratigraphy. According to these data, it seems that both districts witnessed a main phase of development throughout the second century AD (Camporeale 2004-05, 158-64, 203). The analysis of the buildings and of their architectural decoration is made even more difficult by the poor state of preservation and by the spoliation started after *Banasa* was progressively abandoned after the end of the third century. The constructions visible along the west side of the *kardo maximus*, developing on a shallow hill, are: the so-called

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"*macellum*"; the "maison de Fonteius"; the "maison aux quatre piliers"; and the "petits thermes de l'ouest". Along the north side of the *decumanus* one can recognize, from west to east: the "thermes du nord"; the "maison du génie de l'abondance" (or "maison M1"); and a group of four houses, named "maison M2", "maison M3", "maison M4" and "maison M5" (Fig. 5.7).

Fig. 5.7. *Banasa*, north-west and north districts. Left to right: "thermes du nord", "maison du génie de l'abondance", and "maison M2" seen from the northern end of the "*macellum*"

The interpretation of the building traditionally referred to as "*macellum*" is debated. In their brief account, Thouvenot and Luquet (1951c, 96-7) identified it with *horrea publica*, mainly on the basis of its positioning close to the commercial buildings of the north-east sector. In contrast, Euzennat discarded this hypothesis and argued that the building should rather be identified as a *domus* with central peristyle, while a putative *macellum* was probably recognizable in a rectangular edifice set between this district and the "grands thermes ouest" (Euzennat 1991b, 1326; see also Hamdoune 2009, 28, note 10). The plan of the building seems to support Euzennat's identification as a *domus*: a monumental entrance along the *decumanus*; an inner peristyle, or courtyard, with *porticus*; and various rooms opening on this central space. However, it is also worth pointing out that the peristyle/courtyard was probably decorated with bell-shaped capitals (►**Ban 2.46**) (Fig. 5.8a), which find close parallels in the *macellum* at *Lepcis Magna* (Mahler 2006, 183-4, nos. 339-40 TK; see the observations in the Catalogue) and in the "piccolo mercato" at Ostia

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(*Scavi di Ostia* VII, 34, pl. 6, no. 68; see also Pensabene 2007a, pls. 38.4, 43.2, quite similar to the capitals from the Forum of Corporations and to the simplified examples from the great *horrea*). This type of capital was frequently associated with commercial buildings, although it was not an exclusive decorative feature of *macella* in the Roman world, the ornament of which could be even more elaborated (De Ruyt 1983, 322-3). On balance, one may question whether this evidence is sufficient to revive the hypothesis by Thouvenot and Luquet on the identification of the "*macellum*" at *Banasa*. Unfortunately, there are no further tangible data to confirm this idea, which, for the time being, remains only a subject of speculation.

With regard to the rest of the decoration from the "*macellum*", a few architectural elements are still visible inside the *tabernae* opening on the *decumanus*. The small pseudo-lotus capital cited above (►**Ban 2.41**) probably belonged to this building. The same consideration applies, perhaps, to an Attic pilaster base without plinth (►**Ban 1.26**), which may have belonged to the pillar decorated with the other (lost) pseudo-lotus capital (see *supra*: Fig. 5.4c). The original setting of the rest of the ornament, however, is not certain. Another Attic base in a rather good state of preservation can be seen, not *in situ*, on the perimeter wall (►**Ban 1.17**) (Fig. 5.8b). Inside the same *taberna* where the pseudo-lotus capital is now placed, one can also see two Corinthian column capitals with smooth leaves (►**Ban 2.8**; a third piece is placed inside the "thermes du nord"). These capitals (Fig. 5.8c) are the closest attempt documented at *Banasa* to reproduce a simplified version of the second-century Romano-Carthaginian style, together with some other examples found in the "maison à la mosaïque de Vénus" and the "maison à l'aureus de Juba II" (►**Ban 2.9**), in a commercial building of the north-east sector (►**Ban 2.10**), and in the "maison du génie de l'abondance" (►**Ban 2.11**). The shape is the outcome of an intermediate stage of workmanship, which contributed to speeding up the carving process: smooth leaves and undecorated cauliculi, calyces, helices and volutes. Further simplifications occurred: the axial calyx was omitted and the abacus is formed by two fillets, instead of the canonical cavetto and ovolo mouldings. All these features recall, for instance, the Corinthian capitals from the basilica (►**Vol 2.4**; ►**Vol 2.6**; ►**Vol 2.8**; ►**Vol 2.10**) and from the *porticus* of the *decumanus* (►**Vol 2.12-16**) at *Volubilis* (see Chapter 4). A typical characteristic of Banasitan productions, as observed above (►**Ban 2.13**), is the choice to carve a torus at the base of the capitals – well visible on these Corinthian examples.

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Fig. 5.8. *Banasa*, architectural decoration from the "*macellum*". A: bell-shaped capital (**Ban 2.46**); B: Attic base without plinth (**Ban 1.17**); C: Corinthian capital with smooth leaves (**Ban 2.8**)

Two houses develop on the western side of the hill, set against the perimeter wall of the "*macellum*": the "maison de Fonteius" (Thouvenot and Luquet 1951c, 82-4) and the "maison aux quatre piliers" (Thouvenot and Luquet 1951c, 84-6). These were only partially excavated and their dating is uncertain, although the construction took place probably at some point in the second century AD (Camporeale 2004-05, 203). Not much information can be drawn from these scarce remains. Nevertheless, it is interesting to notice that the peristyle of the "maison de Fonteius" has some peculiar features. It was decorated with a Corinthian colonnade, some bases and capitals of which are preserved. The builders used both Attic bases with plinth (►**Ban 1.9**; ►**Ban 1.16**) and without plinth (►**Ban 1.21**) as part of the same colonnade (Fig. 5.9a-b), while another Attic half-column base without plinth (►**Ban 1.27**) is placed along a wall south-east of the peristyle. The combination of these two types of bases has already been observed, for instance, in the basilica (e.g. ►**Vol 1.24**; ►**Vol 1.45-46**) and in the palace of Gordianus at *Volubilis* (e.g. ►**Vol 1.15**; ►**Vol 1.43**). However, the effect is more striking in the "maison de Fonteius", since the two types were alternated – the one being placed directly next to the other. This suggests that a strict typological division between Attic bases with and without plinth represents, perhaps, more a requirement of modern scholars to facilitate their studies, rather than an accurate reflection of reality in antiquity. This lack of architectural symmetry was a common practice in building projects. The extreme variability of carving details in the capitals of the piazza of the *capitolium* at *Volubilis* (►**Vol 2.35-38**; ►**Vol 2.40**; ►**Vol 2.42-43**; ►**Vol 2.45-47**; ►**Vol 2.49-56**; see Chapter 4) is a case in point. The Corinthian capitals from the peristyle of the "maison de Fonteius" are divided into two types (►**Ban 2.19-20**) (Fig. 5.9c), differentiated by the presence of a torus in the second

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piece. They are decorated with smooth leaves with a marked mid-rib. Helices and volutes spring from the leaves without cauliculi and calyces, and their edges are rolled towards the top, as a variation of the orthodox Corinthian design.

Fig. 5.9. *Banasa*, peristyle of the "maison de Fonteius". A: Attic base without plinth (**Ban 1.21**); B: Attic base with plinth (**Ban 1.16**); C: Corinthian capital with smooth leaves (**Ban 2.19**)

The series of buildings in the north sector cannot be dated with precision. Apart from the poor state of preservation, an accurate analysis is made problematic by the numerous overlapping structures. Some of the earliest phases may date back to the foundation of the colony, but these were obliterated by later buildings. Like the constructions in the north-west district, the architectural remains are generically attributed to the second century AD (Camporeale 2004-05, 203). It seems that the "thermes du nord" are the earliest edifice of the area, probably datable towards the second half of the first century AD or early second century (Thébert 2003, 255; Camporeale 2004-05, 161-2, 203). The "maison au génie de l'abondance" (Thouvenot 1954c, 20-6) is attached to the eastern perimeter wall of the baths, and the architectural stratigraphy confirms that it was built after the "thermes du nord" (Camporeale 2004-05, 162). Unfortunately only a few elements of architectural decoration have survived. The pillars inside the entrance hall of the "maison au génie de l'abondance" were decorated with Attic pilaster bases without plinth (►**Ban 1.24**), while column bases without plinth can be found in the peristyle (►**Ban 1.23**). Their profile is similar to that of the bases from the *porticus* of the forum (►**Ban 1.28**), the "maison de Fonteius" (►**Ban 1.21**), and the "maison M3" (►**Ban 1.25**; ►**Ban 1.30**): tori with identical diameter separated by a throat moulding or a square-cut groove. These features, however, do not give precise chronological information.

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The next group of houses, "maison M2" to "maison M5", were probably built within the same phase, though the original articulation and plan are not easily intelligible. The architectural decoration recovered allows for some additional observations. A Corinthian pilaster capital (►**Ban 2.14**) (Fig. 5.10a) is visible on the ground at the south-east corner of the "maison M3". It is underlined by a torus and has two tiers of smooth leaves, quite similar to other examples described above. The shape of helices and volutes is more diagnostic. They spring from a vertical stem without any cauliculi and calyces, recalling the design of Hellenistic (Alexandrian) Corinthian capitals before the introduction of the "normal" type (Roux 1961, 359-88; Pensabene 1993, 109-20; Rumscheid 1994, 309-10). The other decorative features, however, indicate that a dating to the pre-Roman period should be discarded. The tiers of leaves well developed in height and the shallow upper part of the kalathos hint towards a chronology not earlier than the second half of the second century AD, in accordance with the design rule generally valid for Corinthian capitals (*Scavi di Ostia* VII, 207, 235-8; see *supra*). One must conclude that pre-Roman decorative features survived in the Roman period. This phenomenon is similar to what has been observed at *Volubilis*, where the prickly acanthus of the capitals attests to the persistence of Hellenistic legacies (e.g. ►**Vol 2.29-38**; see Chapter 4).

The capital described here is not an isolated example at *Banasa*. A capital with similar characteristics (►**Ban 2.16**) is found, not *in situ*, in the "maison M2", with close parallels in the "maison à la mosaïque de Vénus" (►**Ban 2.15**; see *infra*). The same pattern can be recognized in the capitals from the "maison de Fonteius" mentioned above (►**Ban 2.19-20**), and in a piece of uncertain provenance placed on the perimeter wall of the "*macellum*" (►**Ban 2.12**). The pseudo-Corinthian capitals in the "maison M4" and "maison M5" (►**Ban 2.34**) can be included within the same group, although the carving is less accurate and the helices are joined together in the middle. Capitals with analogous helices and volutes, springing from a long vertical stem, have been found at the military *vicus* of *Thamusida* (Camporeale 2008c, 225-6, types 4.2 and 4.3, fig. 18). In this case, the similarity of the carving suggests that the same group of artisans, or artisans whose artistic background can be traced in the same atelier, worked at *Banasa* and *Thamusida*. This confirms the relationships between the two centres, facilitated by their location along the oued Sebou, the most direct way for the transport of building stones (calcarenite) used at both sites (Camporeale 2008a, 153-6; 2008c, 243-4; Alaioud 2012, 2545-6).

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Fig. 5.10. *Banasa*, "maison M3" and "maison M5". A: Corinthian capital with smooth leaves (**Ban 2.14**); B: pseudo-Corinthian capital with water plant leaves (**Ban 2.40**); C: Attic base with plinth and decorated torus (**Ban 1.11**)

A last group of capitals with interesting features comes from the "maison M5" (Fig. 5.10b). Three pieces belong to a pseudo-Corinthian type with water plant leaves (►**Ban 2.34**; a fourth capital is in the "maison au diplôme de Domitien", in the south-west district). The shape of the leaves, with a marked and swollen contour, recalls some capitals from *Mustis* (Tunisia), for which an Egyptian origin has been hypothesized (Ferchiou 1989a, 243, pl. 63d, no. IX.II.A.2.2; 252, pl. 67a, no. IX.III.B.3; see also Jéquier 1924, 196-201). The dating of the capitals from *Mustis* is relatively early, c. first century BC or beginning of the first century AD. The capitals at *Banasa*, however, are probably more recent. One may argue that they could be pre-Roman materials recycled in the second-century structures, but this suggestion is not convincing. An Attic base with plinth and lower torus decorated with a rope-pattern motif (►**Ban 1.11**) (Fig. 5.10c) was also discovered. This element is compatible with the capitals, forming a homogeneous colonnade in terms of design and stylistic features. As shown in a photograph taken during the Protectorate excavations (Thouvenot 1954c, 35, pl. 3, fig. 4), the base and one of these capitals were recycled together in a later wall, belonging to the restorations undertaken during the last phases of occupation of the site (after the end of the third century AD: see Camporeale 2004-05, 204). The leaves of the capitals are developed in height, while the upper kalathos is reduced. If the canonical ratio and proportions of Corinthian capitals (see *supra*) were applicable also in this case, both the base and the capitals may be contemporary with the main building phase of the house, c. second century AD. The persistence of Egyptian traditions in the Roman period is not surprising, for a similar situation has been documented for Hellenistic motifs both at *Banasa* and

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Volubilis. This group of capitals should be listed together with the pseudo-lotus capitals described in the previous pages (►**Ban 2.41-43**), and with the pseudo-Corinthian capital outside the "grands thermes ouest" (►**Ban 2.35**), for which a similar Egyptian influence has been ascertained.

SOUTH-WEST, SOUTH-EAST, AND SOUTH DISTRICTS

This section deals with the buildings surveyed in the portion of the town south of the forum. The first group of constructions is placed in the south-west district, developing along the *kardo maximus* from the southern end of the street to the south-west corner of the forum (with the exclusion of the "grands thermes ouest" already discussed above). From south to north are: the "maison du diplôme de Domitien"; the "maison à l'aureus de Juba II"; the "maison à la mosaïque de Vénus" and the "thermes aux fresques" attached to the eastern side of the house.

These buildings are particularly relevant to the discussion about urban development at *Banasa*, because data are available to reconstruct a more precise chronology than that of the northern sector of the town. Some information on the excavations can be found in the original reports (Thouvenot and Luquet 1951b; Thouvenot 1954d), with all the limitations of their content already pointed out. More recent research has been undertaken allowing us to have a better understanding of this district. The relationship between the portion of the city walls brought to light in this sector, the "maison du diplôme de Domitien", and the attached "maison à l'aureus de Juba II", has provided important chronological information. Judging by the plan of the structures, as already remarked by Euzennat (1989, 65, fig. 28), the trapezoidal shape of the "maison du diplôme de Domitien" was determined by the fact that it had to adapt to the conformation of the city walls in that spot, which represent a *terminus post quem* for dating the house. The chronology of the walls is traditionally placed within the second half of the second century AD, mainly on the basis of the parallels with the walls at *Sala* (c. AD 144: *IAM* 307; Rebuffat 1974b, 501-6), *Volubilis* (AD 168/169: *IAM* 382-3), and *Thamusida* (c. AD 180 to early third century: Camporeale 2008a, 134-7). The materials recovered from a sondage excavated along the walls in 1992 confirmed a dating within this period (Arharbi *et al*. 2001, 149; Camporeale

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2004-05, 203). The results were published only preliminarily, but for the time being these data are sufficient to advance a chronology not earlier than the second half of the second century AD for the "maison du diplôme de Domitien" and the "maison à l'aureus de Juba II", both of which were built after the city walls.

Not much has survived of the architectural decoration of these houses. However, one should take into account that part of the ornament was made of bricks, rather than stone, as documented by photographs taken at the moment of the excavations, showing brick bases and column shafts in the peristyles of both houses (Thouvenot 1954d, 37, 41, pl. 8, fig. 2, pl. 11, fig. 1). It is not to be excluded that also the capitals (perhaps belonging to the Tuscan order?) and entablatures could be made of bricks (or wood?). None of these architectural elements are visible anymore – not even those once photographed by Thouvenot. Inside the "maison à l'aureus de Juba II", only four elements of decoration are preserved, but their original setting is unclear. Two of them belong to the same type of Attic base with plinth (►**Ban 1.7**) (Fig. 5.11a), whose quite high scotia recalls some of the bases from *Volubilis* (e.g. ►**Vol 1.29-35**). A single Corinthian capital with smooth leaves (►**Ban 2.9**), identical to a piece found outside the "maison à la mosaïque de Vénus" (see *infra*), is attested, perhaps associable with these bases. The fourth architectural element is a tronco-conical, undecorated capital (►**Ban 2.44**) (Fig. 5.11b). The design is reminiscent of the pseudo-lotus capitals described in the previous sections, perhaps being a simplified variation of that shape: a basket with highlighted rim and a torus at the base. The surface was likely covered with stucco, and this would have allowed for some decorations to be painted on it – although no trace is left to confirm this suggestion. If this similarity is accepted, it would further attest to the diffusion of Egyptian-like ornament at *Banasa* in the Roman period. A dating towards the second half of the second century AD or third century, like the pseudo-lotus capitals, is workable. It may belong to the main building phase of the house, or perhaps to a slightly later restoration. Another similar capital (►**Ban 2.45**), which probably represents an even more advanced simplification, can be found at the right-hand side of the entrance to the "maison à la mosaïque de Vénus", but its connection with that house is only hypothetical.

With regard to the "maison du diplôme de Domitien", some pieces of decoration are located today inside the *tabernae* on the front: a Tuscan capital (►**Ban 2.4**), similar to the examples from the forum; a pseudo-Corinthian capital with water plant leaves identical to

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those in the "maison M5" (►**Ban 2.40**); and an Attic base with plinth (►**Ban 1.8**). The profile of the base (Fig. 5.11c) is similar to that of the Attic base found in the "maison M5" (►**Ban 1.11**), although the torus is undecorated, and perhaps it was associated with the pseudo-Corinthian capital. Two other examples of decoration – an Attic base with plinth (►**Ban 1.2**) and a Corinthian capital (►**Ban 2.29**) – are made of Zerhoun limestone and will be commented on in detail in the next section.

Fig. 5.11. *Banasa*, south-west district. A: Attic base with plinth, "maison à l'aureus de Juba II" (**Ban 1.7**); B: tronco-conical capital, "maison à l'aureus de Juba II" (**Ban 2.44**); C: Attic base with plinth, "maison du diplôme de Domitien" (**Ban 1.8**)

Most of the architectural decoration recorded in this sector comes from the "maison à la mosaïque de Vénus" and the "thermes aux fresques". The relationship between these buildings and the city walls is not clear. However, thanks to the results of post-excavation and more recent research, a relatively reliable chronology has been established. A study of the "thermes aux fresques" by E. Lenoir – still pending a fully detailed publication – has involved an investigation of the architectural remains and the opening of sondages, showing that the first construction phase of the baths took place probably towards the second half or the late second century AD (Lenoir, E. 1991, 158; Arharbi *et al*. 2001, 148-9; Thébert 2003, 257-8). The analysis of architectural stratigraphy and building techniques by Camporeale has also demonstrated that the "maison à la mosaïque de Vénus" was built before the baths, which were attached afterwards to its west perimeter wall. It seems reasonable to date the construction of the house around the mid-second century AD, contemporary with the principal phase of urban development documented in the other districts (Camporeale 2004-05, 153-4, 203).

The "maison à la mosaïque de Vénus" is the most imposing house at *Banasa*, despite

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the poor state of preservation. Its position along the *kardo maximus*, opposite the south-west corner of the forum, contributed to enhancing its visibility (Fig. 5.12). The owner must have been a wealthy citizen, as confirmed by the rich decoration of the building. The monumentality of the entrance recalls that of the "maison aux colonnes" at *Volubilis* (see Thouvenot 1945c; Pensabene 2011, 226-39). It was decorated with tall fluted columns, now collapsed, and with pillars with attached half-columns and pilasters. Curiously the pilaster faced towards the front, while the half-column was placed at the inner side.

Fig. 5.12. *Banasa*, entrance of the "maison à la mosaïque de Vénus" along the *kardo maximus*

The bases of the pillars – those of the columns are lost – are of the Attic type without plinth (►**Ban 1.34-35**). Numerous elements of the shafts of the columns and pillars are scattered on the ground. The analysis of the capitals reveals important information. Two pieces belonging to the columns are preserved (►**Ban 2.25**), together with a half-column (►**Ban 2.23**) and pilaster capital (►**Ban 2.24**) from the pillar at the right-hand side (Fig. 5.13a). They are all decorated with *acanthus mollis* leaves, with vertical channels and small eyelets separating the lobes. The fluted cauliculi run vertically, followed by calyces, helices and volutes. These features are all directly reminiscent of the second-century, Romano-Carthaginian capitals of the western Mediterranean (see Harrazi 1982, 66-8; Pensabene 1986, 364-7; Milella 1989, 418-9). These motifs revived the late Flavian style of Rome, first adopted at Carthage and then used to spread official art and architecture, Roman cultural canons, as well as imperial propaganda, in the North African territories – a phenomenon which was further enhanced by the ever-growing diffusion of marble and

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other precious stones (Pensabene 1989; 2001a). Parallels of these motifs are known at Carthage (Antonine baths: Lézine 1968, 37-66, figs. 32-4; Antonine basilica: *Byrsa* III, 75-82, fig. 73), *Thuburbu Maius* (Ferchiou 1975, 44-54), *Sufetula* (Pensabene 1986, 368, fig. 26b), and *Caesarea* (Pensabene 1982a, 33, pl. 86, no. 85), to cite a few examples.

Some capitals described previously (►**Ban 2.8-11**), as well as other examples from *Volubilis* (e.g. ►**Vol 2.17-18**), were also influenced by the Romano-Carthaginian models, although in all those cases simplifications of the carving occurred. In contrast, the capitals from the "maison à la mosaïque de Vénus" are perhaps the most significant examples of fine carving at *Banasa*. The local stonemasons managed to reproduce on the calcarenite the motifs associated with the carving of marble, attesting to the existence of extra-provincial connections. How the contact between the artisans at *Banasa* and those working elsewhere in North Africa took place is uncertain. One should not underestimate the presence of itinerant ateliers specialized in the carving of marble, especially along the coasts of *Africa Proconsularis* (Ferchiou 1983; 1989b; 2003; see also the remarks on the Ionic capitals of the palace of Gordianus at *Volubilis* in Chapter 4). It is possible some of these ateliers had established a contact with the artisans from *Banasa*, who, after having learned the carving techniques, returned to their hometown. More evidence is needed, but for the time being this hypothesis provides a ground for further research.

Another observation on these capitals is required. The official decorative canons had surely a direct influence on the local stonemasons' knowledge and skill-set. However, their products were not just the outcome of a passive imitation of Roman art. Some re-elaborations and variations of the orthodox design can be identified, such as the large astragal with an Ionic *kymation*, and, in two cases, the replacement of the fleuron in the middle of the abacus with a shell. The pattern is similar to what has been observed about the capitals of the *capitolium* (►**Vol 2.21-22**) and the *porticus* of the *decumanus* (►**Vol 2.12-16**) at *Volubilis*, where official-style decoration was mixed with more or less marked local motifs. However, the choice to decorate the entrance of the house with these capitals reveals that the owner wanted to transmit a precise message to the public through the use of official-like ornament. The capitals, placed at the top of tall columns, symbolized his portrait as a promoter of *Romanitas* in the eyes of the local community. The effect was even more striking given the position of the house at the very centre of *Banasa*, just a few steps away from the forum of the colony.

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The rest of the decoration of the house diverges from this pattern. A small room is placed at the right-hand side of the entrance, decorated with a staircase and columns on the front. It was interpreted by Thouvenot (1941a, 17-8) as a small temple annexed to the house. This hypothesis is still acceptable today. The columns have Attic bases without plinth (►**Ban 1.32**) and a smooth shaft repositioned *in situ*. The capitals (►**Ban 2.39**) (Fig. 5.13b), lying on the ground, have water plant leaves and helices and volutes springing from the cauliculi without calyces. The leaves are similar to those of the capitals from the "maison M5" (►**Ban 2.40**), while helices and volutes are almost identical to a Corinthian capital from the "maison M2" (►**Ban 2.16**). These motifs can be interpreted as a mixture of Egyptian-like and Hellenistic decorations. The ornament from the central peristyle of the house is similar: Attic bases without plinth (►**Ban 1.31**) and Corinthian capitals with helices and volutes without calyces (►**Ban 2.14**). Another Corinthian capital with free helices and volutes (►**Ban 2.17**), and a pseudo-Corinthian example with palm leaves (►**Ban 2.36**) (Fig. 5.13c) are on the ground, but their setting is unknown. It seems that two different ideological messages can be recognized when examining the evidence in the "maison à la mosaïque de Vénus". The rich decoration of the entrance should be linked with the public image of the owner and his role within the community – hence the use of official-style ornament. The decoration of the peristyle, that of the small (putative) temple, and other isolated elements, would perhaps allude to a private sphere of his life, reflected by the predominance of local motifs.

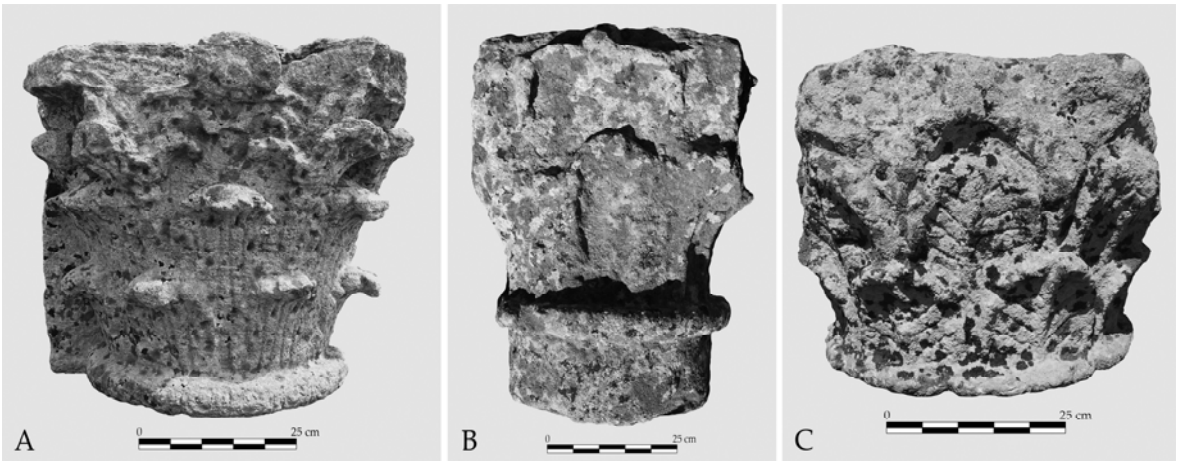

Fig. 5.13. *Banasa*, "maison à la mosaïque de Vénus". A: Corinthian capital with *acanthus mollis* (**Ban 2.23**); B: pseudo-Corinthian capital with water plant leaves (**Ban 2.39**); C: pseudo-Corinthian capital with palm leaves (**Ban 2.36**)

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The "thermes aux fresques" (Fig. 5.14) are a quite small bath complex (c. 360 sq. m), with the west wall set against the "maison à la mosaïque de Vénus" and the entrance on the opposite side. The excavation dates back to 1948 (Thouvenot 1946-49), but only thanks to recent research a better understanding of their construction and development has been achieved (Arharbi *et al*. 2001, 148-9; Thébert 2003, 257-9; Camporeale 2004-05, 154-5). As indicated above, the first building phase should date to the second half – late second century AD. This was followed by the construction of an additional pool and a *tepidarium* in the early third century AD. The last phase is characterized mainly by restorations and maintenance works, generically dated to the end of the third century AD, or even later (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

Fig. 5.14. *Banasa*, "thermes aux fresques"

The entrance was decorated with two pilasters. The bases, still *in situ*, are of the Attic type with plinth (►**Ban 1.6**) (Fig. 5.15a) and represent the best example of orthodox design and proportions at *Banasa*. The lower torus is larger than the upper torus, separated by a scotia with canonical profile, and the bases are joined to the fluted shaft at the top. They can be quite surely dated to the first phase. The rest of the decoration lies on the ground, making it more difficult to understand the original setting and chronology. There are also two Corinthian capitals (►**Ban 2.21-22**) with smooth leaves, helices and volutes without cauliculi and calyces. One of these is found outside the building, with no evidence to

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prove its association with the baths. As already acknowledged, the free helices and volutes are the result of the persistence of Hellenistic traditions.

Three composite capitals with smooth leaves (►**Ban 2.31-32**) are placed inside the baths and it seems reasonable to associate them with this building. As observed while describing two capitals from *Volubilis* (►**Vol 2.57-58**; see Chapter 4), the composite order was undoubtedly less favoured than the Corinthian in *Tingitana*, judging by the unequal proportion of examples found across the entire province. The simplifications adopted for the carving would suggest that the artisans were not entirely familiar with the design of this type of ornament. This is confirmed by the capitals at *Banasa*, where the echinus is omitted and the volutes are set under the corners of the abacus without a harmonious connection with the rest of the capital. One of the three examples, however, is decorated with a rosette in the middle of the volutes' eye (Fig. 5.15b), recalling the "vegetalization" of many Ionic capitals in North Africa (examples are known, for instance, at *Cuicul*, *Lambaesis*, *Timgad*, *Setif*, and *Tipasa*: Pensabene 1986, 416-22, figs. 53-5). This detail may attest again to the relationship between stonemasons from *Banasa* and groups of artisans outside the province – although in this case only a specific motif was assimilated, while the rest of the decoration was the result of a local re-interpretation (i.e. schematization) of the composite order.

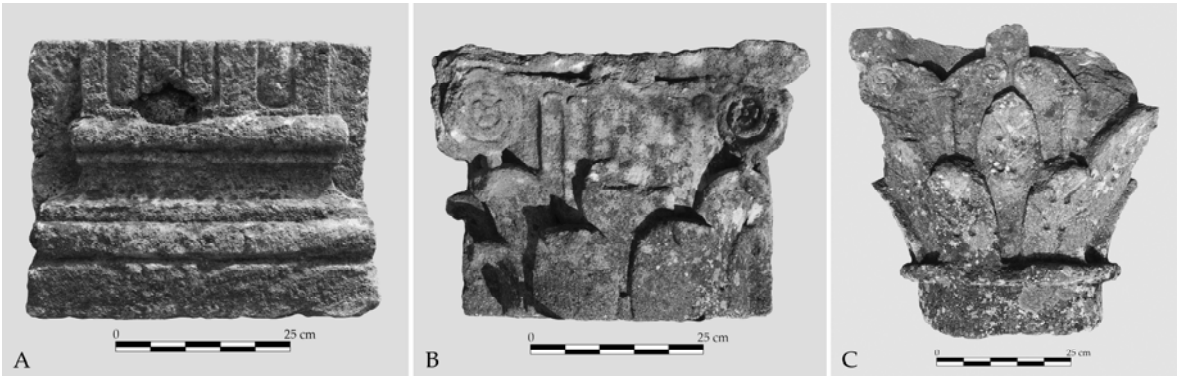

Fig. 5.15. *Banasa*, "thermes aux fresques". A: Attic base with plinth (**Ban 1.6**); B: composite capital with smooth leaves (**Vol 2.57**); C: pseudo-Corinthian capital with palm leaves (**Vol 2.37**)

Finally, a pseudo-Corinthian capital with palm leaves (►**Ban 2.37**) (Fig. 5.15c) is placed at the west edge of the building, close to the partition wall between the baths and the "maison à la mosaïque de Vénus". At the time of the excavations the capital was placed on the top of a column, as shown in a photograph (Thouvenot and Luquet 1951a, pl. 4),

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but this latter is no longer preserved. The shape of the palm leaves suggests an Egyptian origin, while the long cauliculi with almost horizontal, V-shaped helices and volutes attest to the persistence of Hellenistic motifs – a combination of pre-Roman decorative styles already described above (►**Ban 2.39**). Another similar capital, with a single tier of palm leaves, was recovered inside the "maison M3" (►**Ban 2.38**).

Like the "maison à la mosaïque de Vénus", also the decoration of the "thermes aux fresques" is heterogeneous, though local-style ornament is more predominant here – the only elements reminiscent of Roman artistic canons are the Attic bases at the entrance (►**Ban 1.6**). Peculiar motifs, which revived Hellenistic/Alexandrian and Egyptian-like styles, or a combination of both, can be described as a sort of "Leitmotif" recorded also in other buildings of the south-west and north districts.

It is more difficult to have a full understanding of the urban layout of the south-east and south districts. Only a small portion was excavated at the time of the Protectorate, while the results of recent geophysics analyses have not been fully published yet (for a preliminary report see Lenoir, E. 1996). The structures brought to light in both areas are poorly preserved. Apart from the "thermes sud" (Thouvenot 1941a, 29-31), and perhaps the so-called "bâtiment à pilastres" annexed to the baths, the other edifices might have had a commercial function, interpretable as warehouses, productive installations, and *horrea* (Camporeale 2004-05, 145-50; Rebuffat 2010, 272-4), like the buildings in the north-east district (on the productive activities at *Banasa* in the Roman period see also Alaioud 2004; 2010; Cerri 2007, 34-5, fig. 3). New excavations in the south district, undertaken in 1997-98 and 2003-04, have also revealed the existence of a pottery kiln and workshop, with phases dating from the Mauretanian to the Islamic periods (Arharbi and Lenoir 2006). The main building phase of the two districts seems to date, rather generically, to between the end of the first century AD and the second century (Arharbi and Lenoir 2004, 221; Camporeale 2004-05, 201-2).

The architectural elements recovered are exiguous. Two Tuscan capitals with torus-shaped echinus (►**Ban 2.5-6**) are found inside the square building at the southern edge of the south-east district. It has been observed above (see ►**Ban 2.1-3**) that the profile of this type of capital does not provide chronological information. In the south district, two pilasters of the "bâtiment à pilastres" are decorated with Attic bases with plinth (►**Ban**

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1.10). Four more Attic bases with plinth (►**Ban 1.12-15**) are inside the building at the eastern edge of the district: two of these lie on the ground (►**Ban 1.12-13**: see *infra*), while the other two bases (►**Ban 1.14-15**) are recycled in a wall, probably belonging to the latest phase of occupation, c. end of the third century AD.

VOLUBILITAN ARCHITECTURAL DECORATION AT *BANASA*

This section focuses on a particular group of architectural decoration for which a Volubilitan provenance is recognizable. The first defining characteristic is the material employed – the grey limestone of the Zerhoun – which can be easily distinguished from the calcarenite used at *Banasa* for all the rest of the ornament. As discussed in Chapter 4, this limestone was extensively used at *Volubilis* in the Roman period for building purposes, and for carving architectural elements and other objects (e.g. figural reliefs, altars, and inscriptions). The decoration from *Volubilis* is also easily identifiable through the analysis of the decorative motifs.

The isolated examples recorded at *Banasa* come from various parts of the site and their association with a specific building is not always easy to prove. Six Corinthian capitals are decorated with acanthus leaves belonging to the "group 6" type (►**Ban 2.26-30**). This particular shape of acanthus is not attested in the buildings surveyed at *Volubilis* for the present research (see *Banasa*'s Catalogue, note 1). However, it is found elsewhere at the site: for instance in the "maison de Flavius Germanus" and in the "maison au buste de bronze" (see the parallels in the Catalogue). The pattern is similar to the other groups of acanthus described. The origin, again, can be found in the Hellenistic substratum (Pensabene 2011, 217). The form of the prickly acanthus, progressively re-elaborated by the local stonemasons, appears even further transformed in these pieces. The contour of the leaves, normally decorated with small folioles (see, for instance, ►**Vol 2.35-38**; ►**Vol 2.42-43**; ►**Vol 2.49-56**), presents here a wavy line motif attesting to a further transformation. In the upper part of the kalathos one can recognize all the other typical features of the Volubilitan productions: three calyces springing in successions, the abacus being reduced to an almost invisible fillet, and the presence of peculiar motifs in the middle and at the corners of the abacus.

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One of these capitals is placed on the ground at the south-east limit of the "thermes aux fresques" (►**Ban 2.30**) (Fig. 5.16a). The provenance is uncertain, but it is not to be excluded that it came from the "maison à la mosaïque de Vénus". This capital, or a similar one, is portrayed in a photograph taken at the time of the excavations (Thouvenot and Luquet 1951b, pl. 16). Other examples are in the "maison au diplôme de Domitien" and in the "maison aux quatre piliers" (►**Ban 2.27**; ►**Ban 2.29**), while another isolated capital is placed on the *kardo maximus* between the "grands thermes ouest" and the "maison à la mosaïque de Vénus" (►**Ban 2.26**). The last example of this group, of unknown provenance, is now in the Musée Archéologique de Rabat (►**Ban 2.28**) (Fig. 5.16b). It is significant mainly because of the inscription on the left-hand side of the block, which mentions the name workshop's owner: *Ti. Iulius / Mercuria/lis fecit* (*IAM* 142). The *nomen Iulius* (or *Iulia*) is commonly found in inscriptions in *Tingitana*, especially at *Volubilis*, where many inhabitants had already been awarded the Roman citizenship even before the creation of the *municipium* by Claudius (see *IAM*, 208). The cognomen *Mercurialis* is very rare, also when looking at the other territories of North Africa. Unfortunately, there is no other epigraphic evidence relating to owners of workshops, or to individual artisans, at *Volubilis* and *Banasa*.

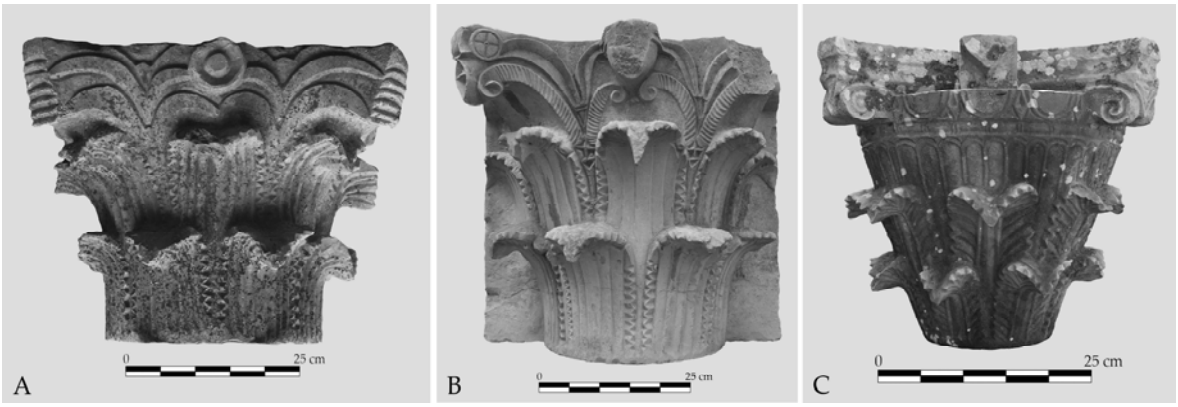

Fig. 5.16. *Banasa*, Volubilitan capitals. A-B: Corinthian capitals with "group 6" acanthus (**Ban 2.30**; **Ban 2.28**); C: composite capital with "group 3" acanthus (**Ban 2.33**)

Among the other Volubilitan architectural decoration at *Banasa* is a composite capital with "group 3" acanthus leaves (►**Ban 2.33**) (Fig. 5.16c), of unknown provenance (currently at the Musée Archéologique de Rabat), which finds close parallels at *Volubilis* (e.g. ►**Vol 2.57**). The design follows the rules already discussed, representing a simplification of the

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composite order (see the flat echinus with a schematic Ionic *kymation*). Across the site have also been recorded two Attic bases with plinth: one at the west edge of the "maison à la mosaïque de Vénus" (►**Ban 1.3**), the other inside the "maison du diplôme de Domitien" (►**Ban 1.2**). Other objects made of Zerhoun limestone include: some column shafts from various spots within the site; a large moulded pedestal, probably meant to support a statue of a man on horseback, which can be seen along the *kardo maximus* in the north-west district; and various inscriptions (e.g. *IAM* 87-8, 95, 106).

In all probability these materials were imported from *Volubilis* to *Banasa* as finished products, following first the main route of the inland itinerary and then secondary tracks, or the oued Sebou itself, when the loads arrived in proximity of *Banasa*. However, some groups of artisans based at *Banasa* were apparently influenced by the carving techniques and stylistic motifs of *Volubilis* and reproduced them using materials other than the Zerhoun limestone. Two Attic bases from the south district (►**Ban 1.12-13**) (Fig. 5.17a) have tori with sharp profile and a high scotia, reminiscent of the design of many Attic bases diffused at *Volubilis*. The use of calcarenite confirms these were local productions, rather than imported materials. Two other bases from the "maison à l'aureus de Juba II" (►**Ban 1.7**) have a scotia likewise developed in height, suggesting an inspiration from the Volubilitan models as well. The same considerations apply to a base in the *lapidarium* (►**Ban 1.4**) (Fig. 5.17b), made of a white limestone (the provenance is, unfortunately, unknown) which could be confused with marble at first glance. The same limestone was used for a Corinthian capital discovered at *Banasa* by Saladin (1890) at the end of the nineteenth century, before the site was excavated (Fig. 5.17c). The capital was later moved to the Andalusian Gardens in the Kasbah des Oudayas at Rabat (not included in the present Catalogue). It was erroneously dated to the sixth century by Saladin (see the remarks in Chapter 3), but the presence of the "group 6" acanthus described above rather suggests a chronology from the mid/late second century to the third century AD, contemporary with most of the decoration at *Volubilis*. The stylistic features are clearly of Volubilitan tradition, while the material was unknown at *Volubilis*, where all the ornament is made of Zerhoun limestone or, more rarely, sandstone. One can thus hypothesize that a group of artisans moved from *Volubilis* to *Banasa* at some point. Here they continued to run their activity employing different materials, but the decorative style of their products clearly betrayed their origins and background.

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Fig. 5.17. *Banasa*, architectural decoration of Volubilitan tradition. A-B: Attic bases with plinth (**Ban 1.14**; **Ban 1.4**); C: Corinthian capital with "group 6" acanthus (Kasbah des Oudayas)

CONCLUDING REMARKS

The architecture and architectural elements described above provide information to draw some general conclusions about the urban development and the main decorative features recognizable at *Banasa*.

Unfortunately, as for *Volubilis*, it is very difficult to attempt a reconstruction of the Mauretanian and early Roman occupation of the site due to the lack of evidence. The most significant remains of this period can be identified in the forum area. The so-called "*curia*" was probably built in the late Mauretanian period (Camporeale 2004-05, 143, 200), and then annexed to the forum when the complex was enlarged in the early second century AD. The temple with three *cellae* at the south side of the area seems to be contemporary with the foundation of the Augustan colony (c. 31-27 BC), although it is difficult to recognize in this building the local *capitolium*. Its enlargement, reaching a total of seven *cellae*, dates to the second century, perhaps followed by a restoration of the colonnade of the *pronaos* in the late second or early third century – based on the suggested dating of the pseudo-lotus capitals ►**Ban 2.42**. As will be illustrated in Chapter 6, the creation of a temple with multiple *cellae*, through the modification of a previous building, is also documented in the forum at *Sala*. The only architectural elements which might have a connection with the early phase of the forum of *Banasa* are three Tuscan capitals (►**Ban 2.1-3**), perhaps reused in the colonnade of the *porticus* during the second building phase. However, one should keep in mind that establishing a precise chronology through stylistic criteria is problematic. Features like the shape of the echinus or of the cavetto are

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not directly related to a chronological evolution of the Tuscan order, and might thus be misleading. Evidence from elsewhere within this town (►**Ban 2.4-7**) and from other sites of the province (e.g. ►**Vol 2.1**; ►**Sal 2.2**; ►**Lix 2.2**) shows that Tuscan capitals can have different chronologies depending on the specific context of provenance.

As to the buildings in the other sectors of the town, the earliest phases were either completely replaced by later constructions, or architectural remains of different periods overlapped. The intricate plan of houses in the north district, for instance, is a case in point. It would be unrealistic to state that evidence of the early *colonia* was limited to the forum district only. Some foundations and walls of those houses quite likely belonged to this first phase, but a comprehensive reconstruction of their layout is made impossible by the later modifications. At the same time, the discovery of a pottery kiln and workshop in the south district (Arharbi and Lenoir 2006) confirms that productive activities were already established in the Mauretanian period, adding new evidence to the conclusions drawn from the study of pre-Roman pottery types attested at the site (see, in particular, Luquet 1964a; Girard 1984).

It is evident that *Banasa* underwent a remarkable urban development throughout the second century AD (Camporeale 2004-05, 202-3), starting with the works in the forum. The chronology of many buildings is, regrettably, rather generic. Building techniques and architectural stratigraphy are the only tools available at the present to attempt a dating. It seems, however, that urban enhancement at this stage was part of a coherent building programme that can be traced in all the sectors of the town. The peak of building projects was probably reached in the second half of the second century, as testified by the construction of the city walls and the houses in the south-west district ("maison du diplôme de Domitien", "maison à l'aureus de Juba II", and "maison à la mosaïque de Vénus"). A fragmentary inscription recovered in the nineteenth century (*IAM* 95) reveals that *Banasa* received the *cognomen* of *Aurelia* perhaps during the early years of the reign of Marcus Aurelius and Lucius Verus (see *IAM* 94). However, this did not involve any change of juridical status – a hypothetic award of the *ius italicum* must be discarded, since the town was still subject to the payment of the *tributum* in AD 215/216 (*IAM* 100). At the same time, it is not possible to identify a direct link between the award of the *cognomen* of the emperor and the enhancement of the urban layout. It is true that no building inscriptions have been recovered, apart from a small, rather undiagnostic, marble

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fragment perhaps belonging to the *curia* (*IAM* 137), but it seems more likely that the development of the town was a process that took place progressively throughout the whole of the second century, and independently of a particular historical or political event. In a similar way, the construction of the most important public buildings at *Volubilis* dates to the Severan period (c. AD 210 to 217: see Chapter 4), but there is no conclusive evidence to link this intensive building programme with the promotion of the town to *colonia*, as reported by the *Itinerarium Antonini Augusti*.

Finally, small-scale building activities at *Banasa* are documented also in the third century, especially restorations that involved recycling of materials (see the reuse of the base ►**Ban 1.11**, and the capitals ►**Ban 2.34** and ►**Ban 2.43**). However, with the end of the third century and the withdrawal of the Roman army from the southern part of *Tingitana*, life at *Banasa* saw a rapid decline, confirmed by the absence of Late Antique phases or any architectural decoration datable to this period.

Various decorative motifs have been documented, although these are all datable to the Roman period, c. late first to early third centuries AD. In the case of Corinthian capitals, some examples with smooth leaves attesting to a simplification of Roman models have been recovered (see ►**Ban 2.8-11**). A typical element of local variation is represented by the torus carved together with the capitals – a stylistic choice particularly favoured at *Banasa*. The artisans who carved these pieces were familiar with the shape of capitals and with the design principles introduced in North Africa through the diffusion of the Romano-Carthaginian art. Without any doubt, the capitals that recall more closely the decorative features of the rest of North Africa are those at the entrance of the "maison à la mosaïque de Vénus" (►**Ban 2.23-25**). It has been hypothesized that this group of carvers from *Banasa* established a direct contact with ateliers outside *Tingitana*, from whom they learned both the carving techniques and the decorative style. Even if this decoration reproduced quite faithfully Roman official art, local re-elaborations were also present. The decorated astragal at the base of the capitals, or the shells replacing the fleurons of the abacus, are all modifications of standard design introduced locally (see also the remarks by Yegül 1986, 166-7, on the variation of motifs of the abacus in *Asia Minor*).

The majority of Corinthian and pseudo-Corinthian capitals, however, were decorated with motifs recalling pre-Roman legacies of the Hellenistic and Punic world. At *Volubilis*,

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this phenomenon is documented by the shape of the acanthus, with prickly leaves carved according to Hellenistic models (Pensabene 2011; see Chapter 4). At *Banasa*, the influence from Hellenistic traditions is recognizable mainly in the form of the helices and volutes, with a marked V shape and without any calyces underneath (see **►Ban 2.14-16**; **►Ban 2.19-20**; **►Ban 2.39-40**). Like at *Volubilis*, it seems reasonable to assume that these motifs had been adopted at the site during the pre-Roman era, though no evidence of that period has survived. After the annexation of the province into the Roman Empire, this decorative repertoire did not disappear suddenly. The carving techniques and motifs were transmitted through time, and the local artisans created new forms of decoration where one can recognize the combination of these pre-Roman survivals with other elements typical of the second-century, North African, ornament.

Another defining characteristic of many elements of architectural decoration at *Banasa* is the recurrence of motifs for which an Egyptian origin can be traced. In some instances one can find (more or less close) parallels elsewhere in North Africa, such as a group of pseudo-Corinthian capitals with water plant leaves (**►Ban 2.34**) similar to those from *Mustis*. In other cases, it is more difficult to understand how this connection between the two ends of North Africa (Morocco and Egypt) took place, since the elements of Egyptian, or Egyptianizing, tradition are merged with other features recorded only at local level. Such is the case of some pseudo-Corinthian capitals with palm leaves (**►Ban 2.37-38**), but, even more strikingly, of the group of pseudo-lotus capitals (**►Ban 2.41-43**) and their putative undecorated variants (**►Ban 2.44-45**).

In conclusion, the analysis of the decoration demonstrates the impossibility of linking a specific architectural order to a single monument or building. Ornament with different motifs could be used for the same project – as is also clear in the case of the *porticus* in the piazza of the *capitolium* at *Volubilis* (see Chapter 4). The forum at *Banasa* is surely another case in point. The outer gate was decorated with Corinthian pilasters, while the columns of the *porticus* belonged probably to the Tuscan order, and the temple with seven *cellae* featured columns with pseudo-lotus capitals. Similar observations apply, for instance, to the "maison à la mosaïque de Vénus". While the majestic entrance of this house was a tribute to Roman official art (**►Ban 2.23-25**), the rest of the decoration shows typical local motifs (**►Ban 2.36**; **►Ban 2.39**). In this case I have suggested that the use of different types of decoration might be related to two ideological messages: an image of authority was

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perceivable through the ornament of the façade, while the interior of the house perhaps reflected a private sphere of the owner's life. Another interesting case is represented by the combined use of Attic bases with and without plinth. The evidence from the "maison de Fonteius" is particularly significant, since both types of bases were used together in the same colonnade (►**Ban 1.9**; ►**Ban 1.16**; ►**Ban 1.21**).

Finally, some particular examples of architectural decoration at *Banasa* cast further light on the connections between this site and two other settlements of southern *Tingitana*: *Thamusida* and *Volubilis* (see also the remarks in Chapter 8). The fact that a group of stonemasons moved to *Thamusida*, or artisans from the same workshop worked at both sites, is confirmed by the similarity between a Corinthian capital in the "maison M3" (►**Ban 2.14**) and two exampless from the "insula aux piliers" at *Thamusida* (Camporeale 2008c, 225-6, types 4.2 and 4.3, fig. 18). In addition, capitals with water plant leaves, similar to a capital from *Banasa* (►**Ban 2.35**), are present in the *principia* of the military fort at *Thamusida* (Camporeale 2008c, 229, type 5.1, fig. 21). This evidence confirms the contacts between the two sites during the Roman period, facilitated by their location along the oued Sebou, c. 40 km away one from the other. It has also been ascertained that the calcarenite used at *Banasa* was imported from the quarries at Sidi Bouknadel, located c. halfway between *Sala* and *Thamusida*, and, perhaps, from other quarries around the modern town of Kénitra, close to *Thamusida* (Camporeale 2004-05, 270-1; 2008a, 154-5, fig. 52; Gliozzo *et al*. 2011). It is thus worth considering the involvement of the army in the movement of building materials. Soldiers represented a conspicuous part of the urban community of both sites – *Thamusida* being a military vicus, *Banasa* a *colonia* originally founded for veterans (see Chapter 3). According to the most current theories, the role of the Roman army in the transmission of carving techniques and stylistic motifs should be downplayed (Camporeale 2008a, 157; 2008c, 243-4; see also Blagg 1980; 1984, 254-9; 2002, 182-3; Mattingly 2007, 280 on the discrepancy between military sites and urban centres in *Britannia*). On the other hand, it is possible that the operations of quarrying and transport of stone were directly supervised by soldiers (Camporeale 2008a, 157), and the cases of *Banasa* and *Thamusida* point towards this direction.

The importation of finished products from *Volubilis* to *Banasa*, such as Attic bases (►**Ban 1.2-3**) and Corinthian and composite capitals (►**Ban 2.26-30**; ►**Ban 2.33**) made of

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Zerhoun limestone, attests to the importance of the Volubilitan workshops in this part of the province. The circulation of these products is not surprising, given that architectural elements at *Volubilis* were part of an intensive production activity in the second and third centuries AD, which can be described without exaggeration as a phenomenon of large-scale organization. The development of numerous workshops of carvers in the town was necessary to meet the demand for decorative stones caused by the urban boom (see Chapter 4). The establishment of specialized ateliers of stonemasons in that region contributed to the popularity of their products. The relatively short distance between *Volubilis* and *Banasa* (c. 100 km) made connections easier – perhaps based on a mixed transport system, involving both overland and river movements (for a recent discussion see Russell 2013, 95-140). In addition to the importation of finished architectural elements, it is also relevant to observe that some groups of local artisans were deeply influenced by the carving techniques and decorative motifs developed at *Volubilis*, and this led to their imitation at *Banasa* using local materials.

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CASE STUDY: *SALA*

The excavated portion of the site of *Sala* (c. 1.2 ha) corresponds to the monumental district of the ancient town, enclosed within the Marinid ribat. The analysis of buildings and their decoration is divided into two sections. The first section focuses on the forum in the east end of the district, while in the second are grouped the main buildings of the west sector: the *capitolium*, the so-called "basilica/*curia Ulpia*", and the arch set between these two constructions. A third section deals with isolated examples of architectural decoration, found across the site and in the storehouse, which cannot be associated with a particular building, but are nevertheless relevant for the arguments of this thesis. The last section provides a synthesis of the evidence discussed.

FORUM AREA

The monumental district of *Sala* (Fig. 6.1) is set against the slope of a hill and its layout was shaped through the creation of artificial terraces. The forum is a complex composed of three structures developing on as many terraces (total extension c. 750 sq. m), close to the eastern side of the Marinid ribat. It was discovered by Boube in 1959-60, when intensive archaeological excavations at *Sala* were resumed after the first discoveries by Borély in 1929-30 (see Chapter 2). As reported by Boube, the forum was reused as a dump in Late Antiquity, c. late fourth century AD. Due to a long series of tribulations, the results of the works in the monumental district were never published in detail. Some information can be retrieved from brief reports presented while the excavations were in progress (Boube 1962; 1966c; 1967, 320, 326-30, 340-50; Euzennat 1960, 550-3) and from later studies (see Euzennat and Hallier 1986, 87-9; Boube 1999, 13-20; Camporeale 2004-05, 205-41). The appearance of the forum as we see it today (Fig. 6.2) is the outcome of transformations, the chronology of which has been long debated. One of the main goals at the beginning of the present research was to analyse the architectural elements of these constructions to re-assess previous hypotheses.

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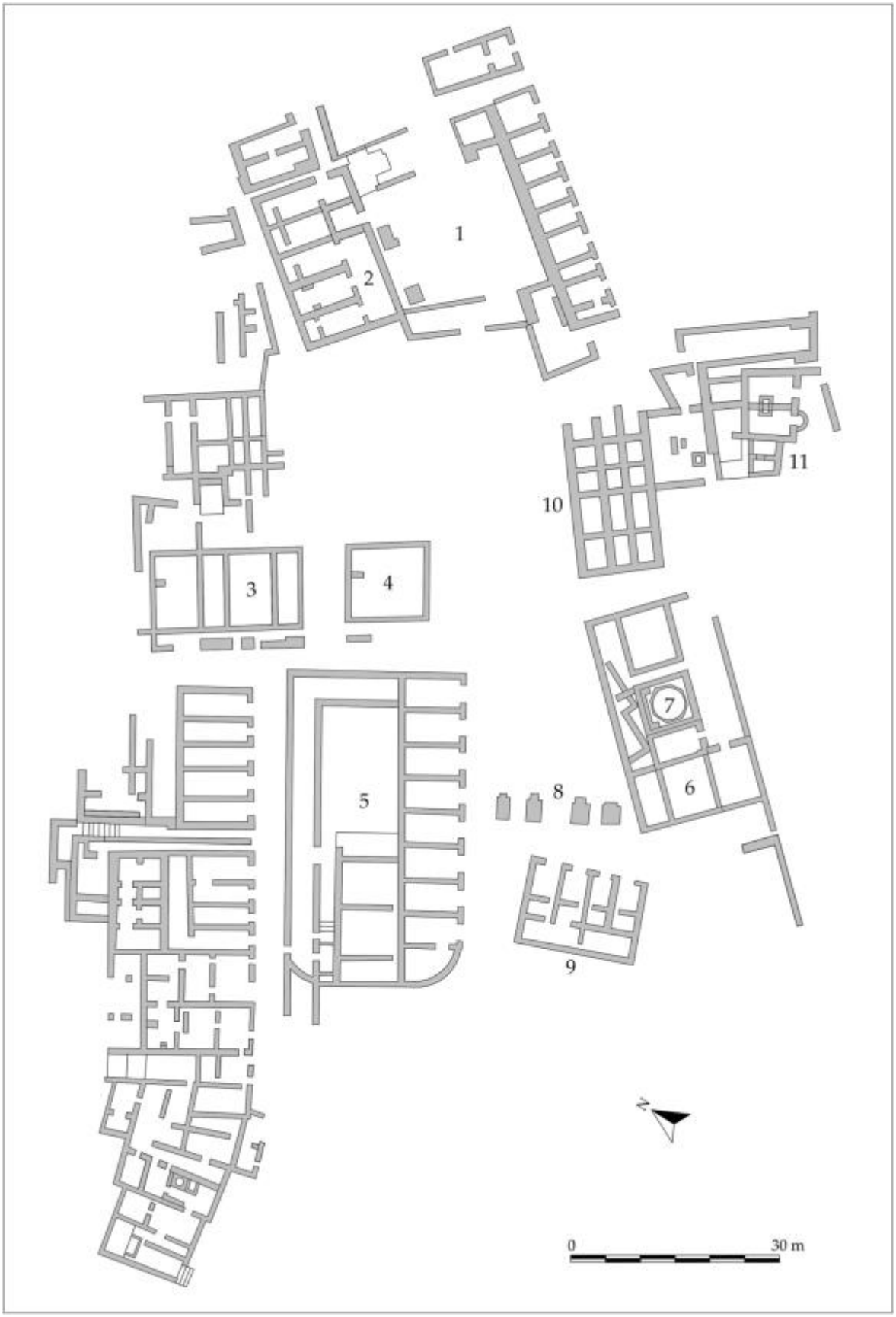

Fig. 6.1. *Sala*, plan of the monumental district. 1: forum; 2: "temple A"; 3: "temple B"; 4: "temple C"; 5: *capitolium*; 6: "basilica/*curia Ulpia*"; 7: *nymphaeum*; 8: triumphal/honorific arch; 9: "building F"; 10: "building D"; 11: baths

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The upper terrace of the complex is occupied by the so-called "temple A", or "temple with five *cellae*", connected through a staircase on the right-hand side to the trapezoidal piazza underneath. The access to the piazza is on the west side, linked with the paved area in the western part of the monumental district, where the other main public buildings are located. On the lower terrace is a long rectangular building with nine rooms (*tabernae*?) opening on a secondary street.

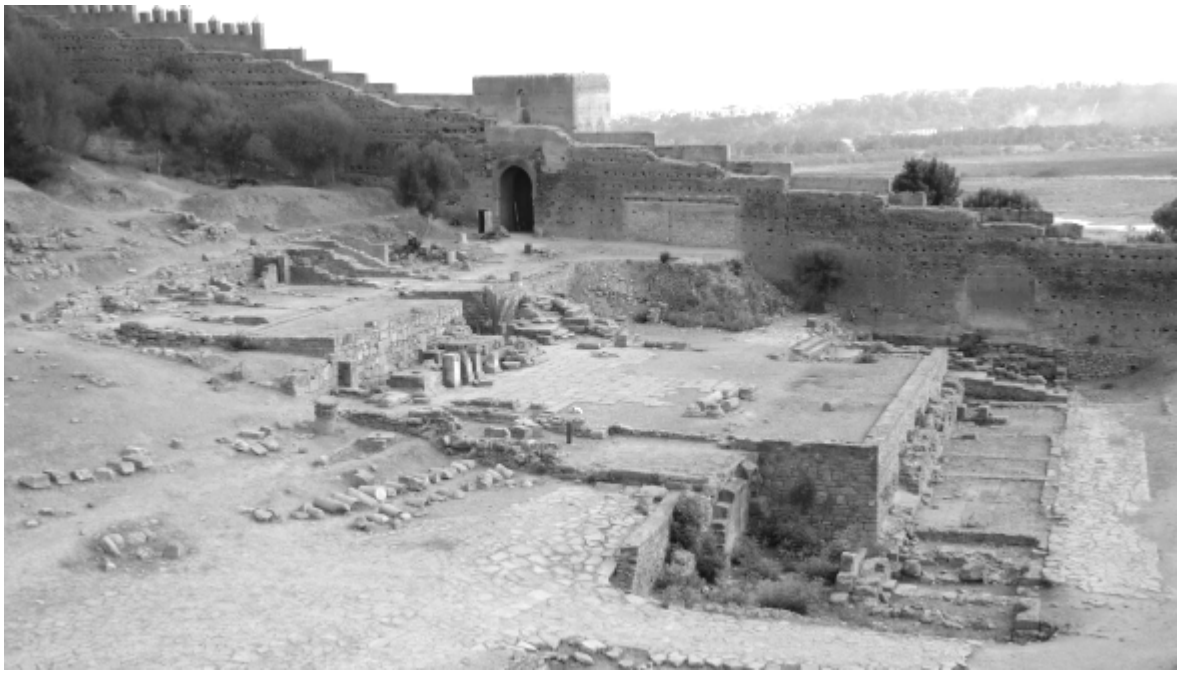

Fig. 6.2. *Sala*, forum area and walls of the Marinid ribat

The excavations revealed the presence of Mauretanian constructions obliterated by the later phases. Through the opening of a sondage in the southern portion of the piazza, where the paving is not preserved, a large building composed of eight rooms with mud-brick walls was discovered. Unfortunately only preliminary results were published after the excavation. According to these reports, a dating towards the second half of the first century BC was confirmed by the materials associated with the architectural remains, mainly Campanian type B pottery and coins with neo-Punic legends (Boube 1967, 309-13). Some elements of architectural decoration from this "stratigraphically sealed" context were also discovered (Boube 1967, 322-6). These pieces, like the vast majority of architectural ornament at *Sala*, are made of local calcarenite – the same material used at *Banasa* and *Thamusida* (see the observations in Chapter 5). The first is a Tuscan capital, whose echinus features a quarter round profile (►**Sal 2.1**) (Fig. 6.3a). The capital can be

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associated with a monolithic column shaft unearthed together with it, as shown in a picture taken at the time of the excavations (Boube 1967, 322-4, pl. 8, fig. 2). The profile is simple and the surface was originally covered with white stucco. A close parallel can be identified on the island of Mogador, belonging to a villa datable to the reign of Juba II (Jodin 1977, 304-5, figs. 2, 3). Other similar examples are known in various buildings at *Volubilis*, of more uncertain chronology. Further parallels can be found at *Lixus*, from the *porticus* of "temple F" in the "quartier des temples" (►**Lix 2.1**). In this latter case, a dating to the second half of the first century AD seems more likely, thus attesting to the continuity of this shape in the Roman period, which is also confirmed by evidence from North Africa and Spain (see Catalogue).

Another Tuscan capital (or single-torus base?) with a torus-shaped echinus (►**Sal 2.2**) (Fig. 6.3b) is currently placed next to the previous piece. Boube did not mention it in any of his reports, but it is quite reasonable to assume that it was found in the same context. As for similar capitals from *Banasa* (►**Ban 2.1-7**) and *Volubilis* (►**Vol 2.1**), the chronology is rather generic. While the earliest examples may date to the pre-Roman period, the form was maintained unaltered in the Roman era. Next to these elements are also two Attic column bases. One of them has a plinth (►**Sal 1.20**), but its association with the pre-Roman structures underneath the forum is only hypothetical – it might rather have been recovered from the upper layers (Boube 1967, 322: "plusieurs bases de colonne ont été découvertes, il y a peu de temps, au pied des deux terrasses, qui portent le temple A et le forum"). In contrast, the second base, without plinth (►**Sal 1.24**) (Fig. 6.3c), should be associated with the Mauretanian complex, according to Boube's account (Boube 1967, 322). The base has two tori with identical diameter, separated by a square-cut moulding. The profile is almost identical to numerous bases from *Banasa*, in particular those decorating the columns of the *porticus* in the forum (►**Ban 1.28-29**). Other parallels, sometimes with minor variations of their mouldings, have been identified at *Volubilis* (►**Vol 1.36-49**). I have already pointed out in Chapters 4 and 5 that this type of Attic base cannot be regarded anymore as a canonical example of pre-imperial North African architectural decoration, since it was commonly used in *Tingitana* in Roman-period buildings of the first and second centuries AD, still employed as late as the mid-third century AD (see the evidence from the palace of Gordianus: ►**Vol 1.36-38**; ►**Vol 1.41-43**). However, this base from *Sala* would confirm that the form was adopted for the first time

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in the late Mauretanian period. The base is probably contemporary with another piece from *Cotta*, discovered underneath some Roman-period layers (Ponsich 1970, 211, fig. 56.1). Therefore, like for Tuscan capitals, one can reasonably speak of a continuity of this decorative form from at least the first century BC throughout the third century AD, and perhaps even later.

Fig. 6.3. *Sala*, late Mauretanian architectural decoration. A-B: Tuscan capitals (**Sal 2.1-2**); C: Attic base without plinth (**Sal 1.24**)

The construction of the piazza obliterated this Mauretanian building. However, the development of the complex is still debated. Boube believed that "temple A", on the upper terrace, was contemporary with the pre-Roman structures, c. mid-first century BC (Boube 1967, 302-4, 320, 328; 1999, 16), although it is not clear whether the two constructions were linked together (through a previous piazza?). Only towards the end of the first century AD – early second century AD was the paved piazza built, creating a monumental forum, with "temple A" overlooking this area from the north-west edge. In contrast, Euzennat and Hallier (1986, 87-9) rejected this chronology, arguing that no evidence supported a dating of "temple A" to the Mauretanian period. According to their view, the forum was the result of a single construction phase datable to the Roman period. It was shaped following the layout of the tripartite "Lagerfora" – thus imagining a direct connection between this complex and the forum of *Banasa*, where a similar temple with multiple *cellae* is set against the south side of the area (see Chapter 5). A chronology towards the second century AD for "temple A" has been accepted afterwards by some scholars (Brouquier-Reddé *et al*. 2004, 1897). With regard to the identification of the forum at *Sala* as one of the provincial "Lagerfora" influenced by military architecture, however, such a hypothesis has been questioned in more recent years and is no longer workable (Gros and Torelli 2007, 385).

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A recent re-analysis of the forum and of its building techniques has challenged the reconstruction by Euzennat and Hallier (pers. comm. by Camporeale, building in part on the results of the research presented in Camporeale 2004-05). This study has confirmed that the forum was built in different phases. The most interesting observations concern "temple A", where at least two separate phases can be recognized. The first stage was represented by the construction of a temple with only three *cellae*, like the temple at *Banasa*, later enlarged to reach a total of five *cellae* (c. 23.1 x 15 m). However, a crucial argument is that no mortar was employed in the masonry of its walls, neither in the first or second phase. A comparative analysis of building techniques at *Sala*, *Banasa*, *Thamusida*, and *Volubilis* has clearly shown that the use of mortar became widespread in *Tingitana* after the annexation of the province (AD 42/43) and thanks to the introduction of new technological knowledge by the Roman army (Camporeale 2004, 204; 2008a, 141-4; 2011). Therefore, the absence of mortar suggests that a dating to the pre-provincial period for both phases of "temple A" is convincing.

Boube had also argued that the temple might have been dedicated to the rulers of *Mauretania*, Juba II and Ptolemy. Marble portraits of the two kings were recovered inside this building (Boube 1966a; 1966b, 25-6; 1990b) – although they came from the upper layers, together with the materials associated with the Late Antique conversion of the forum into a dump. In the light of the recent results on building techniques, I would agree with Boube's suggestion. In the Roman period, perhaps, the temple might have hosted statues of emperors, or divinities, together with those of the client kings (possibly similar to the temple with seven *cellae* at *Banasa*?).

Some elements of architectural decoration recovered at the base of the podium can probably be attributed to the façade of the temple (Boube 1967, 320, 328-30, pl. 19.1-2, figs. 5, 16): eight blocks of an Egyptian gorge cornice (Fig. 6.4a) and two Ionic half-column capitals (►**Sal 2.3**) (Fig. 6.4b). The capitals belong to the Ionic style of Punic-Hellenistic tradition also found at *Volubilis*, datable to the reign of Juba II (Boube 1966b; see Chapter 4). These examples from *Sala* are more simplified, and there is no distinction between the flat echinus and the abacus on the frontal side. However, the whole surface was covered with stucco and it is possible that the motifs of the echinus and the spirals of the volutes were originally painted to give a more refined appearance. Egyptian gorge cornices are known in other sites of Morocco, with chronologies spanning from the pre-Roman to the

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Augustan era: at *Volubilis* (Jodin 1987, 103, pl. 9, fig. 1), *Lixus* (Aranegui Gascó 2008, 47, fig. 8), and *Cotta* (Ponsich 1970, 211, fig. 56.2).

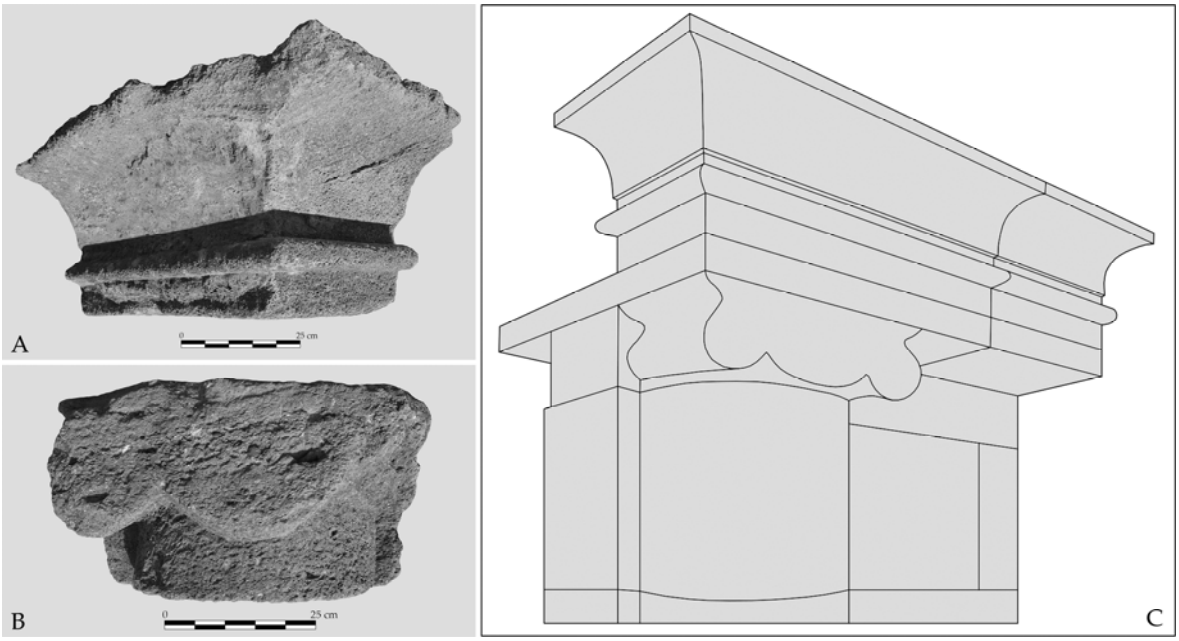

Fig. 6.4. *Sala*, "temple A". A: Egyptian gorge cornice; B: Ionic capital of Punic-Hellenistic tradition (**Sal 2.3**); C: hypothetical reconstruction of the façade

These parallels within *Tingitana* would surely support a similar dating for the decoration from *Sala*. On the other hand, one must also acknowledge that these pre-Roman motifs were still used in the Roman era. Similar Ionic capitals from *Lixus* are datable to the second half of the first century AD (►**Lix 2.3-4**; see Chapter 7). Evidence from elsewhere in North Africa confirms the "long durée" of the decoration (for example at *Siga*, first half of the second century BC; *Tacape*, end of the first century BC – early first century AD; and *Lepcis Magna*, second half of the first century BC – mid-first century AD: see Catalogue). Punic-Hellenistic decorative traditions are also recognizable in some capitals from *Gigthis* (c. second century AD: Constans 1916, 111-2, fig. 1), as well as in the Ionic capitals of "Tomb North A" at Ghirza (third century AD, or even later: Brogan and Smith 1984, 121-5, 209-10, pls. 47-8). The same observations are valid for Egyptian gorge cornices, which were still sometimes employed in Roman-period North Africa (Fantar 1984, 458, note 117; see also the evidence from the monumental tombs at Medain Saleh, Jordan, dated by inscriptions to between AD 1 and 76: Netzer 2003, 36-9, 165; McKenzie 2005, 11-31). However, given that these architectural elements at *Sala* were in all probability associated

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with "temple A", a dating to the late Mauretanian era can be confirmed. As with the Attic base without plinth described above (►**Sal 1.24**), even in this case *Sala* appears to be a context where such ornament were employed relatively early.

With regard to the hypothetical elevation of "temple A", the schematic reconstruction suggested by Boube (1967, 326-8, fig. 16) is acceptable (Fig. 6.4c). Engaged half-columns were probably set at regular intervals marking the separation of the *cellae*, but it is not clear whether the temple had a colonnade on the front. Unfortunately, the podium was restored at a later stage, as suggested by the presence of moulded blocks recycled in the masonry. Such a restoration might have taken place in the fourth century AD, before the forum was converted into a dump. Two inscribed bases were recovered, dedicated to Constantine and perhaps Constantine II (*IAM* 304b, 305), confirming that the complex was still used as a public space in that period.

Regrettably there is no evidence of any *in situ* architectural decoration associated with the remains of the late first- or early second-century enhancement of the forum. Two single-torus bases (►**Sal 1.7**) are placed inside the rectangular building east of "temple A", but its function and chronology are uncertain. Two large moulded pedestals (tribunes or altars?) are placed in the piazza in front of the podium of "temple A", although they might belong to a later phase, contemporary with the restoration of the podium. Two inscribed bases of statues were also found in the piazza, datable approximately to the second century AD (*IAM* 304a, 310).

Outside the west limit of the forum one can observe a large pseudo-lotus capital (►**Sal 2.22**) (Fig. 6.5a), with part of the shaft still preserved, belonging to the same type documented at *Banasa* (►**Ban 2.41-43**; see Chapter 5). This capital, however, features two tiers with only 12 leaves and the carving is more accurate. Like the capitals from the temple with seven *cellae* (►**Ban 2.42**) and the "maison aux quatre piliers" at *Banasa* (►**Ban 2.43**), the upper part of the kalathos was probably carved into a separate block, now lost. With regard to the capitals from *Banasa*, I have suggested that this type of decoration should not be earlier than the second half of the second century AD. The same observations apply to the capital from *Sala*, even though Boube had advanced a dating to the Mauretanian era. The capital was discovered approximately in the same spot where it is preserved, while excavating a building concealed by the Roman paving, but the

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stratigraphic context is unclear. Boube (1967, 334) admitted that the capital might have fallen from the upper terrace, perhaps from the so-called "temple B" or "temple C". Therefore, it seems that it was recovered from subsoil layers and its setting remains unknown. Even if it really belonged to one of the two (putative) temples, this would not contradict a dating to the mid/late second century AD. Despite Boube's belief that "temple B" and "temple C" were built in the late Mauretanian era, c. mid-first century BC, the presence of mortar in their foundations would rather indicate a dating to the Roman period (Camporeale 2004-05, 240; see *supra*).

Numerous fragments of column shafts, made of different materials, lie on the ground close to the edge of the forum (Fig. 6.5b). Perhaps they were found at different stages and piled there afterwards, although Boube did not provide any clues in his reports. Certain fragments belong to spirally fluted shafts, while others are smooth. Some of these columns are made from a pink bio-calcarenite, regularly employed for architectural decoration and inscriptions, and quarried along the oued Akreuch (c. 10 km south of *Sala*: Camporeale 2008c, 236-7; Giorgetti and Gliozzo 2009, 69). Another material is a light grey limestone used also for the Roman-period paving (e.g. the forum and the west portion of the monumental district). This limestone was used for architectural decoration too, as confirmed by a composite (or, more likely, pseudo-Corinthian) capital from *Thamusida* (Camporeale 2008c, 229-30, fig. 22, type 6.1). A third type of imported stone used for some of these shafts may be identified with the Mysian granite quarried near Kozak, in *Asia Minor* (Lazzarini 2011, 843; see also Price 2007, 228).

Fig. 6.5. *Sala*, architectural decoration outside the west limit of the forum. A: pseudo-lotus capital (**Sal 2.22**); B: fragments of smooth and spirally fluted column shafts

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CAPITOLIUM, "BASILICA/*CURIA ULPIA*", AND ARCH

This section focuses on the principal buildings in the western part of the monumental district. Like the forum, the urban development of this area had to be adapted to the shape of the hill. The public buildings are placed at the south and north ends of a large paved space, described by Boube as a "*decumanus maximus*". This area, however, seems too wide to be identified as a street. Perhaps it would be more appropriate to use the term "*forum adiectum*", though it was not enclosed by walls. The paving of grey limestone is similar to that of the forum. Boube dated the main constructions within the reigns of Trajan and Hadrian, coinciding with the apex of urban embellishment at *Sala* (Boube 1966c, 27-8; 1990c; 1997, 63; 1999, 17-8).

The most imposing building is the *capitolium*, developing on two terraces set against the slope of the hill (Fig. 6.6). This large complex (c. 48 x 26 m), discovered in 1960, has a rectangular shape with a wall with rounded corners at the west side. On the lower level, nine vaulted chambers (*tabernae*) are set into the substructure of the building, opening on the paved area on the front. The rear walls of the *tabernae* show a well-recognizable *opus Africanum* masonry, with a framework of piers made of headers and stretchers, employed for static purposes (Camporeale 2004-05, 234-5; 2013, 196, fig. 8). The upper level is occupied by the temple, of which only the foundations are preserved. It was composed of a single *cella* and *pronaos* on a podium, surrounded on three sides by a *porticus* with 32 (?) columns. The southern portion, above the vaults of the *tabernae*, has collapsed.

Fig. 6.6. *Sala*, view of the *capitolium* from south-east

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A dating to the early years of Hadrian's reign is confirmed by epigraphic evidence. 29 fragments of a marble dedicatory inscription were recovered (*IAM* Suppl. 861), reused in the paving of a building along the street flanking the northern side of this complex, following the conversion of the *capitolium* into a dump. Through an accurate analysis, Boube (1990a) restored the text inscribed on adjoining slabs which formed a monumental inscription of c. 8.5 x 2 m. The last two lines give information on the construction and dedication of the temple: *Capi*[*tolium*] *n*[*ovum cum*] *p*[*orticu*, *a so*]*lo sua pe*[*cunia*, / *de*]*dit*, [*ded*]*icavit*. Thanks to the discovery of two other inscriptions (*IAM* Suppl. 859-60), Boube also restored the first three lines recognizing the name of C. Hosidius Severus, a military prefect of equestrian rank who financed this building and donated it to the citizens of *Sala*. The association of Severus with the Samnite family of the Hosidii is assured – his father had probably received this gentile name from Gn. Hosidius Geta, who was *consul suffectus* in AD 45 (Boube 1990, 228, notes 36-8). The restoration of Severus's *cursus honorum* allowed Boube to advance a dating for the inauguration of the *capitolium* around AD 120, while the works for such a large-scale project had started perhaps during the last years of Trajan's reign (Boube 1990a, 240). Despite the fact that no details of the expenses incurred are indicated, this inscription is significant for our understanding of the role of private patronage. Unlike *Volubilis*, where the construction of the main public buildings was paid by local authorities (*municipium Volubilitanum* and *res publica Volubilitanorum*: see *IAM* 343, 355, 390-1) or by the emperor (through the intervention of the provincial governor, as for the palace of Gordianus: *IAM* 404), the most important temple at *Sala* – the *capitolium* – was the gift of a wealthy citizen to the local community.

Various elements of architectural decoration, all made of local calcarenite, have survived. The ornament of the entire complex was homogeneous in terms of stylistic choices – a rather exceptional feature for *Tingitana*. While discussing the evidence from *Volubilis* and *Banasa* (Chapters 4 and 5), I have observed that public monuments at those sites often have mixed types of decoration. In contrast, the uniformity of architectural styles in the *capitolium* at *Sala* probably suggests that the carving of the ornament was commissioned from a single atelier, or that artisans of different workshops within the town shared the same background and skill-set.

The front of the *tabernae* on the lower level was decorated with Corinthian pilasters aligned with the inner partition walls. A larger pilaster was set in the middle, flanked by a

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smaller one on each side. Most of the bases are still *in situ* and belong to the standard Attic type with plinth (►**Sal 1.11-12**). The profile of the tori is oblong, similar to a reversed ovolo – a feature more easily recognizable in the larger examples from the central pilasters. Two bases at the south-west corner of the complex (►**Sal 1.2-3**) have a single square-shaped moulding. This simplification can be explained by the fact that passers-by could not see them, as they were concealed inside a drainage channel set between the paving and the *tabernae*, and a refined carving was unnecessary. The bases from the upper level are also of the Attic type with plinth. A single base (►**Sal 1.18**), decorating the (secondary) entrance to the complex from the street along the north side, shows a square-cut groove replacing the more canonical scotia. With regard to the colonnade of the *porticus* around the temple, four Attic bases are preserved (►**Sal 1.13**) (Fig. 6.7a) – three of which are still *in situ* along the stylobate – and the profile of their tori is flattened, separated by a throat moulding.

All the Corinthian capitals belong to the same type with smooth leaves, with only minor variations of decorative features. Their surface was covered with stucco, traces of which are preserved on some pieces. Judging by the compatible measurements, a pilaster capital (►**Sal 2.9**) (Fig. 6.7b) in front of the south-west corner of the complex (on the lower level) should be associated with one of the larger pilasters on the front of the *tabernae*. An almost identical, but larger, capital (►**Sal 2.10**) lies on the ground along the street on the upper level, just outside the north-west corner. The size suggests that it might have belonged to the *capitolium*, perhaps decorating a pilaster placed at one of the sides of the *cella*. However, this is only a hypothesis, given that the walls of the *cella* and the colonnade on the front of the temple are not preserved. Four capitals belonged to the *porticus* around the temple, as confirmed by the perfect match with the bases (►**Sal 1.13**). These are divided into two types in the Catalogue (►**Sal 2.4** and ►**Sal 2.5**), although the second type (Fig. 6.7c) represents only a slight variation of the first – the rim of the cauliculi being decorated with two collars, rather than with a single collar. Finally, five more capitals are attested (►**Sal 2.6**). Three of them are on the ground on the upper level of the complex, one is on the paved area underneath (in front of a *taberna*), and a last piece is kept in the storehouse. Their decorative features indicate a close similarity to the capitals from the *porticus*, but the size is smaller. If they really belonged to this building, one should perhaps hypothesize the presence of a *porticus* with a second storey with

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smaller columns (also an Attic base of compatible size is preserved on the upper level: ►**Sal 1.21**). On the other hand, we should keep in mind that the *capitolium* was converted into a dump in Late Antiquity (Boube 1966c, 28-9; 1990a, 214) and many materials and waste of unknown provenance, including architectural elements, have been recovered from the temple and inside the *tabernae* on the lower level (see *infra*).

Fig. 6.7. *Sala*, architectural decoration from the *capitolium*. A: Attic base with plinth (**Sal 1.13**); B-C: Corinthian capitals with smooth leaves (**Sal 2.9**; **Sal 2.5**)

With regard to their decorative characteristics, these elements can be described as a simplified version of standard second-century Corinthian capitals, found also in other parts of the Empire (e.g. at Ostia: Pensabene 2007a, 394, pl. 104.6). This is also documented at *Banasa* (see ►**Ban 2.8-11**) and *Volubilis* (e.g. the capitals from the basilica: ►**Vol 2.4**; ►**Vol 2.6-8**; ►**Vol 2.10**), although some details of the carving – like the torus at the base, or the V-shaped helices and volutes – attest to the presence of re-elaborations at those sites. The capitals of the *capitolium* at *Sala* reproduce faithfully the layout of the Romano-Carthaginian models through an overall simplification of their shape. Some particular features, such as the absence of a central calyx and the abacus taking the form of two shallow fillets, have been traditionally interpreted as an indicator of late chronology. This is the case of a series of limestone capitals from *Caesarea*, dated to between the end of the second and the whole of the third century AD (Pensabene 1982a, 57-9, 73, pls. 54-5, nos. 162-7), similar to the examples from *Sala*. However, despite the similarity, one must acknowledge that these carving simplifications cannot be used as dating criteria of universal validity. A late chronology is surely acceptable for the capitals from *Caesarea*, because the decorative motifs and carving techniques, which had been developed in the period of Juba II and Ptolemy (as well as the presence of artisans specialized in marble

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carving), were no longer in use from the late second century onwards. In contrast, this phenomenon occurred at *Sala* already in the early second century AD, as confirmed by the evidence from the *capitolium*, the dating of which (c. AD 120) appears certain. One must be cautious when dating provincial architectural decoration through stylistic criteria only, especially if the provenance is uncertain. I have already pointed out, for instance, the problem of establishing a reliable chronology for Attic bases without plinth, given that this decoration was employed, practically without interruption, from the pre-Roman up to the late Roman eras (see *supra*, and Chapters 4 and 5).

The second building included in this section overlooks the *capitolium* from the opposite side of the paved area. It develops along the southern end, in front of the perimeter wall of the mosque (Fig. 6.8). Its function is uncertain and is referred to here with the double name "basilica/*curia Ulpia*". It was discovered by Borély in 1929-30, who left no account of his excavations, and for a brief description of these works one must look at the reports by Chatelain (1930; 1944, 81-101). The building has a rectangular shape (c. 32 x 19 m), but only the lower courses of the walls are preserved. In the middle of the complex is an underground *nymphaeum*, with an octagonal shape (Ammar 2008), which was probably visible from ground level (Fig. 6.9).

Fig. 6.8. *Sala*, "basilica/*curia Ulpia*" from the north-west corner (mosque in the background)

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Fig. 6.9. *Sala*, view of the *nymphaeum* on the lower ground of the "basilica/*curia Ulpia*"

The main interest of researchers has been directed to the inscribed base recovered by Borély while digging one of the rooms of this building (see Boube 1979-80, 124-5, pl. 4). The base (*IAM* 307) was dedicated to M. Sulpicius Felix through an official decree of the *decuriones*, dated 28 October 144. On a lateral side of the base is a list of his 38 *amici Salenses*. The text shows that *Sala* was a *municipium* at that time: *amici ob adfect*(*ionem*) *munic*(*ipii*) *Sal*(*ensis*) / *et innocentiam d*(*e*)*d*(*icaverunt*) / *decretumq*(*ue*) *ordinis subiecerunt* (main side, lines 10-12). The decree was voted during a meeting of the *decuriones* in the *curia Ulpia* (right-hand side, lines 1-2: *in curia Ulpia adhibito Salensium* / *ordine*). These lines have been traditionally used as evidence for identifying this building with the *curia Ulpia* described in the text (e.g. Chatelain 1944, 91-2; Boube 1979-80, 125-7). In more recent years, however, this assumption was questioned by Balty (1991, 225-6), who argued that the layout of this construction and its topographic position make its identification as a Roman *curia* problematic. Judging by the architectural design of the building, it has also been hypothesized that it might be rather interpreted as a basilica (see Camporeale 2004-05, 219-20, note 11). It is not easy to reach a consensus, and the poor preservation of the remains creates further problems. For the time being, I have opted for using the (artificial) label "basilica/*curia Ulpia*".

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Despite the uncertain identification, a dating within Trajan's or Hadrian's reign seems acceptable, contemporary with the *capitolium*, with which it formed a homogeneous monumental complex along this sector of the paved area (*forum adiectum*?). The surviving architectural decoration (made of calcarenite) is almost identical to that of the *capitolium*, suggesting that the same atelier might have worked on both building projects, probably within the same years. The outer façade of the "basilica/*curia Ulpia*" is decorated with pilasters on the short sides, and with alternating half-columns and pilasters on the long side. Both the half-column and pilaster bases belong to the orthodox Attic type with plinth and scotia separating the tori (►**Sal 1.14-15**) (Fig. 6.10a). A small square base with high plinth (►**Sal 1.23**), made of bio-calcarenite of the oued Akreuch, is placed not *in situ* inside one of the rooms, but there is no evidence to prove that it really belonged to this building. A corner block with attached a pilaster and a half-column Corinthian capital with smooth leaves (►**Sal 2.7-8**) has been repositioned *in situ* at the north-east corner of the perimeter wall. The decorative features are identical to those of the examples of the *capitolium* (►**Sal 2.4-5**; ►**Sal 2.9-10**; see also the smaller capitals of uncertain provenance ►**Sal 2.6**), representing a simplified version of the second-century Romano-Carthaginian models.

Fig. 6.10. *Sala*, architectural decoration from the "basilica/*curia Ulpia*" and outside the *nymphaeum*. A: Attic base with plinth (**Sal 1.14**); B: Attic base with plinth (**Sal 1.10**); C: Corinthian capital with smooth leaves (**Sal 2.14**)

No trace of the decoration of the *nymphaeum* on the lower ground is preserved. The niches are flanked by small columns made of bricks, perhaps originally covered with stucco (or marble?). This monument, however, was transformed during the Islamic period (Ammar 2008, 568-9). In the narrow space between the southern side of the *nymphaeum* and the wall of the mosque are piled various architectural elements – bases, capitals, and column

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shafts – all made of pink bio-calcarenite. Their original setting is unknown: they might belong to this building (decorating the corridor on the front of the *nymphaeum*?), or perhaps to the baths in the south-east part of the district. Two types of Attic bases with plinth have been recognized (►**Sal 1.9-10**). The first type is larger (►**Sal 1.9**), and one piece can also be seen inside a *taberna* under the *capitolium*. Another identical base was found at *Thamusida*, in the "thermes du fleuve" (Camporeale 2008c, 219, type 2.2, fig. 8), probably imported as a finished product from *Sala*. The bases of the second type are smaller (►**Sal 1.10**) (Fig. 6.10b) and can be associated with the capitals placed next to them. The capitals are Corinthian with smooth leaves (►**Sal 2.14**) (Fig. 6.10c), but their decorative features diverge from those of the *capitolium* and "basilica/*curia Ulpia*". The bottom of the kalathos is decorated with a torus (like various capitals at *Banasa*: see Chapter 5), while the volutes and helices are quite schematic and have a peculiar V shape, perhaps representing a continuity of Hellenistic forms. A capital with similar helices and volutes from *Volubilis* is placed *in situ* at the west entrance of the piazza of the *capitolium*, dated to c. AD 217 (►**Vol 2.46**). It is possible the capitals at *Sala* might have a similar dating, although it must be remarked that such a schematization of helices and volutes occurs also in other capitals from North Africa and Spain with much later chronologies (c. fifth to seventh centuries AD: see the parallels in the Catalogue). Despite the difficulty of establishing a chronology for these elements, they provide further evidence about the persistence of pre-Roman traditions in the (late) Roman period, as also documented at *Volubilis* and *Banasa*.

The last monument discussed in this section is the arch with three fornices set between the *capitolium* and the "basilica/*curia Ulpia*", discovered during the 1929-30 excavations (Fig. 6.11). Unfortunately only the lower courses of the gateposts are still preserved, while the upper part of the archways and the attic are lost. The monument occupies a rectangular space of c. 17 x 3.35 m in the middle of the paved area, directly in front of the so-called "building F" (of unknown function). The archways of the east façade were decorated with moulded pedestals, on the top of which were placed independent columns, not present on the west façade.

Boube never described the arch in detail in his reports, but simply regarded it as one of the buildings that embellished the monumental district in the early second century AD

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(Boube 1966c, 27; 1990c; 1997, 63; 1999, 17-8). On the other hand, Chatelain (1944, 86-8) had previously advanced a slightly later chronology, towards the reign of Antoninus Pius. This assumption was motivated by the discovery of a fragmentary inscription (*IAM* 309), currently placed in one of the *tabernae* under the *capitolium*, attributed by Chatelain to this monument, on which the name *C. Fa*[*bius Mo*]*destus* can be read. This person was one of the *amici Salenses* mentioned in the base dedicated to M. Sulpicius Felix in AD 144 (*IAM* 307; see *supra*). The inscription, however, is engraved on a long rectilinear block with a square section. This shape seems more suitable for a single line of text, perhaps the architrave/frieze of a *porticus* or a similar structure (see, for instance, the inscription on the colonnade along the nave of the Severan basilica at *Lepcis Magna*: Ward-Perkins 1993, 57-9, fig. 25; *IRT* 428), rather than for the dedicatory inscription of an arch, which should have been developed in height. In fact, the twin inscriptions on the arch of Caracalla at *Volubilis* (*IAM* 390-1) are made of slabs joined together to form a rectangular frame. The same considerations apply to the inscription of "temple C" (Euzennat 1957a, 55, pl. 5.1b) and to both Capitoline dedications at *Volubilis* (*IAM* 355) and *Sala* (*IAM* Suppl. 861). Furthermore, a recent research project by the Università degli Studi di Siena would confirm a dating of this monument in the Hadrianic period, judging by additional epigraphic evidence possibly belonging to the arch (pers. comm. by Papi). For the time being, a chronology within the first half of the second century AD is acceptable. With regard to the inscription of C. Fabius Modestus, one must conclude that it was associated with another building (a *porticus*?), the construction of which was perhaps financed by this person – further attesting to the importance of private patronage in this town.

Fig. 6.11. *Sala*, east façade of the arch between the *capitolium* and the "basilica/*curia Ulpia*"

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Despite the poor state of preservation of the arch, some elements of its architectural decoration have survived. The central archway was decorated with pilasters on both façades – positioned next to the pedestals on the east façade. Two Attic bases with plinth are still *in situ* (►**Sal 1.17**), similar in shape to the examples from the *capitolium* and "basilica/*curia Ulpia*". On the ground, in front of the left-hand pedestal, there is a calcarenite pilaster block. It features a circular lotus scroll on the right-hand side, while the left-hand portion is decorated with a Corinthian capital with smooth leaves (►**Sal 2.16**) (Fig. 6.12a). The compatible size and other characteristics of the block confirm its association with the arch. The motifs of the capital are significant, since they diverge from the ornament of the two buildings nearby. In the upper part of the kalathos one can recognize three V-shaped calyces springing in succession, clearly reminiscent of the decorative traditions developed at *Volubilis* (Pensabene 2011; see the remarks in Chapter 4). This similarity with the Volubilitan productions is further confirmed by the abacus being reduced to a single, thin fillet. A direct influence from the work of the stonemasons from *Volubilis* is certain. It is possible that a group of these artisans moved to *Sala*, similarly to what happened at *Banasa* (see Chapter 5), and worked on the building project of the arch. Otherwise, their carving skills and decorative repertoire might have been assimilated by some groups of stonemasons based at *Sala*.

Various blocks featuring a string of square dentils (Fig. 6.12b) are piled inside "building F" and might belong to the arch. Two large cornice blocks (Fig. 6.12c), now placed on the upper level of the *capitolium*, feature projecting ends compatible with the pedestals on the east façade of the arch. The mouldings – fillets and a quarter round in the central part – are separated by strings of dentils. The lower contour of the soffit is decorated with concave flutes, recalling the models of cornice diffused at Carthage in the Antonine period (Lézine 1968, 65, fig. 20; *Byrsa* III, 86-95, figs. 104-20; see also Gros 1978; Pensabene 2001a, 94-7, fig. 56). In conclusion, it seems that two different ateliers of stonemasons worked at the building project of the arch. One atelier was surely influenced by the Romano-Carthaginian style, while the other made use of the decorative repertoire typical of *Volubilis*. The combination of different styles in the same building is rather common in *Tingitana*, as discussed in Chapters 4 and 5. For example, the work of different workshops within the same structure has been recognized in the Ionic colonnade in front of the palace of Gordianus (see Chapter 4).

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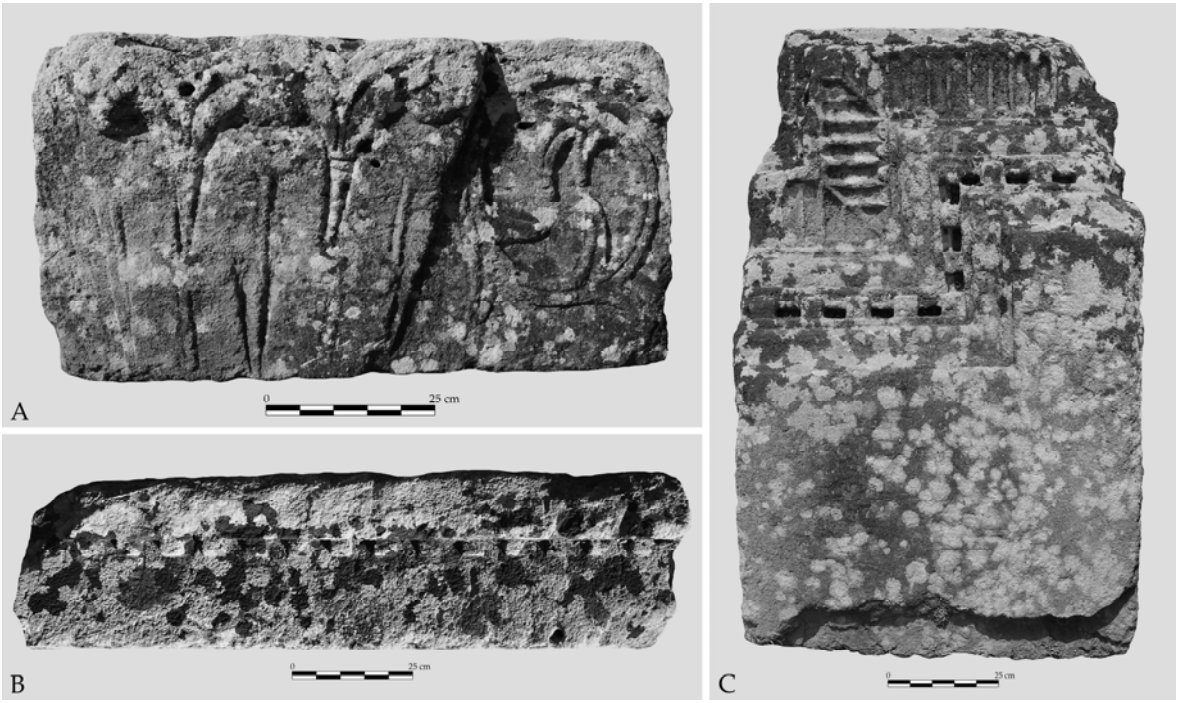

Fig. 6.12. *Sala*, architectural decoration of the arch. A: Corinthian capital with smooth leaves (**Sal 2.16**); B: cornice with string of dentils; C: cornice with fluted soffit

ISOLATED ELEMENTS OF ARCHITECTURAL DECORATION

In this section are described elements of architectural decoration that cannot be associated with a particular building. Their analysis, however, has revealed important information for outlining a general picture of the architectural styles adopted at *Sala* in the Roman period and beyond.

The first element is a Corinthian capital made of white marble (►**Sal 2.18**) (Fig. 6.13a), placed on the ground inside a *taberna* underneath the *capitolium*. Its macroscopic features suggest an identification as Proconnesian marble (Price 2007, 74), although archaeometric analyses would be needed to confirm this hypothesis. Two small fragments of capitals of the same kind are kept in the storehouse (►**Sal 2.19-20**) (Fig. 6.13b-c). These capitals belong to the Asiatic style with prickly acanthus. The shape of the leaves with vertical channels and drop-shaped eyelets, the reduced cauliculi, and the calyces developed in height are all decorative features documented in *Asia Minor* in the late Flavian period, as confirmed by evidence from the *nymphaeum* of Pollio at *Ephesos* (Bammer 1978-80, 69, figs. 4, 11; Vandeput 1997, 135, pl. 84.1). These models probably did not reach North Africa before the early to mid-second century AD, judging by the parallels from the Hadrianic

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baths (AD 137: Pensabene 2001a, 119, figs. 74-5; Bianchi 2009, 49-51, figs. 2a-f, 5a-h) and the temple of Rome and Augustus at *Lepcis Magna* (mid-second century restoration: Pensabene 2001a, 68-9, fig. 17). One can reasonably assume the capitals from *Sala* may be dated towards Hadrian's reign as well, although their setting is unknown. Even if one of them was found in a *taberna* of the *capitolium*, any association with this building should be excluded, since all the decoration of the complex was made of calcarenite. After the disruption of use of the temple (c. fourth century AD: see *supra*), waste accumulated in this area. Other isolated architectural elements have been found inside the *tabernae*: various pieces made of calcarenite, such as square bases (►**Sal 1.5-6**), single-torus bases (►**Sal 1.8**), Attic bases with plinth (►**Sal 1.19**), Corinthian capitals with smooth leaves (►**Sal 2.15**) and some cornices, as well as decoration of bio-calcarenite, including moulded blocks and fragments of architraves.

The presence of these capitals at *Sala* reveals important details on the use of marble architectural decoration. I have observed in Chapters 4 and 5 that the ornament from *Volubilis* and *Banasa* is all made of local materials. The only marble elements at *Volubilis* comprise small slabs, inscriptions and fragments of statues of both white and coloured stones (Laamiri-Habibi 2001; Antonelli *et al*. 2009). The few objects from *Banasa* and *Thamusida* are similar in type to those at *Volubilis* (see Akerraz *et al*. 2009c; Origlia *et al*. 2011; Papi and Papini 2013; Antonelli *et al*. 2015). In those cases, however, marble was not used for architectural elements (bases, capitals, column shafts, or entablatures) – either carved locally or imported already manufactured from abroad. In contrast, *Sala* has produced most of the evidence of imported marble ornament found from the entire province. Only a few other isolated elements are known at *Lixus* and *Tingi* (see Chapter 8). Inside the storehouse there are other architectural elements made of white marble. A fragmentary piece corresponds to the lower tier of a roughed-out capital with smooth leaves (►**Sal 2.12**) (Fig. 6.13d). A small disc base (►**Sal 1.1**) is similar in shape to various bases reused in the main hall of the mosque inside the ribat of Chellah, and some moulded blocks (cornices or pedestals?) are documented as well (Fig. 6.13e). Numerous fragments of small cornices and slabs, made of coloured marbles, have been recovered (in particular Rosso Antico and Breccia di Settebasi: Lazzarini 2011, 839-40, figs. 2, 6), in addition to the column shafts – probably of Mysian granite – currently placed outside the forum (see *supra*).

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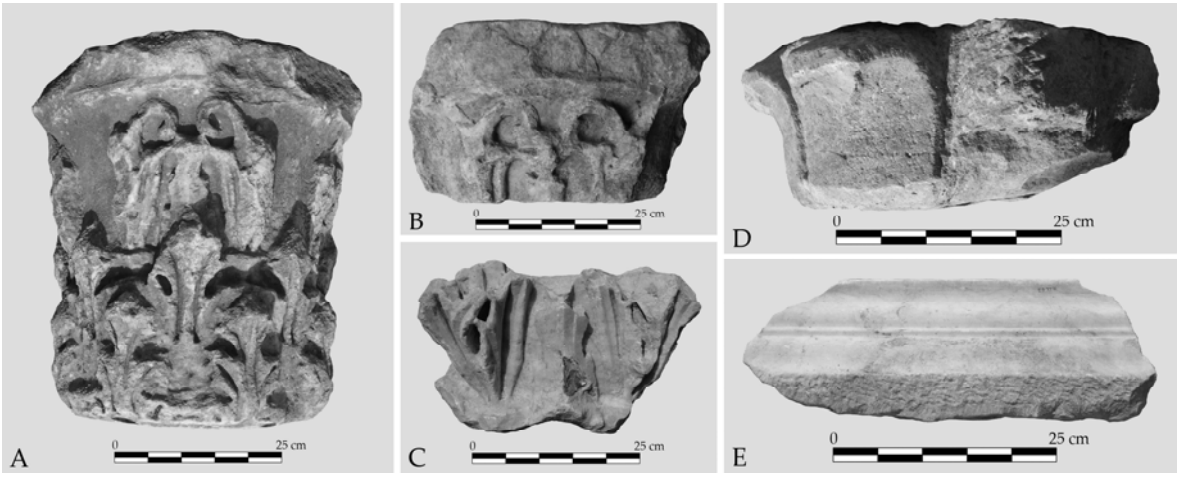

Fig. 6.13. *Sala*, marble architectural decoration. A-C: Asiatic Corinthian capitals (**Sal 2.18-20**); D: Corinthian capital with smooth leaves (**Sal 2.12**); E: moulded block

Another fragmentary capital in the storehouse (►**Sal 2.17**) (Fig. 6.14a) is made of a white stone, perhaps limestone or a local travertine. The lower portion of the capital, the upper part of the kalathos and the abacus are damaged. Nevertheless, it is possible to advance some remarks. The capital is decorated with *acanthus mollis* leaves flattened towards the kalathos. The vertical channels and the small eyelets separating the lobes are reminiscent of the second-century, Romano-Carthaginian style. This capital was probably carved by local artisans who reproduced the motifs associated elsewhere in North Africa with marble ornament.

A similar situation has been described for the Corinthian capitals at the entrance of the "maison à la mosaïque de Vénus" at *Banasa* (►**Ban 2.23-25**; see Chapter 5), featuring *acanthus mollis* leaves very similar to those of the capital from *Sala*. At *Banasa*, however, re-elaborations were also recognized – the carved astragal featuring an Ionic *kymation* at the bottom and the fleuron replaced by a shell. It is not clear whether the same occurred for this fragmented piece, although it seems more likely that it simply represented a local "imitation" of Roman models. This can be supported by the fact that no re-elaborations have been traced in the capitals from the *capitolium* (►**Sal 2.4-5**; ►**Sal 2.9-10**) and the "basilica/*curia Ulpia*" (►**Sal 2.7-8**), which can be described as a "simplified" version of the second-century official style. The presence of imported marble decoration and of this capital with *acanthus mollis* leaves suggest that *Sala* was more directly influenced by the decorative trends diffused across North Africa than other sites of the province (e.g. *Volubilis*, *Banasa*, or *Thamusida*). This was undoubtedly facilitated by the favourable

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position of the town near the Atlantic coast, which also guaranteed easier connections with the Mediterranean trade routes.

A small Corinthian capital of bio-calcarenite (►**Sal 2.13**) (Fig. 6.14b) has V-shaped helices and volutes running almost horizontally – perhaps a persistence of pre-Roman features, as documented by various examples from *Banasa* (e.g. ►**Ban 2.16**; ►**Ban 2.37-39**) and by the group of capitals found outside the *nymphaeum* at *Sala* (►**Sal 2.14**). Another interesting feature is the presence of a large fleuron in the middle of the abacus, which might be a continuity of the typical form attested in Italic and Alexandrian Corinthian capitals (see the observations in the Catalogue) – diffused also in Spain in the second and first centuries BC, before the widespread diffusion of the "normal" Corinthian type (Gutiérrez Behemerid 1992, 59-63). Until more evidence is discovered, however, this remains just a speculation.

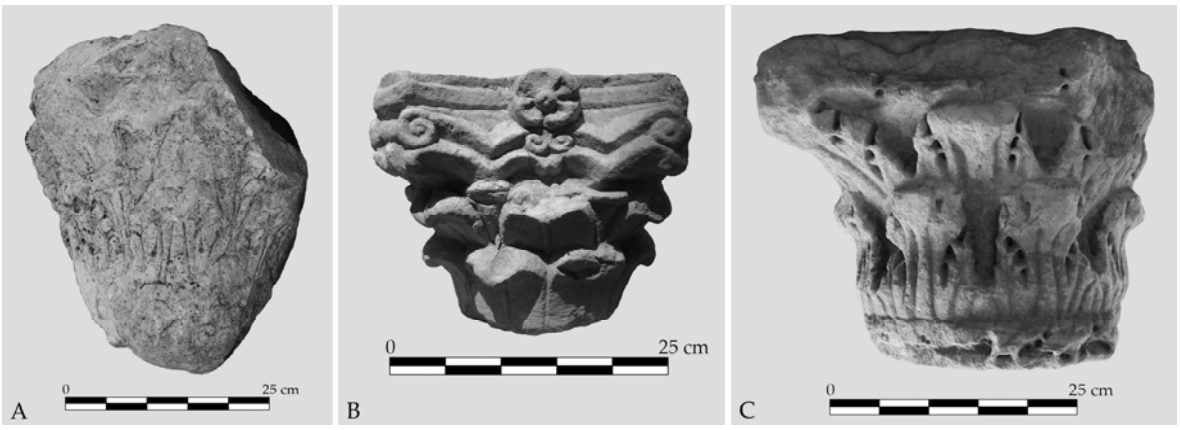

Fig. 6.14. *Sala*, architectural decoration in the storehouse. A: Corinthian capital with *acanthus mollis* (**Sal 2.17**); B: Corinthian capital with smooth leaves (**Sal 2.13**); C: composite capital with fine-toothed acanthus (**Sal 2.21**)

Finally, another capital provides a glimpse of the site's occupation after the retreat of the army from the southern *limes* of *Tingitana* (end of the third century AD). The capital (►**Sal 2.21**) (Fig. 6.14c), made of white marble, belongs to the Byzantine composite style with fine-toothed acanthus. This decoration was first produced at Constantinople and then diffused across the Mediterranean, dated from the second half of the fifth to the early sixth century AD (among the numerous references, see Pensabene 1986, 397; Barsanti 1989, 141-50; Minguzzi 2000, 132-3). Many similar examples have been found in North Africa, often reused in mosques or other Islamic buildings, especially in the region of

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former *Africa Proconsularis* (see the parallels in the Catalogue). Unfortunately there are no data about Late Antique building activities at *Sala*. The forum and the *capitolium* were not in use anymore, both converted into dumps towards the late fourth century AD (see *supra*). However, the recovery of some finds during the excavations – lamps, pottery, and metal artefacts – has confirmed that a Christian community lived here (Boube 1983-84b, 294-5; 1997, 63; 1999, 19; Villaverde Vega 2001, 176-85). The presence of this Byzantine capital suggests that some buildings were still constructed, or perhaps restored, at this stage. *Sala* was thus involved in the circulation of the decorative motifs diffused across the Mediterranean in Late Antiquity, although the scale of this phenomenon was more limited than in other territories of North Africa.

CONCLUDING REMARKS

When drawing conclusions on urban development and architectural layout of buildings at *Sala*, one must keep in mind that only a small portion of the site is known, corresponding to part of the monumental district. Unlike *Volubilis* and *Banasa*, we are prevented from having a picture of the settlement as a whole, and we need to adopt a cautious approach. On the other hand, interesting features have emerged from the study of buildings and their decoration. These have provided information on the occupation and transformations of the district across the Mauretanian and Roman eras – a characteristic less appreciable at other sites of the province.

Some evidence from the layers underneath the forum can be dated to the mid-first century BC, representing the first phase of urban development attested by tangible archaeological remains (a building with mud-brick walls). The diffusion of this technique in the Mauretanian period has been recognized at *Volubilis*, *Banasa*, *Zilil* and *Thamusida*, and its use continued in the Roman era (Camporeale 2008a, 141). Tuscan capitals were employed at this stage, perhaps with both a quarter round and a torus-shaped echinus (►**Sal 2.1-2**). The presence of an Attic base without plinth (►**Sal 1.24**) has also shown that this particular form was introduced in the pre-Roman period. Similar bases from *Banasa* and *Volubilis*, however, attest to the continuity of this type in the Roman period, and similar observations apply to Tuscan capitals (see Chapters 4 and 5). It is clear that the annexation of *Tingitana* into the Empire and the growing influence of Rome did not make

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a *tabula rasa* of previous decorative traditions, since many of these witnessed a persistence until (at least) the third century AD.

The evidence from "temple A", on the upper terrace of the forum, offers a further glimpse of the layout of the monumental district at this early stage. The Ionic capitals of Punic-Hellenistic tradition (►**Sal 2.3**) and the Egyptian gorge cornice, probably decorating the temple façade, confirm the role played by the Punic substratum in the transmission of decorative styles across North Africa (see Lézine 1960, 73-80, 97-101). The use of these capitals and cornice does not provide undisputable chronological information *per se*. Evidence from other parts of North Africa (and elsewhere) has shown that both could still be employed in the Roman period. However, the discovery of these architectural elements and the absence of mortar in the masonry of the temple are important clues that confirm a dating of the building to the late Mauretanian era, as suggested by Boube (1967, 302-4, 320, 328). The temple was still in use after the annexation of the province, perhaps re-dedicated to the emperors, as a sign of continuity of lineage with the previous client kings. At this stage it was included into the monumental forum complex through the creation of a paved piazza and a building with *tabernae* on the lower terrace, c. late first century AD – early second century AD.

The architectural remains of Mauretanian *Sala* are limited to this portion of the district. The so-called "temple B" and "temple C", on the slope of the hill west of the forum, were included by Boube among the Mauretanian constructions (Boube 1967, 283-4; 1997, 62-3; 1999, 16). However, in addition to their uncertain identification as temples, the presence of mortar in the foundations challenges this hypothesis, rather suggesting a Roman date (Camporeale 2004-05, 240). Similar observations apply to "building F", set behind the west façade of the arch. While the ashlar masonry of its walls has been traditionally associated with the Mauretanian building phase of the town (Boube 1967, 275-6), the position of this construction exactly at the same level of the Roman paving suggests a later chronology (c. early second century AD).

The main construction phase of the monumental district took place within the first half of the second century AD, when a large paved area with public buildings, perhaps a *forum adiectum*, developed in the western end of the sector. This urban enhancement was probably linked with the growth of the local population. Excavations in the cemeteries of

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Bab Zaër, outside the ribat of Chellah, have shown a progressive enlargement westwards of the original limits, within which the dead were buried, from the second century onwards (Boube 1999, 535). Such an intensive building programme in the urban centre involved also a large demand for architectural decoration.

One should observe that the embellishment of the district does not seem to mirror any change in the town's juridical status. Thanks to epigraphic evidence, it seems that *Sala* was awarded the title of *municipium* by Claudius, like *Volubilis*, and its citizens were enrolled in the *Claudia* tribe (Gascou 1991; Boube 2009). Perhaps also in this case the promotion was achieved as a reward for the loyalty to Rome during Aedemon's revolt (AD 40-41: on this episode see Chapter 3). However, there is no archaeological evidence at *Sala* of new constructions datable to the mid-first century AD. Although the construction of the pre-Severan forum of *Volubilis* was probably linked to the town's status promotion, the works were not completed before c. AD 57/58, or up to the late first century AD (see Chapter 4). The text on the base of M. Sulpicius Felix (*IAM* 307) states that *Sala* was still a *municipum* in AD 144. Local epigraphy does not record any relevant historical event in the first half of the second century, when the main buildings of the district were erected. Even if we accept the information contained in the *Itinerarium Antonini*, early third century AD, according to which *Sala* was a *colonia*, this promotion could not have taken place before the mid-second century.

Another interesting feature documented at *Sala* in this period is the importance of private patronage for the financing of construction works – a contrast with *Volubilis* where it seems to have had a minor role, or none at all. The *capitolium* was donated to the citizens of *Sala* by the prefect C. Hosidius Severus (Boube 1990a; *IAM* Suppl. 861). The putative architrave/frieze with the name of C. Fabius Modestus (*IAM* 309) does not seem to belong to the arch, but it attests nevertheless to the existence of a building probably financed by this person. The mention of a *curia Ulpia* in the inscription of M. Sulpicius Felix, which may not correspond to the building where the base was found, suggests that the construction was perhaps financed by Trajan. However, one should not exclude that it could rather have been dedicated to the emperor by the local community – and the works were maybe paid by another wealthy citizen?

With regard to the architectural decoration found in the monumental district, the same atelier of stonemasons probably worked at the *capitolium* and "basilica/*curia Ulpia*".

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The Attic bases are all of the orthodox type with plinth (►**Sal 1.11-15**; ►**Sal 1.18**), with only minor variations in their shape. Another base with identical features (►**Sal 1.16**) was repositioned *in situ* at the north-west corner of the so-called "building D" (east of the "basilica/*curia Ulpia*"), the function of which is unknown. The presence of this base, however, suggests that the building might be contemporary with the other edifices of the early second century AD – among which one should also list the baths and the (putative) shops along the street flanking the upper level of the *capitolium*, the decoration of which is now lost. This standardization of decorative features is also clearly identifiable in the Corinthian capitals. All the examples from the *capitolium* and the "basilica/*curia Ulpia*" (►**Sal 2.4-10**) represent a simplified version of the Romano-Carthaginian models. They can be described as the best attempt all over the province to reproduce official forms. The absence of re-elaborations, attested instead at *Banasa* and *Volubilis* (e.g. ►**Ban 2.8-11**; ►**Vol 2.6-8**), demonstrates these artisans were more deeply influenced by the decorative trends of the period – perhaps determined by the location of *Sala* close to the Atlantic coast, which favoured the contacts with other centres in North Africa and Spain, where Roman official art was predominant.

A building which represents an exception to this general rule is the arch. I have suggested that two different ateliers worked at its decoration. One is recognizable in the execution of the cornices, whose fluted soffit recalls the carving diffused at Carthage. The other atelier, in contrast, was influenced by the decorative traditions of *Volubilis*, as indicated by the pilaster capital (►**Sal 2.16**) with three calyces and a schematic abacus. The dating of the monument is debated, but can be reasonably placed within the first half of the second century AD. Judging by its position, it seems that its construction caused a reduction of space in that portion of the district, making the transit of vehicles impossible. Only two narrow corridors separate the arch from the *capitolium* and the "basilica/*curia Ulpia*". It may be hypothesized, therefore, that the construction of this monument took place after the other buildings had been erected.

Some elements of architectural decoration, not associable with a precise building, have nevertheless revealed important information. The persistence of pre-Roman (Punic-Hellenistic) legacies is confirmed by capitals with V-shaped helices and volutes (►**Sal 2.14**), currently placed behind the *nymphaeum*. It is possible that an isolated capital from

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the storehouse (►**Sal 2.13**) represents a continuity of decorative motifs attributed to Italic or Alexandrian capitals of the second to first centuries BC. The patterns identified at *Volubilis* and *Banasa* (Chapters 4 and 5) apply to *Sala* as well, attesting to the circulation of similar motifs all over the southern part of *Mauretania Tingitana*. Moreover, the discovery of a pseudo-lotus capital (►**Sal 2.22**), similar to the capitals from *Banasa* (►**Ban 2.41-43**), shows that the creation of local decoration influenced by (remote) Egyptian models also occurred at *Sala*.

Another important feature is the presence of imported pieces of marble architectural decoration. This situation is exceptional, since no trace of marble ornament was found at *Banasa* or *Volubilis*, while only a few finds are known at *Lixus* and *Tingi*. The total amount of marble decoration at *Sala* is not particularly great, but is significant given the small extent of the excavated area. The variety of elements recovered is also interesting: Asiatic Corinthian capitals (►**Sal 2.18-20**); roughed-out capitals (►**Sal 2.12**); disc bases (►**Sal 1.1**); and moulded blocks. To this list one should add the numerous elements of coloured marbles (see Lazzarini 2011), as well as statues and inscriptions made of white marble. This discrepancy between *Sala* and the other sites examined can be explained by the location of the town close to the coast – an important factor to consider for the calculation of shipping and transport costs of marble (for the most recent updates on this topic see Pensabene 2013, 147-227; Russell 2013, 95-140). These connections with the Atlantic and Mediterranean routes also enabled *Sala* to assimilate the decorative styles diffused throughout Late Antiquity, as demonstrated by the Byzantine composite capital with fine-toothed acanthus placed in the storehouse (►**Sal 2.21**) – a small, bur relevant, trace of building activities at this late stage.

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CASE STUDY: *LIXUS*

The site of *Lixus* (Fig. 7.1) was developed on the slopes of the Tchemmich hill, on the right bank of the oued Loukkos. Only a small portion of the town (total extent c. 16 ha) is known and detailed plans of all the excavated structures do not exist. The poor preservation of the ruins is a problem for attempting a reconstruction of *Lixus*'s urban layout. Architectural decoration at this site is very scarce, mainly due to the destruction caused by Islamic limekilns. The first section of the chapter focuses on the so-called "quartier des temples", where most evidence is preserved. Isolated architectural elements from other parts of the site are discussed in the second section. Despite all the difficulties the field research had to deal with, *Lixus* has provided data towards a comparative analysis with the evidence from *Volubilis*, *Banasa*, and *Sala*.

"QUARTIER DES TEMPLES"

The sector of the town traditionally referred to as the "quartier des temples" occupies an area of c. 250 x 165 m on the top of the hill, oriented south-north (Fig. 7.2). This complex features a series of buildings whose architectural layout and spatial organization are not easily understandable, due to the presence of overlapping structures and because of their poor preservation. In most cases only the lower courses of walls survive. The function and dating of these structures have been a topic of intense academic debate. The full extent of this sector eastwards is unknown.

The excavations started in 1959 under the direction of Ponsich, initially as a collaboration with Tarradell (see Chapter 2). In addition to brief fieldwork reports (Euzennat 1960, 538-43; El Khatib-Boujibar 1964a, 367-72; 1966, 540; Ponsich 1966c, 18-20; Bekkari 1967, 655-6), a preliminary study of the district was published many years after the conclusion of the works (Ponsich 1981). The label "quartier des temples" was created by Ponsich, who identified the majority of these buildings as temples, and named them with letters – a nomenclature still used today.

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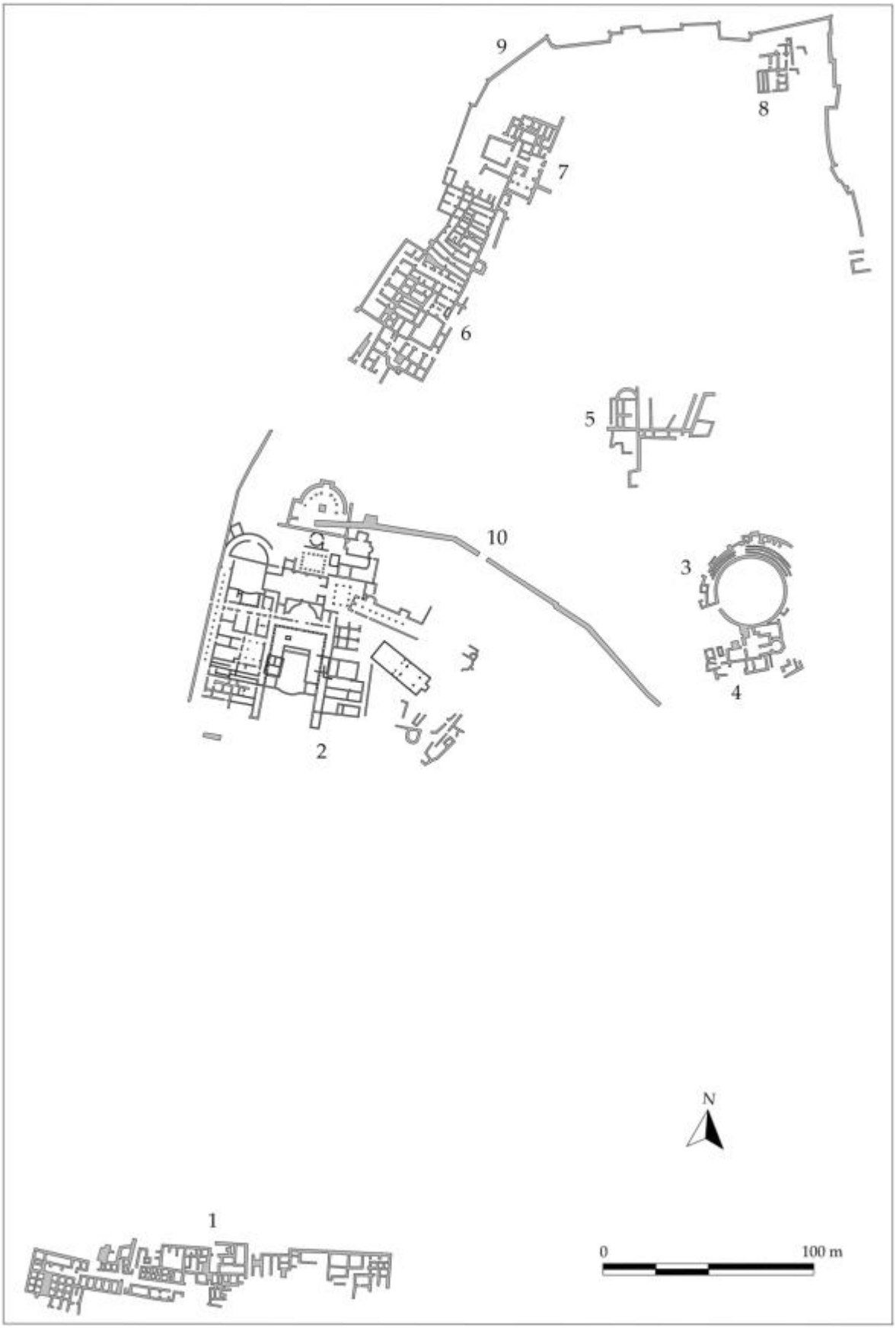

Fig. 7.1. *Lixus*, plan of the site. 1: *garum* factories; 2: "quartier des temples"; 3: amphitheatre; 4: baths; 5: basilica (?); 6: *domus* of Mars and Rhea (with annexed structures); 7: *domus* of Helios; 8: house; 9: Roman-period city walls; 10: Late Antique city walls

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The chronology of the earliest phases was pushed back to the Phoenician/Punic era ("temple A" and "temple H"), while the main phase was dated in the reign of Juba II and Ptolemy (e.g. "temple F" and "temple G"), with later restorations (Ponsich 1981, 129-39). These conclusions were drawn after an architectural survey in part supported by the analysis of select pottery. The principal shortcoming, however, is the lack of a discussion of the archaeological stratigraphy recorded at the time of the excavations, which has remained unpublished. Ponsich's plans of the buildings, though not entirely accurate, set the basis for later research.

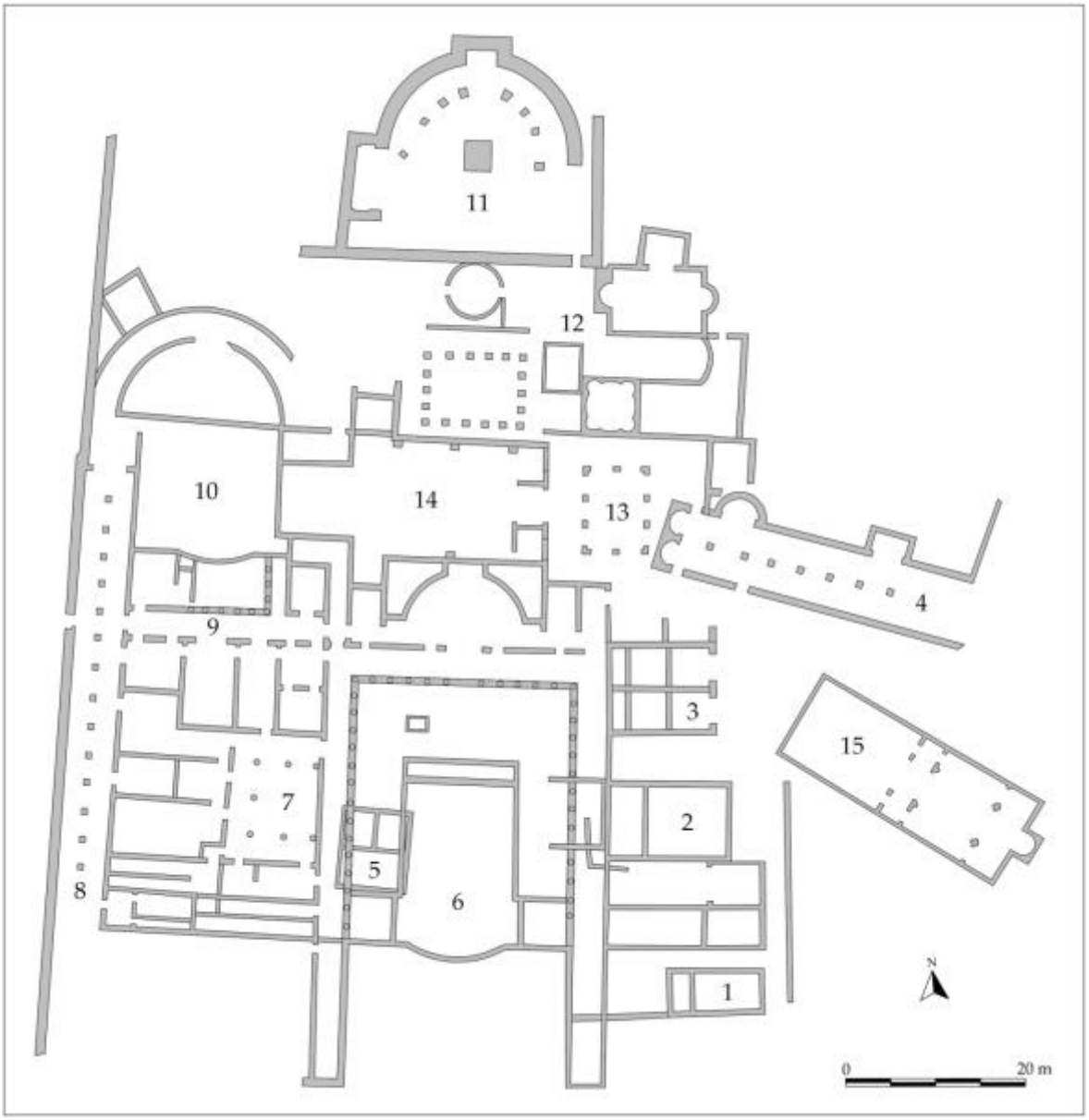

Fig. 7.2. *Lixus*, plan of the "quartier des temples". 1: "temple B"; 2: "temples A/D"; 3: "temple C"; 4: "building E"; 5: "cistern 14"; 6: "temple F"; 7: "*patio* D"; 8: "corridor G"; 9: "corridor A"; 10: "temple G"; 11: "temple H"; 12: "thermes J"; 13: "building I"; 14: "building M"; 15: mosque

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A revision of some of these chronologies was advanced by Rebuffat (1985), supported by M. Lenoir (1992), mainly in reference to "temple F" (Fig. 7.2, no. 6), which was dated to the Roman period. Afterwards, a new architectural survey was undertaken by the French-Moroccan team of the "Mission Temples" (1999-2001). Thanks to their field research, Ponsich's plan of the district was in part rectified. Rebuffat's revised chronology for "temple F" and its principal annexes was also confirmed. Regrettably, after almost 15 years, only preliminary reports have been disseminated (Brouquier-Reddé *et al*. 2006; 2008; 2010), leaving many questions still unanswered.

The most recent re-analysis was carried out by the Universitat de València (2005-09), discarding the identification of these buildings as temples. The Spanish scholars advanced the hypothesis that the entire complex should rather be interpreted as a palace of Juba II (Aranegui Gascó and Mar 2008; 2009; 2010; Aranegui Gascó 2012). This reconstruction, however, is coloured by inaccuracies both in the reconstructed plans and in the analysis of the materials and architectural remains (for a critique see Mugnai 2013; Papi 2013), as will be discussed below.

From this brief review it is evident that an accurate reconstruction of the district is a difficult task. Only scarce information on the archaeological stratigraphy and materials associated with it is available. For a comprehensive re-study it would be essential to digitize a new plan through the rectification of high-resolution aerial photographs – a level of detail never reached so far. It would then be necessary to undertake a detailed analysis of architectural stratigraphy, construction phases, building techniques and typology of building materials, and to compare these results with other sites of *Tingitana* (e.g. *Thamusida*, *Sala*, and *Banasa*: Camporeale 2004-05; 2008a). Given the lack of these crucial data, for the time being, the study of the (exiguous) architectural decoration found in the district only allows me to comment on some of these buildings by reviewing and challenging previous hypotheses.

Despite Ponsich's belief, the large exedra at the north end of the district, "temple H" (Fig. 7.2, no. 11), now almost entirely re-buried, cannot be dated to the Phoenician/Punic era (Niemeyer 1992, 49-51). The re-analysis of the pottery found in a foundation trench has indicated a *terminus post quem* not earlier than the late first century BC (Habibi 1994). The building was attached to the southern wall of the "thermes J" (Fig. 7.2, no. 12), thus

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questioning the identification as a temple (Brouquier-Reddé *et al*. 2008, 132). The architectural layout of the baths is not easily understandable, although the main phase probably dates to the second half of the first century AD (Thébert 2003, 263). The construction of "temple H" has been linked with an "edifice pré-thermale" (?) dated to the Augustan period (Brouquier-Reddé *et al*. 2006, 2164). However, judging by its layout, as observable in the available plans, it seems more plausible to associate "temple H" with the main phase of the baths, rather than with this putative earlier construction.

At the eastern end of the district one can see the remains of buildings whose first phase spans from the first half of the first century BC to the late first century BC. This sector (Fig. 7.3) was bordered on the north by "building E" (Fig. 7.2, no. 4), featuring a corridor oriented east-west, with a colonnade along its axis and niches opening on the west and north sides. This edifice was obliterated/incorporated by the later constructions ("building I"), which developed in the western part of the "quartier des temples".

Fig. 7.3. *Lixus*, east sector of the "quartier des temples" ("building E" seen from the west corner)

The area south of "building E" has a trapezoidal shape, a large portion of which is hidden beneath a mosque (Fig. 7.2, no. 15). Four rectangular buildings are arranged in a row on the west side: "temple B", "temples A/D", and "temple C" (Fig. 7.2, nos. 1-3). Although originally separate, they were unified through a podium and *pronaos*, discernible in the southern portion, added perhaps in the early provincial era. Their identification as temples is realistic. The presence of a trapezoidal piazza on the front recalls the layout of

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the fora of *Sala* and *Banasa*. At both sites, moreover, the temples were enlarged by creating additional *cellae* and were provided with a podium ("temple A" and temple with seven *cellae*, respectively: see Chapters 5 and 6). The hypothesis that this piazza corresponded with the forum of *Lixus* is acceptable (Tarradell 1959, 64-5; Papi 2013, 805, note 19).

A poorly preserved block of an Egyptian gorge cornice, made of sandstone, lies on the ground (Fig. 7.4a) and probably belonged to one of the temples. This discovery confirms the similarities with the forum at *Sala*, where the façade of "temple A" was decorated with the same type of cornice (Boube 1967, 320, 328-30; Chapter 6). Another example of Egyptian gorge cornice was found at *Lixus* in the so-called "cámaras Montalbán", at the south-west corner of "temple F", datable to the period of Juba II (Aranegui Gascó 2008, 47, fig. 8). Depictions of Egyptian-like temples are also observable on local coins, with bilingual Latin and neo-Punic legends, dating to the first century BC (e.g. Callegarin and Ripollès 2010, 180, series 2, no. 8).

A single-torus base is preserved (►**Lix 1.7**) (Fig. 7.4b), repositioned on top of one of the pedestals along the colonnade of "building E". The torus is shaped as a reversed quarter round, highlighted by a *cyma recta*. This shape is rather similar to that of Tuscan capitals from *Volubilis* (►**Vol 2.1**), *Banasa* (e.g. ►**Ban 2.1-3**) and *Sala* (►**Sal 2.2**), showing that an unequivocal identification of these elements is not always possible. This piece from *Lixus*, however, seems to be identifiable as a base, given its perfect match with the pedestal and thanks to the comparison with other single-torus bases recorded elsewhere at the site (►**Lix 1.4-6**).

Another isolated base (►**Lix 1.15**) (Fig. 7.4c), belonging to the Attic type without plinth, is on the ground inside "building E". Like other architectural elements from *Lixus*, the stone was poorly worked, probably due to the fact that all these pieces were covered with a thick layer of stucco which determined the final shape. As observed in the previous chapters, the dating of this kind of base spans from the Mauretanian to the late Roman eras. It is possible, however, that this base was employed for a building in this area of the site. A fragmentary inscription was recovered here, providing some clues about building activities: [---]*us porticum* [---] *d*(*ecreto*) *d*(*ecurionum*) [---] (*IAM* Suppl. 73; see also Rebuffat 1985, 128). The shape of the letters suggests a dating to the first century AD. The construction of the *porticus* may be related to works undertaken at the same time when the temples on the west side were joined together through the creation of the podium. At

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this stage the area probably reached its ultimate layout. Since this base seems too small for the colonnade of a temple, I would rather suggest that it might belong to the *porticus* mentioned in the inscription.

Fig. 7.4. *Lixus*, architectural decoration from the east end of the "quartier des temples". A: Egyptian gorge cornice; B: single-torus base (**Lix 1.7**); C: Attic base without plinth (**Lix 1.15**)

In the west end of the "quartier des temples" one finds the largest edifice of the area, the so-called "temple F" (Fig. 7.5), representing the fulcrum of the district around which the other constructions developed. Its identification is controversial due to the unusual architectural layout. The central part is occupied by a rectangular building, accessible from the north, with an apsidal wall on the southern side and lateral "wings" on the east and west sides. It is surrounded by a *porticus* on three sides, along which a modern colonnade was rebuilt during clumsy restoration works in 2010.

Fig. 7.5. *Lixus*, "temple F" and reconstructed colonnade of the *porticus* (from the north-west corner)

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The preliminary reports of the "Mission Temples" confirmed the traditional identification as a sanctuary, with a chronology not earlier than the second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164-6; 2008, 133-6). In contrast, according to the Spanish-Moroccan re-interpretation of the entire district as a palace of Juba II, this building should rather be an *oecus triclinaris* surrounded by a garden (Aranegui Gascó and Mar 2009, 48-56; 2010, 245; Aranegui Gascó 2012, 663-6).

The few, poorly preserved, remains of architectural ornament are associable with the *porticus*. Two single-torus bases are *in situ* on the stylobate (►**Lix 1.5**) (Fig. 7.6a), well recognizable from the other modern, fanciful bases (Fig. 7.6c). Two Tuscan capitals with quarter round echinus (►**Lix 2.1**) (Fig. 7.6b) lie on the ground along the northern corridor. Their size is compatible with that of the bases, reassuring on their provenance from the *porticus*. Unfortunately these elements do not give precise chronological details – Tuscan capitals being attested in *Tingitana* either in the Mauretanian and Roman periods (see ►**Sal 2.1**; ►**Ban 2.1-3**; ►**Vol 2.1**).

Fig. 7.6. *Lixus*, architectural decoration of the *porticus* of "temple F". A: single-torus base (**Lix 1.5**); B: Tuscan capital (**Lix 2.1**); C: modern (inaccurate) reconstruction

Despite the poor preservation of these architectural remains, thanks to the survey carried out at the site it is possible to advance some observations on the layout and dating of the building, questioning its identification as a palace of Juba II. Firstly, it is evident that the

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central room ("temple F") is not at the same level of the area in front of it, as the Spanish scholars claim (Aranegui Gascó and Mar 2009, 48-9; 2010, 245). On the contrary, it is placed on a raised platform, probably a podium, as confirmed by the "Mission Temples" (Brouquier-Reddé *et al*. 2008, 135). The two "wings" are accessible only from the sides and do not lead inside "temple F". The space enclosed by the *porticus* cannot be interpreted as an open-air garden, given the presence of cocciopesto covering the floor. Four column drums are piled on the apsidal wall of "temple F", perhaps recycled in the masonry at a later stage. Their large size (lower Ø: min-max 51.5-61.5 cm) suggests the presence of a majestic colonnade. The identification as a sanctuary may be supported by a fragmentary marble base, mentioning an [*Au*]*gust*[*alis*], discovered inside "temple F" (*IAM* 72; Papi 2013, 806). Another fragment of a marble slab, originally of monumental size, might be part of the dedicatory inscription, although only the word [---] *fecit* [---] is preserved (*IAM* Suppl. 74; El Khatib-Boujibar 1964b, 382, pl. 1; Rebuffat 1985, 128).

With regard to the chronology, there are some important indicators to consider. The construction of "temple F" and its *porticus* took place after the obliteration of "cistern 14" (Fig. 7.2, no. 5), belonging to a previous Mauretanian phase (probably contemporary with "building E"). Among the pottery recovered from the fill of the cistern, a set of Hispanic Dragendorff 29 sigillata was found (Ponsich 1981, 75: "une série importante de fragments de panses décorées de la forme 29"). The most recent research dates the production of this form in Spain between AD 40 and 80 (Fernández García and Ruiz Montes 2005, 168). The presence of these vessels is confirmed in all the literature (Rebuffat 1985, 124; Lenoir, M. 1992, 280-2; Brouquier-Reddé *et al*. 2006, 2166; 2008, 136), as well as in the unpublished re-study by Habibi (1995, 121-5). For this reason, it is not clear why the Spanish scholars dismissed this evidence by stating that only one "isolated fragment" was found out of context, not usable as an indicator of chronology (Aranegui Gascó and Mar 2009, 34; 2010, 237). On the contrary, this *in situ* pottery provides a reliable *terminus post quem*. The construction of "temple F" could not have taken place before the second half of the first century AD – thus ruling out any connection with Juba II, who had died in AD 23.

It is evident that a dating in the Roman period for "temple F" also affects the other buildings, although we do not have precise chronological evidence for them. The series of rooms on the western side of the "quartier des temples" are traditionally referred to as

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"annexes", but their function is uncertain. The central part, "*patio* D" (Fig. 7.2, no. 7), features a square peristyle. Seven cylindrical drum bases are still *in situ* (►**Lix 1.1**), while the capitals are not preserved. The profile of the bases is extremely simplified, however, the stucco covering the surface must have enhanced their look. The construction of the annexes can be dated probably to the second half of the first century AD, although it has been suggested that "*patio* D" and its colonnade were modified at a later stage, c. second to third century (Brouquier-Reddé *et al*. 2006, 2166, fig. 4). A large disc base (►**Lix 1.3**) is on the ground of "corridor G" (Fig. 7.2, no. 8), likely belonging to its colonnade, while a similar piece is outside the *garum* factories at the base of the hill (►**Lix 1.2**). This corridor marked the junction between the "quartier des temples" and the city walls, preserved here for a height of c. 2 m – *de facto* contradicting the presence of large windows, as part of a "panoramic gallery", depicted in the plan of the controversial palace (Aranegui Gascó and Mar 2009, 42, fig. 8; see also the critique in Papi 2013, 807).

Along the north-west side of "temple F" runs "corridor A" (Fig. 7.2, no. 8). A rectangular room, with a colonnade on three sides, faces the northern front of the annexes and is attached to the southern apsidal wall of the so-called "temple G" (Fig. 7.2, no. 10). Despite the reconstruction by Aranegui Gascó and Mar (2009, 49, fig. 13; 2010, 245, fig. 26), this room was not connected with "temple G". The staircase and doorway shown in their figures do not exist, and in any case the two floors are at the same level (Mugnai 2013, 168). One can only agree that there is no evidence to interpret "temple G" as a sacred building, as remarked by M. Lenoir (1992, 280). This building was modified in the Islamic era, as demonstrated by the doorway along the east wall, placed at a much higher level than the original paving (Papi 2013, 807). Therefore, "temple G" was not originally linked with the large hall at its eastern side ("building M"), as believed by Aranegui Gascó and Mar (2009, 50, fig. 13; 2010, 245-6, fig. 26). The access to "temple G" was possible only through a door on the north-west wall, walking along "corridor G".

Ponsich (1981, 62) stated that eight bases were placed on the stylobate of the room facing "corridor A", but these are not visible anymore. Only two single-torus bases are scattered on the ground (►**Lix 1.8**) (Fig. 7.7a), perhaps belonging to the colonnade. During the excavation, an Ionic capital was discovered (►**Lix 2.3**) (Fig. 7.7b), now displayed at the Musée de la Kasbah de Tanger. The capital belongs to the style of Punic-Hellenistic tradition attested at *Volubilis* (Boube 1966b) and *Sala* (►**Sal 2.3**). The echinus is flattened,

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decorated with a circular button, and various traces of white stucco are preserved. Ponsich suggested that it belonged to the decoration of this room. The hypothesis is plausible, although the measurements of the capital and the (putative) bases of the colonnade do not match perfectly. A precise dating for this type of capital is not possible. The examples from *Volubilis* and *Sala* probably date to the late Mauretanian period, while capitals from elsewhere in North Africa have chronologies spanning from the second century BC to the second-third centuries AD (see Chapter 6 and Catalogue). Another capital found in the *domus* of Mars and Rhea at *Lixus* (►**Lix 2.4**) (Fig. 7.7c), now in the Musée Archéologique de Tétouan, features an identical button in the middle of the echinus, although the volutes are smaller and the abacus is more developed. It can be dated probably to the end of the first – early second century AD, contemporary with the construction of the house (see *infra*).

Fig. 7.7. *Lixus*, architectural decoration. A-B: "quartier des temples", single-torus base (**Lix 1.8**) and Ionic capital (**Lix 2.3**); C: *domus* of Mars and Rhea, Ionic capital (**Lix 2.4**)

Two edifices known as "building I" and "building M" (Fig. 7.2, nos. 13-4) were exposed north of "temple F" and east of "temple G", with an east-west orientation. As suggested by Papi (2013, 807, and note 22), they can be interpreted rather realistically as part of a residential complex: an entrance hall ("building I"), followed by a large room ("building M") with a *tablinum* at the west end and lateral *alae* (Fig. 7.8). The two buildings were in connection with the "thermes J" through a passage on the north side and, subsequently, with the so-called "temple H" (which was not a temple: see *supra*). If a palace is to be found in this part of the site, these edifices are the best candidates. It is surprising that the reconstruction by the Spanish scholars does not consider the connection with the baths. Their plan, in fact, shows a continuous wall along the north side of "building I" and "building M", while the baths are not taken into account (Aranegui Gascó and Mar 2009,

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50, fig. 8; 2010, 245-6, fig. 24). As discussed above, the chronology of the baths is not easy to assess, although the "Mission Temples" suggests that the main building phase is datable to the second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164, fig. 3). A dating to the Roman era for this complex ("building I", "building M", "thermes J", and "temple H") is workable, matching the conclusions drawn about the buildings in the south-west part of the district (especially "temple F").

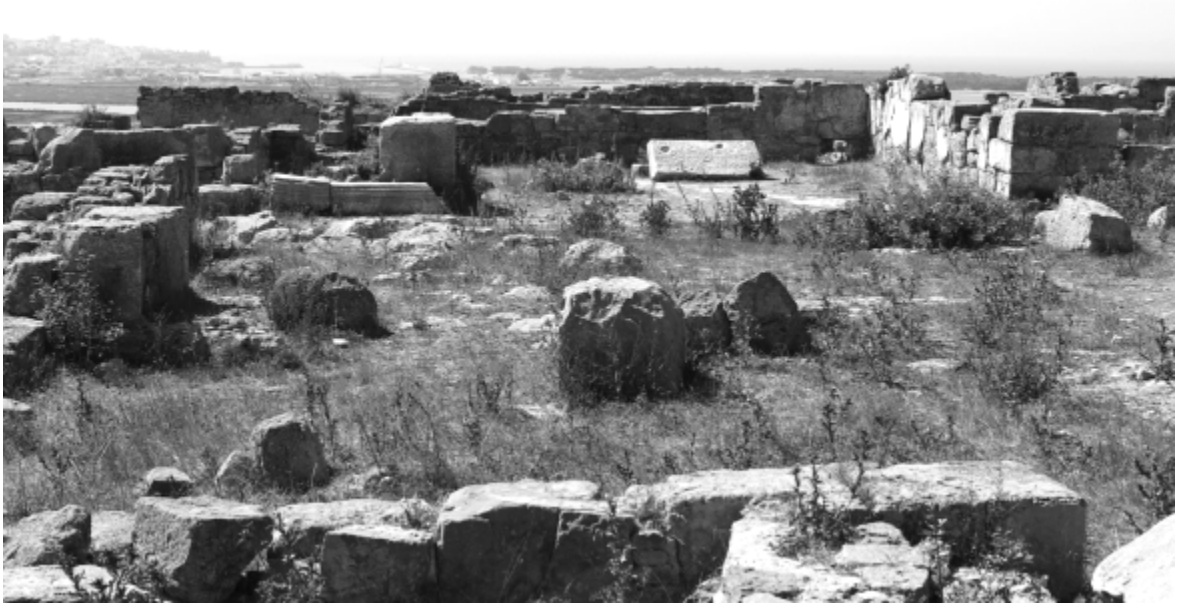

Fig. 7.8. *Lixus*, "quartier des temples": view of "building M" from the eastern side

Regrettably, the surviving decoration from this sector is very scarce. A single-torus base remains on the ground of the "thermes J" (►**Lix 1.4**), perhaps belonging to the colonnade on the pedestals in the main room. A square base, of the Attic type without plinth (►**Lix 1.16**), lies close to the wall between the baths and "temple H". A precise dating is impossible to determine. I have observed above that single-torus bases are attested at *Lixus* either in the first century BC (see "building E": ►**Lix 1.7**) and in the late first century AD (colonnade of "temple F": ►**Lix 1.5**). The same considerations apply to Attic bases without plinth – a popular ornament in *Tingitana* during both the pre-Roman and Roman eras (see Chapters 5 and 6 on evidence from *Volubilis* and *Banasa*).

Inside "building M" are preserved two large moulded blocks. The first (a pedestal?) is made of limestone (Fig. 7.9a), probably of local provenance, and is broken in two pieces. The profile features a tall fascia at the bottom, followed by a reversed quarter round, reversed *cyma recta*, second quarter round, and a fillet at the top. The upper surface is only

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roughly worked. The second block (Fig. 7.9b) is a pedestal for an equestrian statue, as confirmed by the three holes on the upper surface (Boube-Piccot 1969, 356-7, pl. 285). The profile presents: cavetto, fillet, *cyma recta*, torus, and fascia. It is made of a white marble with greyish veins and medium-sized grains, probably Proconnesian. If this hypothesis is accepted, it would be possible to advance a dating not earlier than the late first century AD, when marble from the Proconnesian quarries began to be regularly exported to the western Mediterranean (Walker 1988; Bruno *et al*. 2002a-b; Pensabene 1994, 291-4; 2002; 2004, 429; 2013, 320-30). This dating is compatible with the chronology suggested for this complex and for the "quartier des temples" as a whole.

Fig. 7.9. *Lixus*, moulded blocks inside "building M". A: limestone; B: white marble (Proconnesian?)

ARCHITECTURAL ELEMENTS OF VARIOUS PROVENANCE

The first group of ornament described in this section comes from the *domus* of Mars and Rhea (Fig. 7.10), located on the northern summit of the Tchemmich hill. The house was excavated by Tarradell, who left only brief reports without any plans (Tarradell 19549b; 1959, 60-2). According to the stratigraphy, the house was built at the end of the first century AD or early second century, and abandoned in the mid-third century. The ruins are poorly preserved, corresponding only to the peristyle and baths. The excavations also brought to light a series of underground chambers, belonging to a Mauretanian building (second century BC?), annexed into the house. Other buildings of uncertain interpretation and dating are visible over the northern limit of the *domus*.

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Fig. 7.10. *Lixus*, view of the *domus* of Mars and Rhea, with underground chambers and adjacent buildings, from the north-west corner

An Attic base with plinth is still *in situ* at the south-east corner of the peristyle (►**Lix 1.11**) (Fig. 7.11a). The tori with identical diameter recall the bases from the "maison de Fonteius" at *Banasa*, c. second century AD (►**Ban 1.9**; ►**Ban 1.16**). It is interesting to observe that only the mouldings on the left-hand side of the base were carved, while the other half was left as a roughed-out block. On the pedestal next to this base has been repositioned an element more probably interpretable as a Tuscan capital with torus-shaped echinus (►**Lix 2.2**) (Fig. 7.11b). The size of the base and capital are compatible, and probably belonged to the same column. The association of an Attic base with a Tuscan capital, though rather eccentric, should not be ruled out *a priori* (on evidence from Spain and France, see, respectively: Broise 1969, 17; Escrivà Chover 2005, 14-4).

An Attic base without plinth is on the ground outside the *domus* (►**Lix 1.13**). The association with the house cannot be proved, but it would not be surprising to find Attic bases with and without plinth in the same context (see the evidence from the "maison de Fonteius" at *Banasa*: ►**Ban 1.9**; ►**Ban 1.16**; ►**Ban 1.21**). Another base with a similar profile is placed at the base of the hill, outside the installation no. 1 of the *garum* factories (►**Lix 1.14**) (Fig. 7.11c). The original setting is unknown. If it really came from one of the factories, one may suggest a dating to the late first century BC – early first century AD, contemporary with their construction (Ponsich and Tarradell 1965, 11, 37). The same

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observations apply to a single-torus base (►**Lix 1.10**) found not distant from this piece. A portion of the factories (installation no. 6), however, was restored and transformed in the third century AD. At this stage, the entrance was decorated with pilasters featuring Attic bases with plinth and tronco-pyramidal capitals (Ponsich and Tarradell 1965, 26, fig. 15), although these elements are not visible anymore.

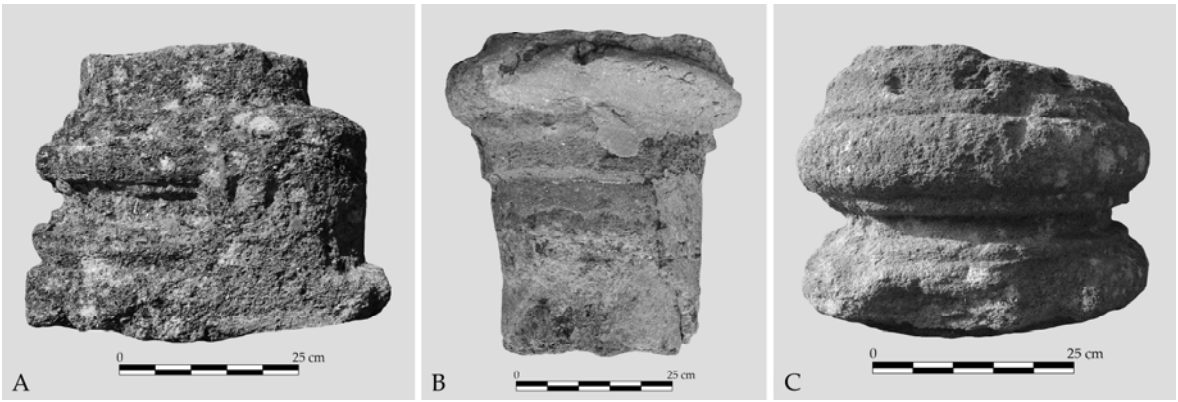

Fig. 7.11. *Lixus*, architectural decoration. A-B: *domus* of Mars and Rhea, Attic base with plinth (**Lix 1.11**) and Tuscan capital (**Lix 2.2**); C: *garum* factories (?), Attic base without plinth (**Lix 1.10**)

Proceeding northwards from the *domus* of Mars and Rhea, one finds a second Roman house: the *domus* of Helios. Only the frontal portion has survived, while the rear has been damaged by the erosion of the hill. The tripartite entrance is on the east side; it leads to a vestibule and then to a central peristyle, without any *atrium*, according to the canonical design of North African *domus* (see Rebuffat 1969; 1974b; Carucci 2007, 18-9). Tarradell (1959, 57) proposed a dating similar to the *domus* of Mars and Rhea: end of the first century to early second century AD. The house was abandoned towards the mid-third century. During a partial clearance of vegetation carried out in 2012, it was possible to record two large Attic bases decorating the entrance (Fig. 7.12). The bases belong to piers with attached half-columns and pilasters (►**Lix 1.12**), but the pilasters are badly fragmented. The profile shows features typical of Attic bases from *Volubilis*: high plinth and scotia, and tori with a trapezoidal profile (see, for instance, ►**Vol 1.29-32** from the piazza of the *capitolium*). The material used, however, is a local limestone and not the Zerhoun quality. This confirms that the bases were not imported from *Volubilis*, but were carved locally. I have observed (Chapter 5) that one or more groups of artisans, influenced by the decorative traditions of *Volubilis*, established a workshop at *Banasa* and produced

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architectural decoration there using local materials (see ►**Ban 1.4**; ►**Ban 1.7**; ►**Ban 1.12-13**). Similar remarks apply to the stonemasons who carved the capital of the arch at *Sala* (►**Sal 2.16**). The presence at *Lixus* of architectural decoration inspired by the Volubilitan productions further confirms the importance of those ateliers, whose products, carving techniques, and design-sets circulated at provincial level.

Fig. 7.12. *Lixus*, entrance of the *domus* of Helios with Attic bases (**Lix 1.12**)

CONCLUDING REMARKS

The state of excavation and preservation at *Lixus* does not allow for a full understanding of urbanism and town development. A large portion of the site is not excavated, while the function and dating of many buildings brought to light is controversial. Most evidence for attempting a reconstruction of the main phases of *Lixus*'s urban history comes from the "quartier des temples". In this chapter, I have tried to present a critical reassessment of previous hypotheses, but these remarks need to be confirmed by a detailed re-study of the district. For instance, the presence/absence of mortared masonry at *Banasa*, *Sala* and *Thamusida* has provided crucial chronological information, since mortar was introduced by the Roman army at the beginning of the provincial era. Mauretanian constructions, in contrast, were built with different techniques that did not involve the use of this material (Camporeale 2004, 204; 2008a, 141-4; 2011). If a similar pattern was recognizable at *Lixus*,

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this would allow for a more precise dating of buildings. Hopefully, the long-awaited publication by the "Mission Temples" will be a decisive step in that direction. For the time being, one must be satisfied with a re-analysis of the available data.

The dichotomy "sanctuaries vs. palace", as presented in the literature so far, is not workable anymore. It seems more appropriate to look at these remains as part of a complex where sacred and residential buildings were mixed together. The buildings in the eastern sector ("temple B", "temples A/D", and "temple C") have the typical features of fora temples documented elsewhere in *Tingitana*. The addition of a podium and *pronaos* on the front, as well as the probable use of Egyptian gorge cornices for the decoration of their façades, recalls quite closely the design of "temple A" at *Sala* (see Chapter 6). While the first building phase may date to the first century BC, the construction of a trapezoidal piazza on the front, probably with a *porticus* (*IAM* Suppl. 73) featuring columns with Attic bases without plinth (►**Lix 1.15**), should rather date to the first century AD. This complex has all the characteristics to be interpreted as the forum of *Lixus*, thus questioning a recent hypothesis which would locate it on the plateau north of the amphitheatre (Akerraz *et al*. 2009b). In terms of architectural layout, moreover, it is worth pointing out the similarities with the *Forum Vetus* of *Lepcis Magna*, which featured an analogous trapezoidal piazza with three temples on one side (Ward-Perkins 1981, 371-3; 1982, 29-32; Pensabene 1990, 269; Masturzo 2003, 723-6).

The western part of the district creates more problems, since the function of these buildings is uncertain. "Temple F" has an eccentric shape for which, to my knowledge, no exact parallels exist. A similarity between the layout of the southern apsidal wall of "temple F" and that of the so-called "*schola*" at *Lepcis Magna* (probably a sacred building) has been pointed out recently (Aiosa 2012, 186). In any case, it is clear that "temple F" is placed at a higher level than its *porticus* – an architectural feature that does hint towards its identification as a temple (Brouquier-Reddé *et al*. 2008, 135). A dating in the reign of Juba II should be rejected on the basis of the pottery found inside the underlying "cistern 14", which rather indicates a chronology not earlier than (at least) the second half of the first century AD. The adoption of the Tuscan order for the *porticus* (►**Lix 1.5**; ►**Lix 2.1**) is compatible with this dating. At *Banasa*, the colonnade of the second-century forum was probably decorated with Tuscan capitals (►**Ban 2.1-3**), and other examples found at that site have a similar chronology (►**Ban 2.4-7**).

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The annexes on the west side of "temple F" were connected to it, and the same considerations apply to the rooms along "corridor A". One should remember, however, that parts of these constructions were probably modified at a later stage, c. second to third century AD (Brouquier-Reddé *et al*. 2006, 2166). As regards the so-called "temple G", I agree that there is no evidence to interpret it as a temple, but its real function is unknown. The situation is made even more complicated by the transformations of the Islamic period (e.g. the doorway connecting "temple G" with "building M" at that stage).

The layout of the constructions in the northern portion of the district suggests that they might be part of a residential complex. "Building I" led to a large rectangular hall ("building M"), with a putative *tablinum* on the west end. To the north, it was connected with the "thermes J" and to the so-called "temple H". The chronology is vague, but some elements have been used to advance a dating not earlier than the late first century AD. Considering its prominent position in the monumental district and its visibility, one may hypothesize this building was used as the residence of the provincial governor when he visited *Lixus*, probably like the palace of Gordianus at *Volubilis* (remark based on a pers. comm. by Papi).

From this review, it appears that the main building phase of the "quartier des temples" took place towards the late first century AD. Unfortunately, epigraphic evidence of building activities is extremely scarce – only two fragmented inscriptions survive (*IAM* Suppl. 73-4). However, the stratigraphy and finds recovered from other buildings across the site have similar chronologies. According to Tarradell, the *domus* of Mars and Rhea and the *domus* of Helios were built at the end of the first century or early second century AD (Tarradell 1959, 57, 60-2; 1959b). The design and carving style of the architectural decoration from the *domus* of Mars and Rhea are similar to the pieces of the "quartier des temples": Attic bases with plinth (►**Lix 1.11**) and without plinth (►**Lix 1.13**), Tuscan capitals (►**Lix 2.2**), and Ionic capitals of Punic-Hellenistic tradition (►**Lix 2.4**).

The amphitheatre, on the east slope of the hill, has suffered major damages and nothing of its architectural decoration has survived. The dating to the period of Juba II, as proposed by Ponsich (1979, 321), has been revised recently. It is now more commonly accepted to date this building to the mid-imperial age, c. second half of the first century to the first decades of the second century AD (Lenoir, M. 1992, 278; Pichot 2012, 111).

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Two considerations on the urban history of *Lixus* can be advanced. The first regards the effects of Aedemon's revolt at this site. Thanks to the excavation of the "sondeo del algarrobo" and "sondeo del olivo", where traces of burning were found, Tarradell (1954a, 343-4; 1959, 38; 1960, 159) suggested that a large part of the town was destroyed during those catastrophic events. However, it is evident that the constructions found underneath the Roman-period buildings in the "quartier des temples" and the *domus* of Mars and Rhea do not show signs of burning or of a sudden destruction (see also Lenoir, M. 1992, 272-3). It seems, therefore, that the extent of the revolt should be downplayed, especially in northern *Tingitana*. Even at *Volubilis*, which was more directly involved in these events, the few traces of burning discovered within the town are not sufficient to prove a direct connection with the war (see Chapter 3).

A second issue concerns the promotion to *colonia honoraria* (Hamdoune 1994; 2011, 52). The words of Pliny (*Naturalis Historia*, V.1.2) are clear: "*Lixus, colonia a Claudio Caesare facta*". In the absence of any epigraphic evidence, we must rely on the accuracy of Pliny's sources. With regard to building activities in this town, however, it is not possible to see a direct connection with this promotion. As summarized above, most buildings do not predate the late first century AD. This situation is similar to what has been ascertained elsewhere in the province. *Volubilis* became a *municipium* under Claudius, but the construction of the pre-Severan forum, perhaps related to this event, was not completed before the late first century AD (Chapter 4). The main building projects at *Sala* date to the first half of the second century AD, while the town had been awarded the status of *municipium* probably at the same time as *Volubilis* (Chapter 6).

Few elements of architectural decoration are preserved at *Lixus* (30 pieces). Apart from the vegetation and limited extent of excavated areas, a major issue is the destruction caused by the Islamic limekilns. According to Ponsich (1981, 127), more than 20 limekilns were found only in the area surrounding the eastern sector of the "quartier des temples" (see also Coll Conesa 2010, 201). Only a statue pedestal of white marble is visible inside "building M". In the Musée Archéologique de Tétouan, however, there is a fragmented marble frieze with scrolls of acanthus and rosettes (Akerraz *et al*. 2009b, 296, fig. 16.15), while another (unpublished) frieze with a vegetal motif is in the Musée de la Kasbah de Tanger. This confirms that at least some marble architectural decoration was used at

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Lixus. The proximity to the coast, like *Sala*, surely facilitated the shipping of stones from abroad and contributed to reducing the costs (see Chapters 6 and 8).

The majority of architectural elements, however, was made of local sandstone. The artisans did not reach an advanced level of carving detail, and stucco determined the final shape of the ornament. In fact, traces of thick layers of stucco are preserved on various pieces (e.g. ►**Lix 1.5**; ►**Lix 2.1-2**). The types of ornament recorded at the site show similarities with the other case studies: Attic bases with plinth (►**Lix 1.11-12**) and without plinth (►**Lix 1.13-15**), single-torus bases (e.g. ►**Lix 1.4-6**), and Tuscan capitals with either a quarter round echinus (►**Lix 2.1**) or a torus-shaped one (►**Lix 2.2**). The dating can vary depending on the context, although it has been observed that most of these elements from *Lixus* can be dated to between the second half of the first century AD and the early second century AD. This chronology is valid also for the two Ionic capitals of Punic-Hellenistic tradition (►**Lix 2.3-4**) – a type of pre-Roman decoration which survived in the Roman period. Finally, one should observe that no Corinthian capitals were discovered at *Lixus*. The trend is completely different at *Volubilis*, *Banasa* and *Sala*, where the Corinthian order was the most popular. On the other hand, given the small quantity of decoration found at *Lixus*, one should not jump to the conclusion that Corinthian capitals were not used at all, but perhaps that they are simply not preserved.

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DISCUSSION: *TINGITANA*, NORTH AFRICA, AND THE ROMAN WORLD

This final chapter provides a synthesis and further analysis of the evidence. It compares the results from *Volubilis*, *Banasa*, *Sala* and *Lixus*, extending them to a broader provincial and extra-provincial level – focusing especially on North Africa and other areas of the Mediterranean. The first section deals with the decorative patterns of the architectural ornament of *Tingitana* from the late Mauretanian to late Roman periods. The second and third sections look at the contexts where the decoration was used, at building activities, at the relationship between architecture and urban communities, and at the development of towns. In the last section I outline some ideas for the further development of the research and its significance for future studies within and beyond Morocco.

MERGING DECORATIVE STYLES IN *MAURETANIA TINGITANA*

The study of architectural decoration has revealed interesting information on the stylistic features, motifs, and artistic choices adopted by the local stonemasons. Their analysis allows me to draw some conclusions with particular regard to the chronology of these elements and the influences that determined the shape of the decoration. When looking at a broader Mediterranean context, it will be possible to understand the importance of external traditions in *Tingitana*, either pre-Roman and Roman.

The ornament recorded at *Volubilis*, *Banasa*, *Sala* and *Lixus* can be divided into three macro-groups: (1) decoration of pre-Roman tradition; (2) ornament influenced by Roman official art; (3) local-style decoration. As with many classifications and typologies, this tripartite subdivision may seem an artificial construct. However, these decorative trends should not be regarded as separate "blocks", taking place independently one from the other. On the contrary, the evidence shows that decorative styles overlapped, giving birth to dynamic artistic phenomena. A strict dichotomy between official-style decoration and local provincial art is not a workable paradigm in *Tingitana*. The one design set did not chase away the other; in contrast, decoration taking inspiration from different models

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could be used in the same context. This is also supported by the most current approaches to the study of Roman art, according to which old theories such as "high art" vs. "popular art" are no longer acceptable (Zanker 2012, 46-9).

The analysis of the architectural decoration from the four case studies has shown that only scant evidence datable to the Mauretanian era survives. Through a review and revision of previous hypotheses (e.g. Boube 1967; Thouvenot 1971a; Jodin 1987), I have observed that many architectural elements once attributed to this period should rather be dated to the Roman era. This is not surprising, given that the majority of buildings are Roman in date, or were built by obliterating/incorporating Mauretanian structures. Attic bases without plinth have long been regarded as a pre-Imperial decoration. In *Tingitana*, however, only one base from *Sala* (►**Sal 1.24**) (Fig. 8.1a) and two from *Cotta* (Ponsich 1970, 211, fig. 56.1) can be dated to the pre-Roman period. All the other bases of this type are later in date. Most evidence at *Banasa* dates to the second century AD (e.g. the colonnade in the forum: ►**Ban 1.28-29**) (Fig. 8.1b), while at *Volubilis* the latest examples are in the palace of Gordianus, AD 238-241 (►**Vol 1.36-38**; ►**Vol 1.41-43**) (Fig. 8.1c). Similar bases can be seen at *Zilil*, though not *in situ*. Also in this case a dating to the Roman period is quite realistic, contemporary with the main building phases recognized (*Zilil* I, 9). Therefore, while this decoration was first introduced in the Mauretanian era, it survived in the later centuries and became one of the most popular types of base used in Roman buildings.

This continuity of pre-Roman traditions is a "Leitmotif" of architectural ornament in *Tingitana*, and beyond. If one compares the evidence from this province with that of other territories, the situation is similar. One of the earliest examples of Attic bases without plinth comes from Carthage, dated approximately to the third century BC (Lézine 1960, 93-4, fig. 50a) (Fig. 8.1d). At *Lepcis Magna*, some bases are dated from the end of the first century BC to the first half of the first century AD (e.g. Mahler 2006, 215, pl. 87, no. 632 AB) (Fig. 8.1e). Outside North Africa, interesting data can be retrieved from Spain. Thanks to recent research at *Baelo Claudia*, it has been observed that Attic bases without plinth (Fig. 8.1f) were used in the mid-first century AD. This has led Fellague (2010, 278-84; 2013, 174-5) to acknowledge the discrepancies between a dating based on stylistic criteria and that achieved from stratigraphy. Further *in situ* evidence from *Clunia Sulpicia* dates to the Flavian period (Gutiérrez Behemerid 2003, 61, no. 98), while the most striking case is

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represented by two bases at *Iuliobriga*, the dating of which may range from the Flavian period to the third century AD (Escrivà Chover 2005, 109, nos. A158-9) (Fig. 8.1g), like many Moroccan examples. Moreover, Attic bases without plinth dated to the Roman era are also found in various sites in *Britannia* (e.g. Blagg 1977, 59; 2002, 106-26).

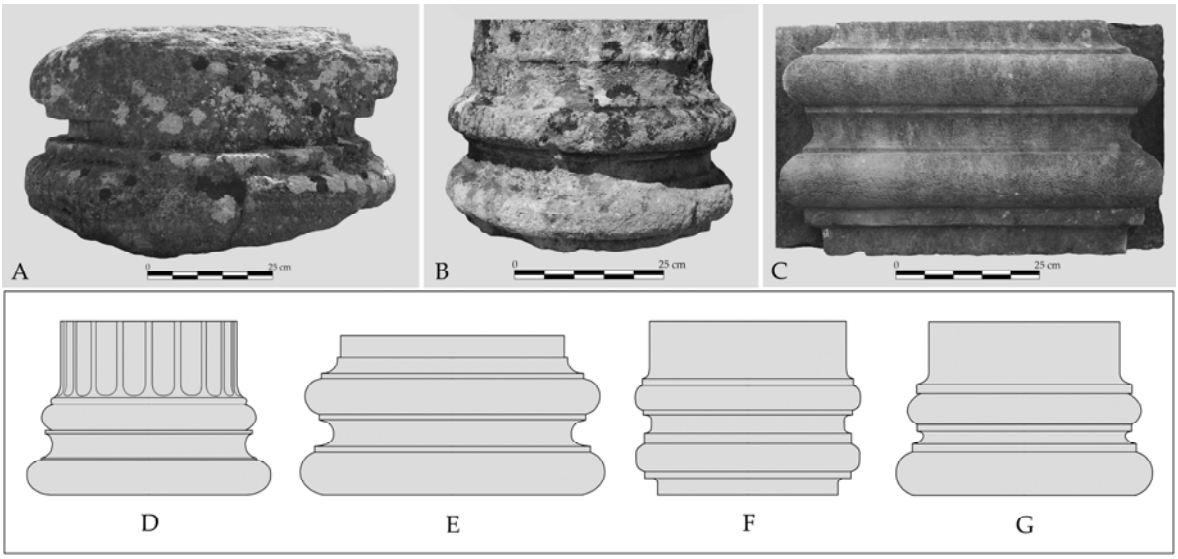

Fig. 8.1. Attic bases without plinth. A: *Sala* (**Sal 1.24**); B: *Banasa* (**Ban 1.28**); C: *Volubilis* (**Vol 1.38**); D: Carthage; E: *Lepcis Magna*; F: *Baelo Claudia*; G: *Iuliobriga*

Analogous observations apply to the Ionic capitals of Punic-Hellenistic tradition attested at *Volubilis* (Boube 1966b), *Sala* (►**Sal 2.3**) (Fig. 8.2a), and *Lixus* (►**Lix 2.3-4**) (Fig. 8.2b-c). The evidence from the first two sites is likely datable to the first century BC. The capital from *Volubilis* probably belonged to one of the twin Mauretanian temples obliterated by the later forum. The two examples from *Sala* decorated the façade of "temple A", together with eight blocks of an Egyptian gorge cornice. The dating of the two capitals from *Lixus*, however, does not seem to be earlier than the late first century AD. The capital from the "quartier des temples" (►**Lix 2.3**) is isolated and perhaps not associable with certainty to a specific building. On the other hand, the one from the *domus* of Mars and Rhea (►**Lix 2.4**) belongs in all probability to the main phase of the house, like the other objects recovered during the excavation (Tarradell 1959, 61-2; Boube-Piccot 1969, 309-13, note 4). Just as the Attic bases without plinth, these capitals can be regarded as a style of decoration first adopted in the Mauretanian period, but which was still used in the Roman era. This remark can be supported by evidence from elsewhere in North Africa and across the Mediterranean. If one looks at one of the most defining features of this type of capital –

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the flattened echinus, often semi-circular in shape, with a motif in the middle – it is clear that it was used over a long time-frame. Among the earliest examples are two isolated capitals, from Syria (Fig. 8.2d) and Algeria (Fig. 8.2e) respectively, dated to the Phoenician/Punic period by Lézine (1960, 77). A similar motif (a small fleuron) is visible on a series of capitals in the forum of *Gigthis* (Fig. 8.2f), probably datable to the second half of the second century AD (Constans 1916, 111-2; *contra* Lézine 1960, 76-7, who suggested that these might be recycled elements). The latest example is represented by the Ionic capitals of "Tomb North A" at *Ghirza* (Fig. 8.2g), seemingly built towards the third century AD, if not later (Brogan and Smith 1984, 121-5, 209-10). In this latter case, the decoration is enriched by other motifs, such as geometric forms and vegetal elements, probably reminiscent of Alexandrian traditions.

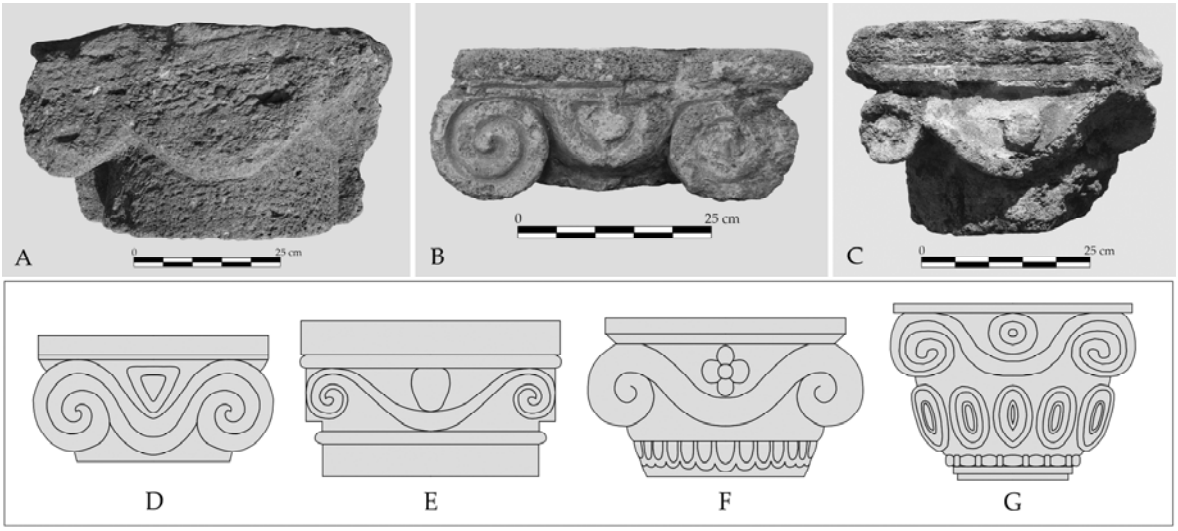

Fig. 8.2. Ionic capitals of Punic-Hellenistic tradition. A: *Sala* (**Sal 2.3**); B-C: *Lixus* (**Lix 2.3-4**); D: Syria; E: Algeria; F: *Gigthis*; G: *Ghirza*

More examples of this type of Ionic capital belong to funerary mausolea across North Africa, such as that at *Siga* (first half of the second century BC: Rakob 1979, 149-54) and the "Tombeau de la Chrétienne" (c. first half of the first century BC: Rakob 1979, 142). A similar situation is documented for Egyptian gorge cornices, which are associated with Ionic capitals at *Sala*. Other isolated cornices in *Tingitana* are known at *Volubilis* (Jodin 1987, 103, pl. 9, fig. 1), *Lixus* (Aranegui Gascó 2008, 47, fig. 8; see Chapter 7 for additional evidence), and *Cotta* (Ponsich 1970, 211, fig. 56.2), with a dating spanning from the second half of the first century BC to the early first century AD. In North Africa, this cornice was

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commonly used, again, in funerary monuments: at the Médracen (second century BC: Rakob 1979, 135; 1983, 329-30; Coarelli and Thébert 1988, 765), at *Thugga* (mid-second century BC: Coarelli and Thébert 1988, 804), and at the "mausoleum B" at *Sabratha* (c. early second century BC: Di Vita 1968, 16-7; 1976; 274; 1983, 357), to cite some examples. This type, however, was still in use during the Roman era, as the evidence from *Gigthis* shows (Constans 1916, 40-4; Fantar 1984, 458, note 117; Ferchiou 1989a, 298-9). In Jordan, the tombs at Medain Saleh are decorated with Egyptian gorge cornices and are securely dated by inscriptions from AD 1 to 76 (McKenzie 2005, 11-31).

In her recent re-assessment of "Numidian Royal architecture", Quinn (2013) argues that the decorative forms and motifs used by the builders of those monuments are not markers of external influences adopted passively. Labels such as "Punic", "Hellenistic" or "Alexandrian" to define these traditions should not be kept isolated from the local African cultures (see also Stone 2007, 66-8). The term "eclecticism" applies quite well to the architectural decoration of ancient Morocco. As will be illustrated more in detail below, it can help us understand why many of these pre-Roman legacies survived in the Roman period – merged with architectural styles typical of Roman official art.

Some final words on the decoration of pre-Roman tradition should be directed to Tuscan capitals. The pattern is quite similar to that of Attic bases without plinth and Ionic capitals of Punic-Hellenistic tradition. Late Mauretanian capitals with a quarter round echinus are found at *Sala* (►**Sal 2.1**) (Fig. 8.3a) and Mogador (Jodin 1967, 52, pl. 20), but the same profile is also recognizable in the capitals of the *porticus* of "temple F" at *Lixus* (►**Lix 2.1**), not earlier than the second half of the first century AD (see Chapter 7). The same applies to Tuscan capitals with torus-shaped echinus: one of the earliest examples comes from *Sala* (►**Sal 2.2**), while those from *Banasa* (►**Ban 2.1-7**) (Fig. 8.3b) and *Volubilis* (►**Vol 2.1**) (Fig. 8.3c) do not seem to predate the second century AD. The parallels in North Africa and Spain confirm the difficulty of distinguishing these elements from single-torus bases. The chronology of not *in situ* pieces is also rather arbitrary. Criteria such as the ratio of the mouldings or the shape of their profile do not provide valid chronological information, since the aspect of these elements remained unaltered through time. Examples are known at *Lepcis Magna*, whose echinus can have either a torus (Fig. 8.3d) or a quarter round profile (Fig. 8.3e), with chronologies spanning from the first half of the first century AD to the second century (Mahler 2006, 171, pl. 49, no. 220 TK; 181, pl.

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59, no. 318 TK). Lézine (1955, 14, pl. 1, no. 4) described examples from Algeria with a torus profile (Fig. 8.3f), probably late Roman in date. In Spain, it is not uncommon to find elements with identical mouldings interpreted as bases (Fig. 8.3g), with a dating up to the second or third century AD (Escrivà Chover 2005, 17, no. T5).

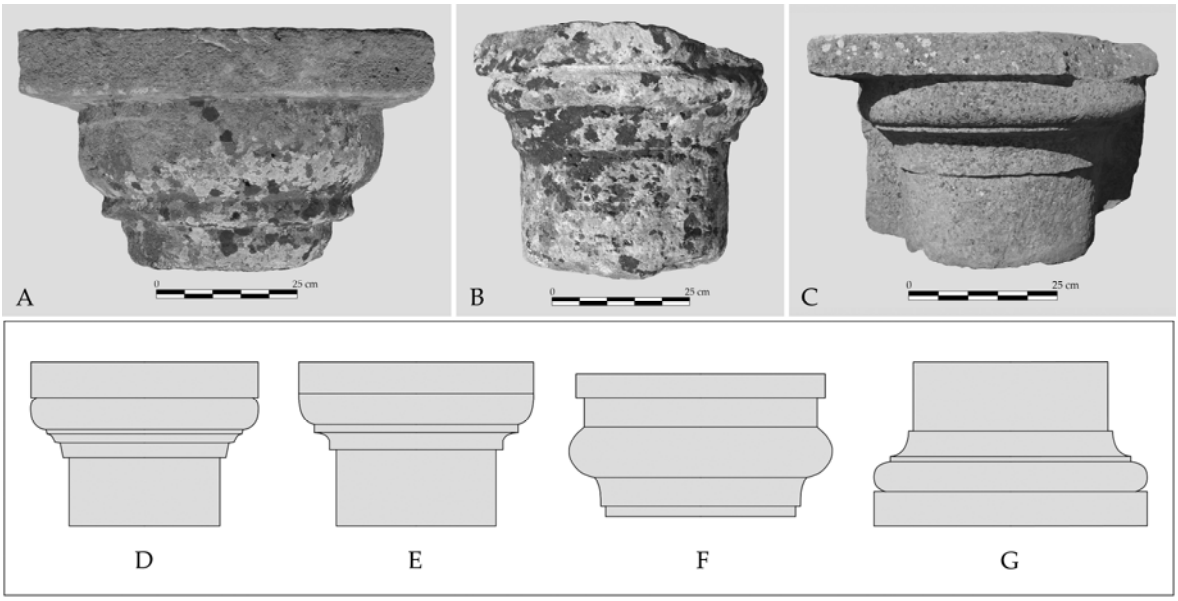

Fig. 8.3. Tuscan capitals and/or single-torus bases. A: *Sala* (**Sal 2.1**); B: *Banasa* (**Ban 2.1**); C: *Volubilis* (**Vol 2.1**); D-E: *Lepcis Magna*; F: Algeria; G: Barcelona

As described in Chapter 3, the establishment of a client kingdom in *Mauretania*, donated by Augustus to his friend Juba II, was the beginning of a process which eventually led to the organization of this land as a Roman province. A new capital was created at *Caesarea*, replacing the old town of *Iol*. This city was meant to be a second Rome in Africa, like its king who presented himself as a second Augustus. The most tangible evidence of such a grandiose programme is recognizable in the large diffusion of marble, employed both for statuary and, more importantly, for the architectural decoration of buildings (Pensabene 1982a-b; Attanasio *et al*. 2012a-b). The case of *Caesarea* was exceptional in North Africa in the early first century AD, and no trace of similar majestic buildings is found in *Tingitana* (no evidence of a palace of Juba II exists at *Volubilis*, nor at *Lixus*: see Chapters 4 and 7). The use of decorative marble was a direct means to enhance the urban *decus* of Juba's capital, in perfect accordance with Roman imperialistic architecture and propaganda.

The example of *Caesarea* can be regarded as an early manifestation of a phenomenon which characterized all the provinces of North Africa throughout the second and early

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third century AD (Pensabene 1972, 324-8). Through Carthage, Roman official art was introduced to North Africa. This event soon precipitated a widespread diffusion of these motifs in the cities of *Africa Proconsularis*, *Numidia* and *Mauretania Caesariensis*, whose élites were driven by a desire of *imitatio Romae*. The style of this period is referred to as "Romano-Carthaginian art". With regard to the Corinthian capitals, these revived the forms adopted at Rome in the late Flavian era: flattened leaves of *acanthus mollis* with deep, vertical channels; small triangular eyelets separating the lobes; and vertical cauliculi (*Scavi di Ostia* VII, 217; Pensabene 1986, 364-7; Teatini 2000, 1762-3) (Fig. 8.4d).

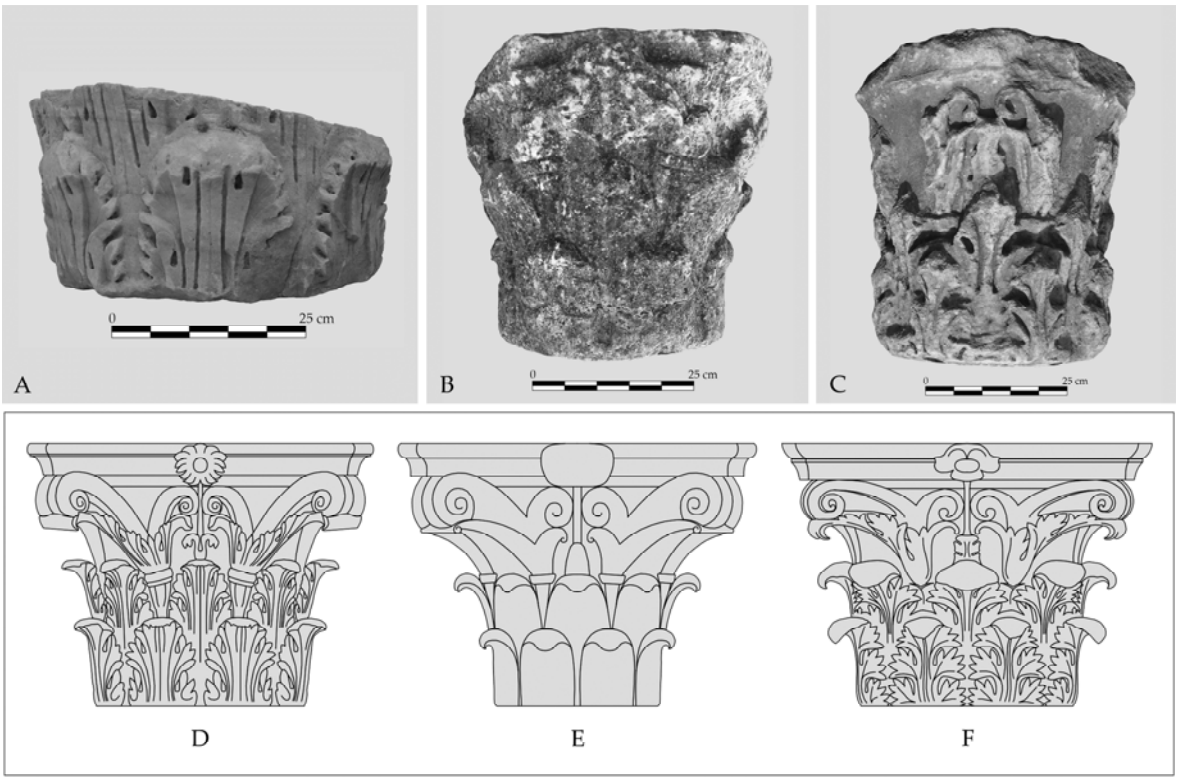

Fig. 8.4. Marble capitals. A-B: *Tingi*; C: *Sala* (**Sal 2.18**); D: Corinthian capital of late Flavian tradition; E: Corinthian capital with smooth leaves; F: Asiatic Corinthian capital

The presence of marble ornament in *Tingitana* can be treated quite briefly, given that only a few elements are found in some centres along the coast. Excavations at *Tingi* in the late nineteenth century led to the discovery of numerous capitals and columns, probably from a public building (Ponsich 1970, 242; 1982a, 807). Being the provincial capital, it is not surprising to find such evidence at *Tingi* – confirming that this town was involved in the circulation of the same motifs documented all over North Africa. Unfortunately, these architectural elements are now lost. Only two pieces are still preserved in the Musée de la

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Kasbah. The first is a fragmented Corinthian capital of Romano-Carthaginian style, datable to the second century AD (Fig. 8.4a). The second capital is a roughed-out piece with smooth leaves (Fig. 8.4b) – an intermediate stage of workmanship of the same Romano-Carthaginian type (Fig. 8.4e), with a similar dating.

I have observed in Chapter 7 that two pieces of marble architectural elements were found at *Lixus*, now in the museums at Tangier and Tétouan, together with a statue pedestal still visible at the site inside "building M". The location of the town along the coast surely favoured the importation of prestigious stones. However, if further elements of the same kind did exist, they must have been destroyed in the Islamic limekilns.

Sala is the context that has produced the most evidence. In addition to one roughed-out capital (►**Sal 2.12**), some mouldings and bases (►**Sal 1.1**) kept in the storehouse, the most significant pieces are three Asiatic Corinthian capitals (►**Sal 2.18-20**) (Fig. 8.4c). This decorative style, characterized by the presence of prickly acanthus leaves (Fig. 8.4f), was a phenomenon parallel to the spread of the Romano-Carthaginian models, particularly favoured in *Tripolitania*. The earliest evidence from that region dates to the Antonine period, though the peak of its diffusion coincided with the Severan era, when *Lepcis Magna* was awarded the *ius italicum* by Septimius Severus and majestic building works were undertaken in the emperor's hometown (Ward-Perkins 1951; 1992; 1993; Pensabene 2001a; 2006; Bianchi 2009). By the early third century, the Asiatic style was widespread in *Africa Proconsularis* (Harrazi 1982, 73-84), in Egypt (Pensabene 1993, 153-6), and across the Roman world (e.g. *Scavi di Ostia* VII, 235-8; Pensabene 1986, 304-24; 2007a, 392-401; 2007b; Gutiérrez Behemerid 1992, 147-63; Gros 2001, 491; Demma 2007, 229-31; Podini 2014, 115-6). It is quite striking, therefore, that the capitals from *Sala* are earlier in date (c. Hadrianic period), showing that they were imported to a remote location at the south-west edge of the Empire before the spread of the mass-produced Asiatic ornament from the Severan era onwards. This testifies the active connections between *Sala* and the Mediterranean routes in the Roman period. The existence of these connections can also explain the presence of a marble Byzantine composite capital with fine-toothed acanthus (►**Sal 2.21**), confirming the importance (and exceptionality) of *Sala* in Late Antique *Tingitana*.

In contrast, marble architectural decoration was not used in the hinterland. Only a few objects, especially slabs and some statuary, have been found at *Volubilis*, *Banasa*, and *Thamusida*. The scarcity of marble can be partially explained by the elevated costs of

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shipping and transport, and by the difficulties of river and inland movement of heavy loads (Russell 2013, 95-140). However, one should not underestimate the production of architectural decoration as an activity run by local *officinae*, especially at *Volubilis* (see *infra*). Their products were made of locally-sourced stones, and the artisans adapted and developed their carving skills in accordance with the local materials they employed. The establishment of these *officinae* in the region guaranteed a sufficient supply of decorative stones for building projects (on materials and carvers see Russell 2013, 330-2; 2015, 190-1).

Despite the scarcity of marble, the Romano-Carthaginian motifs reached *Tingitana* in the second century AD. This was probably fostered by itinerant ateliers, attested mainly in *Africa Proconsularis* (Ferchiou 1983; 1989b; 2003), who may have arrived to the capital *Tingi* first, and then contributed to the circulation of the motifs in the province. After having learned the techniques and the main design principles, the local artisans adapted this knowledge to their needs. Evidence from *Sala* (►**Sal 2.17**) (Fig. 8.5a) and *Banasa* (►**Ban 2.23-25**) (Fig. 8.5b) shows that the features of marble capitals could be reproduced on limestone and calcarenite. The capitals from *Banasa* also demonstrate that the adoption of Roman art was not just a passive imitation, since these models were re-elaborated. Stylistic criteria are reliable for dating capitals where the influence of official styles is clearly identifiable. A dating to the mid-second century for the "maison à la mosaïque de Vénus" at *Banasa* is confirmed both by the style of the capitals set at the entrance and by architectural stratigraphy and building techniques (see Chapter 5).

However, the principal modality through which the Romano-Carthaginian style was assimilated in the second and early third century AD is recognizable in the production of a type of decoration which simplified the official models – thus also speeding up their production. The most significant examples are the Corinthian capitals with smooth leaves from the *capitolium* at *Sala* (►**Sal 2.4-6**; ►**Sal 2.9-10**) (Fig. 8.5c), identical to those of the "basilica/*curia Ulpia*" (►**Sal 2.7-8**). Similar features can be seen on various pieces from *Banasa* (►**Ban 2.8-11**) and, for instance, on the capitals of the basilica and of the *porticus* of the *decumanus* at *Volubilis* (►**Vol 2.4**; ►**Vol 2.6-8**; ►**Vol 2.10**; ►**Vol 2.12-16**). The capitals from *Volubilis* are dated from the late second century to the early third century AD, while those from *Banasa* can only be generically dated to the second century. On the other hand, the capitals from the *capitolium* of *Sala* are dated to c. AD 120, as confirmed by the dedicatory inscription (*IAM* Suppl. 861). Their carving features have revealed important

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information. The schematization of the abacus and the omission of the axial calyx would normally be considered as elements hinting towards a late chronology. In contrast, the evidence from *Sala* shows that these simplifications were introduced already in the early second century. Discrepancies of dating have been discussed above with regard to Attic bases without plinth. A traditional interpretation would suggest a dating to the pre-Imperial era for that type of base, while most evidence from *Tingitana* clearly belonged to Roman-period buildings. With simplified Corinthian (and composite) capitals there is an opposite issue: examples with a relatively early chronology might be artificially dated to the late Roman period, if looking at stylistic features only. Once again, it is crucial not to separate the study of architectural decoration from that of the context it was associated with. It is undeniable that in various cases these carving simplifications were employed at a later stage, as confirmed, for instance, by a group of limestone capitals from *Caesarea* (Pensabene 1982a, 57-9, 73, pls. 54-5, nos. 162-7; see also Chapter 6). In other contexts, however, these features were adopted much earlier by the stonemasons. This could have been motivated by the necessity to speed up the production process, or, more simply, as a response to local artistic taste and decorative preferences. It is also worth remembering that in some cases the surface of the capitals was covered with stucco (e.g. at *Sala* and *Banasa*, but not at *Volubilis*). Therefore, additional details of the decoration, such as the leaves' vertical ribs or the lateral lobes, might have been painted and are now lost. From this perspective, Corinthian and composite capitals with smooth leaves should probably find their own place in the literature as an autonomous form of architectural decoration, rather than as an intermediate stage of workmanship (see Czerner 2009, 5-16).

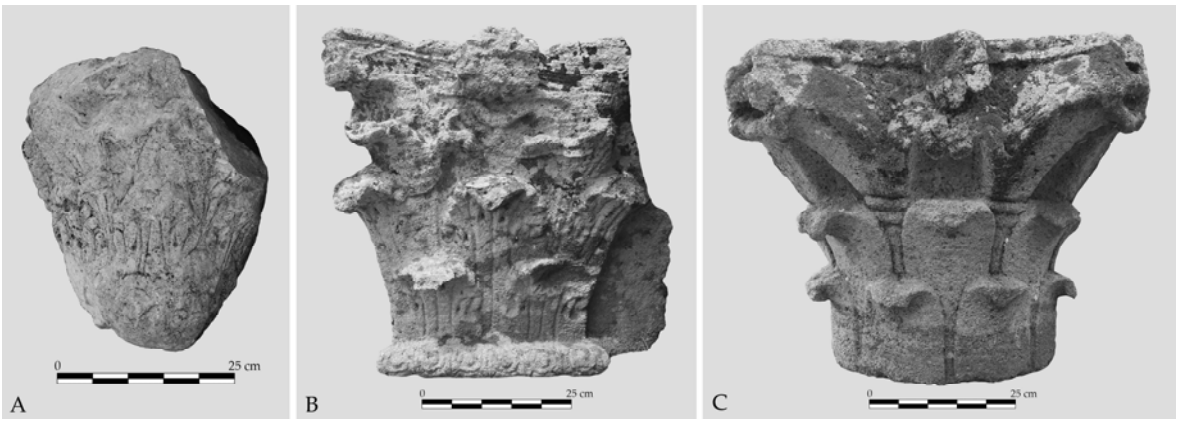

Fig. 8.5. Corinthian capitals. A-B: *Sala* and *Banasa*, capitals with "*acanthus mollis*" (**Sal 2.17**; **Ban 2.24**); C: *Sala*, capital with smooth leaves (**Sal 2.5**)

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The last group of decoration – local-style ornament – is the most conspicuous, and various considerations can be advanced. It is also heterogeneous and, once again, one should remember that the typological subdivisions presented in this section are flexible and the three groups overlap. The creation of local styles was indebted to the persistence of pre-Roman legacies, and one can easily understand the direct link with the first group identified here (decoration of pre-Roman tradition). On the other hand, these elements also featured motifs for which there are no parallels elsewhere, neither in pre-Roman or Roman-period North Africa, nor across the Mediterranean. A precise dating for this category of decoration is difficult to establish. There are stylistic features that need to be taken into account and can provide important clues. However, the lack of parallels is a problem. The most reliable way to attempt a dating is to look – when at all possible – at the context where these elements were found/used.

As detailed in Chapters 4 and 5, *Volubilis* played a major role in the formation of specialized ateliers of stonemasons. The intensive production system established by these workshops was linked with the exploitation of the Zerhoun quarries, c. five kilometres from *Volubilis*, which supplied the grey limestone the decoration was made from. It seems also evident that the hardness of this stone was one of the features which influenced the work of the artisans, the carving, and the final look of the decoration – as well as its overall good preservation until the present. Locally-produced capitals, bases, columns and mouldings were used in the entire town, and were also exported to other centres. Styles first created at *Volubilis* were undoubtedly popular across *Tingitana*, especially in the southern part of the province, in particular at *Banasa* (see Chapter 5). This popularity of local productions is a factor that must be taken into consideration when examining the reasons for the absence of marble architectural decoration in the hinterland.

When discussing the features of Volubilitan architectural elements, one must acknowledge the difficulty of establishing a dating for the beginning of these productions. The most secure chronological information pertains to public architecture – one of the reasons why I chose to record these pieces in detail. As illustrated in Chapter 4, the principal phase of monumental embellishment at *Volubilis* spanned from the late second century AD (*porticus* of the *decumanus*) to the mid-third century (reconstruction of the palace of Gordianus). By way of contrast, the chronology of the aristocratic houses in the north-east district has been debated for some 50 years. After an initial proposal to date

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most of these buildings to the third century AD (Étienne 1960, 143-50), some scholars have advanced earlier chronologies (c. mid- to late second century), and attempts have been made to push these dates back as early as the mid-first century AD (for a brief review see Thébert 2003, 270-1; Camporeale *et al*. 2008, 292). The loss of data from archaeological stratigraphy at the time of the Protectorate excavations creates further problems. It is evident, however, that the stylistic features recorded on the architectural decoration of public buildings are identical to those used for private architecture (see *infra*), confirming that there was no strict distinction between the two categories within the town.

As described by Pensabene (2011), a recurring element of Roman-period Corinthian and composite capitals at *Volubilis* was the use of a type of acanthus which revived and re-interpreted the Hellenistic style. The typology adopted for this research led me to identify six groups of acanthus among the sample of decoration considered (Fig. 8.6). Five groups are attested at *Volubilis* (►**Vol 2.29-56**), while the sixth was recognized at *Banasa* (►**Ban 2.26-30**). A separate group is represented by capitals with smooth leaves (►**Vol 2.4-28**). Overall, my results confirm Pensabene's remarks. Additional information has been retrieved from the analysis of capitals with "group 1" acanthus (►**Vol 2.29-34**). This type of acanthus, with circular eyelets, was a faithful reproduction of the Hellenistic models, rather than a re-interpretation of those forms. The survival of Hellenistic-like acanthus throughout the Roman period is documented elsewhere across the Mediterranean: the second-century capitals of the *Olympieion* at Athens, for example, are a case in point (Walker 1979). In second-century Egypt, Alexandrian capitals with similar features were still produced, with progressive simplifications, at *Denderah* (Bailey 1990, 133, fig. 8.13; Pensabene 1993, 361-3, pl. 31, nos. 220-6) and *Dionysias* (Schwarz 1969, 52-5, pls. 10-1, nos. D9-10; Pensabene 1993, 236-7). Moreover, two examples imported to Ostia may date to the Severan period (*Scavi di Ostia* VII, 162-3, pl. 63, nos. 670-1).

Can we explain the use of this classicizing acanthus at *Volubilis* as an intermediate step leading to the establishment of the ultimate Volubilitan forms? The hypothesis is plausible. One of these capitals, which can be probably associated with the ornament of the south-east gate of the city walls (►**Vol 2.29**) (Fig. 8.7a), has a relatively early dating (AD 168/169). However, evidence from the palace of Gordianus (►**Vol 2.30-34**) and the "maison aux gros pilastres" (Étienne 1960, 86-9, 134, pl. 88, fig. 5) also shows that this form of acanthus was still in use in the third century AD.

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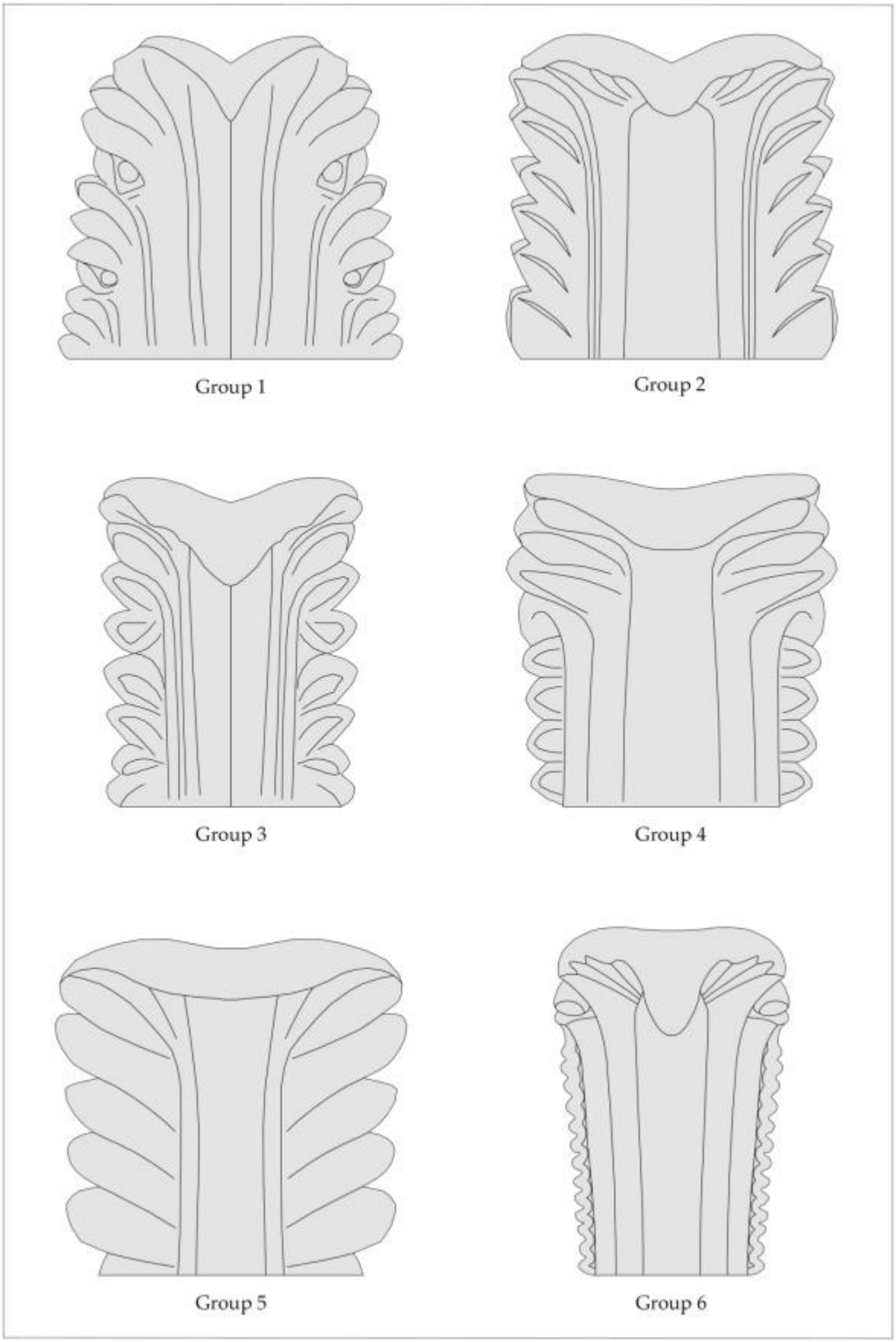

Fig. 8.6. Groups of Volubilitan acanthus: group 1 (**Vol 2.29-34**); group 2 (**Vol 2.35-41**); group 3 (**Vol 2.42-48**); group 4 (**Vol 2.49-52**); group 5 (**Vol 2.53-56**); group 6 (**Ban 2.26-30**)

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The other groups of acanthus reflect the re-elaborations of the Hellenistic models described by Pensabene: leaves with a mid-rib shaped as a vertical fascia, and small folioles developing along their contour. The groups are distinguished on the basis of the more or less evident simplification of the leaves. This distinction, however, does not imply that the examples with more schematic leaves were later in date. Capitals of different groups could be used together in the same building project, as the evidence from the piazza of the *capitolium* confirms (►**Vol 2.35-38**; ►**Vol 2.40**; ►**Vol 2.42-43**; ►**Vol 2.45-47**; ►**Vol 2.49-56**) (Fig. 8.7b-c). The variations of the leaf's shape may rather point towards the identification of different ateliers. The groups recognized in the sample of decoration included in the Catalogue can be extended to the entire site. The capitals used for private architecture have acanthus leaves with these same features, and analogous considerations apply also to the examples with smooth leaves (Fig. 8.7d-e).

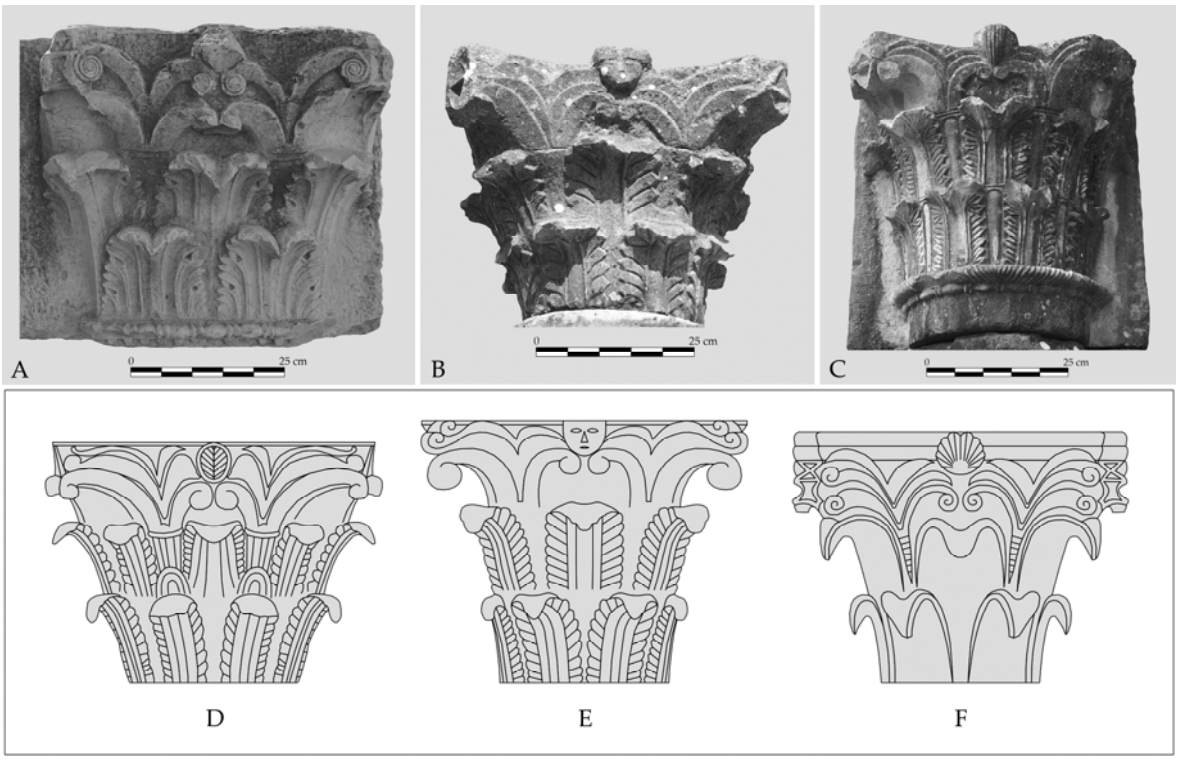

Fig. 8.7. Corinthian capitals from *Volubilis*. A: south-east gate (**Vol 2.29**); B-C: piazza of the *capitolium* (**Vol 2.53**; **Vol 2.42**); D: "maison de Flavius Germanus"; E: "maison des Néréides"; F: "maison aux travaux d'Hercule"

While the survival of Hellenistic legacies is recognizable in the shape of the acanthus, it is more complicated to understand the origins of the other features. In the majority of

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Volubilitan capitals, the upper part of the kalathos shows exuberant transformations: three sets of V-shaped calyces springing in succession; peculiar motifs under the corners of the abacus (rhombs, stars inscribed inside a square, rectangular and triangular shapes, etc.); the abacus almost indistinguishable from the kalathos; and, in many cases, the replacement of the axial fleuron with a disc, a shell, or a mask (this latter motif was also popular, for example, at *Sardis*: Yegül 1986, 166-7, figs. 194-7). The open V shape of the calyces may recall the form of helices and volutes of Hellenistic capitals, as suggested by Pensabene (2011, 263-4). However, the choice of carving three calyces instead of the canonical calyces-helices-volutes system must be regarded as a local invention.

At the same time, the persistence of a Punic-Hellenistic substratum can be traced in the masks replacing the fleuron of the abacus, the carving style of which has parallels in some limestone friezes from *Lepcis Magna* (Mahler 2006, 234, pl. 105, no. 820 F) and Beni Guedal (Ferchiou 1989a, 281-2, pl. 74, no. XIII.A.5). However, the decorative repertoire used at *Volubilis* was larger. Some of these motifs were probably created locally and their use was part of the local stonemasons' basic skill-set and design knowledge. The same type of bead-and-reel decorations, rows of biconvex leaves, vegetal scrolls, stars and crosses inscribed inside geometric forms are documented on architectural elements, on the frame of altars and other inscriptions, and on smaller stone objects. Wilson Jones (2014) argues that small daily objects and votive offerings played an important role in shaping the design of the architectural orders. A further development of this research will be to investigate whether a similar pattern can be identified at *Volubilis* and in *Tingitana*. For the time being, one can describe Volubilitan architectural decoration as a mixture of pre-Roman models, locally-born elements, and Roman artistic features. For this reason, "Punic", "Hellenistic", "Alexandrian", "Roman" or "African" substrata should not be regarded as independent blocks, but rather as overlapping cultural phenomena that contributed to shaping local art and local societies, as advocated by Quinn (2013).

Having ascertained that different traditions were merged together in the architectural decoration at *Volubilis*, it is worth asking if there are any clues to understand when its production started. Given the uncertain chronology of the *domus* of the north-east district, there is not much evidence within the town that can be used for this purpose. In contrast, more precise information comes from architectural elements of Volubilitan style found elsewhere in the province. In Chapter 5, I have pointed out the connections between

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Volubilis and *Banasa*. Finished products, such as column bases (►**Ban 1.2-3**) and capitals (►**Ban 2.26-30**; ►**Ban 2.33**), were imported to *Banasa*. Moreover, some artisans moved there from *Volubilis* and established a workshop producing Volubilitan-style decoration (►**Ban 1.4**; ►**Ban 1.7**; ►**Ban 1.12-13**). The main construction phases at *Banasa* date to the second century AD, starting with the enlargement of the forum (early second century), followed by the construction of the city walls in the mid-second century, and the houses and baths in the northern and southern districts (Lenoir, E. 1991, 158; Arharbi *et al*. 2001, 149; Brouquier-Reddé *et al*. 2004, 1895-6; Camporeale 2004-05, 202-3). These examples of Volubilitan decoration belonged in all probability to this phase – also because only limited, small-scale building activities took place in the third century, and architectural elements were recycled at that stage.

Further evidence comes from *Sala*, where a Volubilitan-style capital with three calyces (►**Sal 2.16**) decorated the arch. The construction of this monument is contemporary with the development of the monumental district within the first half of the second century AD, probably built during Hadrian's reign or slightly later (see Chapter 6). Finally, one should consider the Attic bases with high plinth, high scotia and tori with trapezoidal profile at the entrance of the *domus* of Helios at *Lixus* (►**Lix 1.12**) – a locally-produced decoration inspired by Volubilitan models (see ►**Vol 1.29-32**). Judging by the stratigraphy and materials discovered by Tarradell (1959, 57), the house was probably built in the late first century or early second century AD. Therefore, if Volubilitan architectural decoration was exported to other sites, or imitated locally, during the first half of the second century, we must conclude that the production at *Volubilis* was already well established at that point. This also implies that the attempts to push back the chronology of the north-east district at *Volubilis* to the early or mid-second century are probably pointing towards the right direction – surely a target for future, more in-depth research.

Another group of local-style decoration, influenced by Alexandrian and Egyptianizing motifs, was particularly popular at *Banasa*, and is attested at *Sala*, *Volubilis*, *Thamusida*, and *Zilil* as well. As for the ornament produced at *Volubilis*, also in this case one can recognize different artistic traditions merged together. Therefore, it is difficult to find exact parallels outside the province, and, when they occur, these are normally limited to some features of the decoration only, rather than to the form as a whole. Moreover, I have pointed out that

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these architectural elements must be dated to the Roman era. In particular, the decoration from *Banasa* is contemporary with the development of the town throughout the second century AD – also confirmed by specific stylistic features, especially the ratio between the height of the leaves and the total height of the capital (Chapter 5). Numerous Corinthian and pseudo-Corinthian capitals found at that site have V-shaped, free helices and volutes (without calyces) springing from a stem (►**Ban 2.12**; ►**Ban 2.14-17**; ►**Ban 2.19-20**; ►**Ban 2.36-39**) (Fig. 8.8a). These elements are reminiscent of Hellenistic decoration, recalling the well-known types of Alexandrian capitals diffused in Egypt and beyond (Pensabene 1993, 109-20; McKenzie 2010, 83-91; Tkaczow 2010, 31-5) (Fig. 8.8d). The existence of two similar capitals at *Thamusida* (Camporeale 2008c, 225-6, types 4.2 and 4.3, fig. 18) confirms that the same group of artisans worked at both sites.

The remaining capitals have even more peculiar features, for which an Egyptian origin can probably be recognized. The water plant leaves with swollen contour visible on some examples (►**Ban 2.40**) (Fig. 8.8b) recall the shape of capitals decorating palm columns, already in use in Egypt during the Dynastic era, then revived throughout the whole of the Ptolemaic and early Roman periods (Jéquier 1924, 196-201, figs. 121, 123-5; McKenzie 2010, 125-38, fig. 201c) (Fig. 8.8e). Almost identical leaves are visible on capitals at *Mustis* (Ferchiou 1989a, 243, pl. 63d, no. IX.II.A.2.2; 252, pl. 67a, no. IX.III.B.3), attesting to the diffusion of this decorative tradition in *Africa Proconsularis* as well. One should also consider that a similar origin may be recognized for other capitals with water plant leaves at *Banasa* (►**Ban 2.35**), *Volubilis* (►**Vol 2.60-61**), *Thamusida* (Camporeale 2008c, 229, type 5.1, fig. 21), and *Zilil* (Papi 2004-05, fig. 7). Another group of capitals with Egyptian-like motifs is documented at *Banasa* and *Sala*, labelled as "pseudo-lotus" (►**Ban 2.41-43**; ►**Sal 2.22**) (Fig. 8.8c), the dating of which does not appear to be earlier than the second half of the second century AD (see Chapters 5 and 6). In this case the shape was more markedly transformed by the local artisans. However, a (remote) origin may be identified in the Egyptian "composite" capitals, of Ptolemaic and early Roman date, with a combination of papyrus leaves and small volutes – thus merging together Egyptian and Corinthian elements (Jéquier 1924, 267-71, figs. 176, 178-9, types 21, 23-4; McKenzie 2010, 125-38, figs. 203-4; Abdelwahed 2015, 151-6) (Fig. 8.8f).

It is difficult to understand how the connection between the two ends of North Africa (Egypt and Morocco) was established, or when. One can be tempted to see a relation

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between the arrival of Egyptian-like decoration in Morocco and the dynastic union of Juba II and Cleopatra Selene (Chapter 3; see also Boube 1986, 326). The hypothesis is plausible, but cannot be proved, since none of these architectural elements appear to be datable to that period. However, it is possible that Egyptian decorative traditions started to be assimilated at that stage. Their appearance on Roman-period architectural decoration may be explained as a long-term process of which only the later traces survive today.

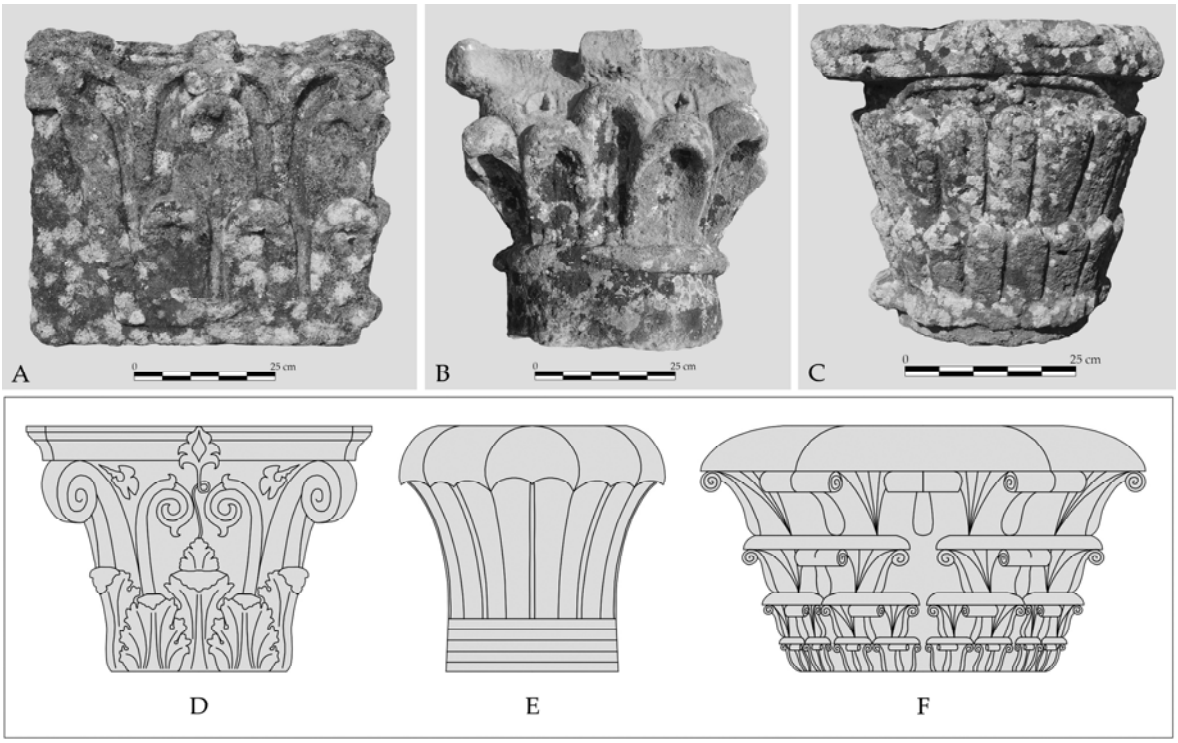

Fig. 8.8. Capitals of Alexandrian and Egyptian influence. A-C: *Banasa* (**Ban 2.14**; **Ban 2.40**; **Ban 2.41**); D: Alexandrian type 1 capital; E: Egyptian palm capital; F: Egyptian "composite" capital

A group of capitals, described as "pseudo-impost" (►**Vol 2.64-73**), is attested only at *Volubilis*. Its decorated variants (►**Vol 2.71-73**) (Fig. 8.9a-b) can probably be associated with the later phases of the site's occupation. The chronology of these capitals has long been debated (see the review in Chapters 2 and 4). Thanks to the field research, I have come to the conclusion that the smooth variant (►**Vol 2.64-70**) was already used in the Roman era. In contrast, the capitals with Ionic and pseudo-Corinthian motifs may date to the late third century AD, and were probably still used in the fourth century. This type diverges entirely from the rest of the capitals produced at *Volubilis* in the Roman period (see *supra*). In contrast, decoration featuring palm leaves and calyces springing from long stems is documented elsewhere. The most classicizing examples are represented by

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pilaster capitals from Seville and Tarragona in Spain, datable to the second-third century AD (Gutiérrez-Behemerid 1992, 201-2, no. 891; Domingo Magaña 2011, 120-1, nos. 11-3) (Fig. 8.9d), while examples with a more schematic decoration can be found, for instance, at Ostia (*Scavi di Ostia* VII, 152, pl. 59, no. 619) (Fig. 8.9e). It is evident that the stonemasons who carved these capitals at *Volubilis* were influenced by external traditions circulating across the Mediterranean. It is not to be excluded that Spain had a leading role in the transmission of these motifs to *Tingitana*, confirming the close relations between the two sides of the Strait of Gibraltar, especially in the late Roman period. Finally, a tronco-pyramidal capital with palm leaves and a central *kantharos* (►**Vol 2.63**) (Fig. 8.9c) probably dates to this same period. Again, parallels from *Caesarea* (Pensabene 1982a, 66, pls. 66-7, nos. 191-2: c. third century AD) (Fig. 8.9f) and Murcia (Domingo Magaña 2011, 137-8, no. 110: c. fourth century AD or later) (Fig. 8.9g) confirm the influence of external traditions at *Volubilis* at this later stage.

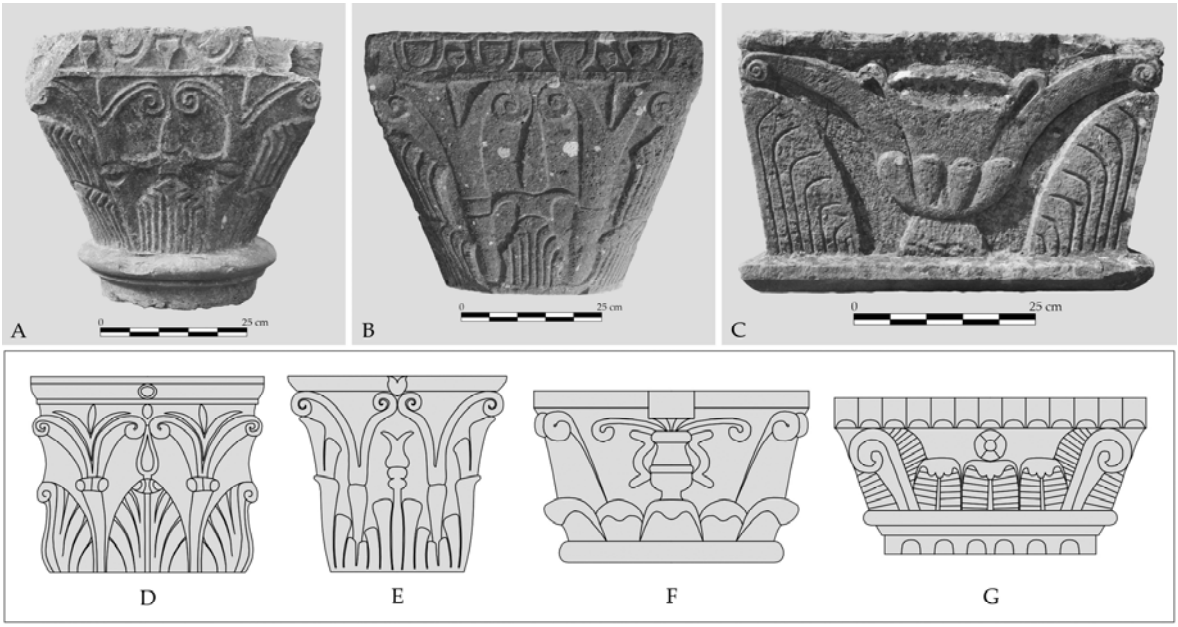

Fig. 8.9. Late Roman/Late Antique capitals. A-C: *Volubilis* (**Vol 2.71**; **Vol 2.72**; **Vol 2.63**); D: Tarragona; E: Ostia; F: *Caesarea*; G: Murcia

In conclusion, the analysis of the architectural decoration of *Tingitana* has shown that different artistic traditions overlapped and gave birth to "hybrid" forms. The importance of pre-Roman traditions, inherited from the Punic and Hellenistic world, is evident also when we look at locally-created decoration. The impact of Roman official art through the adoption of the Romano-Carthaginian models is also traceable in various productions.

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The arrival of Roman-style ornament, however, did not cause a *tabula rasa* of previous traditions, nor did it prevent local workshops from creating and spreading their own styles. This merging of traditions is particularly evident in the second and early third century AD, when architectural decoration featuring either "pre-Roman", "local" and "Roman" elements was used in the same contexts and building projects (see *infra*). One can infer that such a manifest eclecticism of decorative styles reflected the characteristics of the society that adopted them. The circulation of motifs, ateliers, and building materials across the various sites attests to the existence of an intra-provincial interconnectivity. Consequently, the assumption that towns in *Tingitana* were "isolated from each other" (Shaw 1986, 69) is no longer a workable paradigm. The recognition of decorative styles which arrived in *Tingitana* both from the North African provinces and from Spain shows that, despite its geographical marginality, this region was open to the Mediterranean routes and to the artistic phenomena identified in the rest of the Roman world. Is it still appropriate to describe it as the "Far West" of North Africa?

BUILDING PROJECTS AND LOCAL COMMUNITIES

As indicated above, architectural decoration must be studied together with the context where it was employed. The modalities through which a particular type of decoration was chosen and displayed within a certain building, or a private/public space, provide also a glimpse of the urban community living in that town. The term "eclecticism" applies both to the decoration and to the society that adopted it. When one looks in more detail at the monuments of *Tingitana*, it is clear that their decoration was often heterogeneous. The more or less evident use of ornament imitating Roman official styles does not seem to have been determined by a precise will of the central government. It was rather a choice of the patrons financing the constructions. In addition, the stonemasons and builders were granted a large autonomy in this process, and this explains why different styles could be used together for the same building project.

With regard to *Volubilis* and *Sala*, I have identified some buildings whose decoration was as homogeneous as possible, although various details of their architectural elements attest to the occurrence of divergences from the orthodox models. *Volubilis* is particularly significant. In Chapter 4, I have pointed out that the closest attempts to reproduce Roman

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official styles can be identified in the colonnades of the basilica (Fig. 8.10b), the arch of Caracalla (Fig. 8.10c), and the *porticus* of the *decumanus* (Fig. 8.10c) – built approximately at the same stage, from the late second century AD to the early third century. It is worth considering, however, how their layout was altered in comparison to orthodox Romano-Carthaginian columns, such as those of the Antonine basilica on the *Byrsa* hill at Carthage, dated to the third quarter of the second century AD (*Byrsa* III, 111) (Fig. 8.10a).

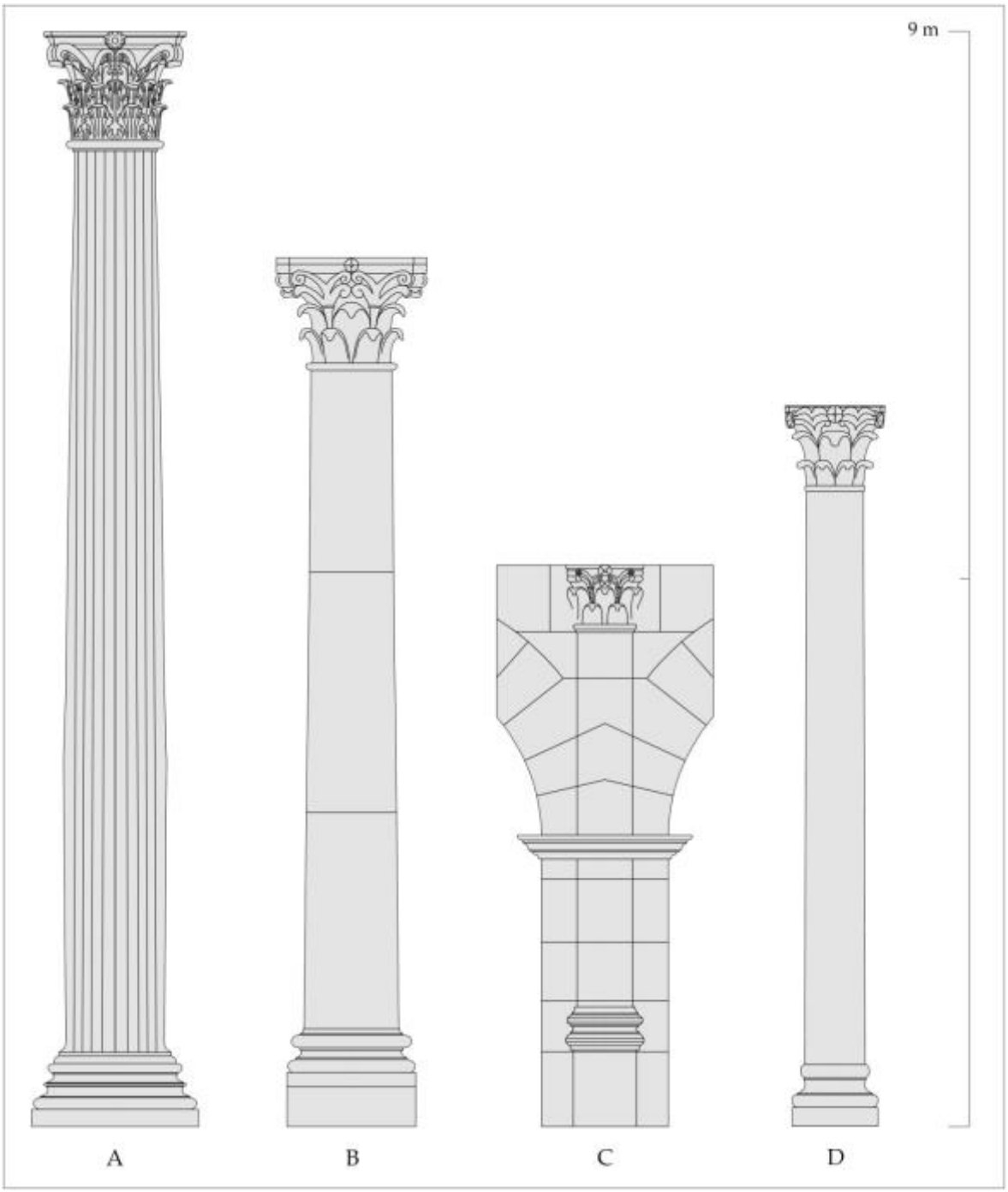

Fig. 8.10. Corinthian columns. A: Carthage, Antonine basilica (ground floor); B: *Volubilis*, basilica (ground floor); C: *Volubilis*, *porticus* along the *decumanus*; D: *Volubilis*, arch of Caracalla

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The first element emerging from this comparative analysis is the preference for the Attic base instead of the composite one (which happens also elsewhere in the Roman world). To my knowledge, composite bases exist only in the peristyle of the "maison aux travaux d'Hercule" at *Volubilis* (Pensabene 2011, 249-50, fig. 55), and cannot be found at any of the other sites of the province. The columns of the basilica are the best attempt to reproduce the Romano-Carthaginian design. The features of the capitals (►**Vol 2.4**; ►**Vol 2.6-8**; ►**Vol 2.10**) point towards a simplification of official-style decoration. One must keep in mind, however, that inside the basilica there is also another type of capital where the local style emerges more markedly (►**Vol 2.19**; see Chapter 4). When looking at the pilasters of the *porticus* of the *decumanus*, one realizes that their layout diverges from the standard scheme. The bases (►**Vol 1.44**) are of the type without plinth, so popular at *Volubilis* and in *Tingitana*. The capitals (►**Vol 2.12-16**), whose overall design represents a simplification of the Romano-Carthaginian models, show nevertheless some details of Volubilitan style, such as the torus at the base and the abacus reduced to a thin fillet. Finally, the columns on the east façade of the arch of Caracalla are a further step away from the orthodox style. Apart from the smooth leaves, the capitals (►**Vol 2.23**) feature the typical "factory marks" of Volubilitan productions: three calyces in succession, rhomboid motifs at the corners, and an almost invisible abacus.

Similar considerations apply to the public buildings in the western portion of *Sala*'s monumental district. The decoration of the *capitolium* and the "basilica/*curia Ulpia*" can be regarded as the most faithful reproduction (i.e. simplification) of official-style ornament in *Tingitana* – particularly evident with regard to their capitals (►**Sal 2.4-10**). The similarities between the two edifices have led me to hypothesize that the same atelier/stonemasons worked on both projects. However, the harmonious connection of these two buildings was interrupted by the arch set between them. This monument shows a mixture of official-like decoration, recognizable in the cornices, and local-style ornament (see the capital ►**Sal 2.16**, reproducing the three calyces and thin abacus typical of *Volubilis*). The case of the "maison à la mosaïque de Vénus" at *Banasa* is even more striking and shows that different workshops were involved in the same project. The display of official-style decoration was limited to the monumental entrance of the building (►**Ban 2.23-25**), while the ornament inside the house was mixed in terms of stylistic features (►**Ban 2.14**; ►**Ban 2.17**; ►**Ban 2.36**). The decoration of the piazza of the *capitolium* at *Volubilis* (see *infra*) is

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probably the best example to illustrate the presence of different ateliers working together at the same project.

An important factor to take into account is the design process followed by the stonemasons and builders. This gives us information on the way the original models were assimilated locally and how these were re-elaborated and adapted. Thanks to the research on design principles and ratios of the Corinthian order, carried out by Ferchiou (1975) in Tunisia and by Wilson Jones (1989; 1991; 2003) in Rome, there is enough evidence to be compared with the data from *Tingitana*. As in the rest of the Roman world, the Corinthian order was most popular in this province – with all the stylistic variations that occurred. In reference to the height of the column base, either of the Attic or composite type with plinth (Table 8.1), this was allowed to vary, although the canonical rule was that it should correspond to half the lower diameter of the shaft.

Site, building, and dating	Ø of shaft	Base height	Ratio
Rome, temple of Mars Ultor, c. 2 BC	177 cm	98 cm	0.55
Rome, temple of Castor and Pollux, c. AD 6	147.5 cm	74.5 cm	0.5
Rome, temple of Vespasian, c. AD 90	140.5 cm	70.5 cm	0.5
Rome, *porticus* of the Pantheon, c. AD 120	148 cm	73.5 cm	0.49
Rome, *Hadrianeum*, c. AD 140	147.5 cm	81 cm	0.54
Mactar, temple of Apollo, c. Trajan-Hadrian	54 cm	30.6-30.8 cm	0.56-0.57
Thugga, theatre of mysteries, Hadrianic period	58 cm	27.3 cm	0.47
Thuburbus Maius, *capitolium*, AD 168/169	98-99 cm	46-49 cm	0.46-0.49
Thugga, temple of Minerva, c. AD 138-161	49-51 cm	23.8-24 cm	0.48-0.47
Mactar, *tetrapylon* of Iulius Piso, Severan period	38 cm	19.2 cm	0.5

Table. 8.1. Corinthian columns, Rome and North Africa: lower diameter of shaft, height of base, and base height/shaft diameter ratio

As is clear from the select sample of Attic bases with plinth from *Tingitana* (Table 8.2), such a rule was practically ignored, or unknown, there. The sample does not include

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examples with high plinth and high scotia (e.g. ►**Vol 1.29-32**), which would have coloured the results. In some of the considered cases, additional mouldings (e.g. a fillet, a reversed cavetto, and a portion of the shaft itself) were carved above the upper torus on the same block. Even if we exclude those mouldings from the height of the base, the result is nevertheless much greater than half the shaft diameter.

Site and building/provenance	Base type	Ø of shaft	Base height	Ratio
Volubilis, *porticus* of the *capitolium*	**Vol 1.2**	35 cm	35.1 cm	1
Volubilis, *porticus* of the *capitolium*	**Vol 1.3**	35 cm	29.7 cm	0.84
Volubilis, *capitolium*	**Vol 1.13**	62 cm	39.8 cm	0.64
Volubilis, basilica, western façade	**Vol 1.24**	46.7 cm	32 cm*	0.68
Volubilis, basilica, ground floor nave	**Vol 1.28**	76.2 cm	40.6 cm*	0.53
Banasa, "maison de Fonteius"	**Ban 1.9**	42.7 cm	32.9 cm*	0.77
Sala, outside the *nymphaeum*	**Sal 1.10**	41.8 cm	28.8 cm*	0.68
Sala, *porticus* of the *capitolium*	**Sal 1.13**	50.4 cm	32.1 cm*	0.63
Sala, "basilica/*curia Ulpia*"	**Sal 1.14**	54.8 cm	33.4 cm*	0.6

Table. 8.2. Corinthian columns, *Tingitana*: lower diameter of shaft, height of base (*excluding mouldings above the upper torus), and base height/shaft diameter ratio

After re-assessing the (unrealistic) ratios of Corinthian capitals described by Vitruvius (*De Architectura*, IV.1.11-12), Wilson Jones recognized another pattern occurring frequently in capitals at Rome and elsewhere across the Empire. This so-called "cross-section rule" demands that the height of the capital equals the axial width of the abacus, as measured on the orthogonal axes, excluding the fleurons (Wilson Jones 1991, 94; 2003, 145; 2015, 59, fig. 2.5; see also Tomasello 1983, 95; 1984, 137). The number of late Republican to late Roman capitals matching this requirement, with a divergence not greater than 6-7 cm for the larger examples, is remarkable (Wilson 1991, 94, table 8; 2003, 222-7, tables 1-2) (see Table 8.3, which lists only the capitals measured by the author). The validity of this rule emerges also from the material recorded by Ferchiou (1975) in *Africa Proconsularis*.

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Site, building, and dating	Total height	Cross-section	Ratio
Rome, temple of Mars Ultor, c. 2 BC	200 cm	207 cm	1.03
Rome, temple of Castor and Pollux, c. AD 6	161 cm	161 cm	1
Rome, temple of Vespasian, c. AD 90	164 cm	165 cm	1
Rome, *porticus* of the Pantheon, c. AD 120	164 cm	171 cm	1.04
Rome, *Hadrianeum*, c. AD 140	167 cm	168 cm	1
Mactar, forum of Trajan, AD 116	56 cm	57 cm	1.01
Thugga, forum of Antoninus, c. AD 138-161	57-58 cm	57-58 cm	1
Thuburbus Maius, *capitolium*, AD 168/169	98-99 cm	99 cm	1.01-1
Althiburos, *capitolium*, c. AD 185-191	70-72 cm	70-74 cm	1-1.02
Mactar, *tetrapilon* of Iulius Piso, Severan period	33-35 cm	38-38.5 cm	1.15-1.1

Table. 8.3. Corinthian capitals, Rome and North Africa: capital height, cross-section of abacus, and height/cross-section ratio

With regard to the evidence from *Tingitana*, the poor state of preservation of most capitals was a problem for recording these measurements during the field research. Moreover, it was not possible to measure the cross-section of those examples at *Volubilis* repositioned on the top of columns: the capitals of the *capitolium* and its *porticus* (with the exception of one piece on the ground: ►**Vol 2.50**); those of the west façade of the basilica; and those of the arch of Caracalla. Nevertheless, the capitals which could be measured with precision, as illustrated below (Table 8.4), show that the stonemasons did not employ consistently the cross-section rule. While in some cases the divergence between the height of the capital and the cross-sectional width of the abacus is minimal (e.g. in the basilica at *Volubilis*: ►**Vol 2.6**; ►**Vol 2.17**), in other instances the difference is greater and indicates that such a rule was not applied. It is also striking to observe that some of the Corinthian capitals which adhered more closely to the Romano-Carthaginian style, such as those from the "maison à la mosaïque de Vénus" at *Banasa* (►**Ban 2.25**) and those of the *porticus* of the *capitolium* at *Sala* (►**Sal 2.4**), did not respect at all the cross-section rule.

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Site and building/findspot	Capital type	Total height	Cross-section	Ratio
Volubilis, basilica, ground floor	**Vol 2.4**	83 cm	71.5 cm	0.86
Volubilis, basilica, ground floor	**Vol 2.6**	74.4 cm	73.5 cm	0.99
Volubilis, basilica, upper floor	**Vol 2.17**	69.8 cm	66.5 cm	0.95
Volubilis, palace of Gordianus	**Vol 2.39**	51.4 cm	43.3 cm	0.84
Volubilis, *porticus* of the *capitolium*	**Vol 2.50**	48.2 cm	44 cm	0.91
Banasa, *tabernae* of the "*macellum*"	**Ban 2.8**	57.7 cm	42.5 cm	0.74
Banasa, "maison à la mosaïque de Vénus"	**Ban 2.25**	64.1 cm	54.5 cm	0.85
Banasa, south district (?)	**Ban 2.28**	52.3 cm	43 cm	0.82
Sala, *porticus* of the *capitolium*	**Sal 2.4**	60.4 cm	48.5 cm	0.8
Sala, "basilica/*curia Ulpia*"	**Sal 2.7**	61.3 cm	63 cm	1.03

Table. 8.4. Corinthian capitals, *Tingitana*: capital height, cross-section of abacus, and height/cross-section ratio

Another important ratio to consider is the one between the total height of the column (from base to capital) and the height of the shaft. The most canonical rule demands that this corresponds to 6 : 5 (Wilson Jones 1989, 38, table A; 2003, 147, table 7.1). While the ratio applies well to the buildings of Imperial Rome, more or less marked divergences from the standard scheme can be observed in North Africa (Table 8.5).

Site, building, and dating	Column height	Shaft height	Ratio
Rome, temple of Mars Ultor, c. 2 BC	17.74 m	14.76 m	0.83
Rome, temple of Castor and Pollux, c. AD 6	14.76 m	12.4 m	0.84
Rome, temple of Vespasian, c. AD 90	14.13 m	11.79 m	0.83
Rome, *porticus* of the Pantheon, c. AD 120	14.16 m	11.79 m	0.83
Rome, *Hadrianeum*, c. AD 140	14.83 m	12.35 m	0.83

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Mactar, forum of Trajan, AD 116	4.98 m	4.12 m	0.83
Mactar, temple of Apollo, c. Trajan-Hadrian	4.98 m	3.67 m	0.74
Thugga, theatre of mysteries, Hadrianic period	4.5 m	3.65 m	0.81
Thugga, temple of *Caelestis*, c. AD 222-235	4.97 m	4.1 m	0.82
Carthage, Antonine basilica, mid-late second cent. AD	9 m	7.62 m	0.85
Carthage, Antonine basilica, mid-late second cent. AD	6.5 m	5.52 m	0.85
Lepcis Magna, temple of *Liber Pater*, second cent. AD	7.51 m	6.17 m	0.82
Lepcis Magna, Severan temple, c. AD 198-206	8.55 m	7.08 m	0.82

Table 8.5. Corinthian columns, Rome and North Africa: height of column, height of shaft, and shaft/column height ratio (0.83 = 5/6)

Rather unsurprisingly, divergences can also be recognized in *Tingitana* (Table 8.6), which confirm that the orthodox rule was not employed constantly. The data presented here regard examples where the total height of the column is fully preserved, or can be reconstructed with good approximation.

Site, building, and dating	Column height	Shaft height	Ratio
Volubilis, basilica, ground floor, c. AD 210-216/217	6.8 m	5.58 m	0.82
Volubilis, *capitolium*, AD 217	6.02 m	4.92 m	0.82
Volubilis, *porticus* of the *capitolium*, c. AD 217	3.58 m	2.85 m	0.8
Volubilis, piazza of the *capitolium*, east gate, c. AD 217	4.04 m	2.89 m	0.72
Volubilis, arch of Caracalla, AD 215/216	5.86 m	4.63 m	0.79
Sala, *porticus* of the *capitolium*, c. AD 120	5.1 m	4.16 m	0.82
Sala, *tabernae* under the *capitolium*, c. AD 120	5.45 m	4.29 m	0.79
Sala, *tabernae* under the *capitolium*, c. AD 120	3 m	2.28 m	0.76

Table 8.6. Corinthian columns, *Tingitana*: height of column, height of shaft, and shaft/column height ratio (0.83 = 5/6)

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By the third century AD, exceptions to the orthodox schemes were more numerous, even in Rome. Moreover, regional traditions in the territories at the edges of the Empire influenced the use of canonical ratios (Wilson Jones 2003, 152-3). With regard to *Tingitana*, it is more common to find columns with exceptional features than those following strict design rules. The alteration of standard ratios was already introduced in the early second century, as the evidence from the *capitolium* at *Sala* shows. Builders and stonemasons adopted different, "un-orthodox", rules when they designed the colonnades and decoration of a building. After having assessed the total height of a column, the size and shape of base, shaft, and capital were then probably adapted to it. This divergence from canonical rules and proportions between the components of a colonnade is documented also at *Thamusida* (Camporeale 2008c, 241-2). This shows the difficulty of establishing with certainty which length-unit was used by the local stonemasons, when only isolated elements of a column survive. One should also consider that discrepancies from orthodox rules may have existed in marginal regions. In *Britannia*, for example, reconstructions of public buildings based on canonical proportions (e.g. De la Bédoyère 1992; 2001) should probably be revised in the light of these observations (see Blagg 1982; 2002, 190).

This variability of design principles mirrors the coexistence of different decorative styles even within the same building or context. In Chapter 4, I have pointed out the difference between the decoration of the piazza of the *capitolium* at *Volubilis* and that of the temple itself and of the nearby basilica. While the ornament of the temple and basilica attempted to reproduce more or less faithfully Roman official models, the ornament of the piazza was of local Volubilitan style (Fig. 8.11a). The capitals on top of the columns at the two gates and along the *porticus* (►**Vol 2.35-38**; ►**Vol 2.40**; ►**Vol 2.42-43**; ►**Vol 2.45-47**; ►**Vol 2.49-56**) are all different in terms of carving features. The presence of different ateliers working together on the architectural decoration of the same building has been recognized elsewhere, for instance at *Lepcis Magna*, *Sabratha* and *Oea* (Ward-Perkins 1948; Pensabene 2001a, 91-101; 2006). At *Volubilis*, this mixture of styles was a most recurring feature, observable in the majority of edifices (for the evidence from the houses of the north-east district, see Pensabene 2011). The capitals with water plant leaves placed in the "*macellum*" (►**Vol 2.60-61**) probably belonged to a *porticus* of the pre-Severan forum (Fig. 8.11b), but it has been hypothesized that they were reused in the later phase – thus further confirming the mixture of styles in this area. This type of capital, moreover, did not die

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out with the Severan period, since it is also employed in the "maison aux demi-colonnes" and inside "temple B" (►**Vol 2.62**). The decoration of the palace of Gordianus is equally mixed. The layout of the Ionic colonnade on the front (Fig. 8.11c) was inspired by the official models of the period, although its lack of slenderness and other details reveal that local traditions were also at work (see Chapter 4).

At *Banasa*, just to cite one example, it is striking that the ornament of the temple in the most important space of the Roman *colonia*, the forum, diverges completely from the style one would normally expect for such a building. The pseudo-lotus colonnade (►**Ban 2.42**) (Fig. 8.11d) on the front of the temple with seven *cellae* is one of the most peculiar and extravagant architectural styles in *Tingitana*.

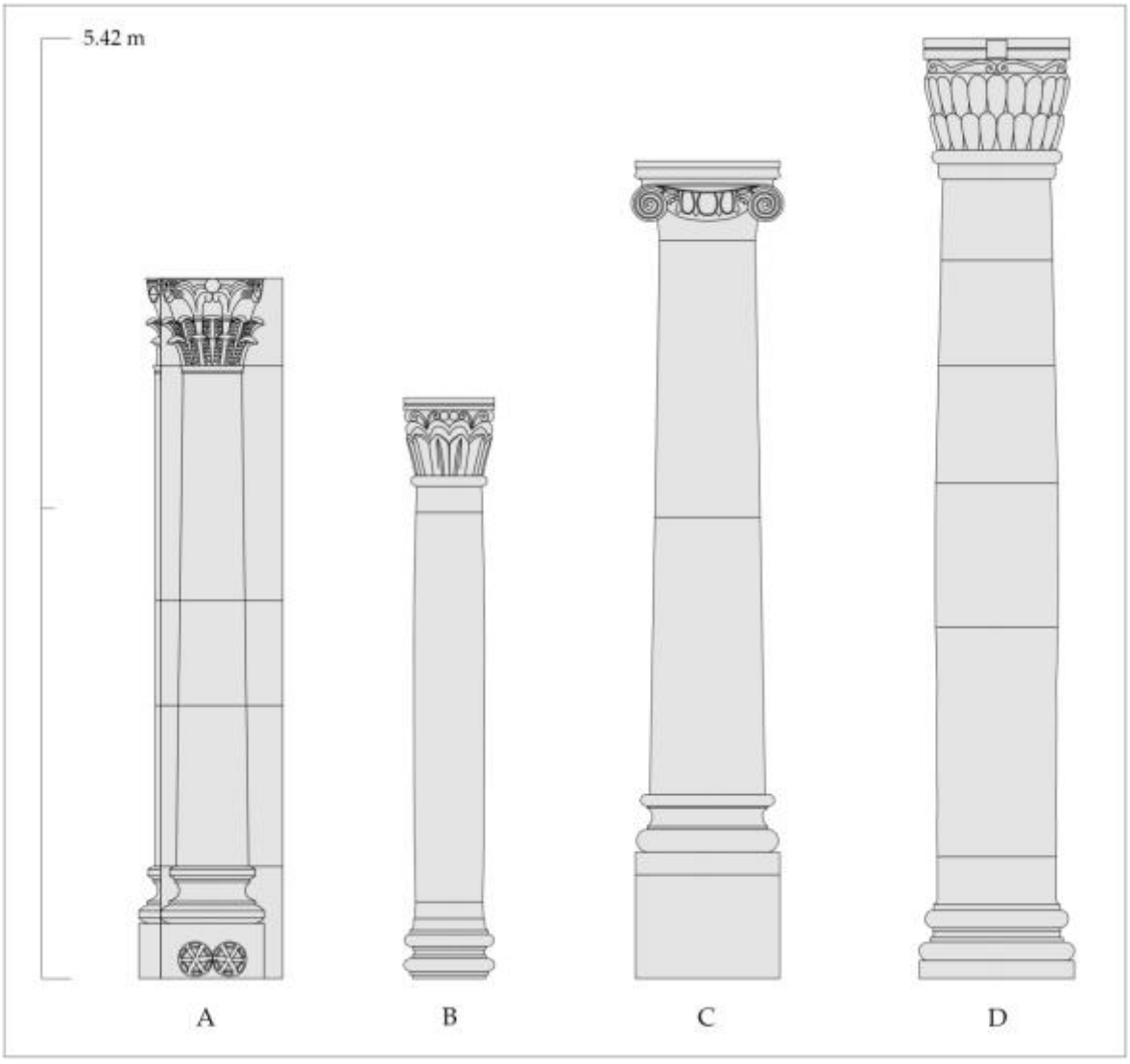

Fig. 8.11. *Tingitana*, reconstructed columns. A: *Volubilis*, piazza of the *capitolium* (east entrance); B: *Volubilis*, *porticus* of pre-Severan forum; C: *Volubilis*, front of the palace of Gordianus; D: *Banasa*, forum, temple with seven *cellae*

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Public spaces in the towns of *Tingitana*, therefore, were not necessarily meant to display official decorative forms, as a sign of adherence of the local élites and government to an ideal of *Romanitas*. The construction of the *capitolium* of *Volubilis* was financed by the local *res publica* (*IAM* 355), and the same probably happened for the buildings in the annexed piazza (rooms/shrines, gates, and *porticus*), as well as the nearby forum, basilica, and "*macellum*". These were all edifices of primary importance, whose specific purpose was to enhance the urban *decus* and glorify the munificence of the local government (for recent reviews of the activities of civic patronage in the Roman world: Nicols 2013, 262-77; Wescoat 2015, 190-7). The same considerations apply to the dedication of the city walls (*IAM* 382-3), the arch of Caracalla (*IAM* 390-1), and probably "temple C" (Euzennat 1957a, 47-8, 55-6), all financed by the *res publica* and testifying the importance of public patronage. These buildings can be rightly regarded as the fulcrum of public life – places where the urban community gathered and shared their experience of everyday life in this provincial environment. The mixture, and apparent contradiction, of architectural styles employed was not coincidence. On the contrary, it was a means through which the variegate components of the society could be expressed. As described in more detail in Chapter 3, urban communities in the main towns of *Tingitana* were mixed: Roman citizens and people of local origin who had been awarded Roman citizenship, soldiers recruited from different parts of the world and then moved to this province, as well as *peregrini* and people who lived outside the formal borders of the Empire. Therefore, Roman official art and local ornament were allowed to coexist, simply because they reflected the different substrata of the people living in the town.

As shown above, terms like "eclecticism" and "interrelation" can be used interchangeably to describe both the forms of architectural decoration and the people who adopted them. Recent studies on provincial art have highlighted the importance of the negotiation between Roman power and local societies (Webster 2003). In a similar way, labels such as "hybrid" and "hybridization" are becoming quite popular to describe the interactions between Rome and the cultures of the Empire (e.g. Traina 2006; Hingley 2010, 57-64; 2015, 39-40; Hodos 2010, 19-27; Mattingly 2014, 45; Pitts and Versluys 2015, 6).

While public monumental enhancement at *Volubilis* took place relatively late, the most important public buildings at *Sala* were completed within the first half of the second century AD. Unfortunately, local epigraphy is not as abundantly preserved as that of

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Volubilis. However, private patronage was apparently more diffused at *Sala*, as the construction of the *capitolium* by C. Hosidius Severus (*IAM* Suppl. 861) and the (unknown) building dedicated by C. Fabius Modestus (*IAM* 309) demonstrate. As already noted, the ornament of the *capitolium* and that of the "basilica/*curia Ulpia*" reproduced Roman official styles. The mixed decoration of the triumphal/honorific arch, however, created a sharp contrast. Moreover, the façade of "temple A" – a late Mauretanian building still overlooking the forum in the Roman period – featured a combination of Ionic capitals of Punic-Hellenistic tradition with an Egyptian gorge cornice. The same type of cornice was probably used at *Lixus* in the temples of the piazza which seems to be interpretable as the local forum. Therefore, as at *Volubilis*, decoration of different styles was employed in public contexts at *Sala* and *Lixus* – attesting to the variegated features of their urban communities.

The same heterogeneity can be recognized in private architecture. The palace of Gordianus at *Volubilis* was probably meant to be a residence of the provincial governor, and its importance is highlighted by the fact that the emperor himself (Gordianus III) took care of promoting its reconstruction *a solo* (*IAM* 404). I have already pointed out the contrast between the Ionic colonnade on the front and the mixed-style architectural decoration inside the palace. One should also consider that the houses of the north-east district were decorated with Volubilitan-style ornament (Pensabene 2011, 226-54), thus contrasting with the more official style of the *porticus* placed in front of them along the *decumanus maximus*. At *Banasa*, the contrast between official decoration and local-style decoration is evident in the "maison à la mosaïque de Vénus". Although the owner's identity is unknown, one can reasonably argue that the aim was to emphasize a sense of "Roman-ness" in front of the people passing by the house along the *kardo maximus*. However, this must be regarded as an individual choice and cannot be extended to the community as a whole. In fact, the decoration recovered from the houses nearby, the "maison du diplôme de Domitien" and the "maison à l'aureus de Juba II", is ascribable to the local tradition. The pattern is similar in the majority of buildings in the north district, and the forum itself of the *colonia* displayed peculiar, local architectural styles.

One must acknowledge, therefore, that individuals were free to choose the style of ornament they considered more appropriate for their residences, and which best reflected their role in the society. Similar considerations apply to public spaces and monuments, as

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confirmed by the multiple architectural styles documented even within the same building or area, especially at *Volubilis* and *Banasa* (see *supra*).

In conclusion, it is evident that the different groups of people that were part of the local society had their own, personal experience of the urban *decus* and *decor*, and of its monumental architecture and decoration. Each of them had a different understanding of why a particular form of ornament was displayed in a public (and private) context. Probably only a minority would have been able to recognize those motifs and styles which recalled models coming from Rome and from other regions of the world, or those forms of decoration which attested to the continuity of pre-Roman legacies. In the majority of cases, it is likely that these people were just struck with a sense of wonder and fascination when they looked at the lavish and extremely varied decoration of the buildings they encountered along the way. This effect is to be intended in a positive way, as it contributed to the friendly coexistence of mixed social groups within each town, and architectural decoration was one of the means through which the "*concordia ordinum*" was maintained and strengthened.

URBAN TRAJECTORIES AND THE DEVELOPMENT OF TOWNS

The evidence from *Tingitana* shows the great variability of Roman provincial architectural features: the alteration of basic design principles; the mixture of decorative motifs adopted by the stonemasons; and the lack of a univocal pattern regarding the use of a certain type of ornament in a specific building or urban space. The recognition of such a variety must be taken into account when attempting to draw more general conclusions about urban life and urban communities, as already advocated by Blagg (2002, 181-90) in his work on the decoration and architecture of Roman *Britannia*.

According to a recent research on selected towns in *Baetica*, *Tarraconensis* and *Britannia*, public buildings and public spaces in provincial contexts were a means for the local communities to experience various degrees of "Roman-ness" (Revell 2010, 40-79, 192). At the same time, however, it is recognized that the idea emerging from this inter-provincial analysis is one of "complexity" and "variability" (Revell 2010, 193; see also Hingley 2005, 102-5; Hoffman 2014, 24-5; Revell 2014). With regard to *Britannia*, Mattingly (2004; 2007, 17-20; 2010, 289) adopts the concept of "discrepant experiences" to describe

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the three categories of military, urban, and rural communities. He also acknowledges that townspeople had different identities, thus implying that the social background of local towns was quite variegated (Mattingly 2007, 292; on similar considerations about North African towns, see Mattingly 2011, 236-45).

In reference to *Mauretania Tingitana*, all the evidence collected points towards the fact that "discrepant experiences" can be identified even within each town. On the one hand, this helps us understand the combination of architectural decoration of official and local styles in places where the urban community gathered daily. On the other, it reminds us of the extreme complexity and heterogeneity of each urban reality. In this provincial context, trying to extend to the community as a whole concepts such as "Roman-ness", or, in contrast, "resistance" and "reaction" to Roman ideals, would be a most dangerous method. In general, one should be careful when using a single, univocal paradigm to describe the complexity of ancient societies where multiple substrata were at play. However, it is true that the development of urban spaces, and of their architecture and decoration was a self-portrait of the local society to some extent, showing that the urban community grew and changed through time (see Zanker 1998, 27-8; Raja 2012, 215-8; Neudecker 2015). If one phrase had to be chosen to describe the urban realities of *Tingitana*, this should probably be "intertwined". It is worth remembering Sallust's words (*Bellum Iugurthinum*, XVII) about the inhabitants of Africa and the settlers who joined them afterwards: "*qui mortales initio Africam habuerint quique postea accesserint aut quo modo inter se permixti sint*".

The independence from fixed principles for the design of buildings and from conventional architectural styles employed in their decoration seems also reflected, at a broader level, in the urban development and monumental embellishment of towns in *Tingitana*. The analysis of the four case-studies has shown that the construction of new buildings was not directly linked with historical or political events. For instance, the putative destructions and following reconstructions at *Volubilis* and *Lixus*, at one time attributed to Aedemon's revolt (see Chapter 3), no longer seem sustainable. Furthermore, there is no evidence to suggest that urban development depended on the juridical statuses of towns or on any changes/promotions they achieved. *Volubilis* became a *municipium* under Claudius (*IAM* 448) and the only building activity perhaps related to this event was the construction of the *porticus* (*IAM* 498) in the pre-Severan forum – a public space which

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was not completed before the late first century AD. The aristocratic houses in the north-east district date probably to the early to mid-second and third centuries AD. The monumental enhancement undertaken under the Severans is not sufficient to prove a promotion to *colonia honoraria* in the absence of any epigraphic evidence.

We know *Lixus* was promoted to *colonia* by Claudius. Again, the principal building activities did not take place before the late first century AD in the "quartier des temples", and in the late first – early second century for the *domus* of Mars and Rhea and the *domus* of Helios. The situation is quite similar at *Sala*, which became a *municipium* at the same time as *Volubilis*. All the buildings in the monumental district date to the first half of the second century AD – many years after the promotion to municipal rank, and well before the achievement of the status of *colonia honoraria* in the early third century, if the information of the *Itinerarium Antonini* is correct.

Banasa was founded as a military *colonia* by Octavian. The majority of constructions belong to a phase of development datable to the second century AD, started with the enlargement of the forum at the beginning of the century. Interestingly, one can recognize a similar pattern in the other known *colonia* of Morocco, *Zilil*. Despite the lack of a synthetic publication of the research undertaken at that site, the dating of the main public buildings spans from the mid/late first century AD to the late second century (*Zilil* I, 9; see Chapter 3). At *Thamusida*, after the construction of the military fort in the second half of the first century AD, the main building activities (temple, baths, granaries, and walls) took place throughout the second and early third centuries (Camporeale 2008a, 131-7). This settlement, however, was probably never awarded a rank above that of *civitas*.

In conclusion, it is evident that the development of these towns was not related to mere juridical matters. One can assume this autonomy was granted by the provincial and central government. The absence of a direct relationship between the rank of towns and their monumental embellishment is attested elsewhere. If we look at Britain under the Roman Empire (Mattingly 2007, 266-86, table 9), towns with different status could have the same types of public buildings, such as fora with basilicas, temples, and baths: *Lindum*/Lincoln (veteran *colonia*), *Eburacum*/York (*colonia honoraria*), *Verulamium*/St Albans (*municipium*), and *Venta Silurum*/Caerwent (*civitas*), to cite some examples.

Similar "discrepancies" between the richness of monumental buildings and the rank of towns can be observed among the numerous urban centres of North Africa (Gros and

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Torelli 2007, 287; Lassère 2015, 369). A recent re-assessment of the identification, distribution and role of *capitolia* across the Roman provinces, especially in North Africa, has demonstrated that the construction of these temples had no relation at all with the award of either municipal or colonial status (Quinn and Wilson 2013, 127-8). The cases of *Sala* and *Volubilis* fall very well into this category. The general pattern in the towns of *Tingitana* is their progressive monumental development from the late first – early second century AD up to the early/mid-third century. This provincial pattern fits rather well with the broader picture of the evolution of urban centres in North Africa. Apart from the personal attitudes of different emperors, from Trajan to Septimius Severus, that led to the creation and/or promotion of *municipia* and *coloniae* (Gascou 1972, 231-3; 1982a), it is with the second century that most towns and cities of North Africa witnessed a process of urban and monumental enhancement, which would continue until the Severan period and throughout the third century (Février 1982, 351-5; Jouffroy 1986, 233-7; Lassère 2015, 367-400; on the later phases of African urbanism see Sears 2007; 2011, 115-43).

CONCLUSIONS AND FURTHER RESEARCH

The results of the present research show that *Tingitana* was involved in the historical, political, social and artistic dynamics that characterized North Africa in the pre-Roman and Roman eras. The analysis of the stylistic features documented has demonstrated this region developed a rich and elaborate decorative repertoire, clearly attesting to its artistic vitality. This resulted from the merging of different components: mainly the influence of Roman official models and the persistence of pre-Roman elements (Punic, Hellenistic, Alexandrian, and, to some extent, Egyptian), which led to the creation of local styles.

The geographical marginality of *Tingitana* may have contributed to the fact that these artistic phenomena became soon deeply rooted and widespread over the province. Such a distance from the centres of power, Rome and Carthage, can also explain the eclecticism of architectural styles and the alteration of orthodox design principles. All these features are evident both when one looks at the carving of decorative stones and at the way they were used and displayed on buildings. The combination of different styles, as already remarked, indicates an analogous degree of "eclecticism" of the urban communities. It also demonstrates that we cannot identify a single pattern when we analyse the

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architecture and decoration of these buildings, and that individual choices and personal artistic taste often played a major role in determining the aspect of constructions.

As pointed out throughout the text, the present study had to deal with some issues that characterized the archaeology of Morocco during the last century (see Chapter 2). Most sites were excavated in the years of the French and Spanish Protectorates, and no attention was paid at that time to archaeological stratigraphy. Moreover, synthetic publications are almost non-existent and most information had to be drawn from fieldwork reports and short articles. Only in recent years have new studies on the architecture, architectural decoration and urbanism of some sites been published. This means there is still much work to do before we can achieve a full understanding of this province and its urban realities. The results of this research can be used to fill some of these gaps, but they need to be supported by a further development of field research. For the time being, my personal observations on the architecture and architectural styles of *Tingitana* can be described as a "tip of the iceberg". It is crucial that new field research is carried out with modern methodologies, and the results quickly disseminated.

With particular regard to *Banasa*, the combined analysis of architectural decoration with the results of recent research on construction techniques (Camporeale 2004-05) has revealed crucial information to outline a more precise evolution of local architecture and urban layout (see Chapter 5). The same approach can be applied to the study of other towns, especially *Volubilis*, where archaeological stratigraphy is now lost. New seasons of field research can be focused on the study of select buildings at that site, both private and public, together with the examination of archive documents, such as those kept at *Volubilis* itself and at the Centre Camille Jullian (Aix-en-Provence). Thanks to the collaboration with professional teams, it will be possible to draw new plans and elevations, to record precise measurements, and to undertake a thorough study of building techniques. These data will be used to reconstruct the relative, and hopefully absolute, chronology of the buildings examined, as well as their design process. The identification of the length-units (Jodin 1975; Hallier 1989; 1994; Camporeale 2015) can cast light on the adoption of different systems (e.g. Roman foot and Punic *cubitus*) by the builders, used for specific parts of each building: the plan, colonnades and elevation. Such a combination of length-units was a common practice in North Africa: the *tetrapylon* at *Lepcis Magna* is a striking

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example (Di Vita 1975, 11-26; Kenrick 2009, 95). The discovery of *mensae mensurariae*, such as those of *Lepcis Magna* and *Thibilis*, demonstrates the continuity of use of the Punic and Egyptian *cubitus* in the Roman period (Barresi 1991; 1992; 2007; Salama and Laporte 2010). It would not be surprising to find a similar situation at *Volubilis* and in *Tingitana*, which would also fit very well with the merging of different architectural styles.

A further aim of this analysis will be to reconstruct the organization of the "chantiers" and the work of builders and stonemasons, also highlighting similarities and differences between private and public architecture. This will facilitate attempts to calculate the costs of construction and to estimate the manpower required for different types of edifices. In addition to a series of important works which have dealt with these topics in various parts of the Roman world (e.g. DeLaine 1997; 2001; 2006; 2015; Barresi 2003; Mar and Pensabene 2010), two recent studies have been dedicated specifically to *Volubilis*. The first looked at the building process of the "maison aux deux pressoirs" (Camporeale *et al*. 2008, 292-301), the second at the calculation of costs of the *capitolium* (Domingo Magaña 2012a-b, also including "temple C"). With regard to the latter, I have indicated in Chapter 4 that the calculation should probably be revised, since it was based on the measurements of the *cella* (11 x 8.5 m), rather than those of the entire temple with podium (22.2 x 14.1 m). In the next phase of my research, I intend to pursue this further.

Expanding the study of architectural decoration to other regions of North Africa is another key-point of potential, future research. While the widespread diffusion of the Romano-Carthaginian models and Asiatic-style ornament is a well-known subject (e.g. Pensabene 1986; 1989; 1990, 258-9; 1992, 785-9; 2001a), the evidence for the persistence of pre-Roman elements in the Roman period and the development of regional styles is still patchy. Following Lézine's pioneering study (Lézine 1960), only two monographs have treated this theme in more detail so far: research undertaken in Tunisia (Ferchiou 1989a) and on the pre-Severan ornament of *Lepcis Magna* (Mahler 2006).

The diffusion of architectural styles and motifs reviving pre-Roman traditions was not limited to the coastal areas of North Africa. There is evidence suggesting that also the pre-desert and desert zones of Libya were involved. I have described above some of the features identifiable on the Ionic capitals of "Tomb North A" at Ghirza, and similar observations apply to the decoration of the other funerary monuments there (see Brogan

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and Smith 1984, 209-13). The investigation, however, should go beyond the best-known settlement of the region. As detailed in the Catalogue, the carving of a group of capitals from the basilica of *Volubilis* (►**Vol 2.4**) recalls quite closely some examples from the south mausoleum at Wadi Nfed (Bauer 1935, 74, figs. 26-7; Sjöström 1993, 265, no. 545 Nf 31; Abdussaid 1996, 78, pl. 31a). While it is unlikely to identify a direct connection between the two sites, it seems nevertheless that analogous substrata and (indirect?) influences can be recognized. One may describe this influence as a long-term process similar to that which led to the assimilation of Alexandrian and Egyptianizing motifs in Morocco. It is possible to go further, considering that architectural elements influenced from Punic-Hellenistic (and other African) traditions have been recovered at *Garama* (Jarma), capital of the *Garamantes* in the Fazzān (Preston and Mattingly 2013).

This wide-ranging research will allow me to explore contexts traditionally excluded from studies on the Classical, Greek and Roman, Mediterranean – thus passing over the artificial barrier between coast and hinterland of North Africa. Synthetic descriptions of pre-desert and desert sites, and of their main monuments, are available (e.g. Scott *et al*. 1996; Bigi *et al*. 2009), although more detailed information should be drawn from other sources, especially archive documents (notes, photographs, and drawings). A remarkable collection of materials recorded by British missions in Libya in the past years is now part of the archive of the Society for Libyan Studies (housed at the University of Leicester). Exploring these sources will lead the way towards an investigation of the ancient world no longer confined within the strict limits of the Mediterranean (see Mattingly 1999; 2003; Kampen 2015, 404-9). It will give us the opportunity to cross the borders of the Roman Empire and to come in contact with the societies beyond it.

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BIBLIOGRAPHY

Abdelwahed, Y.E.H. 2015. *Egyptian Cultural Identity in the Architecture of Roman Egypt (30 BC – AD 325)* (Archaeopress Roman Archaeology, 6), Oxford: Archaeopress.

Abdussaid, A. 1996. The restoration of the north mausoleum of wadi Nfed, *LibyaAnt* (new series), 2: 73-8.

Abitbol, M. 2014. *Histoire du Maroc*, Paris: Éditions Perrin.

Adam, J-P. 1988. *L'arte di costruire presso i romani. Materiali e tecniche* (translation by M.P. Guidobaldi), Milan: Longanesi.

Aiosa, S. 2012. *Il tempio di Ercole a Sabratha. Architettura e contesto urbano* (Monografie di archeologia libica, 33), Rome: "L'Erma di Bretschneider".

Aït Amara, O. 2014. La conquête de la Maurétanie (39-42). In Coltelloni-Trannoy, M. and Le Bohec, Y. (eds.), *La guerre dans l'Afrique romaine sous le Haut-Empire. Actes du CXXXVI^e^ congrès national des sociétés historiques et scientifiques « Faire la guerre, faire la paix » (Perpignan, 2011)*, Paris: Éditions du CTHS, 69-83.

Akerraz, A. 1985. Note sur l'enceinte tardive de Volubilis, *BAParis*, 19: 429-38.

Akerraz, A. 1987. Nouvelles observations sur l'urbanisme du quartier nord-est de Volubilis. In Mastino, A. (ed.), *L'Africa Romana. Atti del IV convegno di studio (Sassari, 12-14 dicembre 1986)*, Sassari: Dipartimento di Storia – Università degli Studi di Sassari, 445-60.

Akerraz, A. 1987-88. Un décor d'une inscription chrétienne de Volubilis, *BAMaroc*, 17: 279-85.

Akerraz, A. 1997. Les murailles de Tanger, *Nouvelles Archéologiques et Patrimoniales*, 1: 11-2.

Akerraz, A. 1998. Recherches sur les niveaux islamiques de Volubilis. In Cressier, P. and García-Arenal, M. (eds.), *Genèse de la ville islamique en al-Andalus et au Maghreb occidental*, Madrid: Casa de Velázquez, 295-304.

Akerraz, A. 2002. Exploratio ad Mercurios, *BAMaroc*, 19: 191-212.

Akerraz, A. 2011. Les fortifications de la Mauritanie Tingitane, *CRAI*, 155 (1): 537-59.

Akerraz, A. and Lenoir, M. 1981-82. Les huileries de Volubilis, *BAMaroc*, 14: 69-120.

Akerraz, A., El Khatib-Boujibar, N., Hesnard, A., Kermorvant, A., Lenoir, E. and Lenoir, M. 1981-82. Fouilles de Dchar Jdid 1977-1980, *BAMaroc*, 14: 169-244.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Akerraz, A., Lenoir, E. and Rebuffat, R. 1986. Plaine et montagne en Tingitane méridionale. In *Histoire et archéologie de l'Afrique du Nord. Actes du III^e colloque international réuni dans le cadre du 110^e congrès national des Sociétés savantes (Montpellier, 1-5 avril 1985)*, Paris: Éditions du CTHS, 219-55.

Akerraz, A., El Khatib-Boujibar, N., Hesnard, A., Kermorvant, A., Lenoir, E., Lenoir, M. and Monthel, G. 1987a. Ab eo XXV in ora oceani colonia Augusti Iulia Constantia Zilil. In Mastino, A. (ed.), *L'Africa Romana. Atti del IV convegno di studio (Sassari, 12-14 dicembre 1986)*, Sassari: Dipartimento di Storia – Università degli Studi di Sassari, 433-44.

Akerraz, A., Lenoir, E. and Lenoir, M. 1987b. Le forum de Volubilis. Éléments du dossier archéologique. In *Los foros romanos de las provincias occidentales*, Madrid: Ministerio de Cultura, 203-19.

Akerraz, A. and Lenoir, E. 1990. Volubilis et son territoire au I^er siècle de notre ère. In *L'Afrique dans l'occident Romain (I^er siècle av. J.-C. – IV^e siècle ap. J.-C.). Actes du colloque organisé par l'École Française de Rome sous le patronage de l'Institut National d'Archéologie et d'Art de Tunis (Rome, 3-5 décembre 1987)* (CEFR, 134), Rome: École Française de Rome, 213-29.

Akerraz, A., Brouquier-Reddé, V., Lenoir, E., Limane, H. and Rebuffat, R. 1995. Nouvelles découvertes dans le bassin du Sebou. In Trousset, P. (ed.), *Productions et exportations africaines. Actualités archéologiques. L'Afrique du Nord antique et médiévale. VI^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Pau, octobre 1993)*, Paris: Éditions du CTHS, 233-342.

Akerraz, A. and El Khayari, A. 2000. Prospections archéologiques dans la région de Lixus. Résultats préliminaires. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 1645-68.

Akerraz, A. and Papi, E. 2004. Il progetto Thamusida: dalla ricerca alla valorizzazione. In Papi, E. (ed.), *Conoscenza, conservazione e valorizzazione del patrimonio storico: archeologia, monumenti, musei. Atti del congresso italo-marocchino (Rabat, 15-16 marzo 2004)*, Rome: Quasar, 41-59.

Akerraz, A. and Papi, E. 2008. Introduction. In Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben*

Niccolò Mugnai
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Ahmed – Thamusida, 1. I contesti, Rome: Quasar, IX-XXVIII.

Akerraz, A., Eck, W. and Papi, E. 2008. Le iscrizioni. In Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 1. I contesti*, Rome: Quasar, 273-99.

Akerraz, A., El Khayari, A. and Papi, E. 2009a. L'habitat maurétano-punique de Sidi Ali ben Ahmed – Thamusida (Maroc). In Helas, S. and Marzoli, D. (eds.), *Phönizisches und punisches Städtewesen. Akten der internationalen Tagung in Rom vom 21. bis 23. Februar 2007* (IA, 13), Mainz: Philipp von Zabern, 147-70.

Akerraz, A., El Khayari, A., Es-Sadra, L., Siraj, A., Majdoub, M., Hassini, H., Ranieri, G., Spanu, P.G. and Zucca, R. 2009b. Lixus colonia a Claudio Caesare facta. Rapporto preliminare sulla missione archeologica marocco-italiana (2003-2004). In Mastino, A., Spanu, P.G. and Zucca, R. (eds.), *Naves plenis velis euntes*, Rome: Carocci, 291-307.

Akerraz, A., Papi, E., Perugini, D., Poli, G., Gliozzo, E., Turbanti Memmi, I. and Dallai, L. 2009c. I reperti in marmo. In Gliozzo, E., Turbanti Memmi, I., Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 2. L'archeometria*, Rome: Quasar, 73-84.

Alaioud, S.M. 2004. L'économie de Banasa à l'époque provinciale. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Ai confini dell'Impero: contatti, scambi, conflitti. Atti del XV convegno di studio (Tozeur, 11-15 dicembre 2002)*, Rome: Carocci, 1899-911.

Alaioud, S.M. 2010. Les activités artisanales à Banasa : témoignages archéologiques. In Milanese, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. I luoghi e le forme dei mestieri e della produzione nelle province africane. Atti del XVIII convegno di studio (Olbia, 11-14 dicembre 2008)*, Rome: Carocci, 575-92.

Alaioud, S.M. 2012. Contribution du fleuve Sebou dans le développement des sites antiques du Gharb. In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio (Sassari, 16-19 dicembre 2010)*, Rome: Carocci, 2535-48.

Albelda Borrás, V., Aranegui Gascó, C., Fumadó Ortega, I., Grau Almero, E., Hassini, H., Iborra Eres, P., Pérez Jordà, G. and Vizcaíno Estevan, A. 2010. La época mauritana. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 127-50.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Amedick, R. 2012. Iol – Césarée : la création d'une résidence royale. In Amedick, R. and Froning, H. (eds.), *La réorganisation du Musée de Cherchel. Phase I : Le royaume numide. Actes de la conférence du Goethe-Institut Algérie tenue à Alger, le 2 novembre 2009*, Wiesbaden: Harrassowitz Verlag, 31-8.

Ammar, H. 2008. À propos du nymphée de Sala. In Gonzáles, J., Ruggeri, P., Vismara, C. and Zucca, R. (eds.), *L'Africa Romana. Le ricchezze dell'Africa. Risorse, produzioni, scambi. Atti del XVII convegno di studio (Sevilla, 14-17 dicembre 2006)*, Rome: Carocci, 559-69.

Antonelli, F., Lazzarini, L., Cancelliere, S. and Dessandier, D. 2009. Volubilis (Meknes, Morocco): archaeometric study of the white and coloured marbles imported in the Roman age, *Journal of Cultural Heritage*, 10: 116-23.

Antonelli, F., Pilar Lapuente, M., Dessandier, D. and Kamel, S. 2015. Petrographic characterization and provenance of the crystalline marbles used in the Roman city of Banasa (Morocco): new data on the import of Iberian marble in Roman North Africa, *Archaeometry*, 57: 405-25.

Aranegui Gascó, C. 2001a. Presentación. In Aranegui Gascó, C. (ed.), *Lixus. Colonia fenicia y ciudad púnico-mauritana. Anotaciones sobre su ocupación medieval* (*Saguntum* supplement, 4), València: Universitat de València, 1-5.

Aranegui Gascó, C. 2001b. Lixus colonia fenicia y ciudad púnico-mauritana. Apuntes para una historia de la investigacíon arqueológica. In Aranegui Gascó, C. (ed.), *Lixus. Colonia fenicia y ciudad púnico-mauritana. Anotaciones sobre su ocupación medieval* (*Saguntum* supplement, 4), València: Universitat de València, 15-34.

Aranegui Gascó, C. 2001c. Conclusiones. In Aranegui Gascó, C. (ed.), *Lixus. Colonia fenicia y ciudad púnico-mauritana. Anotaciones sobre su ocupación medieval* (*Saguntum* supplement, 4), València: Universitat de València, 253-5.

Aranegui Gascó, C. 2005. Las campañas de excavaciones. In Aranegui Gascó, C. (ed.), *Lixus, 2. Ladera sur: excavaciones arqueológicas morroco-españolas en la colonia fenicia, campañas 2000-2003* (*Saguntum* supplement, 6), València: Universitat de València, 13-34.

Aranegui Gascó, C. 2008. Elementos arquitectónicos y decorativos de la época de Juba II en Lixus (Marruecos). In La Rocca, E., León, P. and Parisi Presicce, C. (eds.), *Le due patrie acquisite. Studi di archeologia dedicati a Walter Trillmich* (*Bullettino della Commissione archeologica comunale di Roma* supplement, 18), Rome: "L'Erma" di

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Bretschneider, 41-9.

Aranegui Gascó, C. 2012. Un conjunto áulico de época de Juba II en Lixus (Larache). In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio (Sassari, 16-19 dicembre 2010)*, Rome: Carocci, 655-68.

Aranegui Gascó, C. and Mar, R. 2008. Lixus: el sector oeste del conjunto monumental. In Bernal Casasola, D., Raissouni, B., Zouak, M. and Parodi, M. (eds.), *En la orilla africana del Círculo del Estrecho. Historiografía y proyectos actuales. Actes del II seminario hispano-marroquí de especialización en arqueología*, Cadiz: Diputación Provincial de Cádiz, Servicio de Publicaciones, 425-40.

Aranegui Gascó, C. and Mar, R. 2009. Lixus (Morocco): from a Mauretanian sanctuary to an Augustan palace, *BSR*, 77: 29-64.

Aranegui Gascó, C. and Mar, R. 2010. De vuelta al "barrio de los templos". Los orígenes fenicios de un gran santuario mauritano. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 225-52.

Aranegui Gascó, C., Belén, M., Fernández Miranda, M. and Hernández, E. 1992. La recherche archéologique espagnole à Lixus : bilan et perspectives. In *Lixus : Actes du colloque organisé par l'Institut des sciences de l'archéologie et du patrimoine de Rabat avec le concours de l'École Française de Rome (Larache, 8-11 novembre 1989)* (CEFR, 166), Rome: École Française de Rome, 7-15.

Aranegui Gascó, C., Cañete Jiménez, C., Fumadó Ortega, I., Hassini, H., Tarradell Font, N. and Tortajada Comeche, G. 2010a. El sector SO de la plataforma monumental. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 13-52.

Aranegui Gascó, C., Bonet Rosado, H., Fumadó Ortega, I., Grau Almero, E., Hassini, H., Iborra Eres, P. and Pérez Jordà, G. 2010b. La época púnica. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 107-26.

Arharbi, R. 2004. Nouvelles recherches sur le quartier sud de Volubilis. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Ai confini dell'Impero: contatti,*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

scambi, conflitti. Atti del XV convegno di studio (Tozeur, 11-15 dicembre 2002), Rome: Carocci, 1951-78.

Arharbi, R., Kermovant, A. and Lenoir, E. 2001. Iulia Valentia Banasa : de la découverte du site aux recherches récentes. In *Actes des 1ères journées nationales d'archéologie et du patrimoine, 2. Archéologie préislamique (Rabat, 1-4 juillet 1998)*, Rabat: Société Marocaine d'Archéologie et du Patrimoine, 147-68.

Arharbi, R. and Lenoir, E. 2004. Les niveaux préromains de Banasa, *BAMaroc*, 20: 220-70.

Arharbi, R. and Lenoir, E. 2006. Recherches sur le quartier méridional de Banasa. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 2141-56.

Asgari, N. 1988. The stages of workmanship of the Corinthian capital in Proconneus and its export form. In Herz, N. and Waelkens, M. (eds.), *Classical Marble: Geochemistry, Technology, Trade. Proceedings of the NATO Advanced Research Workshop on Marble in Ancient Greece and Rome: Geology, Quarries, Commerce, Artifacts (Il Ciocco, Lucca, Italy, May 9-13, 1988)*, Dordrecht-Boston-London: Kluwer Academic Publisher, 115-25.

Asgari, N. 1995. The Proconnesian production of architectural elements in late antiquity, based on evidence from the marble quarries. In Mango, C. and Dagron, G. (eds.), *Constantinople and its Hinterland. Papers from the Twenty-Seventh Spring Symposium of Byzantine Studies (Oxford, April 1993)*, Aldershot: Variorum, 263-88.

Attanasio, D., Bruno, M. and Landwehr, C. 2012a. I marmi scultorei di Caesarea Mauretaniae (Cherchel). In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio (Sassari, 16-19 dicembre 2010)*, Rome: Carocci, 527-40.

Attanasio, D., Bruno, M. and Rocchi, P. 2012b. The sculptural and architectural white marbles of Caesarea Mauretaniae (Cherchel, Algeria). In Amedick, R. and Froning, H. (eds.), *La réorganisation du Musée de Cherchel. Phase I : Le royaume numide. Actes de la conférence du Goethe-Institut Algérie tenue à Alger, le 2 novembre 2009*, Wiesbaden: Harrassowitz Verlag, 53-68.

Badia, B. 2000. La côte atlantique marocaine d'après quelques récits de voyage de la fin du

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

XVIII[e] et du XIX[e] siècle. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 853-64.

Bailey, D.M. 1990. Classical architecture in Roman Egypt. In Henig, M. (ed.), *Architecture and Architectural Sculpture in the Roman Empire* (Oxford University Committee for Archaeology Monograph, 29), Oxford: Institute of Archaeology, 121-37.

Balty, J.C. 1991. *Curia ordinis. Recherches d'architecture et d'urbanisme antiques sur les curies provinciales du monde romain*, Bruxelles: Palais des Académies.

Bammer, A. 1978-80. Elemente flavisch-trajanischer Architekturfassaden aus Ephesos, *Öjh*, 52: 67-90.

Barletta, B.A. 2009. *The Origins of the Greek Architectural Orders*, Cambridge: Cambridge University Press.

Barresi, P. 1991. Sopravvivenze dell'unità di misura punica e suoi rapporti con il piede romano nell'Africa di età imperiale. In Mastino, A. (ed.), *L'Africa Romana. Atti dell'VIII convegno di studio (Cagliari, 14-16 dicembre 1990)*, Sassari: Gallizzi, 479-502.

Barresi, P. 1992. Unità di misura nell'architettura dell'Africa tardoromana e bizantina. In Mastino, A. (ed.), *L'Africa Romana. Atti del IX convegno di studio (Nuoro, 13-15 dicembre 1991)*, Sassari: Gallizzi, 831-42.

Barresi, P. 2003. *Province dell'Asia minore. Costo dei marmi, architettura pubblica e committenza* (StA, 125), Rome: "L'Erma" di Bretschneider.

Barresi, P. 2007. *Metrologia punica*, Lugano: Lumières Internationales.

Barsanti, C. 1989. L'esportazione di marmi dal Proconneso nelle regioni pontiche durante il IV-VI secolo, *RIA*, 12: 91-220.

Barton, I.M. 1982. Capitoline temples in Italy and the provinces (especially Africa). In Temporini, H. (ed.), *Principat. Künste* (ANRW, II, 12.1), Berlin-New York: Walter de Gruyter, 259-342.

Basset, H. and Lévi-Provençal, E. 1922a. Chella : une nécropole mérinide, *Hespéris*, 2: 1-92.

Basset, H. and Lévi-Provençal, E. 1922a. Chella : une nécropole mérinide (suite), *Hespéris*, 2: 255-425.

Bauer, G. 1935. Le due necropoli di Ghirza, *Africa italiana*, 6: 61-78.

Behel, M. 1996. Note sur une huilerie du quartier est de Volubilis. In Khanoussi, M.,

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Atti dell'XI convegno di studio (Cartagine, 15-18 dicembre 1994)*, Ozieri: Il Torchietto, 607-10.

Behel, M. 1997. Un temple punique à Volubilis, *BAParis*, 24: 25-51.

Bekkari, M. 1967. L'archéologie marocaine en 1966-1967, *BAMaroc*, 7: 651-62.

Bekkari, M. 1968-72. L'archéologie marocaine en 1968 et 1969, *BAMaroc*, 8: 241-8.

Bénabou, M. 1976. *La résistance africaine à la romanisation*, Paris: François Maspero.

Benseddik, N. and Potter, T.W. 1986. *Fouilles du forum de Cherchel : Rapport préliminaire* (*BAAlger* supplement, 4), Alger: Bulletin d'Archéologie Algérienne.

Benseddik, N. and Potter, T.W. 1993. *Fouilles du forum de Cherchel, 1977-1981* (*BAAlger* supplement, 6), Alger: Bulletin d'Archéologie Algérienne.

Bernal Casasola, D., Raissouni, B., Bustamante, M., Sáez, A.M., Díaz, J.J., Lagóstena, J. and Lara, M. 2012. La datación de Tamuda. Asentamiento púnico, ciudad mauritana y castellum romano: novedades estratigráficas. In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio (Sassari, 16-19 dicembre 2010)*, Rome: Carocci, 2443-78.

Beykan, M. 2012. *Ionische Kapitelle auf Prokonnesos. Produktion und Export römischer Bauteile* (IstForsch, 53), Tübingen: Ernst Wasmuth Verlag.

Bianchi, F. 2005. La decorazione architettonica in pietra locale a Leptis Magna tra il I e il II sec. d.C. Maestranze e modelli decorativi nell'architettura pubblica, *ArchCl*, 56: 189-223.

Bianchi, F. 2009. Su alcuni aspetti della decorazione architettonica in marmo a Leptis Magna in età imperiale, *Marmora*, 5: 45-70.

Bianchi, F., Bruno, M. and Pike, S. 2015. Pentelic marble in the Severan complex in Leptis Magna (Tripolitania, Libya). In Pensabene, P. and Gasparini, E. (eds.), *Interdisciplinary Studies on Ancient Stone. Asmosia, X. Proceedings of the Tenth International Conference of ASMOSIA, Association for the Study of Marble & Other Stones in Antiquity (Rome, 21-26 May 2012)*, Rome: "L'Erma" di Bretschneider, 23-34.

Bigi, F. 2006. I capitelli di Leptis Magna fra modelli italici e influenze alessandrine. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

2004), Rome: Carocci, 2351-75.

Bigi, F., Di Vita-Evrard, G., Fontana, S. and Schingo, G. 2009. The mausoleum of Gasr Doga, *LibSt*, 40: 25-46.

Bigi, L. 2013a. Macine. In Akerraz, A., Camporeale, S. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 3. I materiali*, Rome: Quasar, 325-47.

Bigi, L. 2013b. Impastatrici. In Akerraz, A., Camporeale, S. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 3. I materiali*, Rome: Quasar, 348-52.

Bigi, L. 2013c. Contrappesi. In Akerraz, A., Camporeale, S. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 3. I materiali*, Rome: Quasar, 353-5.

Blagg, T.F.C. 1976. Tools and techniques of the Roman stonemason in Britain, *Britannia*, 7: 152-72.

Blagg, T.F.C. 1977. Schools of stonemasons in Roman Britain. In Munby, J. and Henig, M. (eds.), *Roman Life and Art in Britain: A Celebration in Honour of the Eightieth Birthday of Jocelyn Toynbee. Part 1* (BAR, 41), Oxford: British Archaeological Reports, 51-73.

Blagg, T.F.C. 1980. Roman civil and military architecture in the province of Britain: aspects of patronage, influence and craft organization, *World Archaeology*, 12: 27-42.

Blagg, T.F.C. 1982. Reconstruction of Roman decorated architecture: proportions, prescriptions and practices. In Drury, P.J. (ed.), *Structural Reconstruction: Approaches to the Interpretation of the Excavated Remains of Buildings* (BAR, 110), Oxford: British Archaeological Reports, 131-51.

Blagg, T.F.C. 1984. An examination of the connexions between military and civilian architecture in Roman Britain. In Blagg, T.F.C. and King, A.C. (eds.), *Military and Civilian in Roman Britain: Cultural Relationships in a Frontier Province* (BAR, 136), Oxford: British Archaeological Reports, 249-63.

Blagg, T.F.C. 1990. Architectural munificence in Britain: the evidence of inscriptions, *Britannia*, 21: 13-31.

Blagg, T.F.C. 2002. *Roman Architectural Ornament in Britain* (BAR, 329), Oxford: Archaeopress.

Blázquez, J.M. 2000. Tres grandes arqueólogos de Mauretania Tingitana: M. Ponsich, R. Thouvenot y M. Tarradell. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci,

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

1089-105.

Bonet Rosado, H., Fumadó Ortega, I., Aranegui Gascó, C. and Vives-Ferrándiz Sánchez, J. 2005. La ocupación púnica. In Aranegui Gascó, C. (ed.), *Lixus, 2. Ladera sur: excavaciones arqueológicas morroco-españolas en la colonia fenicia, campañas 2000-2003* (*Saguntum* supplement, 6), València: Universitat de València, 141-53.

Boube, J. 1960. Le musée Louis Chatelain à Rabat, *BAMaroc*, 4: 619-30.

Boube, J. 1962. Découvertes récentes à Sala Colonia (Chellah), *BAParis*: 141-5.

Boube, J. 1965. *La terra sigillata hispanique en Maurétanie Tingitane, 1. Les marques de potiers* (Études et travaux d'archéologie marocaine, 1), Rabat: Musée des Antiquités.

Boube, J. 1966a. Un nouveau portrait de Juba II découvert à Sala, *BAMaroc*, 6: 91-107.

Boube, J. 1966b. Un chapiteau ionique de l'époque de Juba II découvert à Volubilis, *BAMaroc*, 6: 109-14.

Boube, J. 1966c. Fouilles archéologiques à Sala, *Hespéris-Tamuda*, 7: 23-32.

Boube, J. 1967. Documents d'architecture maurétanienne au Maroc, *BAMaroc*, 7: 263-369.

Boube, J. 1977. *Sala : Villes et sites archéologiques du Maroc, 3. Les nécropoles : Planches*, Rabat: Musée des Antiquités.

Boube, J. 1979-80. Sala : notes d'épigraphie, *BAMaroc*, 12: 111-37.

Boube, J. 1983-84a. À propos de Babba Iulia Campestris, *BAMaroc*, 15: 131-8.

Boube, J. 1983-84b. Eléments de ceinturon wisigothiques et byzantins trouvés au Maroc, *BAMaroc*, 15: 281-97.

Boube, J. 1984. Les origines phéniciennes de Sala de Maurétanie, *BAParis*, 15-16: 155-70.

Boube, J. 1986. Modèles antiques en plâtre près de Sala (Maroc), *RA* (new series): 301-26.

Boube, J. 1990a. La dédicace du capitole de Sala (Maroc) et la base honorifique de C. Hosidius Severus, *MEFRA*, 102: 213-46.

Boube, J. 1990b. Une statue-portrait de Ptolémée de Maurétanie à Sala (Maroc), *RA* (new series): 331-60.

Boube, J. 1990c. Sala (Chella). In *De l'Empire romain aux villes impériales. 6000 ans d'art au Maroc*, Paris: Musée du Petit Palais, 29.

Boube, J. 1997. *s.v.* Sala. In *LEAA, II supplemento (1971-1994)*, Rome: Istituto dell'Enciclopedia Italiana, 62-4.

Boube, J. 1999. *Les nécropoles de Sala*, Paris: Éditions Recherche sur les Civilisations.

Boube, J. 2009. Sala le municipe Claudien, *BAMaroc*, 21: 184-7.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Boube-Piccot, C. 1966. Trophée damasquiné sur une statue impériale de Volubilis, *BAMaroc*, 6: 189-278.

Boube-Piccot, C. 1969. *Les bronzes antiques du Maroc, 1. La statuaire* (Études et travaux d'archéologie marocaine, 4), Rabat: Musée des Antiquités.

Boube-Piccot, C. 1975. *Les bronzes antiques du Maroc, 2. Le mobilier* (Études et travaux d'archéologie marocaine, 5), Rabat: Musée des Antiquités.

Boube-Piccot, C. 1995. Bronzes antiques. Productions et importations au Maroc. In Trousset, P. (ed.), *Productions et exportations africaines. Actualités archéologiques. L'Afrique du Nord antique et médiévale. VI^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Pau, octobre 1993)*, Paris: Éditions du CTHS, 65-78.

Boube-Piccot, C. 2014. Les bronzes antiques du Maroc. In *Splendeurs de Volubilis : Bronzes antiques du Maroc et de Méditerranée*, Arles: Actes Sud, 32-7.

Bozzoni, C., Franchetti Pardo, V., Ortolani, G. and Viscogliosi, A. 2009. *L'architettura del mondo antico*, Rome-Bari: Laterza.

Brahmi, N. 2010. Les cultores domus Augustae et le temple du culte impérial à Volubilis. In Milanese, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. I luoghi e le forme dei mestieri e della produzione nelle province africane. Atti del XVIII convegno di studio (Olbia, 11-14 dicembre 2008)*, Rome: Carocci, 1529-42.

Braund, D. 1984. *Rome and the Friendly King. The Character of the Client Kingship*, London: Croom Helm.

Brett, M. and Fentress, E. 1996. *The Berbers*, Oxford: Blackwell.

Briand-Ponsart, C. and Hugoniot, C. 2006. *L'Afrique romaine de l'Atlantique à la Tripolitaine. 146 av. J.-C. – 533 ap. J.-C.*, Paris: Armand Colin.

Bridoux, V. 2008. Les établissements de Maurétanie et Numidie entre 201 et 33 av. J.-C., *MEFRA*, 120: 369-426.

Brignon, J., Amine, A., Boutaleb, B., Martinet, G., Rosenberger, B. and Terrasse, M. 1967. *Histoire du Maroc*, Paris: Hatier.

Brogan, O. and Smith, D.J. 1984. *Ghirza. A Libyan Settlement in the Roman Period* (Libyan Antiquities Series, 1), Tripoli: Department of Antiquities.

Broise, P. 1969. Éléments d'un ordre toscan provincial en Haute-Savoie, *Gallia*, 27: 15-22.

Brouquier-Reddé, V. 2000. Les brigades topographiques au Maroc (plaine du Gharb et région de Volubilis). In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998), Rome: Carocci, 959-89.

Brouquier-Reddé, V. 2008. Chantiers de construction de sanctuaires en Gaule et en Afrique à l'époque romaine : un bilan des données récentes. In Camporeale, S., Dessales, H. and Pizzo, A. (eds.), *Arqueología de la construcción, 1. Los procesos constructivos en el mundo romano: Italia y provincias occidentales (Mérida, Instituto de Arqueología, 25-26 de Octubre de 2007)* (*AEspA* supplement, 50), Mérida: Archivo Español de Arqueología, 309-19.

Brouquier-Reddé, V. and Lenoir, E. 2000. Bibliographie du Maroc antique. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 991-1072.

Brouquier-Reddé, V. and Lenoir, E. 2005. La province romaine de Maurétanie Tingitane d'après les sources archéologiques. In Cabouret, B. (ed.), *L'Afrique romaine de 69 à 439 : romanisation et christianisation*, Nantes: Éditions du Temps, 74-92.

Brouquier-Reddé, V. and Rebuffat, R. 1998. Temple de Venus à Volubilis, *BAMaroc*, 18: 127-39.

Brouquier-Reddé, V. and Rebuffat, R. 2004. *Louis Chatelain (1883 – 1950) : Biographie et bibliographie* (Études et travaux d'archéologie marocaine, 10), Rabat: Institut National des Sciences de l'Archéologie et du Patrimoine.

Brouquier-Reddé, V., Ichkhakh, A. and El Khayari, A. 1998. Le temple B de Volubilis : nouvelles recherches, *AntAfr*, 34: 65-72.

Brouquier-Reddé, V., Ichkhakh, A. and El Khayari, A. 1999. Les stèles votives de Maurétanie Tingitane. Un complément au catalogue du temple B de Volubilis. In Lancel, S. (ed.), *Numismatique, langues, écritures et arts du livre, spécificité des arts figurés. Actes du VII^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Nice, 21 au 31 octobre 1996)*, Paris: Éditions du CTHS, 343-70.

Brouquier-Reddé, V., El Khayari, A. and Ichkhakh, A. 2001. Recherches sur les monuments religieux de Maurétanie Tingitane : de Louis Chatelain à la mission Temples. In *Actes des 1^ères journées nationales d'archéologie et du patrimoine, 2. Archéologie préislamique (Rabat, 1-4 juillet 1998)*, Rabat: Société Marocaine d'Archéologie et du

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Patrimoine, 187-97.

Brouquier-Reddé, V., El Khayari, A. and Ichkhakh, A. 2004. Le temple du forum de Banasa : nouvelles données archéologiques. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Ai confini dell'Impero: contatti, scambi, conflitti. Atti del XV convegno di studio (Tozeur, 11-15 dicembre 2002)*, Rome: Carocci, 1885-98.

Brouquier-Reddé, V., El Khayari, A. and Ichkhakh, A. 2006. Lixus de l'époque phénicienne à la période médiévale. Le quartier dit « des temples ». In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 2157-74.

Brouquier-Reddé, V., El Khayari, A. and Ichkhakh, A. 2008. Les édifices religieux de Lixus (Maurétanie Tingitane). In *Les lieux de culte : Aires votives, temples, églises, mosquées. IX^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord antique et médiévale, II^e colloque de la SEMPAM (Tripoli, 20-24 février 2005)*, Paris: Éditions du CNRS, 129-39.

Brouquier-Reddé, V., Ichkhakh, A., Poupon, F., El Khayari, A. and Hassini, H. 2010. L'occupation phénico-punique du quartier dit des temples de Lixus. In Bartoloni, G., Matthiae, P., Nigro, L. and Romano, L. (eds.), *Tiro, Cartagine, Lixus: nuove acquisizioni. Atti del convegno internazionale in onore di Maria Giulia Amadasi Guzzo (Roma, 24-25 novembre 2008)* (Quaderni di *VicOr*, 4), Rome: Università degli Studi La Sapienza, 39-62.

Bruno, M., Cancelliere, S., Gorgoni, C., Lazzarini, L., Pallante, P. and Pensabene, P. 2002a. Provenance and distribution of white marbles in temples and public buildings of imperial Rome. In Herrmann, J.J. Jr., Herz, N. and Newman, R. (eds.), *Asmosia, 5. Interdisciplinary Studies on Ancient Stone. Proceedings of the Fifth International Conference of the Association for the Study of Marble and Other Stones in Antiquity (Museum of Fine Arts, Boston, June 1998)*, London: Archetype Publications, 289-300.

Bruno, M., Lazzarini, L., Pensabene, P., Soligo, M. and Turi, B. 2002b. Provenance study of the white marble blocks and architectural elements from Porto and their contribution to the history of the marble trade. In Herrmann, J.J. Jr., Herz, N. and Newman, R. (eds.), *Asmosia, 5. Interdisciplinary Studies on Ancient Stone. Proceedings of the Fifth International Conference of the Association for the Study of Marble and Other Stones in*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Antiquity (Museum of Fine Arts, Boston, June 1998), London: Archetype Publications, 347-58.

Buchet, G. 1906. Mission Buchet : rapport sommaire d'ensemble, *Bulletin du Comité de l'Afrique Française*: 1-24.

Buchet, G. 1907. Note préliminaire sur quelques sépultures anciennes du nord-ouest du Maroc, *Bulletin de Géographie Historique et Description des Travaux Historiques et Scientifiques*, 1: 396-9.

Byrsa III = Gros, P. 1985. *Mission archéologique française à Carthage. Byrsa, 3. Rapport sur les campagnes de fouilles de 1977 à 1980 : La basilique orientale et ses abords* (CEFR, 41), Rome: École Française de Rome.

Cadenat, P. 1979. Chapiteaux tardifs du limès de Maurétanie Césarienne dans la région de Tiaret, *AntAfr*, 14: 247-60.

Cagnana, A. 2000. *Archeologia dei materiali da costruzione*, Mantova: SAP.

Cagnana, A. 2014. I cavatori del marmo di Luni: il lavoro e la cultura attraverso le fonti epigrafiche. In Bonetto, J., Camporeale, S. and Pizzo, A. (eds.), *Arqueología de la construcción, 4. Las canteras en el mundo antiguo: sistemas de explotación y processos productivos (actas del congreso de Padova, 22-24 de noviembre de 2012)* (*AEspA* supplement, 69), Mérida: Archivo Español de Arqueología, 167-78.

Cagnat, R. 1913. *L'armée romaine d'Afrique et l'occupation militaire sous les empereurs*, Paris: Imprimerie Nationale.

Callegarin, L. and Ripollès, P.P. 2010. Las monedas de Lixus. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 151-86.

Camporeale, S. 2004. Tecniche edilizie in pietra nella Mauretania Tingitana tra l'epoca mauretana e romana. Osservazioni sulle apparecchiature e utilizzo della malta, *Aarchit*, 9: 195-205.

Camporeale, S. 2004-05. *Tecniche edilizie del Marocco antico: Thamusida, Banasa, Sala. Tipologia, maestranze, storia urbana* (unpublished PhD Thesis, Università degli Studi di Siena).

Camporeale, S. 2008a. Materiali e tecniche delle costruzioni. In Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 1. I contesti*, Rome: Quasar, 62-178.

Camporeale, S. 2008b. I bolli sui laterizi. In Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Ahmed – Thamusida, 1. I contesti, Rome: Quasar, 198-210.

Camporeale, S. 2008c. Le decorazioni architettoniche. In Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 1. I contesti*, Rome: Quasar, 211-48.

Camporeale, S. 2011. Military building techniques in Mauretania Tingitana: the use of mortar and rubble at Thamusida (Sidi Ali ben Ahmed, Morocco). In Ringbom, Å. and Hohlfelder, R. (eds.), *Building Roma Aeterna. Current Research on Roman Mortar and Concrete. Proceedings of the Conference (Rome, March 27-29 2008)* (Commentationes Humanarum Litterarum, 128), Helsinki: Societas Scientiarum Fennica, 169-86.

Camporeale, S. 2013. Opus africanum e tecniche a telaio litico in Etruria e Campania (VII a.C.-VI d.C.), *Aarchit*, 18: 192-209.

Camporeale, S. 2015. Le unità di misura nella progettazione architettonica in Mauretania Tingitana. In Saliou, C. (ed.), *La mesure et ses usages dans l'Antiquité : La documentation archéologique* (*DialHistAnc* supplement, 12), Paris: Dialogues d'Histoire Ancienne, 79-100.

Camporeale, S., Papi, E. and Passalacqua, L. 2008. L'organizzazione dei cantieri a Volubilis (Mauretania Tingitana): iscrizioni e opere pubbliche, la maison aux deux pressoirs e l'arco di Caracalla. In Camporeale, S., Dessales, H. and Pizzo, A. (eds.), *Arqueología de la construcción, 1. Los procesos constructivos en el mundo romano: Italia y provincias occidentales (Mérida, Instituto de Arqueología, 25-26 de Octubre de 2007)* (*AEspA* supplement, 50), Mérida: Archivo Español de Arqueología, 285-308.

Camps, G. 1980. *Berbères : Aux marges de l'histoire*, Toulouse: Éditions des Hespérides.

Camps, G. 1991a. *s.v.* Baga. In Camps, G. (ed.), *Encyclopédie berbère*, 9, Aix-en-Provence: Édisud, 1305-6.

Camps, G. 1991b. *s.v.* Bocchus. In Camps, G. (ed.), *Encyclopédie berbère*, 10, Aix-en-Provence: Édisud, 1544-7.

Camps, G. 1991c. *s.v.* Bogud. In Camps, G. (ed.), *Encyclopédie berbère*, 10, Aix-en-Provence: Édisud, 1557-8.

Caputo, G. 1968. Spigolature architettoniche leptitane, III, *LibyaAnt*, 5: 69-78.

Carcopino, J. 1935. Volubilis, résidence de Juba et des gouverneurs romains, *Hespéris*, 17: 1-24.

Carcopino, J. 1943. *Le Maroc antique*, Paris: Gallimard.

Carmona González, P., Cañete Jiménez, C., Gómez Bellard, C., Grau Almero, E., Iborra

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Eres, P., López-Bertran, M., Pérez Jordà, G., Roman, D., Ruiz, J.M. and Vives-Ferrándiz, J. 2010. La primera ocupación del sector. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 53-106.

Cartocci, A. 2002. Le domus di Volubilis. Struttura e decorazione degli edifici del quartiere sud ovest, *Università di Siena: Annali della Facoltà di Lettere e Filosofia*, 23: 71-107.

Carucci, M. 2007. *The Romano-African Domus. Studies in Space, Decoration, and Function* (BAR IntSer, 1731), Oxford: Archaeopress.

Cassibry, K. 2014. Honoring the empress Julia Domna on arch monuments in Rome and North Africa. In Brody, L.R. and Hoffman, G.L. (eds.), *Roman in the Provinces. Art on the Periphery of Empire*, Chestnut Hill: McMullen Museum of Art, Boston College, 75-90.

Cavalieri Manasse, G. 1978. *La decorazione architettonica romana di Aquileia, Trieste, Pola. 1. L'età repubblicana, augustea e giulio claudia*, Aquileia: Associazione Nazionale per Aquileia.

Cerri, L. 2006. Tituli picti di Lixus e Tingis. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 2175-81.

Cerri, L. 2007. Salsamenta dalla Tingitana. In Papi, E. (ed.), *Supplying Rome and the Empire. The Proceedings of an International Seminar held at Siena-Certosa di Pontignano on May 2-4, 2004 on Rome, the Provinces, Production and Distribution* (*JRA* supplement, 69), Portsmouth, RI: Journal of Roman Archaeology, 33-42.

Cerri, L. 2008. La prospezione magnetica: l'abitato antico. In Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 1. I contesti*, Rome: Quasar, 31-50.

Chatelain, L. 1916. Rapports sur les fouilles de Volubilis (Ksar-Faraoun, Maroc), *BAParis*: 70-92.

Chatelain, L. 1922. Travaux et recherches du Service des antiquités du Maroc, depuis 1919, *CRAI*, 66 (1): 28-31.

Chatelain, L. 1929. Note sur les fouilles de Volubilis, *CRAI*, 73 (4): 258-63.

Chatelain, L. 1930. Le forum de Sala, *CRAI*, 74 (4): 336-40.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Chatelain, L. 1931a. *La ville romaine de Sala*, Paris: Moncho.

Chatelain, L. 1931b. Les recherches archéologiques au Maroc, *CRAI*, 75 (3): 292-6.

Chatelain, L. 1934. Travaux poursuivis au Maroc au cours de l'année 1933, *BAParis*: 105-11.

Chatelain, L. 1935. Découverte d'une statue romaine à Tanger, *CRAI*, 79 (3): 388-93.

Chatelain, L. 1937a. Les origines des fouilles de Volubilis, *Publications du Service des Antiquités du Maroc*, 3: 5-9.

Chatelain, L. 1937b. L'arc de triomphe de Caracalla, *Publications du Service des Antiquités du Maroc*, 3: 11-21.

Chatelain, L. 1937c. Les centres romains du Maroc, *Publications du Service des Antiquités du Maroc*, 3: 23-39.

Chatelain, L. 1942. *Inscriptions latines du Maroc, 1*, Paris: Geuthner.

Chatelain, L. 1944. *Le Maroc des Romains. Étude sur les centres antiques de la Maurétanie occidentale* (BEFAR, 160), Paris: De Boccard.

Chatelain, L. 1949. *Le Maroc des Romains. Étude sur les centres antiques de la Maurétanie occidentale. Album d'illustrations (32 planches)* (BEFAR, 160 bis), Paris: De Boccard.

Chevallier, R. 1957. *Bibliographie des applications archéologiques de la photographie aérienne*, (*BAMaroc* supplement, 2), Casablanca: Bulletin d'Archéologie Marocaine.

Christofle, M. 1951. *Le Tombeau de la Chrétienne*, Paris: Arts et Métiers Graphiques.

Christol, M. 1981. L'armée des provinces pannoniennes et la pacification des révoltes maures sous Antonin le Pieux, *AntAfr*, 17: 133-41.

Christol, M. 1988. Rome et les tribus indigènes en Maurétanie Tingitane. In Mastino, A. (ed.), *L'Africa Romana. Atti del V convegno di studio (Sassari, 11-13 dicembre 1987)*, Sassari: Dipartimento di Storia – Università degli Studi di Sassari, 305-37.

Christol, M. and Gascou, J. 1980. Volubilis, cité fédérée ?, *MEFRA*, 92: 329-45.

CIL = *Corpus Inscriptionum Latinarum*.

Coarelli, F. and Thébert, Y. 1988. Architecture funéraire et pouvoir : réflexions sur l'hellénisme numide, *MEFRA*, 100: 761-818.

Coll Conesa, J. 2010. La época medieval: cerámica del sector monumental. In Aranegui Gascó, C. and Hassini, H. (eds.), *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València, 201-24.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Coltelloni-Trannoy, M. 1992. Le culte royal sous les règnes de Juba II et de Ptolémée de Maurétanie. In *Spectacles, vie portuaire, religions. L'Afrique du Nord antique et médiévale. V^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Avignon, 9-13 avril 1990)*, Paris: Éditions du CTHS, 69-81.

Coltelloni-Trannoy, M. 1997. *Le royaume de Maurétanie sous Juba II et Ptolémée (25 av. J.-C. – 40 ap. J.-C.)* (Études d'*AntAfr*), Paris: Éditions du CNRS.

Coltelloni-Trannoy, M. 2001. L'annexion de la Maurétanie : terminologie et enjeu de la guerre. In Hamdoune, C. (ed.), *Ubique amici. Mélanges offerts à Jean-Marie Lassère*, Montpellier: Université Paul-Valéry, 129-57.

Coltelloni-Trannoy, M. 2003. *s.v.* Juba. In Camps, G. and Chaker, S. (eds.), *Encyclopédie berbère*, 25, Aix-en-Provence: Édisud, 3915-38.

Coltelloni-Trannoy, M. 2005. Rome et les rois « amis et alliés du peuple romain » en Afrique (I^er siècle av. J.-C./I^er siècle ap. J.-C.), *Pallas*, 68: 117-44.

Coltelloni-Trannoy, M. 2011. La Maurétanie royale et les débuts de la Maurétanie Césarienne. In Briand-Ponsart, C. and Modéran, Y. (eds.), *Provinces et identités provinciales dans l'Afrique romaine*, Caen: Publications du CRAHM, 87-109.

Coltelloni-Trannoy, M. 2014. Note sur la guerre d'Aedemon : système d'alliance et composition de l'armée royale. In Coltelloni-Trannoy, M. and Le Bohec, Y. (eds.), *La guerre dans l'Afrique romaine sous le Haut-Empire. Actes du CXXXVI^e congrès national des sociétés historiques et scientifiques « Faire la guerre, faire la paix » (Perpignan, 2011)*, Paris: Éditions du CTHS, 85-99.

Constans, L.A. 1916. *Gigthis : Étude d'histoire et d'archéologie sur un emporium de la petite Syrte* (Nouvelles archives des Missions Scientifiques, 14), Paris: Imprimerie Nationale.

Creighton, J. 2000. *Coins and Power in Late Iron Age Britain*, Cambridge: Cambridge University Press.

Cuq, E. 1918. Note complémentaire sur l'inscription de Volubilis, *CRAI*, 62 (3): 227-32.

Cuq, E. 1920. La cité punique et le municipe de Volubilis, *CRAI*, 64 (4): 339-50.

Czerner, R. 2009. *The Architectural Decoration of Marina el-Alamein* (BAR IntSer, 1942), Oxford: Archaeopress.

Daniels, R. 1995. Punic influence in the domestic architecture of Roman Volubilis (Morocco), *OxfJA*, 14: 79-95.

Debergh, J. 2003. C. Aranegui, Lixus. Fundación fenicia y ciudad púnico-mauritana.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Anotaciones sobre su ocupación medieval (book review), *Latomus*, 62: 752-3.

De la Bédoyère, G. 1992. *Roman Towns in Britain*, London: Batsford.

De la Bédoyère, G. 2001. *The Buildings of Roman Britain*, Stroud: Tempus.

De la Faye, J.B. 1736. *Several Voyages to Barbary, Containing an Historical and Geographical Account of the Country*, London: Olive Payne, Joseph Duke, Samuel Baker.

DeLaine, J. 1997. *The Baths of Caracalla. A study in the Design, Construction, and Economics of Large-Scale Building Projects in Imperial Rome* (*JRA* supplement, 25), Portsmouth, RI: Journal of Roman Archaeology.

DeLaine, J. 2001. Bricks and mortar. Exploring the economics of building techniques at Rome and Ostia. In Mattingly, D.J. and Salmon, J. (eds.), *Economies beyond Agriculture in the Classical World*, New York-London: Routledge, 230-68.

DeLaine, J. 2006. The cost of creation: technology at the service of construction. In Lo Cascio, E. (ed.), *Innovazione tecnica e progresso economico nel mondo romano. Atti degli incontri capresi di storia dell'economia antica (Capri, 13-16/4/2003)*, Bari: Edipuglia, 237-52.

DeLaine, J. 2015. The Pantheon builders: estimating manpower for construction. In Marder, T.A. and Wilson Jones, M. (eds.), *The Pantheon: From Antiquity to the Present*, Cambridge: Cambridge University Press, 160-92.

De la Martinière, H. 1889. Note sur les ruines de Ad Mercuri, *BAParis*: 277-80.

De la Martinière, H. 1890a. Recherches sur l'emplacement de la ville de Lixus, *BAParis*: 134-48.

De la Martinière, H. 1890b. Fouilles de Lixus, *CRAI*, 18: 114-6.

De la Martinière, H. 1891. Découverte à Tchemmich d'une inscription phénicienne, *BAParis*: 581.

De la Martinière, H. 1892. Inscription punique trouvée à Tchemmich, *BAParis*: 64-6.

De la Martinière, H. 1919. *Souvenirs du Maroc. Voyages et missions 1882-1918*, Paris: Plon-Nourrit et Cie, Imprimeurs-Éditeurs.

Demma, F. 2007. *Monumenti pubblici di Puteoli. Per un'archeologia dell'architettura* (Monografie della rivista *ArchCl*, 3), Rome: "L'Erma" di Bretschneider.

De Ruyt, C. 1983. *Macellum : Marché alimentaire des Romains* (Publications d'histoire de l'art et d'archéologie de l'Université Catholique de Louvain, 35), Louvain-la-Neuve: Institut Supérieur d'Archéologie et d'Histoire de l'Art.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Desanges, J. 1960. Mauretania ulterior Tingitana, *BAMaroc*, 4: 437-41.

Desjardins, E. 1872. La colonie romaine de Banasa et l'exploration géographique de la Mauretania Tingitana, *RA*, 24: 360-7.

Dictionnaire I = Ginouvès, R. and Martin, R. 1985. *Dictionnaire méthodique de l'architecture grecque et romaine, 1. Matériaux, techniques de construction, techniques et formes du décor* (CEFR, 84), Rome: École Française de Rome.

Dictionnaire II = Ginouvès, R. 1992. *Dictionnaire méthodique de l'architecture grecque et romaine, 2. Éléments constructifs, supports, couvertures, aménagement intérieurs* (CEFR, 84), Rome: École Française de Rome.

Dictionnaire III = Ginouvès, R. 1998. *Dictionnaire méthodique de l'architecture grecque et romaine, 3. Espaces architecturaux, bâtiments et ensembles* (CEFR, 84), Rome: École Française de Rome.

Di Vita, A. 1968. Influences grecques et tradition orientale dans l'art punique de Tripolitaine, *MEFR*, 80: 7-84.

Di Vita, A. 1975. La ricostruzione dell'arco dei Severi a Leptis Magna in un disegno di C. Catanuso ed esistenza e significato di un tetrapilo preseveriano, *QuadALibia*, 7: 3-36.

Di Vita, A. 1976. Il mausoleo punico-ellenistico B di Sabratha, *RM*, 83: 273-85.

Di Vita, A. 1983. Architettura e società nelle città di Tripolitania fra Massinissa e Augusto: qualche nota. In *Architecture et société de l'archaïsme grec à la fin de la république romaine. Actes du colloque international organisé par le Centre National de la Recherche Scientifique et l'École Française de Rome (Rome, 2-4 décembre 1980)* (CEFR, 66), Rome: École Française de Rome, 355-76.

Di Vita-Evrard, G. 1987. En feuilletant les « Inscriptions Antiques du Maroc, 2 », *ZPE*, 86: 193-225.

Di Vita-Evrard, G. 1988. L'édit de Banasa : un document exceptionnel ?. In Mastino, A. (ed.), *L'Africa Romana. Atti del V convegno di studio (Sassari, 11-13 dicembre 1987)*, Sassari: Dipartimento di Storia – Università degli Studi di Sassari, 287-303.

Domergue, C. 1963-64a. L'arc de triomphe de Caracalla à Volubilis : le monument, la décoration, l'inscription, *BAParis*: 201-29.

Domergue, C. 1963-64b. L'arc de triomphe de Caracalla à Volubilis, *Annuaire de l'École pratique des hautes études (IV^ème^ Section : Sciences historiques et philologiques)*: 283-93.

Domergue, C. 1966. La représentation des Saisons sur l'arc de Caracalla à Volubilis. In

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Chevallier, R. (ed.), *Mélanges d'archéologie et d'histoire offerts à André Piganiol*, Paris: Sevpen, 463-72.

Domingo Magaña, J.Á. 2008. Los capiteles norteafricanos e hispanos (IV-VII d.C.): dos excepcionales ejemplos en Medina Sidonia y Plà de Nadal. In Gonzáles, J., Ruggeri, P., Vismara, C. and Zucca, R. (eds.), *L'Africa Romana. Le ricchezze dell'Africa. Risorse, produzioni, scambi. Atti del XVII convegno di studio (Sevilla, 14-17 dicembre 2006)*, Rome: Carocci, 1289-98.

Domingo Magaña, J.Á. 2011. *Capiteles tardorromanos y visigodos en la península ibérica (siglos IV-VIII d.C.)* (Documenta, 13), Tarragona: Institut Català d'Arqueologia Clàssica.

Domingo Magaña, J.Á. 2012a. Los costes de la arquitectura romana: el capitolio de Volúbilis (Mauretania Tingitana), *ArchCl*, 63: 381-418.

Domingo Magaña, J.Á. 2012b. El coste de la arquitectura: avances, problemas e incertidumbres de una metodología de cálculo: Volubilis y Dougga, *Aarchit*, 17: 144-70.

Duncan-Jones, R.P. 1980. Length-units in Roman town planning: the pes monetalis and the pes Drusianus, *Britannia*, 11: 127-33.

El Azifi, M.R. 1995. Les nécropoles de la region de Tanger sont-elles phéniciennes ?. In Fantar, M. and Ghaki, M. (eds.), *Actes du III^e congrès international des études phéniciennes et puniques, volume I (Tunis, 11-16 novembre 1991)*, Tunis: Institut National du Patrimoine, 401-14.

El Boudjay, A. 2000. La muraille califale de la Qasba de Tanger, *Caetaria*, 3: 151-62.

El Khatib-Boujibar, N. 1964a. L'archéologie marocaine de 1961 à 1964 : Volubilis ; Sala ; Lixus ; Tamuda, *BAMaroc*, 5: 361-78.

El Khatib-Boujibar, N. 1964b. Inscriptions nouvelles du Maroc, *BAMaroc*, 5: 379-83.

El Khatib-Boujibar, N. 1966. L'archéologie marocaine en 1964-1965, *BAMaroc*, 6: 539-50.

El Khatib-Boujibar, N. 1992. Le problème de l'alimentation en eau à Lixus. In *Lixus : Actes du colloque organise par l'Institut des sciences de l'archéologie et du patrimoine de Rabat avec le concours de l'École Française de Rome (Larache, 8-11 novembre 1989)* (CEFR, 166), Rome: École Française de Rome, 305-23.

El Khayari, A. 2004. Échanges entre le Maroc et la Méditerranée de l'époque phénicienne à l'époque tardo-républicaine. In Gallina Zevi, A. and Turchetti, R. (eds.), *Méditerranée occidentale antique : Les échanges. III seminario (Marseille, 14-15 mai 2004)*, Soveria

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Mannelli: Rubbettino, 149-68.

Escrivà Chover, M.I. 2005. *Basas romanas de la provincia Tarraconensis*, València: Institució Alfons el Magnànim.

Es-Sadra, L. 2008. Nouvelles données chronologiques sur l'urbanisme de Volubilis. In Gonzáles, J., Ruggeri, P., Vismara, C. and Zucca, R. (eds.), *L'Africa Romana. Le ricchezze dell'Africa. Risorse, produzioni, scambi. Atti del XVII convegno di studio (Sevilla, 14-17 dicembre 2006)*, Rome: Carocci, 461-74.

Es-Sadra, L. 2012. Transformation du paysage urbain volubilitain à l'époque préislamique. In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio (Sassari, 16-19 dicembre 2010)*, Rome: Carocci, 637-54.

Étienne, R. 1952. Les carrières de calcaire dans la région de Volubilis (Maroc), *BAParis*: 23-32.

Étienne, R. 1954. Maisons et hydraulique dans le quartier nord-est à Volubilis, *Publications du Service des Antiquités du Maroc*, 10: 25-211.

Étienne, R. 1960. *Le quartier nord-est de Volubilis*, Paris: De Boccard.

Euzennat, M. 1956. Deux voyageurs anglais à Volubilis (1721), *Hespéris*, 43: 325-34.

Euzennat, M. 1957a. Le temple C de Volubilis et les origines de la cité, *BAMaroc*, 2: 41-64.

Euzennat, M. 1957b. L'archéologie marocaine de 1955 à 1957, *BAMaroc*, 2: 199-229.

Euzennat, M. 1958. Fouilles opérées à Banasa en 1955, *BAParis*: 223-40.

Euzennat, M. 1959. Compte rendu de l'activité de l'Inspection des Antiquités du Maroc en 1956, *BAParis*: 39-60.

Euzennat, M. 1960. L'archéologie marocaine de 1958 à 1960, *BAMaroc*, 4: 523-64.

Euzennat, M. 1962. Les voies du Maroc dans l'Itinéraire Antonin. In Renard, M. (ed.), *Hommages à Albert Grenier* (Collection *Latomus*, 58), Brussels: Latomus, 595-610.

Euzennat, M. 1965. Héritage punique et influences gréco-romaines au Maroc a la veille de la conquête romaine. In *Le rayonnement des civilisations grecque et romaine sur les cultures périphériques. Huitième congrès international d'archéologie classique (Paris, 1963)*, Paris: De Boccard, 261-78.

Euzennat, M. 1974. Les édifices du culte chrétiens en Maurétanie Tingitane, *AntAfr*, 8: 175-90.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Euzennat, M. 1976a. *s.v.* Babba Iulia Campestris. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 133-4.

Euzennat, M. 1976b. *s.v.* Banasa. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 140-1.

Euzennat, M. 1976c. *s.v.* Sala. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 793-4.

Euzennat, M. 1976d. *s.v.* Thamusida. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 902.

Euzennat, M. 1976e. *s.v.* Tingi. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 923.

Euzennat, M. 1976f. *s.v.* Volubilis. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 988-9.

Euzennat, M. 1976g. *s.v.* Zilis. In Stillwell, R. (ed.), *The Princeton Encyclopedia of Classical Sites*, Princeton: Princeton University Press, 1000.

Euzennat, M. 1978. Les ruines antiques du Bou Hellou (Maroc). In *Archéologie militaire : Les pays du nord. Actes du 101e congrès national des Sociétés savantes (Lille, 1976) : Section d'archéologie et d'histoire de l'art*, Paris: Bibliothèque Nationale, 295-329.

Euzennat, M. 1989. *Le limes de Tingitane. La frontière méridionale* (Études d'*AntAfr*), Paris: Éditions du CNRS.

Euzennat, M. 1991a. *s.v.* Babba. In Camps, G. (ed.), *Encyclopédie berbère*, 9, Aix-en-Provence: Édisud, 1293-4.

Euzennat, M. 1991b. *s.v.* Banasa. In Camps, G. (ed.), *Encyclopédie berbère*, 9, Aix-en-Provence: Édisud, 1323-8.

Euzennat, M. 1995. Les structures tribales dans l'Afrique préislamique. Un état de la question. In Trousset, P. (ed.), *L'Afrique du Nord antique et médiévale : Monuments funéraires, institutions autochtones. VIe colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Pau, octobre 1993)*, Paris: Éditions du CTHS, 247-54.

Euzennat, M. and Hallier, G. 1986. Les forums de Tingitane. Observations sur l'influence de l'architecture militaire sur les constructions civiles de l'Occident romain, *AntAfr*, 22: 73-103.

Faddadi, B. 1991. *Chapiteaux de Volubilis : Étude du décor architectural* (unpublished PhD Thesis, Université d'Aix-Marseille).

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Fantar, M. 1984. *Kerkouane : Cité punique du Cap Bon (Tunisie), Volume 1*, Tunis: Institut National d'Archéologie et d'Art.

Fellague, D. 2010. Le décor architectural de la basilique de Baelo Claudia : contribution à la connaissance de la chronologie de l'édifice, *MelCasaVelazquez*, 40: 273-96.

Fellague, D. 2013. Décor architectural et datation de la basilique. In Sillières, P. (ed.), *Belo, IX. La basilique* (Collection de la Casa de Velázquez, 136), Madrid: Casa de Velázquez, 149-215.

Fentress, E. 1993. La Mauretania. In Carandini, A., Cracco Ruggini, L. and Giardina, A. (eds.), *Storia di Roma, 3. L'età tardoantica, 2. I luoghi e le culture*, Turin: Giulio Einaudi Editore, 367-78.

Fentress, E. and Limane, H. 2010. Excavations in medieval settlements at Volubilis. 2000-2004, *Cuadernos de Madînat Al-Zahrâ*, 7: 105-22.

Feray, G. and Paskoff, R. 1966. Recherches sur les carrières romaines des environs de Volubilis, *BAMaroc*, 6: 279-300.

Ferchiou, N. 1975. *Architecture romaine de Tunisie. L'ordre : Rythmes et proportions dans le Tell* (Bibliothèque Archéologique, 2), Tunis: Institut National d'Archéologie et d'Art.

Ferchiou, N. 1983. Un atelier itinérant de marbriers le long des côtes de Proconsulaire, *AntAfr*, 19: 75-84.

Ferchiou, N. 1986. Le mausolée anonyme de Thuburnica, *MEFRA*, 98: 665-705.

Ferchiou, N. 1989a. *L'évolution du décor architectonique en Afrique proconsulaire des derniers temps de Carthage aux Antonins : L'hellénisme africain, son déclin, ses mutations et le triomphe de l'art romano-africain*, Gap: Imprimerie Louis-Jean.

Ferchiou, N. 1989b. Répertoire décoratif de l'Afrique proconsulaire : deux thèmes répandus sur la côte, leur évolution et leur diffusion, *AntAfr*, 25: 115-33.

Ferchiou, N. 1993. Les éléments architecturaux. In Stevens, S.T. (ed.), *Bir el Knissia at Carthage: A Rediscovered Cemetery Church. Report no. 1* (*JRA* supplement, 7), Ann Arbor: Journal of Roman Archaeology, 225-55.

Ferchiou, N. 1995. Recherches sur le décor architectonique de la région de Segermes. In Dietz, S., Ladjimi Sebaï, L. and Ben Hassen, H. (eds.), *Africa Proconsularis. Regional Studies in the Segermes Valley of Northern Tunisia. Volume II: Pottery, Numismatics and the Antiquarian Data*, Aarhus: Aarhus University Press, 651-711.

Ferchiou, N. 2003. L'activité d'officines de marbriers venues de Carthage à Sufetula : le cas

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

des temples capitolins et de la porte du forum. In Bejaoui, F. (ed.), *Histoire des hautes steppes : Antiquité – Moyen-Âge. Actes du colloque de Sbeitla (session 2001)*, Tunis: Institut National du Patrimoine, 93-100.

Fernández García, M.I. and Ruiz Montes, P. 2005. Sigillata hispánica de origen bético. In Roca Roumens, M. and Fernández García, M.I. (eds.), *Introducción al estudio de la cerámica romana. Una breve guía de referencia*, Malaga: Universidad de Malaga, 139-82.

Février, P.-A. 1982. Urbanisation et urbanisme de l'Afrique romaine. In Temporini, H. (ed.), *Principat. Politische Geschichte. Provinzen und Randvölker: Afrika mit Ägypten (Forts.)* (ANRW, II, 10.2), Berlin-New York: Walter de Gruyter, 321-96.

Fischer, M.L. 1990. *Das korinthische Kapitell im alten Israel in der hellenistischen und römischen Periode*, Mainz: Philipp von Zabern.

Fischer, M.L. 1998. *Marble Studies: Roman Palestine and the Marble Trade*, Konstanz: Universitätsverlag Konstanz.

Fishwick, D. 1971. The annexation of Mauretania, *Historia*, 20: 467-87.

Fishwick, D. 1985. Le culte imperial sous Juba II et Ptolémée de Maurétanie : le témoignage des monnaies, *BAParis*, 19: 225-34.

Fishwick, D. and Shaw, B.D. 1976. Ptolemy of Mauretania and the conspiracy of Gaeticulus, *Historia*, 25: 491-4.

Fittschen, K. 1979a. Bildnisse numidischer Könige. In Günter Horn, H. and Rüger, C.B. (eds.), *Die Numider. Reiter und Könige nördlich der Sahara*, Bonn: Rudolf Habelt Verlag, 209-25.

Fittschen, K. 1979b. Juba II. und seine Residenz Jol/Caesarea (Cherchel). In Günter Horn, H. and Rüger, C.B. (eds.), *Die Numider. Reiter und Könige nördlich der Sahara*, Bonn: Rudolf Habelt Verlag, 227-42.

Frakes, J.F.D. 2014. Fora. In Ulrich, R.B. and Quenemoen, C.K. (eds.), *A Companion to Roman Architecture*, Oxford: Wiley-Blackwell, 248-63.

Freihern von Augustin, F. 1838. *Erinnerungen aus Marokko gesammelte auf einer Reise im Jahre 1830*, Wien: Schaumburg.

Freyberger, K.S. 1990. *Stadtrömische Kapitelle aus der Zeit von Domitian bis Alexander Severus: zur Arbeitsweise und Organisation stadrömischer Werkstätten der Kaiserzeit*, Mainz: Philipp von Zabern.

Frézouls, E. 1956. Inscriptions nouvelles de Volubilis, II, *MEFR*, 68: 95-125.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Frézouls, E. 1957. Les Baquates et la province romaine de Tingitane, *BAMaroc*, 2: 65-116.

Frézouls, E. 1980. Rome et la Maurétanie Tingitane : un constat d'échec ?, *AntAfr*, 16: 65-93.

Froning, H. 2012. Lieux de jeu à Cherchel : le théâtre, l'amphithéâtre et l'hippodrome/le cirque. In Amedick, R. and Froning, H. (eds.), *La réorganisation du Musée de Cherchel. Phase I : Le royaume numide. Actes de la conférence du Goethe-Institut Algérie tenue à Alger, le 2 novembre 2009*, Wiesbaden: Harrassowitz Verlag, 39-52.

Funk-Brentano, C. and Bousser, M. 1921. Bibliographie marocaine en 1921, *Hespéris*, 1: 471-83.

Gans, U.-W. 1992. *Korinthisierende Kapitelle der römischen Kaiserzeit. Schmuckkapitelle in Italien und den nordwestlichen Provinzen*, Wien: Böhlau Verlag.

Ganzert, J. 1996. *Der Mars-Ultor-Tempel auf dem Augustusforum in Rom*, Mainz: Philipp von Zabern.

García-Gelabert, M.P. 2000. Historia de las excavaciones arqueológicas españolas en el norte de Mauretania Tingitana. Investigación de la cultura fenicia. M. Ponsich y M. Tarradell. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 915-37.

Gascou, J. 1972. *La politique municipale de l'empire romain en Afrique proconsulaire de Trajan à Septime-Sévère* (CEFR, 8), Rome: École Française de Rome.

Gascou, J. 1974. Note sur l'évolution du statut juridique de Tanger entre 38 avant J.-C. et le règne de Claude, *AntAfr*, 8: 67-71.

Gascou, J. 1978. La succession des bona vacantia et les tribus romaines de Volubilis, *AntAfr*, 12: 109-24.

Gascou, J. 1981. Tendances de la politique municipale de Claude en Maurétanie, *Ktema*, 6: 227-38.

Gascou, J. 1982a. La politique municipale de Rome en Afrique du Nord, I : de la mort d'Auguste au début du III^e^ siècle. In Temporini, H. (ed.), *Principat. Politische Geschichte. Provinzen und Randvölker: Afrika mit Ägypten (Forts.)* (ANRW, II, 10.2), Berlin-New York: Walter de Gruyter, 136-229.

Gascou, J. 1982b. La politique municipale de Rome en Afrique du Nord, II : après la mort de Septime-Sévère. In Temporini, H. (ed.), *Principat. Politische Geschichte. Provinzen*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

und Randvölker: Afrika mit Ägypten (Forts.) (ANRW, II, 10.2), Berlin-New York: Walter de Gruyter, 230-320.

Gascou, J. 1985. *s.v.* Aedemon. In Camps, G. (ed.), *Encyclopédie berbère*, 2, Aix-en-Provence: Édisud, 164-7.

Gascou, J. 1991. Hypothèse sur la création du municipe de Sala, *AntAfr*, 27: 151-6.

Ghazi - Ben Maïssa, H. 1994. Volubilis et le problème de regia Jubae. In Mastino, A. and Ruggeri, P. (eds.), *L'Africa Romana. Atti del X convegno di studio (Oristano, 11-13 dicembre 1992)*, Sassari: Gallizzi, 243-61.

Giorgetti, G. and Gliozzo, E. 2009. I materiali lapidei. In Gliozzo, E., Turbanti Memmi, I., Akerraz, A. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 2. L'archeometria*, Rome: Quasar, 59-72.

Girard, S. 1984. Banasa préromaine. Un état de la question, *AntAfr*, 20: 11-93.

Gliozzo, E., Damiani, D., Camporeale, S., Memmi, I. and Papi, E. 2011. Building materials from Thamusida (Rabat, Morocco): a diachronic local production from the Roman to the Islamic period, *JASc*, 38: 1026-36.

Golvin, J-C. and Leveau, Ph. 1979. L'amphitéâtre et le téâtre-amphitéâtre de Cherchel : monuments à spectacles et histoire urbaine à Caesarea de Maurétanie, *MEFRA*, 91: 817-43.

Gozalbes Cravioto, E. 2002. Tumultos y resistencia indígena en Mauretania Tingitana (siglo II), *Gerión*, 20: 451-85.

Gozalbes Cravioto, E. 2005a. El final del rey Ptolomeo de las Mauretaniae, *Gerión*, 23: 189-204.

Gozalbes Cravioto, E. 2005b. Los inicios de la investigación española sobre arqueología y arte árabes en Marruecos (1860-1960), *BEspOR*, 41: 225-46.

Gozalbes Cravioto, E. 2008a. Los primeros pasos de la arqueología en el norte de Marruecos. In Bernal Casasola, D., Raissouni, B., Zouak, M. and Parodi, M. (eds.), *En la orilla africana del Círculo del Estrecho. Historiografía y proyectos actuales. Actes del II seminario hispano-marroquí de especialización en arqueología*, Cadiz: Diputación Provincial de Cádiz, Servicio de Publicaciones, 33-61.

Gozalbes Cravioto, E. 2008b. Las prospecciones de Miguel Tarradell en estaciones de superficie del noroeste de Marruecos. In Bernal Casasola, D., Raissouni, B., Zouak, M. and Parodi, M. (eds.), *En la orilla africana del Círculo del Estrecho. Historiografía y*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

proyectos actuales. Actes del II seminario hispano-marroquí de especialización en arqueología, Cadiz: Diputación Provincial de Cádiz, Servicio de Publicaciones, 93-103.

Gozalbes Cravioto, E. 2008c. Los españoles y las antigüedades de Marruecos: de Ali Bey el Abbasi al inicio del protectorado (1800-1936). In Beltrán Fortes, J. and Habibi, M. (eds.), *Historia de la arqueología en el norte de Marruecos durante el período del protectorado y sus referentes en España*, Seville: Universidad Internacional de Andalucía – Universidad de Sevilla, 63-95.

Gozalbes Cravioto, E. 2009. La frontera militar de Tamuda (Mauretania Tingitana). In Morillo, A., Hanel, N. and Martín, E. (eds.), *Limes XX. Estudios sobre la frontera romana. Roman Frontier Studies* (*Gladius* supplement, 13), Madrid: Ediciones Polifemo, 1573-83.

Gozalbes Cravioto, E. 2010. Los orígines del reino de Mauretania (Marruecos), *Polis*, 22: 119-44.

Gozalbes Cravioto, E. 2011a. Iulia Traducta y las colonias de Augusto en el norte de Marruecos. In González, J. and Carlos Saquete, J. (eds.), *Colonias de César y Augusto en la Andalucía romana*, Rome: "L'Erma" di Bretschneider, 249-72.

Gozalbes Cravioto, E. 2011b. África en el imaginario: las exploraciones geográficas del rey Juba II de Mauretania, *StHist*, 29: 153-81.

Gozalbes Cravioto, E. 2012. *Marruecos y el África occidental en la historiografía y arqueología española*, Ceuta: Instituto de Estudios Ceutíes.

Gozalbes Cravioto, E. and Parodi Álvarez, M.J. 2011a. La arqueología en el norte de Marruecos (1900-1945). In Bernal Casasola, D., Raissouni, B., Arcila, M., Youbi Idrisi, M., Ramos, J., Zouak, M., López Sánchez, J.A., Maatouk, M., El Khayari, A., El Moumni, B., Ghottes, M. and Azzariohi, A. (eds.), *Arqueología y turismo en el Círculo del Estrecho. Estrategias para la puesta en valor de los recursos patrimoniales del norte de Marruecos. Actas del III seminario hispano-marroquí (Algeciras, abril de 2011)*, Cadiz: Diputación Provincial de Cádiz, Servicio de Publicaciones, 175-97.

Gozalbes Cravioto, E. and Parodi Álvarez, M.J. 2011b. Miguel Tarradell y la arqueología del norte de Marruecos. In Bernal Casasola, D., Raissouni, B., Arcila, M., Youbi Idrisi, M., Ramos, J., Zouak, M., López Sánchez, J.A., Maatouk, M., El Khayari, A., El Moumni, B., Ghottes, M. and Azzariohi, A. (eds.), *Arqueología y turismo en el Círculo del Estrecho. Estrategias para la puesta en valor de los recursos patrimoniales del norte de Marruecos. Actas del III seminario hispano-marroquí (Algeciras, abril de 2011)*, Cadiz:

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Diputación Provincial de Cádiz, Servicio de Publicaciones, 199-220.

Gozalbes Cravioto, E., Parodi Álvarez, M.J. and Verdugo Santos, J. 2013. Algunas notas sobre arqueología y colonialismo. La zona española del protectorado marroquí, *Revista Onoba*, 1: 261-72.

Grenier, J.-C. 2001. Cléopâtre Séléné reine de Maurétanie : souvenirs d'une princesse. In Hamdoune, C. (ed.), *Ubique amici. Mélanges offerts à Jean-Marie Lassère*, Montpellier: Université Paul-Valéry, 101-16.

Gros, P. 1978. Entablements modillonnaires d'Afrique au II^e^ s. apr. J.-C. (à propos de la corniche des temples du forum de Rougga), *RM*, 85: 459-76.

Gros, P. 2001. *L'architecture romaine du début du III^e^ siècle av. J.-C. à la fin du Haut-Empire, 2. Maisons, palais, villas et tombeaux*, Paris: Éditions Picard.

Gros, P. 2004. Esquisse d'une analyse sémantique des premières séries de chapiteaux corinthiens « normaux » en Gaule Narbonnaise. In Ramallo Asensio, S.F. (ed.), *La decoración arquitectónica en las ciudades romanas de Occidente. Actas del congreso internacional celebrado en Cartagena entre los días 8 y 10 de octubre de 2003*, Murcia: Publicaciones de la Universidad de Murcia, 85-98.

Gros, P. 2011. *L'architecture romaine du début du III^e^ siècle av. J.-C. à la fin du Haut-Empire, 1. Les monuments publics (troisième édition mise à jour)*, Paris: Éditions Picard.

Gros, P. and Torelli, M. 2007. *Storia dell'urbanistica. Il mondo romano*, Rome-Bari: Laterza.

Gutiérrez Behemerid, M.A. 1992. *Capiteles romanos de la península Ibérica*, Valladolid: Universidad de Valladolid.

Gutiérrez Behemerid, M.A. 2003. *La decoración arquitectónica en la Colonia Clunia Sulpicia* (StA, 92), Valladolid: Universidad de Valladolid.

Habibi, M. 1994. À propos du temple H et du temple de Melkart-Héraclès à Lixus. In Mastino, A. and Ruggeri, P. (eds.), *L'Africa Romana. Atti del X convegno di studio (Oristano, 11-13 dicembre 1992)*, Sassari: Gallizzi, 231-41.

Habibi, M. 1995. *Recherches chronologiques sur le site de Lixus* (unpublished PhD Thesis, Université Paris IV).

Hallier, G. 1986. La fortification des villes de Tingitane au second siècle. In *Studien zu den Militärgrenzen Roms III. 13. Internationaler Limeskongress (Aalen, 1983)*, Stuttgart: Konrad Theiss Verlag, 605-24.

Hallier, G. 1989. Remarques sur les métrologies de l'Afrique antique, *BAParis*, 20-21: 142.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Hallier, G. 1994. *s.v.* Coudée. In Camps, G. (ed.), *Encyclopédie berbère*, 14, Aix-en-Provence: Édisud, 2111-21.

Hallier, G. 2003. Un amphithéâtre militaire à Lixus ?. In Khanoussi, M. (ed.), *L'Afrique du Nord antique et médiévale : Protohistoire, les cités de l'Afrique du Nord, fouilles et prospections récentes. VIII^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Tabarka, 8-13 mai 2000)*, Tunis: Ministère de la Culture de la Jeunesse et des Loisirs, 351-80.

Hamdoune, C. 1993. Ptolémée et la localisation des tribus de Tingitane, *MEFRA*, 105: 241-89.

Hamdoune, C. 1994. Note sur le statut colonial de Lixus et de Tanger, *AntAfr*, 30: 81-7.

Hamdoune, C. 1995. De Pline à Ptolémée : permanences et ruptures chez les peuples indigènes de Murétanie Tingitane. In Trousset, P. (ed.), *L'Afrique du Nord antique et médiévale : Monuments funéraires, institutions autochtones. VI^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Pau, octobre 1993)*, Paris: Éditions du CTHS, 293-308.

Hamdoune, C. 2002. Les relations entre la Maurétanie occidentale et la Maurétanie orientale. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Lo spazio marittimo del Mediterraneo occidentale: geografia storica ed economia. Atti del XIV convegno di studio (Sassari, 7-10 dicembre 2000)*, Rome: Carocci, 1425-43.

Hamdoune, C. 2009. Les macella dans les cités de l'Afrique romaine, *AntAfr*, 45: 27-36.

Hamdoune, C. 2011. La Tingitane : spécificités et identité. In Briand-Ponsart, C. and Modéran, Y. (eds.), *Provinces et identités provinciales dans l'Afrique romaine*, Caen: Publications du CRAHM, 43-62.

Hamdoune, C. 2014. Les gentes dans l'espace provincial des Maurétanies. In Briand-Ponsart, C. (ed.), *Centres du pouvoir et organisation de l'espace. Actes du X^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord préhistorique, antique et médiévale (Caen, 25-28 mai 2009)*, Caen: Presses universitaires de Caen, 419-42.

Hansali, M. and Ammar, H. 2010. Notes sur les huileries de Sala. In Milanese, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. I luoghi e le forme dei mestieri e della produzione nelle province africane. Atti del XVIII convegno di studio (Olbia, 11-14 dicembre 2008)*, Rome: Carocci, 547-55.

Harmand, L. 1966. Observations sur l'inscription de Sala. In Chevallier, R. (ed.), *Mélanges*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

d'archéologie et d'histoire offerts à André Piganiol, Paris: Sevpen, 1211-20.

Harrazi, N. 1982. *Chapiteaux de la Grande Mosquée de Kairouan* (Bibliothèque Archéologique, 4), Tunis: Institut National d'Archéologie et d'Art.

Hassab, S. 2012. Babba Iulia Campestris : l'énigme de la troisième colonie augustéenne. In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio (Sassari, 16-19 dicembre 2010)*, Rome: Carocci, 851-62.

Hassab, S. 2014. La Maurétanie Tingitane de Dioclétien à Justinien : l'exemple de Ceuta. In Briand-Ponsart, C. (ed.), *Centres du pouvoir et organisation de l'espace. Actes du X^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord préhistorique, antique et médiévale (Caen, 25-28 mai 2009)*, Caen: Presses universitaires de Caen, 315-30.

Hassar-Benslimane, J.H. 1976. L'archéologie marocaine de 1973 à 1975, *BAMaroc*, 10: 243-52.

Hassar-Benslimane, J.H. 2001. La recherche archéologique au Maroc durant deux décennies. In *Actes des 1^ères journées nationales d'archéologie et du patrimoine, 2. Archéologie préislamique (Rabat, 1-4 juillet 1998)*, Rabat: Société Marocaine d'Archéologie et du Patrimoine, 7-12.

Heilmeyer, W.D. 1970. *Korinthische Normalkapitelle. Studien zur Geschichte der römischen Architekturdekoration* (*RM* supplement, 16), Heidelberg: Mitteilungen des Deutschen Archäologischen Instituts.

Herdt, G. and Wilson Jones, M. 2008. Scanning ancient building components, *Photogrammetrie-Fernerkundung-Geoinformation*, 4: 245-51.

Herrmann, J.J. Jr. 1988. *The Ionic Capital in Late Antique Rome* (Archaeologica, 56), Rome: Giorgio Bretschneider.

Hingley, R. 2005. *Globalizing Roman Culture: Unity, Diversity and Empire*, New York-London: Routledge.

Hingley, R. 2010. Cultural diversity and unity: Empire and Rome. In Hales, S. and Hodos, T. (eds.), *Material Culture and Social Identities in the Ancient World*, Cambridge: Cambridge University Press, 54-75.

Hingley, R. 2015. Post-colonial and global Rome: the genealogy of empire. In Pitts, M. and Versluys, M.J. (eds.), *Globalisation and the Roman World. World History, Connectivity and*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Material Culture, Cambridge: Cambridge University Press, 32-46.

Hobson, M. 2011. A. Akerraz and E. Papi (eds.), Sidi Ali ben Ahmed – Thamusida 1. I contesti, and A. Akerraz, E. Papi, E. Gliozzo and I. Turbanti Memmi (eds.), Sidi Ali ben Ahmed – Thamusida 2. L'archeometria (book review), *LibSt*, 42: 157-9.

Hobson, M. 2015. *The North African Boom. Evaluating Economic Growth in the Roman Province of Africa Proconsularis (146 B.C. – A.D. 439)* (*JRA* supplement, 100), Portsmouth, RI: Journal of Roman Archaeology.

Hodos, T. 2010. Local and global perspectives in the study of social and cultural identities. In Hales, S. and Hodos, T. (eds.), *Material Culture and Social Identities in the Ancient World*, Cambridge: Cambridge University Press, 3-31.

Hoffman, G.L. 2014. Being Roman in the provinces: experiences of empire and investigations of identities. In Brody, L.R. and Hoffman, G.L. (eds.), *Roman in the Provinces. Art on the Periphery of Empire*, Chestnut Hill: McMullen Museum of Art, Boston College, 13-33.

IAM = Euzennat, M. and Marion, J. 1982. *Inscriptions antiques du Maroc, 2. Inscriptions latines* (published by J. Gascou) (Études d'*AntAfr*), Paris: Éditions du CNRS.

IAM Suppl. = Labory, N. 2003. *Inscriptions antiques du Maroc, 2. Inscriptions latines. Supplément* (Études d'*AntAfr*), Paris: Éditions du CNRS.

Ichkhakh, A. 2006. Nouvelles données sur l'évolution urbaine de Volubilis. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 2201-18.

Ioppolo, G. 1967. La tavola delle unità di misura nel mercato augusteo di Leptis Magna, *QuadALibia*, 5: 89-98.

IRT = Reynolds, J.M. and Ward-Perkins, J.B. 1952. *The Inscriptions of Roman Tripolitania*, Rome: British School at Rome.

Jacques, F. and Scheid, J. 2008. *Roma e il suo impero: istituzioni, economia, religione* (translation by G. Viano Marogna), Rome-Bari: Laterza.

Jéquier, G. 1924. *Manuel d'archéologie égyptienne : Les éléments de l'architecture*, Paris: Picard Éditeur.

Jodin, A. 1957. Note préliminaire sur l'établissement pré-romain de Mogador (campagnes

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

1956-1957), *BAMaroc*, 2: 9-40.

Jodin, A. 1964. M. Tarradell, Marruecos púnico (book review), *BAMaroc*, 5: 394-6.

Jodin, A. 1966a. *Mogador. Comptoir phénicien du Maroc atlantique* (Études et travaux d'archéologie marocaine, 2), Tangier: Éditions Marocaines et Internationales.

Jodin, A. 1966b. La tradition hellénistique dans l'urbanisme de Volubilis, *BAMaroc*, 6: 511-6.

Jodin, A. 1967. *Les établissements du roi Juba II aux îles purpuraires (Mogador)* (Études et travaux d'archéologie marocaine, 3), Tangier: Éditions Marocaines et Internationales.

Jodin, A. 1968. L'enceinte hellénistique de Volubilis (Maroc), *BAParis*, 1-2: 194-221.

Jodin, A. 1968-72. Remarques sur la pétrographie de Volubilis, *BAMaroc*, 8: 127-77.

Jodin, A. 1975. *Recherches sur la métrologie du Maroc punique et hellénistique*, Tangier: Éditions Marocaines et Internationales.

Jodin, A. 1977. L'ordre toscan dans l'architecture du Maroc antique. In *Les pays de l'Ouest. Études archéologiques. Actes du 97e congrès National des Sociétés Savantes, section d'archéologie et d'histoire de l'art (Nantes, 1972)*, Paris: Bibliothèque Nationale, 301-21.

Jodin, A. 1987. *Volubilis regia Iubae. Contribution à l'étude des civilisations du Maroc antique préclaudien*, Paris: Éditions du CNRS.

Jouffroy, H. 1986. *La construction publique en Italie et dans l'Afrique romaine* (Groupe de recherche d'histoire romaine de l'Université des Sciences Humaines de Strasbourg, études et travaux, 2), Strasbourg: AECR.

Kampen, N. 2015. Roman art and architecture in the provinces and beyond the Roman world. In Marconi, C. (ed.), *The Oxford Handbook of Greek and Roman Art and Architecture*, Oxford: Oxford University Press, 395-413.

Kautzsch, R. 1936. *Kapitellstudien. Beiträge zu einer Geschichte des spätantiken Kapitells im Osten vom vierten bis ins siebente Jahrhundert*, Berlin: De Gruyter & Co.

Kenrick, Ph. 2009. *Libya Archaeological Guides. Tripolitania*, London: Silphium Press.

Kenrick, Ph. 2013. *Libya Archaeological Guides. Cyrenaica*, London: Silphium Press.

Laamiri-Habibi, L. 2001. La place de la statuaire en Maurétanie Tingitane. In *Actes des 1ères journées nationales d'archéologie et du patrimoine, 2. Archéologie préislamique (Rabat, 1-4 juillet 1998)*, Rabat: Société Marocaine d'Archéologie et du Patrimoine, 85-91.

Landwehr, C. 2007. Les portraits de Juba II, roi de Maurétanie, et de Ptolémée, son fils et successeur, *RA* (new series): 65-110.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

La Rocca, E. 1998. Il foro di Traiano ed i fori tripartiti, *RM*, 105: 149-73.

Laronde, A. 1987. *Cyrene et la Libye hellénistique. Libikai historiai : De l'époque républicaine au principat d'Auguste* (Études d'*AntAfr*), Paris: Éditions du CNRS.

Lassère, J.-M. 1977. *Ubique populus. Peuplement et mouvements de population dans l'Afrique romaine de la chute de Carthage à la fin de la dynastie des Sévères (146 a.C. – 235 p.C.)*, Paris: Éditions du CNRS.

Lassère, J.-M. 2015. *Africa, quasi Roma (256 av. J.-C. – 711 apr. J.-C.)* (Études d'*AntAfr*), Paris: Éditions du CNRS.

Lassère, J.-M. and Hallier, G. 1989. Volubilis préclaudien, *JRA*, 2: 188-90.

Laubenheimer-Leenhardt, F. 1968-72. Bibliographie d'archéologie marocaine 1961-1970, *BAMaroc*, 8: 244-77.

Lauter-Bufe, H. 1987. *Die Geschichte des sikeliotisch-korinthischen Kapitells: der sogenannte italisch-republikanische Typus*, Mainz: Philipp von Zabern.

Lazzarini, L. 2011. In limine imperii: i marmi colorati di Sala-Chellah (Rabat-Marocco). In Brandt, O. and Pergola, P. (eds.), *Marmoribus vestita. Miscellanea in onore di Francesco Guidobaldi, 2*, Città del Vaticano: Pontificio Istituto di Archeologia Cristiana, 835-48.

Le Bohec, Y. 1989. Onomastique et societé à Volubilis. In Mastino, A. (ed.), *L'Africa Romana. Atti del VI convegno di studio (Sassari, 16-18 dicembre 1988)*, Sassari: Gallizzi, 339-56.

Le Bohec, Y. 2013. *Histoire de l'Afrique du Nord. 146 avant J.-C. – 439 après J.-C. (deuxième édition revue et augmentée)*, Paris: Éditions Picard.

Le Glay, M., Voisin, J-L. and Le Bohec, Y. 2009. *A History of Rome* (translation by A. Nevill), Oxford: Wiley-Blackwell.

Lenoir, E. 1985. Volubilis du bas-empire à l'époque islamique, *BAParis*, 19: 425-8.

Lenoir, E. 1986. Traditions hellénistiques et techniques romaines dans les enceintes urbaines du Maroc. In Leriche, P. and Tréziny, H. (eds.), *La fortification dans l'historie du mond grec. Actes du colloque international : La fortification et sa place dans l'histoire politique, culturelle et sociale du monde grec (Valbonne, décembre 1982)*, Paris: Éditions du CNRS, 337-44.

Lenoir, E. 1991. Thermes romains de Maurétanie Tingitane. In *Les thermes romains : Actes de la table ronde organisée per l'École Française de Rome (Rome, 11-12 novembre 1988)* (CEFR, 142), Rome: École Française de Rome, 151-60.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Lenoir, E. 1992. Enceintes urbaines et thermes de Lixus. In *Lixus : Actes du colloque organisé par l'Institut des sciences de l'archéologie et du patrimoine de Rabat avec le concours de l'École Française de Rome (Larache, 8-11 novembre 1989)* (CEFR, 166), Rome: École Française de Rome, 289-98.

Lenoir, E. 1996. Banasa : un exemple de prospection géophysique. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Atti dell'XI convegno di studio (Cartagine, 15-18 dicembre 1994)*, Ozieri: Il Torchietto, 1067-72.

Lenoir, E. 2000. Les pionniers de la recherche dans le Maroc central. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 939-57.

Lenoir, E. 2003. Monuments du culte chrétien en Maurétanie Tingitane, *AntTard*, 11: 167-79.

Lenoir, E. 2005. La ville romaine de Zilil du I^{er} siècle av. J.-C. au IV^{e} siècle ap. J.-C., *Pallas*, 68: 65-76.

Lenoir, E. 2009. Documents sur le contrôle et la distribution de l'eau dans le Maroc antique. In *Contrôle et distribution de l'eau dans le Maghreb antique et médiéval. Actes du colloque organisé par l'Institut national du patrimoine de Tunisie et l'École Française de Rome (Tunis, 22-25 mars 2002)* (CEFR, 426), Rome: École Française de Rome, 41-83.

Lenoir, M. 1989. Histoire d'un massacre. À propos d'IAMlat. 448 et des bona vacantia de Volubilis. In Mastino, A. (ed.), *L'Africa Romana. Atti del VI convegno di studio (Sassari, 16-18 dicembre 1988)*, Sassari: Gallizzi, 89-102.

Lenoir, M. 1991. Le camp de Tamuda et la chronologie de quelques camps du Maroc. In *Histoire et archéologie de l'Afrique du Nord. Actes du IV^{e} colloque international réuni dans le cadre du 113^{e} congrès national des Sociétés savantes (Strasbourg, 5-9 avril 1988). Tome II : L'armée et les affaires militaires*, Paris: Éditions du CTHS, 355-65.

Lenoir, M. 1992. Lixus à l'époque romaine. In *Lixus : Actes du colloque organisé par l'Institut des sciences de l'archéologie et du patrimoine de Rabat avec le concours de l'École Française de Rome (Larache, 8-11 novembre 1989)* (CEFR, 166), Rome: École Française de Rome, 271-87.

Lenoir, M. 1993. Ad Mercuri templum. Voies et occupation antiques du nord du Maroc, *RM*, 100: 507-20.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Lenoir, M. 1996. Aspects de la transmission du savoir technique : les huileries de Volubilis. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Atti dell'XI convegno di studio (Cartagine, 15-18 dicembre 1994)*, Ozieri: Il Torchietto, 597-605.

Lenoir, M. 2001. La piste égyptienne de Marc-Antoine, la cagnotte dilapidée et l'empereur psychopathe. L'élimination de Ptolémée, roi de Maurétanie. In Hamdoune, C. (ed.), *Ubique amici. Mélanges offerts à Jean-Marie Lassère*, Montpellier: Université Paul-Valéry, 117-27.

Lenoir, M. and Lenoir, E. 1997. *s.v.* Zilil. In *LEAA, II supplemento (1971-1994)*, Rome: Istituto dell'Enciclopedia Italiana, 1117-8.

Leone, A. 2007. *Changing Townscapes in North Africa from Late Antiquity to the Arab Conquest*, Bari: Edipuglia.

Leone, A. 2013. *The End of the Pagan City: Religion, Economy, and Urbanism in Late Antique North Africa*, Oxford: Oxford University Press.

Leveau, Ph. 1983. L'urbanisme des princes clients d'Auguste : l'exemple de Caesarea de Maurétanie. In *Architecture et société de l'archaïsme grec à la fin de la république romaine. Actes du colloque international organisé par le Centre National de la Recherche Scientifique et l'École Française de Rome (Rome, 2-4 décembre 1980)* (CEFR, 66), Rome: École Française de Rome, 349-54.

Leveau, Ph. 1984. *Caesarea de Maurétanie. Une ville romaine et ses campagnes* (CEFR, 70), Rome: École Française de Rome.

Leveau, Ph. and Paillet, J.L. 1976. *L'alimentation en eau de Caesarea de Maurétanie et l'aqueduc de Cherchel*, Paris: L'Harmattan.

Lézine, A. 1955. Chapiteaux toscans trouvés en Tunisie, *Karthago*, 6: 12-29.

Lézine, A. 1960. *Architecture punique. Recueil de documents* (Publications de l'Université de Tunis, Faculté des Lettres, 1er série, Archéologie, Histoire, 5), Tunis: Presses Universitaires de France.

Lézine, A. 1961. *Architecture romaine d'Afrique. Recherches et mises au point* (Publications de l'Université de Tunis, Faculté des Lettres, 1er série, Archéologie, Histoire, 9), Tunis: Presses Universitaires de France.

Lézine, A. 1968. *Carthage. Utique. Études d'architecture et d'urbanisme*, Paris: Éditions du CNRS.

Limane, H. and Rebuffat, R. 1992. Les confins sud de la présence romaine en Tingitane

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

dans la région de Volubilis. In *Spectacles, vie portuaire, religions. L'Afrique du Nord antique et médiévale. V^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Avignon, 9-13 avril 1990)*, Paris: Éditions du CTHS, 459-80.

Limane, H. and Fentress, E. 2006. Nouvelles données archéologiques sur l'occupation islamique à Volubilis. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 2219-40.

Lipps, J. 2011. *Die Basilica Aemilia am Forum Romanum. Der kaiserzeitliche Bau und seine Ornamentik* (Palilia, 24), Wiesbaden: Dr. Ludwig Reichert Verlag.

Livadiotti, M. and Rocco, G. 2005. Il tempio di Roma e Augusto. In Di Vita, A. and Livadiotti, M. (eds.), *I tre templi del lato nord-ovest del foro vecchio a Leptis Magna* (Monografie di archeologia libica, 12), Rome: "L'Erma" di Bretschneider, 165-308.

Lixus I = Aranegui Gascó, C. (ed.) 2001. *Lixus. Colonia fenicia y ciudad púnico-mauritana. Anotaciones sobre su ocupación medieval* (*Saguntum* supplement, 4), València: Universitat de València.

Lixus II = Aranegui Gascó, C. (ed.) 2005. *Lixus, 2. Ladera sur: excavaciones arqueológicas morroco-españolas en la colonia fenicia, campañas 2000-2003* (*Saguntum* supplement, 6), València: Universitat de València.

Lixus III = Aranegui Gascó, C. and Hassini, H. (eds.) 2010. *Lixus, 3. Área suroeste del sector monumental (cámaras Montalbán) 2005-2009* (*Saguntum* supplement, 8), València: Universitat de València.

López Pardo, F. 1991. Los problemas militares y la inclusión de Mauritania Tingitana en la Diocesis Hispaniarum. In *Histoire et archéologie de l'Afrique du Nord. Actes du IV^e colloque international réuni dans le cadre du 113^e congrès national des Sociétés savantes (Strasbourg, 5-9 avril 1988). Tome II : L'armée et les affaires militaires*, Paris: Éditions du CTHS, 445-53.

López Pardo, F. 1992. Mogador, "factoria extrema" y la cuestión del comercio fenicio en la costa Atlántica Africana. In *Spectacles, vie portuaire, religions. L'Afrique du Nord antique et médiévale. V^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Avignon, 9-13 avril 1990)*, Paris: Éditions du CTHS, 277-96.

Luquet, A. 1964a. La céramique préromaine de Banasa, *BAMaroc*, 5: 117-44.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Luquet, A. 1964b. Contribution à l'Atlas archéologique du Maroc : région de Volubilis, *BAMaroc*, 5: 291-300.

Luquet, A. 1964c. La restauration du capitole, *BAMaroc*, 5: 351-6.

Luquet, A. 1966. Contribution à l'Atlas archéologique du Maroc : région du Rharb, *BAMaroc*, 6: 365-75.

Luquet, A. 1967. La basilique judiciaire de Volubilis, *BAMaroc*, 7: 407-45.

Mackie, N.K. 1983. Augustan colonies in Mauretania, *Historia*, 32: 332-58.

Magioncalda, A. 1989. I procuratori-governatori delle due Mauretaniae: un profilo (titolatura e carriere). In Christol, M. and Magioncalda, A. (eds.), *Studi sui procuratori delle due Mauretaniae*, Sassari: Il Torchietto, 9-154.

Magioncalda, A. 2006. I procuratori-governatori delle due Mauretaniae: aggiornamenti (1989-2004) e nuove ipotesi. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 1737-57.

Mahler, K.-U. 2006. *Die Architekturdekoration der frühen Kaiserzeit in Lepcis Magna* (*LibyaAnt* supplement, 8), Worms: Wernersche Verlagsgesellschaft.

Majdoub, M. 1994. Nouvelles données sur la datation du temple C à Volubilis. In Mastino, A. and Ruggeri, P. (eds.), *L'Africa Romana. Atti del X convegno di studio (Oristano, 11-13 dicembre 1992)*, Sassari: Gallizzi, 283-7.

Majdoub, M. 2000. Octavius et la Maurétanie. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 1725-37.

Majdoub, M. 2006. Note sur quelques rois du Maroc antique. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 259-68.

Makdoun, M. 1994. Encore sur la chronologie du quartier nord-est de Volubilis. In Mastino, A. and Ruggeri, P. (eds.), *L'Africa Romana. Atti del X convegno di studio (Oristano, 11-13 dicembre 1992)*, Sassari: Gallizzi, 263-81.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Makdoun, M. 1996. Nouvelles recherches stratigraphiques sur l'aqueduc de Volubilis. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Atti dell'XI convegno di studio (Cartagine, 15-18 dicembre 1994)*, Ozieri: Il Torchietto, 763-70.

Makdoun, M. 1999. Nouvelles recherches sur le quartier nord-est de Volubilis, *BAParis*, 25: 41-51.

Mar, R. and Pensabene, P. 2010. Finanziamento dell'edilizia pubblica e calcolo dei costi dei materiali lapidei: il caso del foro superiore di Tarraco. In Camporeale, S., Dessales, H. and Pizzo, A. (eds.), *Arqueología de la construcción, 2. Los procesos constructivos en el mundo romano: Italia y provincias orientales (Congreso, Certosa di Pontignano, Siena, 13-15 de Noviembre de 2008)* (*AEspA* supplement, 57), Mérida: Archivo Español de Arqueología, 509-37.

Marion, J. 1950. Note sur le peuplement de Sala à l'époque romaine, *Hespéris*, 37: 399-428.

Marion, J. 1960a. La liaison terrestre entre la Tingitane et la Césarienne, *BAMaroc*, 4: 442-7.

Marion, J. 1960b. Thamusida : brique estampillée, *BAMaroc*, 4: 480.

Marion, J. 1960c. Bibliographie d'archéologie marocaine 1958-1960, *BAMaroc*, 4: 583-600.

Marion, J. 1972. Les monnaies de Shemesh et des villes autonomes de Maurétanie Tingitane au musée Louis Chatelain à Rabat, *AntAfr*, 6: 59-127.

Márquez, C. 1993. *Capiteles romanos de Corduba colonia Patricia*, Cordoba: Publicaciones del Monte de Piedad y Caja de Ahorros de Cordoba.

Márquez, C. 1994. Notas sobre la decoración arquitectonica del Africa romana y de la Bética en el siglo III. In Mastino, A. and Ruggeri, P. (eds.), *L'Africa Romana. Atti del X convegno di studio (Oristano, 11-13 dicembre 1992)*, Sassari: Gallizzi, 1279-88.

Masturzo, N. 2003. Le città della Tripolitania fra continuità ed innovazione. I fori di Leptis Magna e Sabratha, *MEFRA*, 115: 705-53.

Masturzo, N. 2005. Il tempio occidentale – tempio di "Liber Pater". In Di Vita, A. and Livadiotti, M. (eds.), *I tre templi del lato nord-ovest del foro vecchio a Leptis Magna* (Monografie di archeologia libica, 12), Rome: "L'Erma" di Bretschneider, 35-163.

Mattingly, D.J. 1992. War and peace in Roman Africa: observations on models of state-tribe interaction. In Ferguson, R.B. and Whitehead, N.L. (eds.), *War in the Tribal Zone. Expanding States and Indigenous Warfare*, Oxford: James Currey, 31-60.

Mattingly, D.J. 1995. *Tripolitania*, London: Batsford.

Mattingly, D.J. 1999. The art of the unexpected: Ghirza in the Libyan pre-desert. In Lancel,

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

S. (ed.), *Numismatique, langues, écritures et arts du livre, spécificité des arts figurés. Actes du VII^e colloque international sur l'histoire et l'archéologie de l'Afrique du Nord (Nice, 21 au 31 octobre 1996)*, Paris: Éditions du CTHS, 383-405.

Mattingly, D.J. 2003. Family values: art and power at Ghirza in the Libyan pre-desert. In Scott, S. and Webster, J. (eds.), *Roman Imperialism and Provincial Art*, Cambridge: Cambridge University Press, 153-70.

Mattingly, D.J. 2004. Being Roman: expressing identity in a provincial setting, *JRA*, 17: 5-25.

Mattingly, D.J. 2007. *An Imperial Possession. Britain in the Roman Empire, 54 BC – AD 409*, London: Penguin Books.

Mattingly, D.J. 2008. Urbanism, epigraphy and identity in the towns of Britain under Roman rule. In Shellenberg, H.M., Hirschmann, V.E. and Krieckhaus, A. (eds.), *A Roman Miscellany. Essays in Honour of Anthony R. Birley on his Seventieth Birthday*, Gdańsk: Akanthina, 53-71.

Mattingly, D.J. 2010. Cultural crossovers: global and local identities in the Classical world. In Hales, S. and Hodos, T. (eds.), *Material Culture and Social Identities in the Ancient World*, Cambridge: Cambridge University Press, 283-95.

Mattingly, D.J. 2011. *Imperialism, Power, and Identity. Experiencing the Roman Empire*, Princeton: Princeton University Press.

Mattingly, D.J. 2014. Identities in the Roman world: discrepancy, heterogeneity, hybridity, and plurality. In Brody, L.R. and Hoffman, G.L. (eds.), *Roman in the Provinces. Art on the Periphery of Empire*, Chestnut Hill: McMullen Museum of Art, Boston College, 35-59.

Mazard, J. 1955. *Corpus Nummorum Numidiae Mauretaniaeque*, Paris: Arts et Métiers Graphiques.

McKenzie, J. 2005. *The Architecture of Petra (Reprint)* (British Academy Monographs in Archaeology, 1), Oxford: Oxbow Books.

McKenzie, J. 2010. *The Architecture of Alexandria and Egypt, c. 300 BC to AD 700*, New Haven-London: Yale University Press.

Merrills, A. 2004. Vandals, Romans and Berbers: understanding Late Antique North Africa. In Merrills, A. (ed.), *Vandals, Romans and Berbers. New Perspectives on Late Antique North Africa*, Aldershot: Ashgate, 3-28.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Merrills, A. and Miles, R. 2010. *The Vandals*, Oxford: Wiley-Blackwell.

Mesolella, G. 2012. *La decorazione architettonica di Minturnae Formiae Tarracina. L'età augustea e giulio-claudia* (Supplementi e monografie della rivista *ArchCl*, 9), Rome: "L'Erma" di Bretschneider.

Michaux-Bellaire, E.-L. 1921. *Tanger et sa zone* (Villes et tribus du Maroc, 7), Paris: Éditions Ernst Leroux.

Michaux-Bellaire, E.-L. and Buchet, G. 1908. Fouilles dans la nécropole romaine de Tanger, *Revue du Monde Musulman*, 6: 419-32.

Migliario, E. 1999. Gentes foederatae. Per una ricostruzione dei rapporti romano-berberi in Mauretania Tingitana, *RendLinc*, 9.10, 3: 427-61.

Milella, M. 1989. La decorazione architettonica di Mactaris. In Mastino, A. (ed.), *L'Africa Romana. Atti del VI convegno di studio (Sassari, 16-18 dicembre 1988)*, Sassari: Editrice Democratica Sarda, 417-29.

Minguzzi, S. 2000. Catalogo delle tipologie di capitelli e plutei. In Favaretto, I., Vio, E., Minguzzi, S. and Da Villa Urbani, M. (eds.), *Marmi della Basilica di San Marco: capitelli, plutei, rivestimenti, arredi*, Milan: Rizzoli, 123-69.

Modéran, Y. 2014. *Les vandales et l'empire romain* (published by M.-Y. Perrin), Arles: Éditions Errance.

Montalbán, C.L. 1933. *Mapa arqueológico de la zona del protectorado de España en Marruecos, con las rutas terrestres, marítimas y los yacimientos paleolíticos, neolíticos, fenicios, cartagineses y romanos*, Madrid: Junta Central de Monumentos Históricos y Artísticos.

Morachiello, P. and Fontana, V. 2009. *L'architettura del mondo romano*, Rome-Bari: Laterza.

Morel, J.-P. 2004. Aux confins du monde romain : les nécropoles de Sala (Maroc), *JRA*, 17: 641-4.

Morel, J.-P. 2006. Notes sur les relations économiques et culturelles entre le Maroc et l'Espagne dans l'antiquité. In Akerraz, A., Ruggeri, P., Siraj, A. and Vismara, C. (eds.), *L'Africa Romana. Mobilità delle persone e dei popoli, dinamiche migratorie, emigrazioni ed immigrazioni nelle province occidentali dell'Impero romano. Atti del XVI convegno di studio (Rabat, 15-19 dicembre 2004)*, Rome: Carocci, 1327-36.

Morestin, H. 1980. *Le temple B de Volubilis* (Études d'*AntAfr*), Paris: Éditions du CNRS.

Mugnai, N. 2011. Due appliques militari iscritte, conservate in una collezione privata, e nuove osservazioni su alcuni esemplari da Thamusida (Mauretania Tingitana), *ZPE*,

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

179: 299-303.

Mugnai, N. 2013. C. Aranegui and H. Hassini (eds), Lixus-3. Área suroeste del sector monumental [cámaras Montalbán] 2005-2009 (book review), *LibSt*, 44: 166-9.

Mugnai, N., Bigi, L., Bernardoni, E., Fanelli, R. and Perotti, M. 2013. Metalli. In Akerraz, A., Camporeale, S. and Papi, E. (eds.), *Sidi Ali ben Ahmed – Thamusida, 3. I materiali*, Rome: Quasar, 369-444.

Netzer, E. 2003. *Nabatäische Architektur. Insbesondere Gräber und Tempel*, Mainz: Philipp von Zabern.

Neudecker, R. 2015. Buildings, images, and rituals in the Roman world. In Marconi, C. (ed.), *The Oxford Handbook of Greek and Roman Art and Architecture*, Oxford: Oxford University Press, 352-73.

Nicols, J. 2013. *Civic Patronage in the Roman Empire* (*Mnemosyne* supplement, 365), Leiden: Brill.

Niemeyer, H.G. 1992. Lixus : fondation de la première expansion phénicienne, vue de Carthage. In *Lixus : Actes du colloque organisé par l'Institut des sciences de l'archéologie et du patrimoine de Rabat avec le concours de l'École Française de Rome (Larache, 8-11 novembre 1989)* (CEFR, 166), Rome: École Française de Rome, 45-57.

O'Farrell, J. 1941. Note sur les chapiteaux de Volubilis, *Publications du Service des Antiquités du Maroc*, 6: 99-111.

Origlia, F., Gliozzo, E., Meccheri, M., Spangenberg, J.E., Turbanti Memmi, I. and Papi, E. 2011. Mineralogical, petrographic and geochemical characterisation of white and coloured Iberian marbles in the context of the provenancing of some artefacts from Thamusida (Kenitra, Morocco), *European Journal of Mineralogy*, 23: 857-69.

Panetier, J.-L. 2002. *Volubilis : Une cité du Maroc antique*, Paris: Maissoneuve et Larose.

Papi, E. 2002. Mauretania Tingitana in epoca tardo-antica: great expectations, *JRA*, 15: 703-6.

Papi, E. 2003a. Lixus: Colonia fenicia y ciudad púnico-mauritana. Apuntes sobre su ocupación medieval. Memoria de las excavaciones arqueólogicas realizadas por el equipo Hispano-Marroquí en la ladera de Lixus (Larache) entre 1995 y 1999 (book review), *AJA*, 107: 691-3.

Papi, E. 2003b. Diploma militare da Thamusida (Mauretania Tingitana): 31 dicembre 133/134, *ZPE*, 142: 257-66.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Papi, E. 2004. Diploma militare da Thamusida (Mauretania Tingitana): 103/104, *ZPE*, 146: 255-8.

Papi, E. 2004-05. Gli scavi di Dchar Jedid (Marocco) in un album di César Luis de Montalbán, *AntAfr*, 40-41: 331-43.

Papi, E. 2006. Archeologia marocchina in Marocco, *JRA*, 19: 540-3.

Papi, E. 2010. La trinità della Tingitana: olio, vino e salse di pesce, *JRA*, 23: 689-92.

Papi, E. 2013. Châteaux en Espagne : Lixus 3 et le palais de Juba II, *JRA*, 26: 800-7.

Papi, E. 2014. Punic Mauretania?. In Quinn, J.C. and Vella, N.C. (eds.), *The Punic Mediterranean. Identities and Identification from Phoenician Settlements to Roman Rule*, Cambridge: Cambridge University Press, 202-18.

Papi, E. and Vismara, C. (eds.) 2002. *Paesaggi antichi del Marocco. Ricerche archeologiche italo-marocchine, Catalogue de l'exposition (Rabat, mai 2002)*, Rome: Quasar.

Papi, E. and Martorella, F. 2007. Il grano della Tingitana. In Papi, E. (ed.), *Supplying Rome and the Empire. The Proceedings of an International Seminar held at Siena-Certosa di Pontignano on May 2-4, 2004 on Rome, the Provinces, Production and Distribution* (*JRA* supplement, 69), Portsmouth, RI: Journal of Roman Archaeology, 85-96.

Papi, E. and Papini, M. 2013. Marmi. In Akerraz, A., Camporeale, S. and Papi, E. (eds.) 2013. *Sidi Ali ben Ahmed – Thamusida, 3. I materiali*, Rome: Quasar, 358-64.

Peña Jurado, A. 2010. *Estudio de la decoración arquitectónica romana y análisis del reaprovechamiento de material en la Mezquita Aljama de Córdoba*, Cordoba: Servicio de Publicaciones de la Universidad de Córdoba.

Pensabene, P. 1972. Considerazioni sul trasporto di manufatti marmorei in età imperiale a Roma e in altri centri occidentali, *DArch*, 6: 317-62.

Pensabene, P. 1982a. *Les chapiteaux de Cherchel. Étude de la décoration architectonique* (*BAAlger* supplement, 3), Alger: Bulletin d'Archéologie Algérienne.

Pensabene, P. 1982b. La decorazione architettonica di Cherchel: cornici, architravi, soffitti, basi e pilastri. In *150-Jahr-Feier Deutsches Archäologisches Institut Rom. Ansprachen und Vorträge (4.-7. Dezember 1979)* (*RM* supplement, 25), Mainz: Verlag Philipp von Zabern, 116-69.

Pensabene, P. 1984. *Tempio di Saturno: architettura e decorazione* (Lavori e Studi di Archeologia pubblicati dalla Soprintendenza Archeologica di Roma, 5), Rome: De Luca.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Pensabene, P. 1986. La decorazione architettonica, l'impiego del marmo e l'importazione di manufatti orientali a Roma, in Italia e in Africa (II-VI d.C.). In Giardina, A. (ed.), *Società romana e impero tardoantico, 3. Le merci, gli insediamenti*, Rome-Bari: Laterza, 285-429.

Pensabene, P. 1989. Architettura e decorazione nell'Africa romana: osservazioni. In Mastino, A. (ed.), *L'Africa Romana. Atti del VI convegno di studio (Sassari, 16-18 dicembre 1988)*, Sassari: Editrice Democratica Sarda, 431-58.

Pensabene, P. 1990. Il tempio di Saturno a Dougga e tradizioni architettoniche d'origine punica. In Mastino, A. (ed.), *L'Africa Romana. Atti del VII convegno di studio (Sassari, 15-17 dicembre 1989)*, Sassari: Gallizzi, 251-93.

Pensabene, P. 1991. Riflessi sull'architettura dei cambiamenti socio-economici del tardo II e III secolo in Tripolitania e nella Proconsolare. In Mastino, A. (ed.), *L'Africa Romana. Atti dell'VIII convegno di studio (Cagliari, 14-16 dicembre 1990)*, Sassari: Gallizzi, 447-77.

Pensabene, P. 1992. Il tempio della Gens Septimia a Cuicul (Gemila). In Mastino, A. (ed.), *L'Africa Romana. Atti del IX convegno di studio (Nuoro, 13-15 dicembre 1991)*, Sassari: Gallizzi, 771-802.

Pensabene, P. 1993. *Elementi architettonici di Alessandria e di altri siti egiziani* (Repertorio d'arte dell'Egitto greco-romano, Serie C, 3), Rome: "L'Erma" di Bretschneider.

Pensabene, P. 1994. *Le vie del marmo. I blocchi di cava di Roma e di Ostia: il fenomeno del marmo nella Roma antica* (Itinerari ostiensi, 7), Rome: Ministero per i Beni Culturali e Ambientali – Soprintendenza Archeologica di Ostia.

Pensabene, P. 1997. Marmi d'importazione, pietre locali e committenza nella decorazione architettonica di età severiana in alcuni centri delle province Syria et Palestina e Arabia, *ArchCl*, 49: 275-422.

Pensabene, P. 2001a. Pentelico e proconnesio in Tripolitania: coordinamento o concorrenza nella distribuzione?, *ArchCl*, 52: 63-127.

Pensabene, P. 2001b. Jens Rohmann, Die Kapitellproduktion der römischen Kaiserzeit in Pergamon (book review), *ArchCl*, 52: 395-400.

Pensabene, P. 2002. Le principali cave di marmo bianco. In De Nuccio, M. and Ungaro, L. (eds.), *I marmi colorati della Roma imperiale*, Rome: Marsilio, 203-21.

Pensabene, P. 2004. La diffusione del marmo lunense nelle province occidentali. In Ramallo Asensio, S.F. (ed.), *La decoración arquitectónica en las ciudades romanas de*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Occidente. Actas del congreso internacional celebrado en Cartagena entre los días 8 y 10 de octubre de 2003, Murcia: Publicaciones de la Universidad de Murcia, 421-43.

Pensabene, P. 2006. Le scuole di Nicomedia e Afrodisia e i pilastri della basilica severiana di Leptis Magna, *Marmora*, 2: 41-58.

Pensabene, P. 2007a. *Ostiensium marmorum decus et decor: studi architettonici, decorativi e archeometrici* (Studi miscellanei, 33), Rome: "L'Erma" di Bretschneider.

Pensabene, P. 2007b. Gli elementi marmorei della scena: classificazione tipologica e inquadramento nella storia degli studi della decorazione architettonica in Asia minore. In De Bernardi Ferrero, D., Ciotta, G. and Pensabene, P. (eds.), *Il teatro di Hierapolis di Frigia. Restauro, architettura ed epigrafia*, Genoa: De Ferrari, 229-388.

Pensabene, P. 2011. Tradizioni punico-ellenistiche a Volubilis. I capitelli corinzi e compositi, *ArchCl*, 62: 203-78.

Pensabene, P. 2013. *I marmi nella Roma antica*, Rome: Carocci.

Pensabene, P. and Gasparini, E. 2015. Marble quarries. Ancient imperial administration and modern scientific analyses. In Friedland, E.A., Sobicinski, M.G. and Gazda, E.K. (eds.), *The Oxford Handbook of Roman Sculpture*, Oxford: Oxford University Press, 93-106.

Pichot, A. 2012. *Les édifices de spectacle des Maurétanies romaines* (Archéologie et Histoire Romaine, 22), Montagnac: Éditions Monique Mergoil.

Pinard, M. 1951. Chapiteaux byzantins de Numidie actuellement au Musée de Carthage, *CahByrsa*, 1: 231-68.

Pitts, M. and Versluys, M.J. 2015. Globalisation and the Roman world: perspectives and opportunities. In Pitts, M. and Versluys, M.J. (eds.), *Globalisation and the Roman World. World History, Connectivity and Material Culture*, Cambridge: Cambridge University Press, 3-31.

Podini, M. 2014. *La decorazione architettonica di età ellenistica e romana nell'Epiro del nord* (DiSCi, 5), Bologna: Bononia University Press.

Ponsich, M. 1960. Le musée Michaux-Bellaire à Tanger, *BAMaroc*, 4: 631-7.

Ponsich, M. 1964a. Exploitations agricoles de la région de Tanger, *BAMaroc*, 5: 235-52.

Ponsich, M. 1964b. Contribution à l'Atlas archéologique du Maroc : région de Tanger, *BAMaroc*, 5: 253-90.

Ponsich, M. 1966a. Un théâtre grec au Maroc ?, *BAMaroc*, 6: 317-22.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Ponsich, M. 1966b. Contribution à l'Atlas archéologique du Maroc : région de Lixus, *BAMaroc*, 6: 377-423.

Ponsich, M. 1966c. Fouilles puniques et romaines à Lixus, *Hespéris-Tamuda*, 7: 17-22.

Ponsich, M. 1967. *Nécropoles phéniciennes de la région de Tanger* (Études et travaux d'archéologie marocaine, 3), Tanger: Éditions Marocaines et Internationales.

Ponsich, M. 1970. *Recherches archéologiques à Tanger et dans sa région*, Paris: Éditions du CNRS.

Ponsich, M. 1976. Le temple dit de Saturne à Volubilis, *BAMaroc*, 10: 131-44.

Ponsich, M. 1979. Le théâtre-amphithéâtre de Lixus (Maroc) (note préliminaire), *Revista de la Universidad Complutense (Homenaje a Garcia Bellido IV)*, 18 (118): 297-323.

Ponsich, M. 1981. *Lixus : Le quartier des temples. Étude préliminaire* (Études et travaux d'archéologie marocaine, 9), Rabat: Musée des Antiquités.

Ponsich, M. 1982a. Tanger antique. In Temporini, H. (ed.), *Principat. Politische Geschichte. Provinzen und Randvölker: Afrika mit Ägypten (Forts.)* (ANRW, II, 10.2), Berlin-New York: Walter de Gruyter, 787-816.

Ponsich, M. 1982b. Lixus : informations archéologiques. In Temporini, H. (ed.), *Principat. Politische Geschichte. Provinzen und Randvölker: Afrika mit Ägypten (Forts.)* (ANRW, II, 10.2), Berlin-New York: Walter de Gruyter, 817-49.

Ponsich, M. 1988. *Aceite de olive y salazones de pescado. Factores geo-económicos de Baetica y Tingitana*, Madrid: Editorial Complutense.

Ponsich, M. and Tarradell, M. 1965. *Garum et industries antiques de salaison dans la mediterranée occidentale*, Paris: Presses Universitaires de France.

Pons Pujol, L. 2000. La economía de la Mauretania Tingitana y su relación con la Baetica en el alto imperio. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 1251-89.

Pons Pujol, L. 2009. *La economía de la Mauretania Tingitana (s. I-III d.C.). Aceite, vino y salazones*, Barcelona: Publicaciones i Ediciones de la Universitat de Barcelona.

Pons Pujol, L. 2012. Marcus Sulpicius Felix (Sala), ¿ciudadano o military?. In Cocco, M.B., Gavini, A. and Ibba, A. (eds.), *L'Africa Romana. Trasformazione dei paesaggi del potere nell'Africa settentrionale fino alla fine del mondo antico. Atti del XIX convegno di studio*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

(Sassari, 16-19 dicembre 2010), Rome: Carocci, 2247-59.

Pons Pujol, L. 2013. Omnia a Sulpicio Felice optumo rarissimoq(ue) praefecto Salenses habere (I.A.M.lat., 307.3). Historiografía e interpretaciones sobra la actuación de Marcus Sulpicius Felix en Sala. In Le Bohec, Y. (ed.), *La société de l'Afrique romaine*, (*BAParis* supplement, 37), Paris: Bulletin Archéologique du Comité des Travaux Historiques et Scientifiques, 103-14.

Potter, T.W. 1985. Models of urban growth: the Cherchel excavations 1977-81, *BAParis*, 19: 457-68.

Potter, T.W. 1991. M. Euzennat, Le limes de Tingitane. La frontière méridionale (book review), *LibSt*, 22: 107.

Potter, T.W. 1995. *Towns in Late Antiquity: Iol Caesarea and its Context*, Sheffield: University of Sheffield.

Pralong, A. 2000. La typologie des chapiteaux corinthiens tardifs en marbre de Proconnèse et la production d'Alexandrie, *RA* (new series): 81-101.

Preston, J. and Mattingly, D.J. 2013. Stone architectural elements from Jarma and associated sites. In Mattingly, D.J., Daniels, C.M., Dore, J.N., Edwards, D., Leone, A. and Thomas, D.C. (eds.), *The Archaeology of Fazzān. Volume 4, Survey and Excavations at Old Jarma (Ancient Garama) carried out by C.M. Daniels (1962-69) and the Fazzān Project (1997-2001)* (Society for Libyan Studies Monograph, 9), London: Society for Libyan Studies – Department of Antiquities, 267-85.

Price, M.T. 2007. *Decorative Stone: The Complete Sourcebook*, London: Thames & Hudson.

Quinn, J.C. 2013. Monumental power: "Numidian royal architecture" in context. In Quinn, J.C. and Prag, J.R.W. (eds.), *The Hellenistic West. Rethinking the Ancient Mediterranean*, Cambridge: Cambridge University Press, 179-215.

Quinn, J.C. and Wilson, A. 2013. Capitolia, *JRS*, 103: 117-73.

Raja, R. 2012. *Urban Development and Regional Identity in the Eastern Roman Provinces, 50 BC – AD 250: Aphrodisias, Ephesos, Athens, Gerasa*, Copenhagen: Museum Tusculanum Press.

Rakob, F. 1979. Numidische Königsarchitektur in Nordafrika. In Günter Horn, H. and Rüger, C.B. (eds.), *Die Numider. Reiter und Könige nördlich der Sahara*, Bonn: Rudolf Habelt Verlag, 119-71.

Rakob, F. 1983. Architecture royale numide. In *Architecture et société de l'archaïsme grec à la*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

fin de la république romaine. Actes du colloque international organisé par le Centre National de la Recherche Scientifique et l'École Française de Rome (Rome, 2-4 décembre 1980) (CEFR, 66), Rome: École Française de Rome, 325-48.

Raven, S. 1984. *Rome in Africa*, London-New York: Longman.

Rebuffat, R. 1967. Les erreurs de Pline et la position de Babba Iulia Campestris, *AntAfr*, 1: 31-57.

Rebuffat, R. 1968. Le développement urbain de Volubilis au second siècle de notre ère, *BAParis*, 1-2: 231-40.

Rebuffat, R. 1968-72. Les fouilles de Thamusida et leur contribution à l'histoire du Maroc, *BAMaroc*, 8: 51-65.

Rebuffat, R. 1969. Maisons à péristyle d'Afrique du Nord : répertoire de plans publiés, *MEFR*, 81: 659-724.

Rebuffat, R. 1971. Notes sur les confins de la Maurétanie Tingitane et de la Maurétanie Césarienne, *StMagreb*, 4: 33-64.

Rebuffat, R. 1974a. Maisons à péristyle d'Afrique du Nord : répertoire de plans publiés, II, *MEFRA*, 86: 445-99.

Rebuffat, R. 1974b. Enceintes urbaines et insécurité en Maurétanie Tingitane, *MEFRA*, 86: 501-22.

Rebuffat, R. 1976. D'un portulan grec du XVI[e] siècle au périple d'Hannon, *Karthago*, 17: 139-51.

Rebuffat, R. 1979-80. Le fossé romain de Sala, *BAMaroc*, 12: 237-54.

Rebuffat, R. 1985. À propos du quartier des temples de Lixus, *RA* (new series): 123-8.

Rebuffat, R. 1986a. Recherches sur le bassin du Sebou (Maroc), *CRAI*, 130 (4): 633-61.

Rebuffat, R. 1986b. Les fortifications urbaines du monde romain. In Leriche, P. and Tréziny, H. (eds.), *La fortification dans l'historie du mond grec. Actes du colloque international : La fortification et sa place dans l'histoire politique, culturelle et sociale du monde grec (Valbonne, décembre 1982)*, Paris: Éditions du CNRS, 345-61.

Rebuffat, R. 1987. L'implantation militaire romaine en Maurétanie Tingitane. In Mastino, A. (ed.), *L'Africa Romana. Atti del IV convegno di studio (Sassari, 12-14 dicembre 1986)*, Sassari: Editrice Democratica Sarda, 31-78.

Rebuffat, R. 1992. La frontière du Loukos au Bas-Empire. In *Lixus : Actes du colloque organisé par l'Institut des sciences de l'archéologie et du patrimoine de Rabat avec le concours*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

de l'École Française de Rome (Larache, 8-11 novembre 1989) (CEFR, 166), Rome: École Française de Rome, 365-77.

Rebuffat, R. 1994. M. Sulpicius Felix à Sala. In Mastino, A. and Ruggeri, P. (eds.), *L'Africa Romana. Atti del X convegno di studio (Oristano, 11-13 dicembre 1992)*, Sassari: Gallizzi, 185-219.

Rebuffat, R. 1998. L'armée de la Maurétanie Tingitane, *MEFRA*, 110: 193-242.

Rebuffat, R. 2000. Histoire de l'identification des sites urbains antiques du Maroc. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 865-914.

Rebuffat, R. 2001a. Pour une histoire événementielle du Maroc antique. In *Actes des 1ères journées nationales d'archéologie et du patrimoine, 2. Archéologie préislamique (Rabat, 1-4 juillet 1998)*, Rabat: Société Marocaine d'Archéologie et du Patrimoine, 25-48.

Rebuffat, R. 2001b. Les tribus en Maurétanie Tingitane, *AntAfr*, 37: 23-44.

Rebuffat, R. 2010. Les entrepôts de Maurétanie Tingitane. In Milanese, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. I luoghi e le forme dei mestieri e della produzione nelle province africane. Atti del XVIII convegno di studio (Olbia, 11-14 dicembre 2008)*, Rome: Carocci, 265-91.

Rebuffat, R. 2011. Les peuples du nord du Maroc. In Briand-Ponsart, C. and Modéran, Y. (eds.), *Provinces et identités provinciales dans l'Afrique romaine*, Caen: Publications du CRAHM, 63-86.

Rebuffat, R. and Limane, H. 2011. *Carte archéologique du Maroc antique. Le bassin du Sebou, 1. Au sud du Loukkos. Cartes : Arbaoua – Lalla Mimouna – Moulay bou Selham* (Villes et sites archéologiques du Maroc, 2), Rabat: Institut National des Sciences de l'Archéologie et du Patrimoine.

Revell, L. 2010. *Roman Imperialism and Local Identities*, Cambridge: Cambridge University Press.

Revell, L. 2014. Romanization. In Ulrich, R.B. and Quenemoen, C.K. (eds.), *A Companion to Roman Architecture*, Oxford: Wiley-Blackwell, 381-98.

Risse, M. (ed.) 2001. *Volubilis. Eine römische Stadt in Marokko von der Frühzeit bis in die islamische Periode*, Mainz: Philipp von Zabern.

Rohmann, J. 1995. Einige Bemerkungen zum Ursprung des feingezahnten Akanthus,

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

IstMitt, 45: 109-21.

Rohmann, J. 1998. *Die Kapitellproduktion der römischen Kaiserzeit in Pergamon* (PF, 10), Berlin-New York: Walter de Gruyter.

Roller, D.W. 2003. *The World of Juba II and Kleopatra Selene. Royal Scholarship on Rome's African Frontier*, New York-London: Routledge.

Romanelli, P. 1959. *Storia delle province romane dell'Africa*, Roma: "L'Erma" di Bretschneider.

Romanelli, P. 1962. Le iscrizioni volubilitane dei Baquati e i rapporti di Roma con le tribù indigene dell'Africa. In Renard, M. (ed.), *Hommages à Albert Grenier* (Collection *Latomus*, 58), Brussels: Latomus, 1347-66.

Rouland-Mareschal, H. 1924. Le limes de Tingitane au sud de Sala colonia, *CRAI*, 68 (6): 441-68.

Roux, G. 1961. *L'architecture de l'Argolide aux IV^e^ et III^e^ siècles avant J.-C.* (BEFAR, 199), Paris: Éditions de Boccard.

Roxan, M. 1973. The auxilia of Mauretania Tingitana, *Latomus*, 32: 838-55.

Rumscheid, F. 1994. *Untersuchungen zur kleinasiatischen Bauornamentik des Hellenismus* (Beiträge zur Erschliessung hellenistischer und kaiserzeitlicher Skulptur und Architektur, 14), Mainz: Philipp von Zabern.

Russell, B. 2013. *The Economics of the Roman Stone Trade* (Oxford Studies on the Roman Economy), Oxford: Oxford University Press.

Russell, B. 2015. Transport and distribution. In Friedland, E.A., Sobicinski, M.G. and Gazda, E.K. (eds.), *The Oxford Handbook of Roman Sculpture*, Oxford: Oxford University Press, 189-205.

Saastamoinen, A. 2010. *The Phraseology of Latin Building Inscriptions in Roman North Africa* (Commentationes Humanarum Litterarum, 127), Helsinki: Societas Scientiarum Fennica.

SAbA I = Akerraz, A. and Papi, E. (eds.) 2008. *Sidi Ali ben Ahmed – Thamusida, 1. I contesti*, Rome: Quasar.

SAbA II = Gliozzo, E., Turbanti Memmi, I., Akerraz, A. and Papi, E. (eds.) 2009. *Sidi Ali ben Ahmed – Thamusida, 2. L'archeometria*, Rome: Quasar.

SAbA III = Akerraz, A., Camporeale, S. and Papi, E. (eds.) 2013. *Sidi Ali ben Ahmed – Thamusida, 3. I materiali*, Rome: Quasar.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Saladin, H. 1890. Note sur deux chapiteaux trouvés à Banasa (Maroc) par M. de la Martinière, *BAParis*: 451.

Salama, P. and Laporte, J.-P. 2010. Tables de mesures de l'Afrique romaine. In Milanese, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. I luoghi e le forme dei mestieri e della produzione nelle province africane. Atti del XVIII convegno di studio (Olbia, 11-14 dicembre 2008)*, Rome: Carocci, 333-72.

Sande, S. 2008. The superstructure of the temple. In Sande, S. and Zahle, J. (eds.), *The Temple of Castor and Pollux, 3. The Augustan Temple* (Occasional Papers of the Nordic Institutes in Rome, 4), Rome: "L'Erma" di Bretschneider, 129-208.

Scavi di Ostia VII = Pensabene, P. 1973. *Scavi di Ostia, 7. I capitelli*, Rome: Istituto Poligrafico dello Stato – Libreria dello Stato.

Scott, E., Dore, J. and Mattingly, D.J. 1996. The UNESCO Libyan Valleys archaeological survey gazetteer 1979-1989. In Mattingly, D.J. (ed.), *Farming the Desert. The UNESCO Libyan Valleys Archaeological Survey. Volume 2: Gazetteer and Pottery*, Tripoli-London: Department of Antiquities – Society for Libyan Studies.

Schwartz, J. 1969. *Qasr Qarun/Dionysias, 1950. Fouilles franco-suisses. Rapports, II*, Cairo: Imprimerie de l'Institut Français d'Archéologie Orientale.

Sears, G. 2007. *Late Roman African Urbanism. Continuity and Transformation in the City* (BAR IntSer, 1693), Oxford: Archaeopress.

Sears, G. 2011. *The Cities of Roman Africa*, Stroud: The History Press.

Seston, W. and Euzennat, M. 1961. La citoyenneté romaine au temps de Marc Aurèle et de Commode, d'après la Tabula Banasitana, *CRAI*, 105 (2): 317-24.

Seston, W. and Euzennat, M. 1971. Un dossier de la chancellerie romaine : la Tabula Banasitana. Étude de diplomatique, *CRAI*, 115 (3): 468-90.

Shaw, B.D. 1986. Autonomy and tribute: mountain and plain in Mauretania Tingitana, *Revue de l'Occident Musulman et de la Méditerranée*, 40-41: 66-89.

Shaw, B.D. 2006. *At the Edge of the Corrupting Sea (The Twenty-Third J.L. Myres Memorial Lecture)*, Oxford: University of Oxford.

Sherwin-White, A.N. 1973. The tabula of Banasa and the Constitutio Antoniniana, *JRS*, 63: 86-98.

Sigman, M.C. 1977. The Romans and the indigenous tribes of Mauritania Tingitana, *Historia*, 26: 415-39.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Siraj, A. 1992. Les villes antiques de l'Afrique du Nord à partir de la description de Jean Léon l'Africain. In Mastino, A. (ed.), *L'Africa Romana. Atti del IX convegno di studio (Nuoro, 13-15 dicembre 1991)*, Sassari: Gallizzi, 903-38.

Siraj, A. 1995. *L'image de la Tingitane. L'historiographie arabe medieval et l'antiquité nord-africaine* (CEFR, 209), Rome: École Française de Rome.

Siraj, A. 2000. De la pré-archéologie à l'archéologie du Maroc. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 817-23.

Sjöström, I. 1993. *Tripolitania in Transition: Late Roman to Early Islamic Settlement*, Avebury: Ashgate.

Smith, D.J. 1956. Archaeological report. The Roman frontier in French Morocco: a reconnaissance. In *Report of the Durham University Exploration Society's Expedition to French Morocco*, Durham: Durham University Exploration Society, 87-166.

Spaul, J.E.H. 1994a. I.A.M. 2,250 = AE 1967, 655 and the identification of colonia Babba, *ZPE*, 103: 191-201.

Spaul, J.E.H. 1994b. *Ala*^{2}. *The Auxiliary Cavalry Units of the pre-Diocletianic Imperial Roman Army*, Andover: Nectoreca Press.

Spaul, J.E.H. 1994c. Governors of Tingitana, *AntAfr*, 30: 235-60.

Spaul, J.E.H. 1998. Une colonie d'Auguste en Tingitane, *BAMaroc*, 18: 339-42.

Spaul, J.E.H. 2000. *Cohors*^{2}. *The Evidence for and a Short History of the Auxiliary Infantry Units of the Imperial Roman Army* (BAR IntSer, 841), Oxford: Archaeopress.

Stone, D.L. 2007. Monuments on the margins: interpreting the first millennium B.C.E. rock-cut tombs (haouanet) of North Africa. In Stone, D.L. and Stirling, L.M. (eds.), *Mortuary Landscapes of North Africa* (*PhoenixToronto* supplement, 43), Toronto: University of Toronto, 43-74.

Strong, D.E. 1962. The temple of Castor in the forum romanum, *BSR*, 30: 1-30.

Tarradell, M. 1950. Las últimas investigaciones sobre los Romanos en el norte de Marruecos, *Zephyrus*, 1: 49-56.

Tarradell, M. 1951. Las excavaciones de Lixus (Marruecos), *Ampurias*, 13: 186-90.

Tarradell, M. 1953. Las excavaciones de Lixus, *Tinga*, 1: 8-20.

Tarradell, M. 1954a. Nuevos datos sobre la guerra de los Romanos contra Aedemon. In *I*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Congreso arqueologíco del Marruecos Español (Tetuán, 22-26 Junio, 1953), Tétouan: Editorial Cremades, 337-44.

Tarradell, M. 1954b. Marruecos antiguo: nuevas perspectivas, *Zephyrus*, 5: 105-39.

Tarradell, M. 1957. Las campañas de excavaciones de 1954 y 1955 en Lixus (Marruecos). In *IV Congreso arqueológico nacional, Burgos 1955: actas*, Zaragoza: Universidad de Zaragoza, 193-207.

Tarradell, M. 1958. Breve noticia de las excavaciones en Tamuda y Lixus en 1958, *Tamuda*, 6: 372-9.

Tarradell, M. 1959. *Lixus. Historia de la ciudad, guía de las ruinas y de la seccion de Lixus del Museo Arqueológico de Tetuán*, Tétouan: Instituto Muley El-Hasan.

Tarradell, M. 1960. *Historia de Marruecos. Marruecos Púnico*, Tétouan: Editorial Cremades.

Tarradell, M. 1966. Contribution à l'Atlas archéologique du Maroc : région de Tétouan, *BAMaroc*, 6: 425-43.

Teatini, A. 1997. La decorazione architettonica di Uchi Maius: studio preliminare sui capitelli. In Khanoussi, M. and Mastino, A. (eds.), *Uchi Maius, 1. Scavi e ricerche epigrafiche in Tunisia*, Sassari: Editrice Democratica Sarda, 361-89.

Teatini, A. 2000. Nuovi dati sulla decorazione architettonica di Uchi Maius: le cornici e le mensole. In Khanoussi, M., Ruggeri, P. and Vismara, C. (eds.), *L'Africa Romana. Geografi, viaggiatori, militari nel Maghreb: alle origini dell'archeologia nel Nord Africa. Atti del XIII convegno di studio (Djerba, 10-13 dicembre 1998)*, Rome: Carocci, 1761-78.

Thamusida I = Callu, J.-P., Morel, J.-P., Rebuffat, R. and Hallier, G. 1965. *Thamusida, 1. Fouilles du Service des Antiquités du Maroc*, Rome: École Française de Rome.

Thamusida II = Hallier, G., Marion, J. and Rebuffat, R. 1970. *Thamusida, 2. Fouilles du Service des Antiquités du Maroc*, Rome: École Française de Rome.

Thamusida III = Marion, J. and Rebuffat, R. 1977. *Thamusida, 3. Fouilles du Service des Antiquités du Maroc*, Rome: École Française de Rome.

Thébert, Y. 2003. *Thermes romains d'Afrique du Nord et leur contexte méditerranéen* (BEFAR, 315), Rome: École Française de Rome.

Thouvenot, R. 1932. Tête de marbre antique trouvée au Maroc, *REA*, 34 (1): 254-8.

Thouvenot, R. 1935. Les thermes dits de Gallien à Volubilis, *Publications du Service des Antiquités du Maroc*, 1: 11-31.

Thouvenot, R. 1936. Volubilis, ciudad del Marruecos romano, *Investigación y Progreso*, 10:

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

177-81.

Thouvenot, R. 1938. Chapiteaux romains tardifs de Tingitane et d'Espagne, *Publications du Service des Antiquités du Maroc*, 3: 63-82.

Thouvenot, R. 1941a. *Une colonie romaine de Maurétanie Tingitane : Valentia Banasa* (Publications de l'Institut des Hautes Études Marocaines, 36), Paris: Presses Universitaires de France.

Thouvenot, R. 1941b. La maison d'Orphée à Volubilis, *Publications du Service des Antiquités du Maroc*, 6: 42-67.

Thouvenot, R. 1945a. La maison au chien de Volubilis, *Publications du Service des Antiquités du Maroc*, 7: 105-13.

Thouvenot, R. 1945b. La maison à l'éphébe, *Publications du Service des Antiquités du Maroc*, 7: 114-31.

Thouvenot, R. 1945c. La maison aux colonnes, *Publications du Service des Antiquités du Maroc*, 7: 132-45.

Thouvenot, R. 1945d. La maison au cavalier, *Publications du Service des Antiquités du Maroc*, 7: 146-55.

Thouvenot, R. 1945e. Les thermes du nord, *Publications du Service des Antiquités du Maroc*, 7: 156-65.

Thouvenot, R. 1946. Une remise d'impôts en 216 ap. J.-C., *CRAI*, 90 (4): 548-58.

Thouvenot, R. 1946-49. Rapports sur les travaux archéologiques effectués au Maroc en 1948, *BAParis*: 634-43.

Thouvenot, R. 1948a. La maison aux travaux d'Hercule, *Publications du Service des Antiquités du Maroc*, 8: 69-108.

Thouvenot, R. 1948b. Le quartier nord-est. La rive droite du decumanus maximus, *Publications du Service des Antiquités du Maroc*, 8: 109-43.

Thouvenot, R. 1949. *Volubilis*, Paris: Société d'Éditions Les Belles Lettres.

Thouvenot, R. 1954a. Le site de Julia Valentia Banasa, *Publications du Service des Antiquités du Maroc*, 11: 7-12.

Thouvenot, R. 1954b. Le premier Banasa, *Publications du Service des Antiquités du Maroc*, 11: 13-9.

Thouvenot, R. 1954c. Le quartier nord-est, *Publications du Service des Antiquités du Maroc*, 11: 20-35.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Thouvenot, R. 1954d. Le quartier sud-ouest, *Publications du Service des Antiquités du Maroc*, 11: 36-45.

Thouvenot, R. 1954e. Les maisons de Banasa, *Publications du Service des Antiquités du Maroc*, 11: 46-61.

Thouvenot, R. 1954f. Les relations entre le Maroc et l'Espagne pendant l'antiquité. In *I Congreso arqueologíco del Marruecos Español (Tetuán, 22-26 Junio, 1953)*, Tétouan: Editorial Cremades, 381-6.

Thouvenot, R. 1958. *Maisons de Volubilis : Le palais dit de Gordien et la maison à la mosaïque de Vénus* (Publications du Service des Antiquités du Maroc, 12), Rabat: Service des Antiquités du Maroc.

Thouvenot, R. 1962. Le géographe Ptolémée et la jonction terrestre des deux Maurétanies, *REA*, 64: 82-8.

Thouvenot, R. 1968-72. L'area et les thermes du Capitole de Volubilis, *BAMaroc*, 8: 179-95.

Thouvenot, R. 1971a. Sur quelques chapiteaux singuliers de Banasa, *BAParis*, 6: 245-53.

Thouvenot, R. 1971b. Notes sur des chapiteaux de Volubilis, *RA*: 299-308.

Thouvenot, R. 1973-75. La maison à la disciplina à Volubilis, *BAMaroc*, 9: 329-57.

Thouvenot, R. 1979. L'urbanisme romain dans le Maroc antique, *Revista de la Universidad Complutense (Homenaje a Garcia Bellido IV)*, 18 (118): 325-49.

Thouvenot, R. and Luquet, A. 1951a. Les thermes de Banasa, *Publications du Service des Antiquités du Maroc*, 9: 9-62.

Thouvenot, R. and Luquet, A. 1951b. Le quartier sud-ouest, *Publications du Service des Antiquités du Maroc*, 9: 63-80.

Thouvenot, R. and Luquet, A. 1951c. Le macellum (?) et les bâtiments voisins, *Publications du Service des Antiquités du Maroc*, 9: 81-99.

Thouvenot, R. and Luquet, A. 1978. La porte du nord-est à Volubilis, *BAMaroc*, 11: 91-112.

Tissot, C. 1876. Itinéraire de Tanger à Rbat, *Bulletin de la Societé de Géographie*, 12: 225-94.

Tissot, C. 1878. *Recherches sur la géographie comparée de la Maurétanie Tingitane (Mémoires présentés par divers savants à l'Académie des Inscriptions et Belles-Lettres, 1er série, tome IX)*, Paris: Imprimérie Nationale.

Tkaczow, B. 2010. *Alexandrie, VIII. Architectural Styles of Ancient Alexandria: Elements of Architectural Decoration from Polish Excavations at Kom el-Dikka (1960-1993)*, Warsaw: Centre d'Archéologie Méditerranéenne de l'Académie Polonaise des Sciences.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Toma, N. 2014. Von Marmorblock über Halbfabrikat zu korinthischem Kapitell. Zur Kapitellproduktion in der Kaiserzeit. In Lipps, J. and Maschek, D. (eds.), *Antike Bauornamentik. Grenzen und Möglichkeiten ihrer Erforschung* (Studien zur antiken Stadt, 12), Wiesbaden: Dr. Ludwig Reichert Verlag, 83-98.

Toma, N. 2015. Carving a Corinthian capital. New technical aspects regarding the carving process. In Pensabene, P. and Gasparini, E. (eds.), *Interdisciplinary Studies on Ancient Stone. Asmosia, X. Proceedings of the Tenth International Conference of ASMOSIA, Association for the Study of Marble & Other Stones in Antiquity (Rome, 21-26 May 2012)*, Rome: "L'Erma" di Bretschneider, 811-21.

Tomasello, F. 1983. Un prototipo di capitello corinzio in Sabratha, *QuadALibia*, 13: 87-103.

Tomasello, F. 1984. Indagine sulla restituzione del monumento. In Joly, E. and Tomasello, F. (eds.), *Il tempio a divinità ignota di Sabratha* (Monografie di archeologia libica, 18), Rome: "L'Erma" di Bretschneider, 109-55.

Traina, G. 2006. Romanizzazione, «métissages», ibridità, *MEFRA*, 118: 151-8.

Vanacker, W. 2013a. Ties of resistance and cooperation. Aedemon, Lusius Quietus and the Baquates, *Mnemosyne*, 66: 708-33.

Vanacker, W. 2013b. Conflicts and instability in Mauretania and Gaius' Realpolitik, *Latomus*, 72: 725-41.

Vandeput, L. 1997. *The Architectural Decoration in Roman Asia Minor. Sagalassos: A Case Study* (Studies in Eastern Mediterranean Archaeology, 1), Turnhout: Brepols.

Villaverde Vega, N. 2001. *Tingitana en la antigüedad tardía (siglos III-VII): autoctonía y romanidad en el extremo occidente mediterráneo*, Madrid: Real Academia de la Historia.

Von Hesberg, H. 1981. Lo sviluppo dell'ordine corinzio in età tardo-repubblicana. In *L'art décoratif à Rome à la fin de la République et au début du Principat. Table ronde organisée par l'École Française de Rome (Rome, 10-11 mai 1979)* (CEFR, 55), Rome: École Française de Rome, 19-60.

Von Lohuizen-Mulder, M. 1987. Early Christian lotus-panel capitals and other so-called impost capitals, *Babesch*, 62: 131-51.

Walker, S. 1979. Corinthian capitals with ringed voids: the work of Athenian craftsmen in the second century A.D., *AA*: 103-29.

Walker, S. 1988. From west to east: evidence for a shift in the balance of trade in white marbles. In Herz, N. and Waelkens, M. (eds.), *Classical Marble: Geochemistry,*

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Technology, Trade. Proceedings of the NATO Advanced Research Workshop on Marble in Ancient Greece and Rome: Geology, Quarries, Commerce, Artifacts (Il Ciocco, Lucca, Italy, May 9-13, 1988), Dordrecht-Boston-London: Kluwer Academic Publisher, 187-95.

Walker, S. 1990. Dignam congruentemque splendori patriae: aspects of urban renewal under the Severi. In Henig, M. (ed.), *Architecture and Architectural Sculpture in the Roman Empire* (Oxford University Committee for Archaeology Monograph, 29), Oxford: Institute of Archaeology, 138-42.

Ward-Perkins, J.B. 1948. Severan art and architecture at Lepcis Magna, *JRS*, 38: 59-80.

Ward-Perkins, J.B. 1951. Tripolitania and the marble trade, *JRS*, 41: 89-104.

Ward-Perkins, J.B. 1970. Pre-Roman elements in the architecture of Roman Tripolitania. In Gadallah, F.F. (ed.), *Libya in History. Historical Conference (16-23 March 1968)*, Benghazi: University of Libya, 101-19.

Ward-Perkins, J.B. 1981. *Roman Imperial Architecture*, New Haven-London: Yale University Press.

Ward-Perkins, J.B. 1982. Town planning in North Africa during the first two centuries of the Empire, with special reference to Lepcis and Sabratha: character and sources. In *150-Jahr-Feier Deutsches Archäologisches Institut Rom. Ansprachen und Vorträge (4.-7. Dezember 1979)* (*RM* supplement, 25), Mainz: Verlag Philipp von Zabern, 29-49.

Ward-Perkins, J.B. 1992. Nicomedia and the marble trade. In Dodge, H. and Ward-Perkins, B. (eds.), *Marble in Antiquity. Collected Papers of J.B. Ward-Perkins* (Archaeological Monographs of the British School at Rome, 6), Rome: British School at Rome, 61-105.

Ward-Perkins, J.B. 1993. *The Severan Buildings of Lepcis Magna. An Architectural Survey* (published by Ph. Kenrick) (Society for Libyan Studies Monograph, 2), Tripoli: Department of Antiquities.

Webster, J. 2003. Art as resistance and negotiation. In Scott, S. and Webster, J. (eds.), *Roman Imperialism and Provincial Art*, Cambridge: Cambridge University Press, 24-51.

Wescoat, B.D. 2015. The patronage of Greek and Roman architecture. In Marconi, C. (ed.), *The Oxford Handbook of Greek and Roman Art and Architecture*, Oxford: Oxford University Press, 176-202.

Williams, W. 1975. Formal and historical aspects of two new documents of Marcus Aurelius, *ZPE*, 17: 37-78.

Niccolò Mugnai
PhD Thesis 2016
University of Leicester

Wilson Jones, M. 1989. Designing the Roman Corinthian order, *JRA*, 2: 35-69.

Wilson Jones, M. 1991. Designing the Roman Corinthian capital, *BSR*, 59: 89-150.

Wilson Jones, M. 2003. *Principles of Roman Architecture*, New Haven-London: Yale University Press.

Wilson Jones, M. 2014. *Origins of Classical Architecture: Temples, Orders and Gifts to the Gods in Ancient Greece*, New Haven-London: Yale University Press.

Wilson Jones, M. 2015. Greek and Roman architectural theory. In Marconi, C. (ed.), *The Oxford Handbook of Greek and Roman Art and Architecture*, Oxford: Oxford University Press, 41-69.

Windus, J. 1725. *A Journey to Mequinez; The Residence of the Present Emperor of Fez and Morocco. On the Occasion of Commodore Stewart's Embassy thither for the Redemption of the British Captives in the Year 1721*, London: Jacob Tonson.

Wolff, C. 2014. La guerre de Tacfarinas (17-24). In Coltelloni-Trannoy, M. and Le Bohec, Y. (eds.), *La guerre dans l'Afrique romaine sous le Haut-Empire. Actes du CXXXVI^e^ congrès national des sociétés historiques et scientifiques « Faire la guerre, faire la paix » (Perpignan, 2011)*, Paris: Éditions du CTHS, 53-67.

Yegül, F.K. 1986. *The Bath-Gymnasium Complex at Sardis* (Archaeological Exploration of Sardis, Report 3), Cambridge, MA: Harvard University Press.

Zanker, P. 1990. *The Power of Images in the Age of Augustus* (translation by A. Shapiro), Ann Arbor: The University of Michigan Press.

Zanker, P. 1998. *Pompeii: Public and Private Life* (translation by D. Lucas Schneider), Cambridge, MA: Harvard University Press.

Zanker, P. 2012. *Arte romana* (translation by D. La Monica), Rome-Bari: Laterza.

Zilil I = Depeyrot, G. 1999. *Zilil, 1. Colonia Iulia Constantia Zilil. Étude du numéraire* (CEFR, 250), Rome: École Française de Rome.

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ARCHITECTURAL DECORATION AND URBAN HISTORY IN *MAURETANIA TINGITANA* (MOROCCO)

- Volume II -

Appendix: Catalogue, Plates, Plans

Thesis submitted for the degree of Doctor of Philosophy

at the University of Leicester

by

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2016

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STRUCTURE OF THE APPENDIX

This Appendix (Volume II) contains a Catalogue of the architectural decoration recorded in Morocco, a set of 43 plates with photographic documentation of the elements described, and 23 plans of buildings (A4 and A3 format) detailing the location of the decoration at each site. The data presented here are the basis of the work undertaken for this PhD research and this Appendix is a fundamental part of the dissertation. The contents of the Catalogue do not just represent a supplement to the results discussed in the main text (Volume I), but rather provide a more in-depth analysis of the material.

In order to provide a comprehensive and detailed Catalogue, without exceeding the word limit of the thesis, I chose to keep it separate from the data discussion. In the tradition of studies of architectural ornament, the description of the single elements of decoration is a necessary step to reach a synthesis of the results and to evaluate their importance within the context examined (e.g. *Scavi di Ostia* VII; Ferchiou 1989a; Fischer 1990; Pensabene 1993; Rohmann 1998; and Mahler 2006). This is particularly true for the materials collected here, since the majority of these pieces are unpublished and this Catalogue represents the first attempt to organize them systematically. In addition, because of the peculiar features of the region under study (see the observations in Volume I, Chapter 1), many decorative motifs diverge from what is usually referred to as "canonical" or "official" art. Therefore, an accurate description of these motifs – and of their level of variation from the more standardized forms diffused across the Roman world – proved to be a primary tool of analysis.

As explained in the main text (Chapter 1), in the Catalogue are described bases and capitals only, while entablatures and other mouldings recorded during the fieldwork are not included at the current stage. A total of 578 architectural elements are catalogued: 336 bases and 242 capitals. The Catalogue is divided into four parts, corresponding to the selected case studies. These are listed according to the amount of evidence preserved, in descending order: *Volubilis*, *Banasa*, *Sala*, and *Lixus*. To facilitate the recognition, a site acronym is placed in front of the type numbers (Vol = *Volubilis*; Ban = *Banasa*; Sal = *Sala*;

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Lix = *Lixus*). The individual number of the decoration is made of two series: the first corresponds to the principal subdivision (1 = base; 2 = capital); the second series reflects the typological order adopted within the groups. To ease the cross-referencing between main text and Catalogue, and within the four sections of the Catalogue itself, numbers are typed in bold with a graphic marker in front of them (e.g. ►**Vol 1.31**; ►**Ban 2.36**; ►**Sal 1.15**; ►**Lix 2.3**).

Each part of the Catalogue opens with a short introduction, providing the total number of elements recorded at the site and information on the fieldwork undertaken. In particular, it is specified whether the recording of the decoration involved the entire archaeological site (*Banasa*, *Sala*, and *Lixus*), or selected sectors only (*Volubilis*). A brief note is included regarding the environmental conditions at the moment of the recording, in particular the presence of vegetation covering the buildings, and how these may have influenced the course of the work.

In reference to the groups of bases and capitals, these vary for each site. At *Volubilis*, for instance, all bases belong to the same group: Attic bases. On the other hand, the situation at *Sala* is more articulated and various groups were recorded: disc bases, single-torus bases, and Attic bases. The same is true for capitals. For example, while at *Lixus* only Tuscan and Ionic capitals have been found, in the other locations one can recognize more diversified groups, such as Corinthian capitals, pseudo-Corinthian capitals, composite capitals, tronco-conical capitals, etc. The sections of the Catalogue corresponding to these main groups are introduced by a heading typed in bold (e.g. **Corinthian capitals**). In addition, further sub-groups are adopted both for bases and capitals, in accordance with the different mouldings and decorative motifs recognized. Again, the situation changes from site to site. More detailed information on the subdivisions used for each site can be found in the Catalogue itself. All sub-groups are introduced by a heading typed in Italic (e.g. *Corinthian capitals with smooth leaves*).

An explanatory note on Tuscan capitals is required. With regard to the examples with a torus-shaped echinus, it is very difficult – if not impossible – to distinguish them from single-torus bases, especially in the case of not *in situ* elements. The same ambiguity exists in the literature: pieces with identical characteristics can either be described as bases (e.g. Gutiérrez Behemerid 2003; Escrivà Chover 2005), or capitals (see, for instance, Mahler 2006). This issue had to be faced when dealing with the evidence recorded in Morocco,

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although a definitive solution to the problem cannot be found. As a general rule, I decided to list as Tuscan capitals all those pieces with a cavetto, or a *cyma recta*, between the neck and the echinus. In contrast, whenever these mouldings are absent, the element is catalogued as a single-torus base. The only exception applies to four bases from *Lixus* (►**Lix 1.5-7**), where the cavetto/*cyma recta* is present; given that three of them are still *in situ*, the identification as bases is certain. However, even if the distinction of these architectural elements is ambiguous, the conclusions drawn from their analysis are not affected (see also the remarks in Volume I, Chapters 5, 7, 8).

The description of the types follows a standardized layout. The first entry is represented by the type number, followed by the plate and plan numbers in round brackets. Plates and plans are found out of text at the end of the Appendix. All photographs of architectural elements presented in the plates are the result of my own work. These were taken directly *in situ* while recording the decoration, and then processed in the laboratory through the software Adobe Photoshop® CS6 Extended. The plans were instead adapted and re-drawn from published materials, digitized with Autodesk AutoCAD® 2014 (see the list of plans, with full references to the original sources). I must remark that the main shortcoming is the different level of accuracy. The presence of imprecisions in the measurements and proportions of some buildings – such as in the case of the "quartier des temples" at *Lixus*, or the palace of Gordianus at *Volubilis* – must be taken into account, given that some drawings may even predate the 1960s. However, this does not pose particular problems for the purpose of the present work. The location of all bases and capitals preserved at the sites is indicated in the plans. The only elements excluded are, understandably, those kept in the storehouses and museums.

Each type can correspond to a single example of decoration, or to more examples with identical characteristics. With regard to the bases, the main criteria of distinction are represented by the shape and ratio of their mouldings, and by the overall size. As to the capitals, more emphasis is put on the carving and decorative features, although the size is diagnostic as well. In the case of more elements belonging to the same type, the description and measurements provided in the Catalogue are those of the best preserved piece – which is also the one illustrated in the respective plate. The positioning of all the examples for each type is indicated in the plans.

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Descriptions are as accurate and detailed as possible. As to the terminology adopted for the various mouldings and motifs, it was necessary to look also at the terms used in German and Italian literature (mainly Heilmayer 1970; *Scavi di Ostia* VII). This is due to the fact that English vocabulary applied to architectural decoration is in some cases insufficient or ambiguous. For instance, when referring to the "kalathos" of a Corinthian capital, the term "bell" is sometimes introduced. Similarly, the "eyelets" of the acanthus leaves can also be described as "voids". The principal reference used when adapting Italian or German terms into English are the three volumes of the *Dictionnaire méthodique de l'architecture grecque et romaine* (*Dictionnaire* I-III). The main references available in English are: Herrmann 1988; Wilson Jones 1989; 1991; 2003; Vandeput 1997; Blagg 2002; and McKenzie 2005; 2010. When describing the half-round moulding that sometimes underlines the kalathos of a capital, the term "astragal" is used only if the moulding presents a carved decorative motif (e.g. an Ionic *kymation*). Otherwise, for undecorated mouldings, the term "torus" is preferred. The main mouldings and motifs of bases and capitals are illustrated in the figures at the end of this chapter (Figs. A-J).

After the description, the next entry is the state of preservation. In ascending order, the level of deterioration of the element(s) can be described as: slight, moderate, medium, or advanced. When required, more specific details on the fragmentation can follow. After that follows the indication of the material the decoration is made from. The stone most widely employed at *Volubilis* is the Zerhoun limestone (see Feray and Paskoff 1966; Jodin 1968-72), while at *Sala* and *Banasa* the majority of pieces are made of calcarenite (Giorgetti and Gliozzo 2009). Among the other materials are the so-called "bio-calcarenite" of the oued Akreuch at *Sala*, and sandstone at *Lixus*. White marbles are documented at *Sala*. In some cases a Proconnesian origin is suggested, although archaeometric analyses would be needed to confirm the hypothesis.

All measurements are expressed in centimetres (cm) and the following abbreviations are used: Ø = diameter; w. = width; h. = height. When it was possible to record it, the "cross-section" of Corinthian capitals is indicated (i.e. the axial width of the abacus, measured on the orthogonal axes, excluding the fleurons: see Wilson Jones 1991, 94; 2003, 145). Afterwards, the number of examples belonging to the type and their location in the site (or in the storehouse, or museum) is described. The decoration can either be *in situ*, or not *in situ* anymore. In the latter case, the positioning detailed in the plan corresponds to

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the situation at the time of the recording. I must remark, however, that sometimes these elements are moved while carrying out maintenance works.

In the case of materials previously published, full references are provided. After that, the parallels with the decoration from other contexts – if any – are described, based on published evidence. The selection of parallels is limited to the sites of *Mauretania Tingitana* (including cross-referencing within the Catalogue), and to the provinces of North Africa and Spain, which had a direct contact with *Tingitana*. For some of these elements, in particular the ornament that recalls more closely Roman official decoration, further parallels may also be found across the Mediterranean and beyond. However, these are not included in this entry, but are taken into account in broader discussion sections of the main text. In addition, standard Attic bases (with plinth and tori separated by a scotia) have the same characteristics all over the Roman world; mentioning all the existing parallels would not provide any diagnostic information, and for this reason I decided to omit them. On the other hand, Attic bases with particular variations (such as the presence of a high scotia, or the absence of the plinth) are more significant. The recognition of similar examples in other provinces is of great importance, and, therefore, such parallels are expressly cited in the Catalogue.

The last entry deals with the chronology of the decoration. When possible, the dating is based on the combined analysis of three aspects: the chronology of the context of provenance, such as the building or the stratigraphic context the decoration is associated with (based on epigraphic evidence, diagnostic finds, analysis of building techniques, etc.); the dating of the recognized parallels, within the province and at a broader Mediterranean level; and the potential information that can be drawn from a stylistic analysis of the architectural element itself. Unfortunately, such conditions do not apply to all the pieces. In the case of decoration of uncertain provenance, the chronology is more generic. The adoption of this "hybrid" approach for the study of architectural ornament proved to be a valid tool, thanks to which a dating based on traditional (and sometimes criticized) stylistic criteria is combined with other factors.

The final pages of the Appendix contain a summary table that details the concordance between the Catalogue type numbers and the numbers initially assigned to the examples of the same type during the recording.

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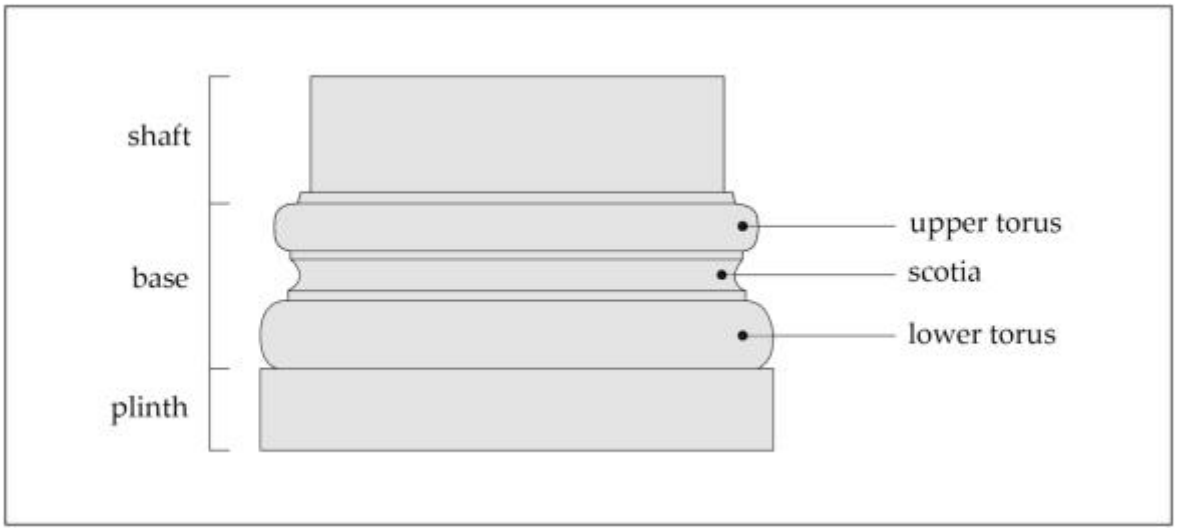

Fig. A. Attic base with plinth

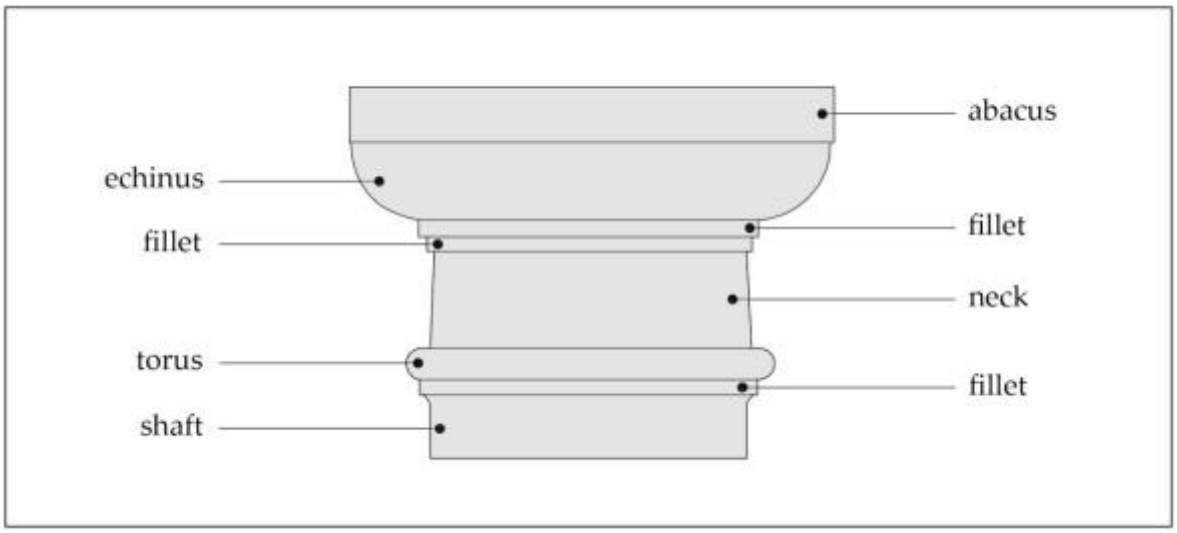

Fig. B. Tuscan capital: echinus with quarter round profile

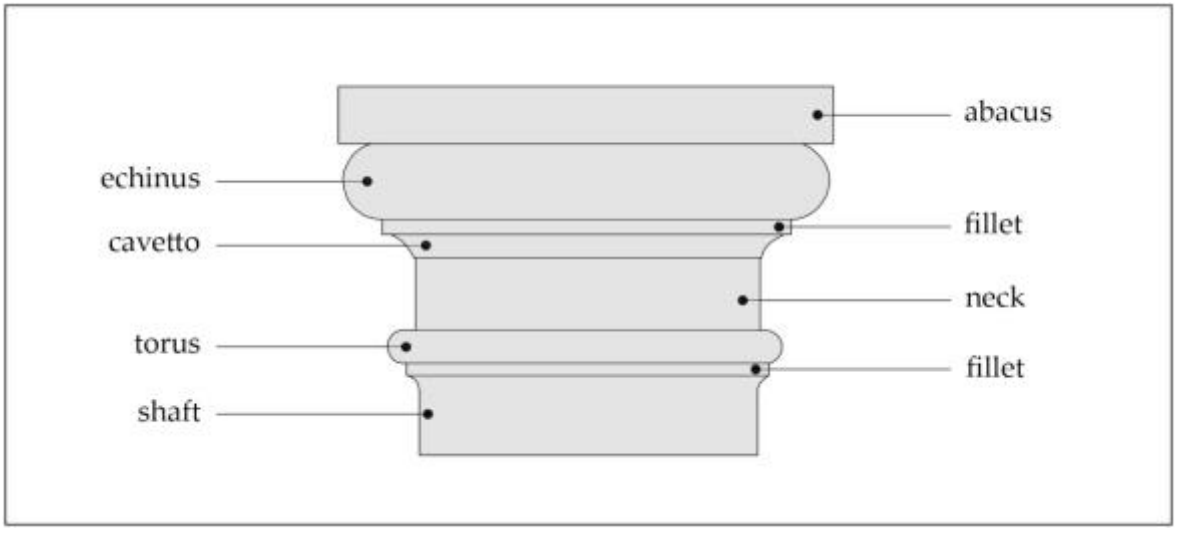

Fig. C. Tuscan capital: echinus with torus profile

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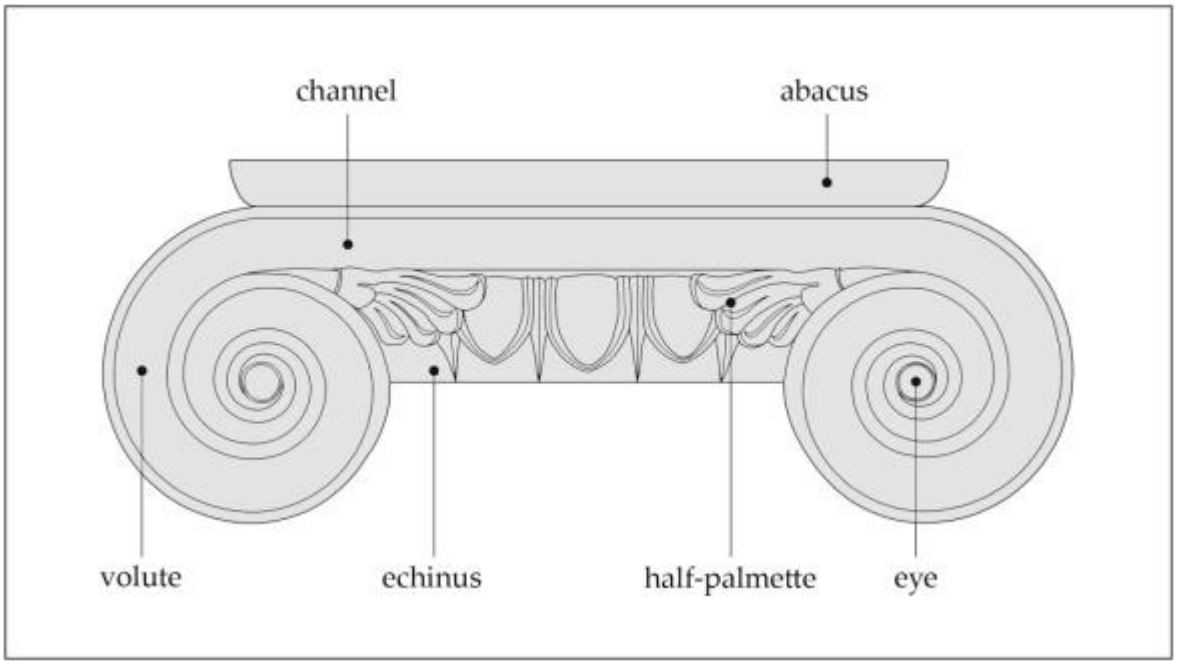

Fig. D. Ionic capital: frontal side

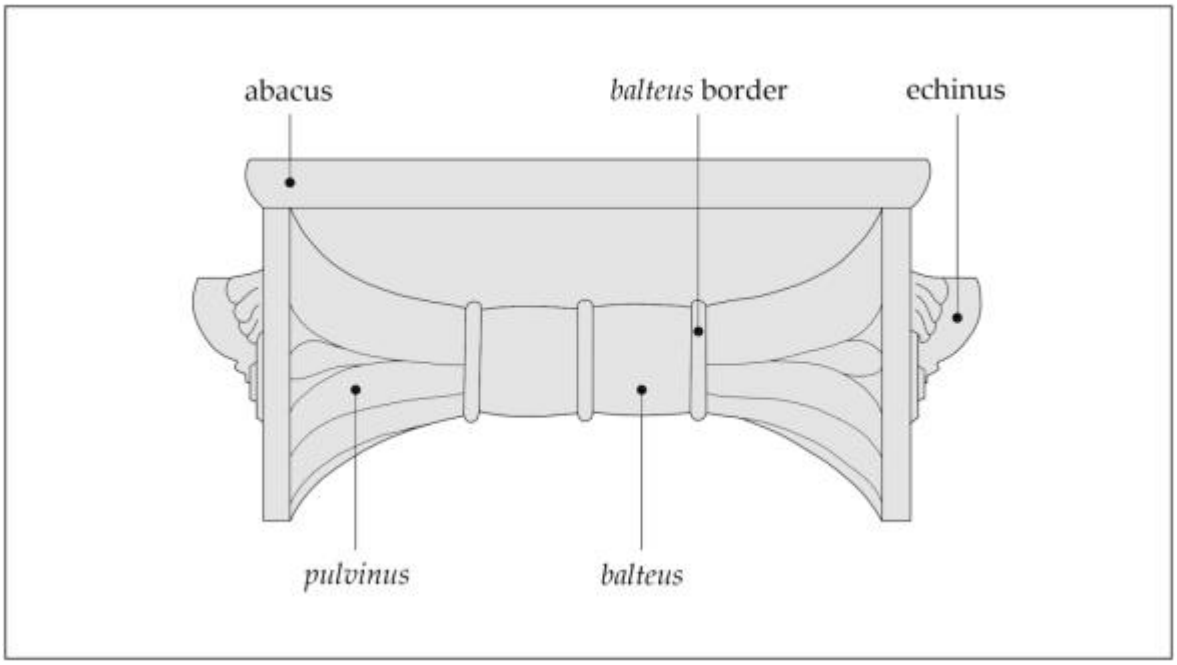

Fig. E. Ionic capital: lateral side

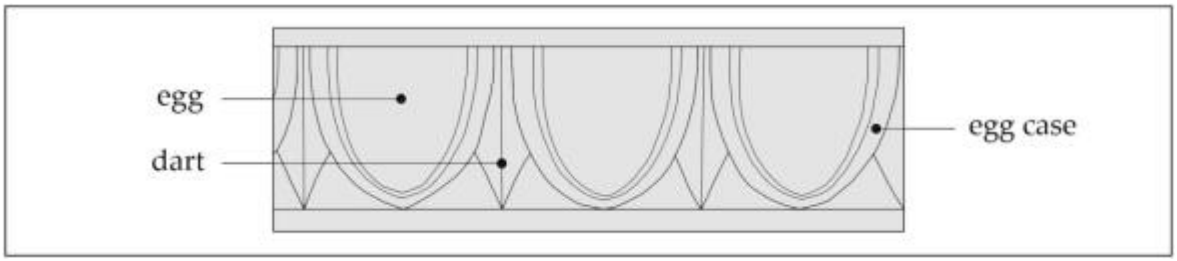

Fig. F. Ionic capital: detail of *kymation*

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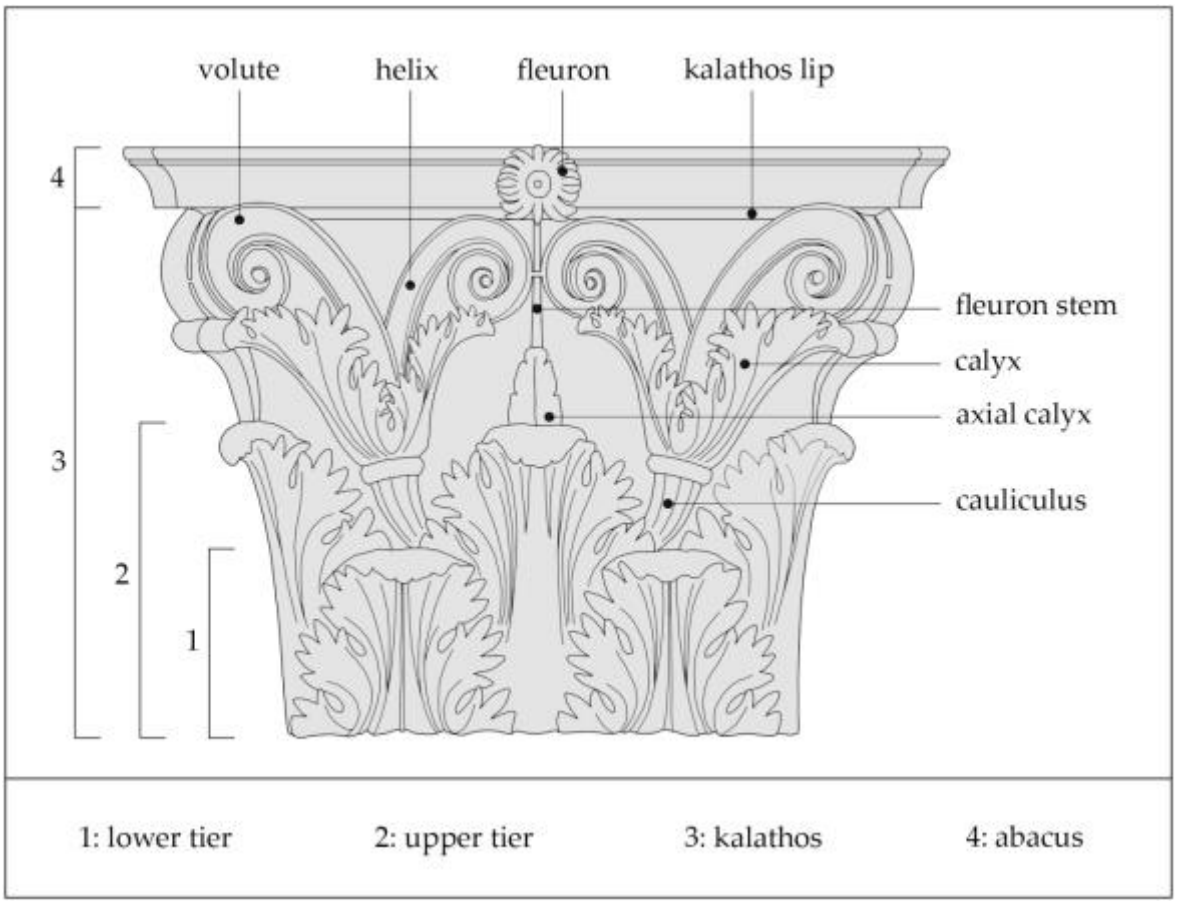

Fig. G. Normal Corinthian capital

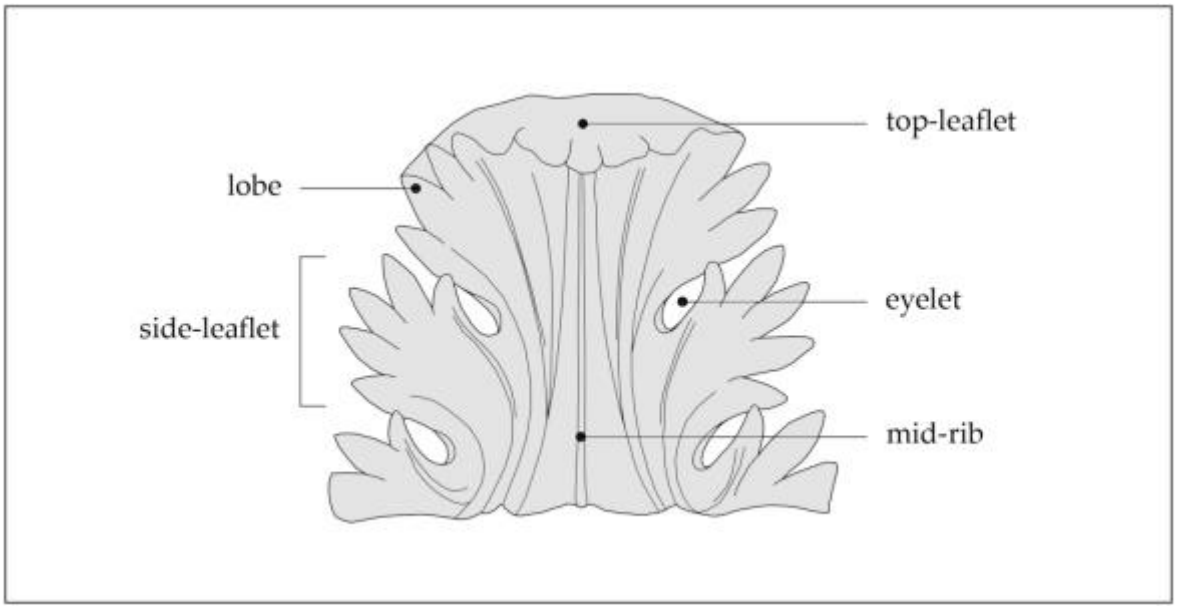

Fig. H. Corinthian capital: detail of acanthus leaf

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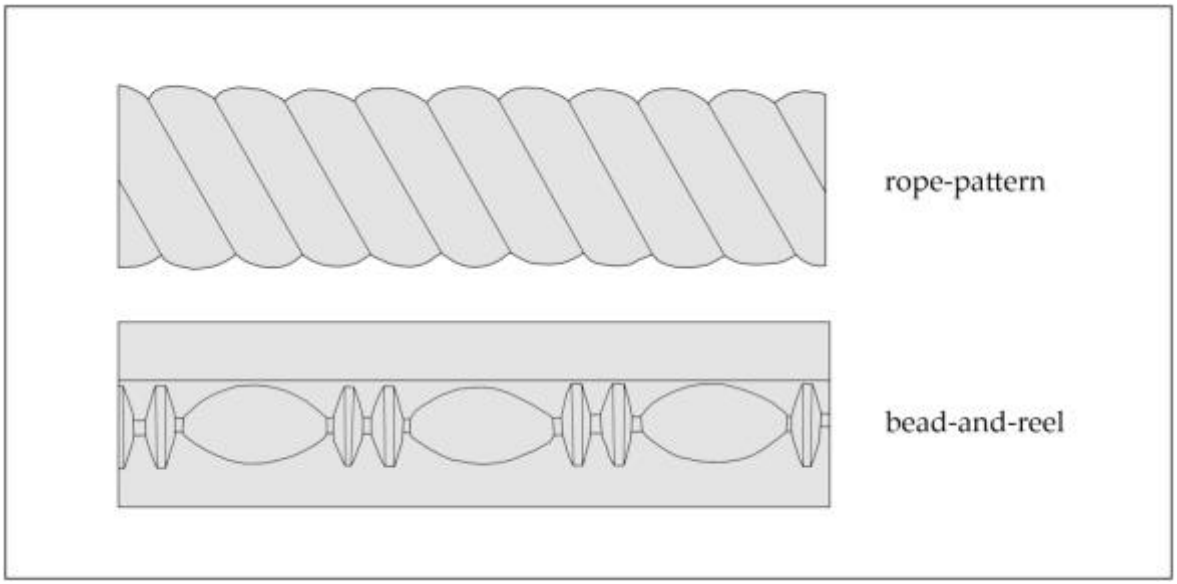

Fig. I. Rope-pattern and bead-and-reel motifs

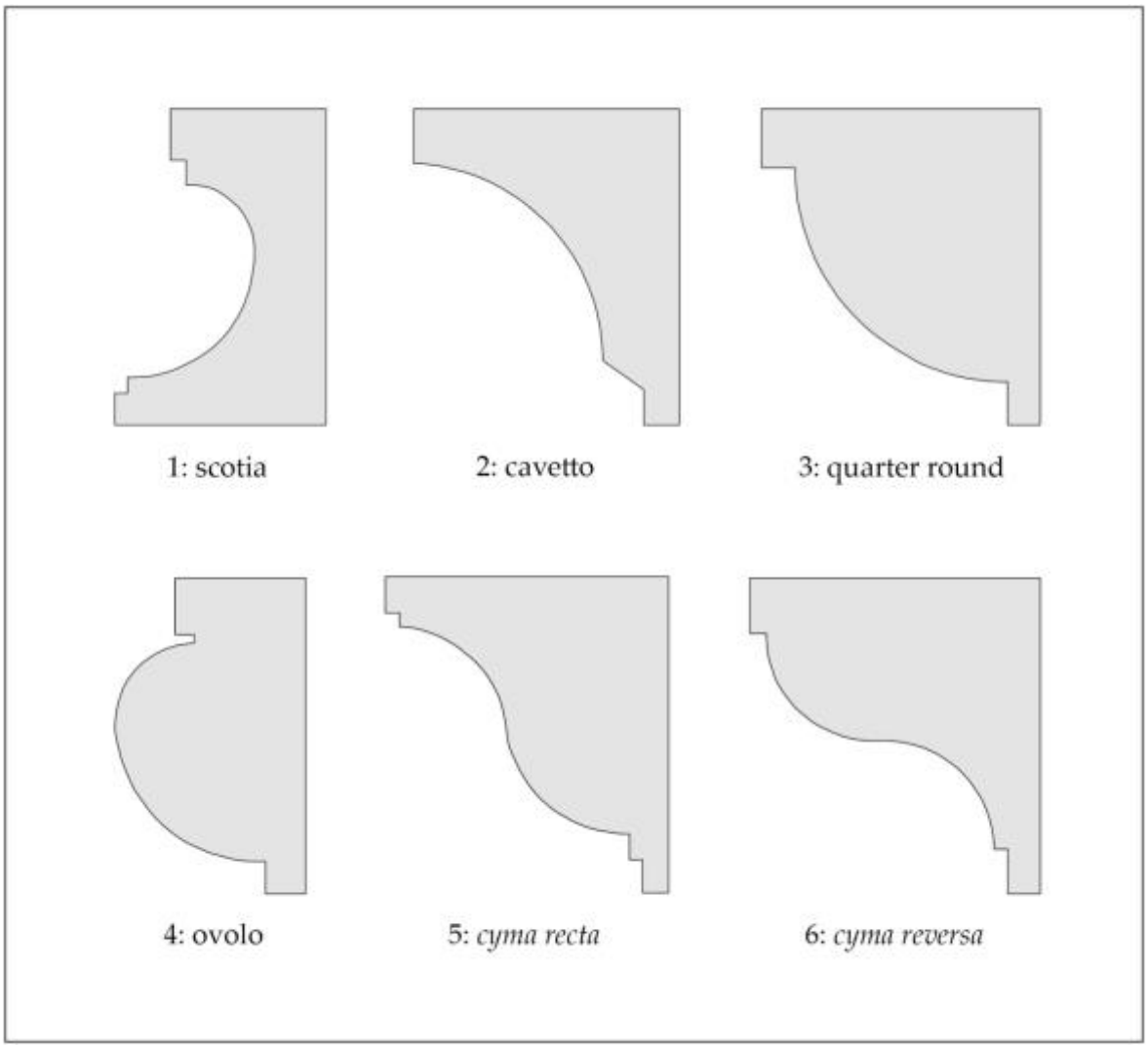

Fig. J. Profile of principal mouldings. 1: scotia; 2: cavetto; 3: quarter round; 4: ovolo; 5: *cyma recta*; 6: *cyma reversa*

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CATALOGUE

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CATALOGUE: *VOLUBILIS*

In the Catalogue are described 326 elements of architectural decoration: 182 bases and 144 capitals (Plates 1-19; Plans 1-9). Fieldwork at *Volubilis* was carried out in four seasons: June 2011, September 2012, May 2013, and September 2014. Due to the extremely large number of architectural pieces preserved at the site, I decided to limit the sample for this research to the evidence from the most significant buildings and districts: the forum area (basilica, *capitolium* and annexed piazza, and the so-called "*macellum*"); the gates of the city walls; the public baths ("thermes du nord" and baths of Gallienus); "temple B"; the arch of Caracalla; the *porticus* along the *decumanus maximus*; and the palace of Gordianus. The evidence from private buildings, such as the *domus* in the north-east district, is not included. However, specific references to the architectural elements from these buildings are cited, when relevant, among the parallels.

While recording these elements, the environmental conditions were generally quite good and the visibility of the pieces was not compromised. Only the sector north of the basilica was covered by vegetation, and it is possible that some elements preserved in that particular spot were overlooked.

A note on measurements is necessary. In most cases they were recorded directly *in situ* during the field research. However, some pieces have been repositioned on the top of columns and pilasters during restoration works, thus making their recording impossible. These include: the capitals of the *capitolium*; the capitals of the arch of Caracalla; the capitals of the *porticus* along the *decumanus*; and some capitals belonging to the inner nave of the basilica and to its façade (inner and outer side). When at all possible, I reported the measurements indicated in other works (e.g. Luquet 1964c; Faddadi 1991); otherwise, if no such recordings exist, the entry is left blank.

1. BASES

Bases are divided in 49 types, all of them belonging to one same group (Attic bases). The following seven sub-groups are recognizable: Attic bases with plinth (►**Vol 1.1-16**); Attic

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bases with plinth and moulded pedestal (►**Vol 1.17**); Attic bases with plinth, joined to the shaft (►**Vol 1.18-28**); Attic bases with decorated plinth (►**Vol 1.29-32**); Attic bases with decorated plinth, joined to the shaft (►**Vol 1.33-35**); Attic bases without plinth (►**Vol 1.36-39**); and Attic bases without plinth, joined to the shaft (►**Vol 1.40-49**).

Attic bases (182 examples).

Attic bases with plinth (68 examples).

VOL 1.1 (Plate 1; Plans 3, 8). Column base. Plinth, torus, scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight to medium deterioration; some examples show a more advanced fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: 31.2 cm; plinth: w. 58.3 cm, h. 8.3 cm; base: h. 22.9 cm; lower torus: Ø 58.3 cm, h. 7.1 cm; scotia: h. 5.8 cm; fillets: h. 1.5-1.6 cm; upper torus: Ø 49.7 cm, h. 5.8 cm. **Examples and location**: 18 bases are attested. 14 of them belong to the *porticus* of the *capitolium* (eastern and western colonnade), repositioned *in situ* on as many pedestals. The other four bases are in the first peristyle in the palace of Gordianus: one is *in situ*, while three are scattered on the ground. **Parallels**: an undated base with identical profile, made of Zerhoun limestone, can be found at *Banasa* in the "maison du diplôme de Domitien" (►**Ban 1.2**). **Chronology**: the *capitolium* was dedicated to the emperor Macrinus in AD 217 (*IAM* 355). The surrounding *porticus* and piazza were likely completed within the first quarter of the third century AD (Akerraz *et al*. 1987b, 217). The palace of Gordianus was rebuilt from the foundations during the reign of Gordianus III, AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.2 (Plate 1; Plan 3). Column base. Plinth, lower torus with flattened profile, scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight deterioration; the corners of the plinth and the upper torus show some minor damage. **Material**: Zerhoun limestone. **Measurements**: total h.: 35.1 cm; plinth: w. 54.8 cm, h. 8.5 cm; base: h. 26.6 cm; lower torus: Ø 54.8 cm, h. 8.5 cm; scotia: h. 7.6 cm; fillets: h. 1.6-1.7 cm; upper torus: Ø 52.1 cm, h. 7.2 cm. **Examples and location**: one base, repositioned *in situ* on a pedestal of the *porticus* around the *capitolium* (colonnade on the

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western side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.3 (Plate 1; Plan 3). Column base. Plinth, torus with a reversed-ovolo profile, scotia with upper and lower fillets, second torus slightly smaller than the lower one. **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 29.7 cm; plinth: w. 57.4 cm, h. 8.6 cm; lower torus: Ø 56.8 cm, h. 6.4 cm; scotia: h. 5.9 cm; fillets: h. 1.2-1.4 cm; upper torus: Ø 52 cm, h. 6.1 cm. **Examples and location**: one base from the *porticus* around the *capitolium* (eastern colonnade), repositioned *in situ* on one of the pedestals. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.4 (Plate 1; Plan 9). Column base. Plinth, lower and upper torus with flattened profile, scotia highlighted by upper and lower fillets. **State of preservation**: medium deterioration; the right-hand corner of the plinth is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 27.2 cm; plinth: w. 55.8 cm, h. 7.5 cm; lower torus: Ø 55.8 cm, h. 6 cm; scotia: h. 6.5 cm; fillets: h. 1-1.6 cm; upper torus: Ø 53 cm, h. 6 cm. **Examples and location**: one base, not *in situ*, lying on the ground inside "temple B". **References**: Morestin 1980, 42, fig. 25, no. 9. **Chronology**: it has been suggested that the production of the bases of "temple B" was contemporary with those from the palace of Gordianus, c. mid-third century AD (Morestin 1980, 42). The hypothesis is plausible, but cannot be univocally proved.

VOL 1.5 (Plate 1; Plans 3, 8). Column base. Plinth, torus, high scotia with a rather flat profile and highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight deterioration; some examples show slightly more advanced damages. **Material**: Zerhoun limestone. **Measurements**: total h.: 34.7 cm; plinth: w. 59.5 cm, h. 8.2 cm; base: h. 26.5 cm; lower torus: Ø 59.5 cm, h. 8.2 cm; scotia: h. 8.4 cm; fillets: h. 1.2-1.5 cm; upper torus: Ø 48.5 cm, h. 7 cm. **Examples and location**: 10 bases. Seven of them belong to the *porticus* of the *capitolium*; six have been repositioned *in situ* on the pedestals of the eastern and western colonnade, while one base lies upside down on the ground of the piazza. The other three bases come from the first peristyle inside the palace of

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Gordianus: one has been repositioned *in situ*, while the other two are on the ground. **Parallels**: similar bases with a high scotia are in the "maison au cortège de Venus" at *Volubilis*, perhaps datable to the mid-third century AD (Étienne 1960, 79, pl. 73, fig. 2). Two similar bases of uncertain chronology are at *Banasa*: one is on the ground of the "maison à la mosaïque de Vénus" (►**Ban 1.3**), the other is in the *lapidarium* (►**Ban 1.4**). Another (undated) base, with a flattened scotia, comes from the productive district at *Sala* (►**Sal 1.22**). In North Africa, two bases with identical high scotia – one of them also with a high plinth – come from *Caesarea* (Pensabene 1982b, 146, pl. 49, no. 235: from the west baths; no. 237: provenance unknown); *Lepcis Magna*, one example datable from the first quarter of the second century AD onwards (Mahler 2006, 203, pl. 79, no. 518 AB: from the *Calchidicum*). In Spain, a (Late Antique?) base is in the mosque of Cordoba (Peña Jurado 2010, 60, pl. 10, no. 29). **Chronology**: first half of the third century, c. AD 217 to AD 238-241 (Akerraz *et al*. 1987b, 217; Thouvenot 1958, 9; *IAM* 355, 404).

VOL 1.6 (Plate 1; Plan 3). Engaged half-column base, similar to ►**Vol 1.5**. Plinth, torus, high scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 36.6 cm; plinth: w. 59 cm, h. 10 cm; base: h. 26.6 cm; lower torus: Ø 59 cm, h. 8.5 cm; scotia: h. 7.8 cm; fillets: h. 1.6-1.8 cm; upper torus: Ø 51.2 cm, h. 7.3 cm. **Examples and location**: two bases *in situ*, belonging to the half-columns at the southern edge of the *porticus* around the *capitolium* (east and west colonnade). **Parallels**: see ►**Vol 1.5**. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.7 (Plate 1; Plan 8). Column base, similar to ►**Vol 1.5**. Plinth, torus shaped as a reversed ovolo, high scotia with a rather flattened profile and highlighted by upper and lower fillets, upper torus with a rounded profile. **State of preservation**: slight level of deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 28.4 cm; plinth: w. 46.9 cm, h. 6.5 cm; base: h. 21.9 cm; lower torus: Ø 46.9 cm, h. 6.2 cm; scotia: h. 7.3 cm; fillets: h. 1.3-1.4 cm; upper torus: Ø 42.8 cm, h. 4.8 cm. **Examples and location**: one base in the palace of Gordianus, repositioned *in situ* on the pedestal at the entrance to the corridor between room 7 and room 22. **Parallels**: see ►**Vol 1.5**. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

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VOL 1.8 (Plate 1; Plan 6). Engaged half-column base. Plinth, torus with flattened profile, high scotia with upper and lower fillets, second smaller torus with flat profile. **State of preservation**: advanced deterioration; the right-hand corner of the plinth is broken and the upper torus was restored. **Material**: Zerhoun limestone. **Measurements**: total h.: 31.7 cm; plinth: w. 56.5 cm, h. 8.2 cm; base: h. 23.5 cm; lower torus: Ø 56.5 cm, h. 6.5 cm; scotia: h. 6.8 cm; fillets: h. 1-1.2 cm; upper torus: Ø 52.5 cm, h. 6.3 cm. **Examples and location**: one base, *in situ*, attached to the wall at the north side of the *natatio* inside the "thermes du nord". The base was probably associated with the smooth pseudo-impost capital ►**Vol 2.66**. **Chronology**: it is possible that the base belonged to the second building phase of the baths, c. end of the second century through the mid-third century AD (Lenoir, E. 1991, 153-8; Thébert 2003, 273).

VOL 1.9 (Plate 2; Plan 4). Engaged half-column base (heart-shaped pier). Plinth, torus, scotia with upper and lower fillets, second smaller torus. The right-hand side of the pier is decorated with vertical mouldings and with a motif featuring biconvex leaves. **State of preservation**: advanced deterioration; the scotia and the upper torus are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h. 17.7 cm; plinth: w. 36 cm, h. 5 cm; base: h. 12.7 cm; lower torus: Ø 36 cm, h. 4.5 cm; scotia: h. 2.7 cm; fillets: h. 0.5 cm; upper torus: Ø 32 cm, h. 3.3 cm. **Examples and location**: two bases, belonging to the same pier, located in front of the so-called "*macellum*" at the right-hand side of the staircase leading to the forum. **Chronology**: uncertain; the "*macellum*" seems to show various building phases comprised between the late first century BC and early third century AD (Akerraz *et al*. 1987b, 212).

VOL 1.10 (Plate 2; Plan 8). Column base. Plinth, torus, scotia with upper and lower fillets, second smaller torus, thin (almost unnoticeable) fillet at the top. **State of preservation**: slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 30.5 cm; plinth: w. 56.5 cm, h. 8.7 cm; base: h. 21.8 cm; lower torus: Ø 56.5 cm, h. 7.2 cm; scotia: h. 4.5 cm; fillets: h. 0.4 cm; upper torus: Ø 49.3 cm, h. 7.2 cm; upper fillet: h. 0.2 cm. **Examples and location**: two bases *in situ*, at the north-east and north-west corners of the small peristyle in front of room 18 inside the palace of Gordianus. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

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VOL 1.11 (Plate 2; Plan 8). Engaged half-column base. Almost identical to ►**Vol 1.10**; the fillet at the top is thicker. **State of preservation**: medium deterioration; the right-hand corner of the plinth is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 30.4 cm; plinth: w. 56.5 cm, h. 8.2 cm; base: h. 22.2 cm; lower torus: Ø 56.5 cm, h. 6.7 cm; scotia: h. 5.5 cm; fillets: h. 0.4 cm; upper torus: Ø 50 cm, h. 6.3 cm; upper fillet: h. 0.4 cm. **Examples and location**: two bases *in situ*, at the south-east and south-west corners of the peristyle facing room 18 of the palace of Gordianus. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.12 (Plate 2; Plan 6). Column base. Plinth, torus with flattened profile, scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight to medium level of deterioration for all the examples. **Material**: Zerhoun limestone. **Measurements**: total h.: 49.3 cm; plinth: w. 69.7 cm, h. 13.7 cm; base: h. 35.6 cm; lower torus: Ø 69.7 cm, h. 13.2 cm; scotia: h. 8.5 cm; fillets: h. 1.8-2.5 cm; upper torus: h. 9.2 cm. **Examples and location**: seven bases repositioned *in situ* on the pedestals of the arch of Caracalla (four bases from the east façade, three from the west façade). **Chronology**: the arch was inaugurated in AD 216/217 (*IAM* 390-1; Camporeale *et al*. 2008, 290).

VOL 1.13 (Plate 2; Plan 3). Column base. Plinth, torus, scotia with upper and lower fillets, second smaller torus. **State of preservation**: slight deterioration; the other two examples have a more advanced level of fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: 39.8 cm; plinth: w. 81.6 cm, h. 9.7 cm; base: h. 30.1 cm; lower torus: Ø 81.6 cm, h. 11 cm; scotia: h. 8.5 cm; fillets: 1.4-2 cm; upper torus: Ø 74.4 cm, h. 7.9 cm. **Examples and location**: three bases, repositioned *in situ*, belonging to the colonnade on the podium of the *capitolium*. **References**: Pensabene 2011, 211, fig. 3; Domingo Magaña 2012, 401, fig. 6. **Chronology**: the *capitolium* was dedicated to Macrinus in AD 217 (Barton 1982, 321; *IAM* 355).

VOL 1.14 (Plate 2; Plan 3). Engaged half-column base, almost identical to ►**Vol 1.13**. **State of preservation**: very advanced deterioration; broken vertically and along the right-hand side. **Material**: Zerhoun limestone. **Measurements**: total h.: 41.5 cm; plinth: w. 78.5 cm, h. 13 cm; base: h. 28.5 cm; lower torus: h. 11.1 cm; scotia: h. 5.3 cm; fillets: h. 1.2-1.8

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cm; upper torus: h. 7.7 cm. **Examples and location**: one base from the *capitolium*, repositioned *in situ* and attached to the outer wall of the *cella* (right-hand side of the temple). **Chronology**: AD 217 (Barton 1982, 321; *IAM* 355).

VOL 1.15 (Plate 2; Plan 8). Column base. Plinth, torus with rather flat profile, scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight deterioration; some examples show a slightly more advanced fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: 46.3 cm; plinth: w. 83.5 cm, h. 12.6 cm; base: h. 33.7 cm; lower torus: Ø 83.5 cm, h. 13.2 cm; scotia: h. 9.7 cm; fillets: h. 2-2.4 cm; upper torus: Ø 74.1 cm, h. 7 cm. **Examples and location**: 15 bases *in situ*, belonging to the Ionic colonnade of the palace of Gordianus facing the *decumanus maximus*. The bases are associated with the Ionic capitals ►**Vol 2.3**. **References**: Thouvenot 1958, 12-3, fig. 1c. **Chronology**: the palace of Gordianus was rebuilt in AD 238-241 (*IAM* 404) and the outer colonnade was erected during these works (Thouvenot 1958, 9).

VOL 1.16 (Plate 2; Plan 2). Column base. Plinth, torus, scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: slight level of deterioration; the upper torus is fragmented along the left-hand side. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.4 cm; plinth: w. 84.7 cm, h. 11.4 cm; base: h. 32 cm; lower torus: Ø 84.7 cm, h. 11.2 cm; scotia: h. 8.8 cm; fillets: h. 1.4-1.5 cm; upper torus: Ø 75.3 cm, h. 8.1 cm. **Examples and location**: one base from the basilica, not *in situ*, repositioned on a pedestal of the ground floor colonnade (towards the north side of the building). Due to the smaller size of the base, however, it is more likely that it belonged to the colonnade of the upper storey (Luquet 1967, 440-1) and that it should be associated with either capital ►**Vol 2.17** or ►**Vol 2.20**. **Chronology**: the construction of the basilica should be dated to between AD 210 and 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

Attic bases with plinth and moulded pedestal (five examples).

VOL 1.17 (Plate 3; Plan 8). Column base. Positioned on the top of a pedestal, likely recycled and then positioned upside down. The pedestal shows a square pillar at the base,

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surmounted by a *cyma recta* highlighted by upper and lower fillets, and crowned by a flat fascia at the top. The base is composed of: plinth at the bottom, lower torus, scotia with upper and lower fillets, and second smaller torus. **State of preservation**: slight to medium deterioration. **Material**: Zerhoun limestone. **Measurements**: pedestal total h.: 30.5 cm; pillar: w. 49.4 cm, h. 12 cm; *cyma recta*: h. 8.7 cm; fillets: h. 1.3-1.5 cm; fascia: w. 59.4 cm, h. 5.7 cm; base total h.: 27.6 cm; plinth: w. 56.2 cm, h. 8.8 cm; lower torus: Ø 56.2 cm, h. 6.9 cm; scotia: h. 4 cm; fillets: h. 0.5 cm; upper torus: Ø 48.7 cm, h. 6.5 cm. **Examples and location**: five bases *in situ*, belonging to the colonnade of the peristyle around the small fountain in room 42 of the palace of Gordianus. These bases are associated with the decorated pseudo-impost capitals ►**Vol 2.71-73**. **References**: Thouvenot 1958, 30, pl. 6, fig. 2. **Chronology**: the major restoration of the palace dates to the reign of Gordianus III, AD 238-241 (Thouvenot 1958, 9; *IAM* 404). However, it seems that this room was interested by later restorations. This would explain the recycling of the pedestals (not documented elsewhere in the palace) and the association of the bases with the decorated pseudo-impost capitals, the motifs of which would rather hint towards a chronology within the late third or fourth century AD (see ►**Vol 2.71-73**).

Attic bases with plinth, joined to the shaft (52 examples).

VOL 1.18 (Plate 3; Plan 6). Column base. Plinth, lower torus with flattened profile, high scotia with upper and lower fillets, upper torus, shaft. **State of preservation**: slight deterioration; one example shows a more advanced fragmentation. **Material**: Zerhoun limestone. **Measurements**: plinth: w. 54.2 cm, h. 8.8 cm; base: h. 23.8 cm; lower torus: Ø 54.2 cm, h. 6.5 cm; scotia: h. 7.8 cm; fillets: h. 1.8-2 cm; upper torus: Ø 49.2 cm, h. 5.7 cm; shaft: Ø c. 42 cm, h. c. 5.5 cm. **Examples and location**: three bases *in situ*, placed at the corners of the *natatio* inside the "thermes du nord" and associated with the smooth pseudo-impost capitals ►**Vol 2.65**. **Chronology**: the bases probably belonged to the second building phase of the baths, c. end of the second century AD – mid-third century AD (Lenoir, E. 1991, 153-8; Thébert 2003, 273).

VOL 1.19 (Plate 3; Plan 3). Engaged half-column base (pier with attached half-column and pilaster). Plinth, lower torus, scotia with upper and lower fillets, second smaller torus,

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fillet, shaft. **State of preservation**: very slight level of deterioration; the second example shows damage along the plinth and the lower torus. **Material**: Zerhoun limestone. **Measurements**: total h.: 64.2 cm; plinth: w. 59.6 cm, h. 9.2 cm; base: h. 28.5 cm; lower torus: Ø 59.6 cm, h. 9.2 cm; scotia: h. 6.2 cm; fillets: h. 1.6-1.7 cm; upper torus: Ø 53.4 cm, h. 7.2 cm; fillet: h. 1.8 cm; shaft: Ø 35.6 cm, h. 26.5 cm. **Examples and location**: two bases *in situ*, belonging to the piers at the west entrance to the piazza of the *capitolium* (inner side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.20 (Plate 3; Plan 3). Pilaster base (pier with attached half-column and pilaster), almost identical to ►**Vol 1.19**. Both tori have a trapezoidal profile. **State of preservation**: moderate deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 53.5 cm; plinth: w. 44.5 cm, h. 8.2 cm; base: h. 25.7 cm; lower torus: w. 44.5 cm, h. 8.4 cm; scotia: h. 6 cm; fillets: h. 1.5-1.8 cm; upper torus: w. 43.1 cm, h. 6.7 cm; fillet: h. 1.6 cm; shaft: w. 30.4 cm, h. 19.6 cm. **Examples and location**: two bases *in situ* (same piers of ►**Vol 1.19**) at the west entrance to the piazza of the *capitolium*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.21 (Plate 3; Plan 3). Pilaster base. Plinth, lower torus with trapezoidal profile, scotia with upper and lower fillets, second smaller torus with the same profile of the lower torus, fillet, shaft. **State of preservation**: advanced deterioration; the upper torus is damaged. **Material**: Zerhoun limestone. **Measurements**: total h. 35.8 cm; plinth: w. 46.3 cm, h. 6.9 cm; base: h. 20 cm; lower torus: w. 46.3 cm, h. 7.1 cm; scotia: h. 3.7 cm; fillets: h. 1-1.2 cm; upper torus: w. 43.5 cm, h. 6.2 cm; fillet: h. 1.2 cm; shaft: w. 32.5 cm, h. 8.9 cm. **Examples and location**: four bases *in situ* in the piazza of the *capitolium*; two of them belong to the decoration of the room at the south-west edge of the area, the other two to the second room along the east side. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.22 (Plate 3; Plan 3). Pilaster base. Plinth, lower torus with trapezoidal profile, scotia highlighted by upper and lower fillets, second smaller torus, fillet, shaft. **State of preservation**: advanced deterioration; the corners of the plinth and the upper torus are

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fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 29.7 cm; plinth: w. 41 cm, h. 6.1 cm; base: h. 19.6 cm; lower torus: w. 41 cm, h. 6.1 cm; scotia: h. 4.5 cm; fillets: h. 1 cm; upper torus: w. 38.5 cm, h. 5.6 cm; fillet: h. 1.3 cm; shaft: w. 30 cm, h. 4 cm. **Examples and location**: two bases *in situ* at the entrance of the second room at the north-east side of the piazza of the *capitolium*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.23 (Plate 4; Plan 3). Pilaster base. Plinth, lower torus with trapezoidal profile, scotia with upper and lower fillets, second smaller torus, fillet, shaft decorated with four convex flutes. **State of preservation**: medium to advanced deterioration; the plinth and upper torus are damaged. **Material**: Zerhoun limestone. **Measurements**: total h.: 52.1 cm; plinth: w. 46.2 cm, h. 9.2 cm; base: h. 26.7 cm; lower torus: w. 46.2 cm, h. 9.6 cm; scotia: h. 6.5 cm; fillets: h. 1.4-1.7 cm; upper torus: w. 42.5 cm, h. 7.7 cm; fillet: h. 1.5 cm; shaft: w. 31.3 cm, h. 14.7 cm. **Examples and location**: four bases *in situ* from the piazza of the *capitolium*; two of them belong to the piers at the east entrance (outer side), the other two are at the entrance to the second room along the west side of the piazza. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.24 (Plate 4; Plan 2). Engaged half-column base. Plinth, lower torus, throat moulding marked by upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration for all the examples, with marked signs of damage on the whole surface. **Material**: Zerhoun limestone. **Measurements**: total h.: 45.8 cm; plinth: w. 65.8 cm, h. 8.1 cm; base: h. 23.2 cm; lower torus: Ø 65.8 cm, h. 8.2 cm; throat moulding: h. 5.3 cm; fillets: h. c. 0.8 cm; upper torus: Ø 65.8 cm, h. 7 cm; fillet: h. 0.7 cm; cavetto: h. 6.4 cm; shaft: Ø 46.7 cm, h. 7.4 cm. **Examples and location**: 12 bases *in situ*, belonging to the outer western façade of the basilica, associated with the capitals ►**Vol 2.8-10**. **Parallels**: numerous similar bases can be found in the "thermes du fleuve" at *Thamusida*, dated to the first construction phase of the building, towards the second half of the first century AD (Camporeale 2008c, 220-1, type 2.5, fig. 11). Only one of these bases belongs to a later phase of the building, dated approximately to the first half of the third century AD (Camporeale 2008c, 221, type 2.6, fig. 12). **Chronology**: the basilica was probably built

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between AD 210 and 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 1.25 (Plate 4; Plan 2). Engaged half-column base, quite similar to ►**Vol 1.24**. Plinth, square-cut groove, lower torus, throat moulding with upper and lower fillets, second smaller torus, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration; the corners of the plinth and the upper torus are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.3 cm; plinth: w. 65 cm, h. 6.9 cm; base: h. 33.2 cm; square-cut groove: h. 3 cm; lower torus: Ø 65 cm, h. 7.9 cm; throat moulding: h. 7.3 cm; fillets: h. 0.4-0.7 cm; upper torus: Ø 63.6 cm, h. 7.9 cm; fillet: h. 0.3 cm; cavetto: h. 5.9 cm; shaft: Ø 45.6 cm, h. 5.2 cm. **Examples and location**: one base *in situ*, at the south-west corner of the basilica's outer façade, associated with one of the capitals ►**Vol 2.8**. **Parallels**: see ►**Vol 1.24**, in particular the base from *Thamusida* with a later chronology. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 1.26 (Plate 4; Plan 8). Engaged half-column base. Plinth, lower torus with flattened profile, high scotia marked by upper and lower fillets, second smaller torus with flat profile, fillet, reversed cavetto and shaft. **State of preservation**: slight to medium deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 46.2 cm; plinth: w. 67.9 cm, h. 8.9 cm; base: h. 29.4 cm; lower torus: Ø 64.9 cm, h. 8.8 cm; scotia: h. 10.4 cm; fillets: h. 1.7 cm; upper torus: Ø 63.5 cm, h. 6.2 cm; fillet: h. 1.5 cm; cavetto: h. 4.6 cm; shaft: Ø 49.5 cm, h. 1.8 cm. **Examples and location**: three bases, not *in situ*, repositioned on the pedestals along the east side of the first peristyle in the palace of Gordianus. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.27 (Plate 4; Plan 2). Column base. Plinth, lower torus, scotia highlighted by upper and lower fillets, second smaller torus, fillet, reversed cavetto and shaft. **State of preservation**: slight to medium deterioration for all the examples. **Material**: Zerhoun limestone. **Measurements**: total h.: 49.6 cm; plinth: w. 102.6 cm, h. 10 cm; base: h. 38.6 cm; lower torus: Ø 102.4 cm, h. 10.2 cm; fillets: h. 1.7-1.8 cm; scotia: h. 6.7 cm; upper torus: Ø 97.2 cm, h. 8.9 cm; fillet: h. 1.6 cm; cavetto: h. 5.2 cm; shaft: Ø 75.6 cm, h. 1 cm. **Examples**

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and location: 15 bases belonging to the inner colonnade of the basilica's ground floor, repositioned *in situ* on the pedestals. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 1.28 (Plate 4; Plan 2). Engaged half-column base, almost identical to ►**Vol 1.27**. **State of preservation**: very slight deterioration; some examples have a more advanced level of fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.8 cm; plinth: w. 102.4 cm, h. 9.9 cm; base: h. 37.1 cm; lower torus: Ø 102.4 cm, h. 9.8 cm; fillets: h. 1.5 cm; scotia: h. 5.6 cm; upper torus: Ø 98.4 cm, h. 9.8 cm; fillet: h. 1.5 cm; cavetto: h. 6.4 cm; shaft: Ø 76.2 cm, h. 1.8 cm. **Examples and location**: four bases *in situ*, at the corners of the central nave of the basilica, marking the junction with the southern and northern apses. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

Attic bases with decorated plinth (four examples).

VOL 1.29 (Plate 5; Plan 3). Engaged half-column base (pier with attached half-column and pilaster). High plinth decorated at the bottom of the front side with two circles with inscribed stars/flowers – each having six biconvex beans/petals, similar to the decoration of ►**Vol 1.9**. Lower torus with trapezoidal profile, high scotia highlighted by upper and lower fillets, smaller upper torus with trapezoidal profile. **State of preservation**: medium deterioration; the right-hand side of the plinth and lower torus are damaged. **Material**: Zerhoun limestone. **Measurements**: total h.: 59 cm; plinth: w. 61.4 cm, h. 29.7 cm; base: h. 29.3 cm; lower torus: Ø 61.4 cm, h. 9.7 cm; scotia: h. 10.2 cm; fillets: h. 1.7-2.5 cm; upper torus: Ø 51.8 cm, h. 7.2 cm. **Examples and location**: one base *in situ*, belonging to the pier at the right-hand side of the east entrance to the piazza of the *capitolium* (inner side). **References**: Pensabene 2011, 214, fig. 12. **Parallels**: similar half-column and pilaster bases with (undecorated) high plinth and high scotia can be found at *Lixus* in the *domus* of Helios, decorating the pillars of the main entrance, datable to the late first – early second century AD (►**Lix 1.12**). In Spain two bases with high plinths and scotiae come from Xàbia, perhaps datable to between the second half of the first century AD and the second half of the second century AD (Escrivà Chover 2005, 98, no. A140: from a fishing factory

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and *villa*). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.30 (Plate 5; Plan 3). Engaged half-column base (pier with attached half-column and pilaster), almost identical to ►**Vol 1.29**. The plinth is decorated with a circle and inscribed star/flower on the left-hand side (identical to the decoration of ►**Vol 1.29**). On the left portion of the front side is a small, naked masculine figurine holding two objects in its hands, probably left unfinished. **State of preservation**: advanced deterioration; the upper part of the base is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 61.5 cm; plinth: w. 59.9 cm, h. 30.2 cm; base: h. 31.3 cm; lower torus: Ø 59.9 cm, h. 9.7 cm; scotia: h. 9.7 cm; fillets: h. 1.7-2 cm; upper torus: Ø 51 cm, h. 7.1 cm. **Examples and location**: one base *in situ*, belonging to the pier at the left-hand side of the east entrance to the piazza of the *capitolium* (inner side). **References**: Pensabene 2011, 214. **Parallels**: see ►**Vol 1.29**. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.31 (Plate 5; Plan 3). Pilaster base (pier with attached half-column and pilaster). High plinth decorated with a *kantharos* in the middle of the front side. The body of the *kantharos* has four drop-shaped flutes; two large handles are set at the top of the rim and are joined to the body underneath. Lower torus with trapezoidal profile, high scotia highlighted by upper and lower fillets, smaller upper torus with trapezoidal profile. **State of preservation**: medium deterioration; the left-hand corner of the upper torus is broken. **Material**: Zerhoun limestone. **Measurements**: see ►**Vol 1.29**. **Examples and location**: one base *in situ*, belonging to the same pier of ►**Vol 1.29**, at the right-hand side of the east entrance to the piazza of the *capitolium* (inner side). **References**: Pensabene 2011, 214. **Parallels**: see ►**Vol 1.29**. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.32 (Plate 5; Plan 3). Pilaster base (pier with attached half-column and pilaster), almost identical to ►**Vol 1.31**. It is decorated with a *kantharos* on the frontal side of the plinth as well, although the shape is bulkier and the carving of the flutes less accurate. **State of preservation**: advanced deterioration; the left-hand side of the plinth and lower

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torus are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 57 cm; plinth: w. 45.8 cm, h. 27.5 cm; base: h. 29.5 cm; lower torus: w. 45.8 cm, h. 8.5 cm; scotia: h. 7.5 cm; fillets: h. 1.9-2.4 cm; upper torus: w. 40.9 cm, h. 8.5 cm. **Examples and location**: one base *in situ*, belonging to the same pier of ►**Vol 1.30**, positioned at the left-hand side of the east entrance to the piazza of the *capitolium* (inner side). **References**: Pensabene 2011, 214. **Parallels**: see ►**Vol 1.29**. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

Attic bases with decorated plinth, joined to the shaft (four examples).

VOL 1.33 (Plate 5; Plan 3). Pilaster base. The plinth features a lattice pattern decoration on the whole surface of the front side. In the middle is a rectangle with a small *kantharos*, similar to that of ►**Vol 1.31-32**, although the shape is more schematic. Lower torus with trapezoidal profile, scotia highlighted by upper and lower fillets, second smaller torus with the same profile of the lower torus, fillet. The shaft presents an astragal at the bottom decorated with a rope-pattern motif. **State of preservation**: slight deterioration; the lower part of the plinth is irregular with some signs of fragmentation; the upper torus of the second example is fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 40.4 cm; plinth: w. 48.6 cm, h. 8 cm; base: h. 25.5 cm; lower torus: w. 48.6 cm, h. 7.9 cm; scotia: h. 6.4 cm; fillets: h. 1.6-2.1 cm; upper torus: w. 43 cm, h. 6.6 cm; fillet: h. 1.5 cm; astragal: h. 1.5 cm; shaft: w. 32 cm, h. 5.4 cm. **Examples and location**: two bases *in situ*, at the entrance to the third room along the eastern side of the piazza of the *capitolium* (left-hand side of the entrance to the piazza). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.34 (Plate 5; Plan 3). Pilaster base. The plinth is decorated on the frontal side with two long rectangular "*tabulae*" (one slightly smaller than the other), separated by a vertical groove. Both "*tabulae*" have a rectangle inscribed. Lower torus with trapezoidal profile, scotia with upper and lower fillets, second torus, and portion of the shaft. **State of preservation**: slight deterioration; the left-hand corners of the plinth, the lower torus, and the top of the shaft show some damage. **Material**: Zerhoun limestone. **Measurements**: total h.: 35.8 cm; plinth: w. 42.3 cm, h. 7.9 cm; base: h. 23.9 cm; lower torus: w. 42.3 cm, h.

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7.7 cm; scotia: h. 6.2 cm; fillets: h. 1.7-2 cm; upper torus: w. 38.7 cm, h. 5.9 cm; shaft: w. 30.6 cm, h. 4 cm. **Examples and location**: one base *in situ*, at the left-hand side of the entrance to the first room on the eastern side of the piazza of the *capitolium*. **Parallels**: engaged half-column bases at *Volubilis*, with a similar decoration on the plinth, are in the "maison aux travaux d'Hercule", adorning the heart-shaped piers at the entrance, dated to the end of the second – third century AD (Thouvenot 1948a, 70, fig. 2; Étienne 1960, 31, pl. 33, fig. 2; pl. 44, fig. 1; Pensabene 2011, 250, fig. 53). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.35 (Plate 6; Plan 3). Pilaster base, similar to ►**Vol 1.34**. The front side of the plinth features a single "*tabula*" covering the entire surface. The "*tabula*" has a marked rim with slightly rounded profile, and a rectangle inscribed. Lower torus with trapezoidal profile, scotia with upper and lower fillets, second smaller torus, fillet. The shaft has four flutes and is underlined at the bottom by a high throat moulding. **State of preservation**: very slight deterioration; the right-hand corner of the upper torus is fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 53.2 cm; plinth: w. 45.5 cm, h. 8.2 cm; base: h. 25.8 cm; lower torus: w. 45.5 cm, h. 8.3 cm; scotia: h. 6.3 cm; fillets: h. 1.4-1.5 cm; upper torus: w. 40.8 cm, h. 6.7 cm; fillet: h. 1.4 cm; throat: h. 7.6 cm; shaft: w. 31.9 cm, h. 11.6 cm. **Examples and location**: one base *in situ*, at the right-hand side of the entrance to the first room on the eastern side of the piazza of the *capitolium*. **Parallels**: for the decoration of the plinth see ►**Vol 1.34**. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

Attic bases without plinth (seven examples).

VOL 1.36 (Plate 6; Plan 8). Engaged half-column base (pier with attached half-column and pilaster). Lower torus underlined at the bottom by a fillet, scotia marked by upper and lower fillets, second smaller torus, fillet and reversed cavetto with a markedly flattened profile. **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 31.9 cm; base: h. 22.3 cm; fillet: h. 1.5 cm; lower torus: Ø 52.4 cm, h. 6.5 cm; scotia: h. 6 cm; fillets: h. 1.2-1.5 cm; upper torus: Ø 49 cm, h. 6 cm; fillet: h. 1.7 cm; cavetto: h. 6.4 cm. **Examples and location**: two bases *in situ*, located at the

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entrance to room 5 in front of the first peristyle of the palace of Gordianus. **Parallels**: undated bases with similar profile can be seen at *Banasa*: one pilaster base is at the left-hand side of the entrance to the so-called "*macellum*" (►**Ban 1.17**); two column bases, joined to the shaft at the top and without any fillet under the lower torus, come from the peristyle of the "maison du génie de l'abondance" (►**Ban 1.23**). In North Africa we find similar examples at *Lepcis Magna*, perhaps datable between the end of the first century BC and the first half of the first century AD (Mahler 2006, 207-8, nos. 557-9 AB: from the *porticus* south-west of the *macellum*). More bases with a quite similar profile are attested in Spain at *Iuliobriga*, although the chronology is uncertain – perhaps Flavian period, or third century AD? (Escrivà Chover 2005, 109, nos. A158-9). **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.37 (Plate 6; Plan 8). Pilaster base (pier with attached half-column and pilaster), almost identical to ►**Vol 1.36**. The cavetto at the top is concave. **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 31.9 cm; base: h. 23.4 cm; fillet: 1.5 cm; lower torus: Ø 51.2 cm, h. 6.8 cm; scotia: h. 6.3 cm; fillets: h. 1.5-1.7 cm; upper torus: Ø 48.2 cm, h. 6.7 cm; fillet: h. 1.4 cm; cavetto: h. 5.6 cm. **Examples and location**: two bases *in situ*, belonging to the same piers of ►**Vol 1.36**, at the entrance to room 5 inside the palace of Gordianus. **Parallels**: see ►**Vol 1.36**. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.38 (Plate 6; Plan 8). Pilaster base. Fascia, torus underlined by a fillet, scotia with upper and lower fillets, upper torus slightly smaller than the lower torus, fillet and reversed cavetto. **State of preservation**: slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 41 cm; base: h. 27.1 cm; fascia: h. 5.2 cm; fillet: h. 2.7 cm; lower torus: w. 64.2 cm, h. 9.3 cm; scotia: h. 5.5 cm; fillets: h. 0.5 cm; upper torus: w. 62.6 cm, h. 8.8 cm; fillet: h. 1 cm; cavetto: h. 5 cm. **Examples and location**: two bases *in situ*, belonging to the same pier set at the entrance to room 22 in the palace of Gordianus. **Parallels**: see ►**Vol 1.36**. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.39 (Plate 6; Plan 3). Pilaster base. Lower torus underlined by a fillet, high throat moulding marked by upper and lower fillets, second torus with the same width of the

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lower torus, fillet and reversed cavetto. **State of preservation**: advanced deterioration; broken vertically along the right-hand side. **Material**: Zerhoun limestone. **Measurements**: total h.: 36.9 cm; base: h. 27.7 cm; fillet: h. 2 cm; lower torus: w. 56.5 cm, h. 7.5 cm; throat moulding: h. 7.5 cm; fillets: h. 0.8-1.5 cm; upper torus: w. 56.5 cm, h. 7.5 cm; fillet: h. 1.2 cm; cavetto: h. 6 cm. **Examples and location**: one base *in situ*, at the entrance to the small room (temple?) at the left-hand side of the *capitolium*. **Chronology**: uncertain; the construction of this annexed room may have taken place at a later stage than the temple and piazza (first quarter of the third century AD).

Attic bases without plinth, joined to the shaft (42 examples).

VOL 1.40 (Plate 6; Plan 9). Column base. Lower torus underlined by a fillet, shallow square-cut groove highlighted by upper and lower fillets, upper torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: slight deterioration; the lower torus shows some damage. **Material**: Zerhoun limestone. **Measurements**: total h.: 53.2 cm; base: h. 21.8 cm; fillet: h. 3 cm; lower torus: Ø 58 cm, h. 6.5 cm; square-cut groove: h. 2.4 cm; fillets: h. 2.5-2.6 cm; upper torus: Ø 58 cm, h. 6 cm; fillet: h. 1.5 cm; cavetto: h. 5.4 cm; shaft: Ø 45.5 cm, h. 21.5 cm. **Examples and location**: one base, not *in situ*, scattered on the ground inside "temple B". **References**: Morestin 1980, 42, fig. 25, no. 2 (?). **Parallels**: numerous bases with similar profile, and with a square-cut groove separating the two tori, are found at *Banasa*: 25 examples belong to the colonnade of the *porticus* in the forum area (►**Ban 1.28-29**), datable to the early second century AD (Brouquier-Reddé *et al*. 2004, 1891-6); one larger base, not *in situ*, is currently found on the podium of the temple with seven *cellae* (►**Ban 1.19**); three more bases are in the peristyle of the "maison à la mosaïque de Vénus", c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203) (►**Ban 1.31**). A similar base was found at *Sala* in the layers underneath the forum area and is likely datable to the pre-Roman period, c. mid-late first century BC (►**Sal 1.24**; Boube 1967, 322, fig. 11a). One base at *Thamusida*, undated and not *in situ*, is placed inside the "insula aux piliers" (Camporeale 2008c, 218-9, type 2.1, fig. 7). Three other examples are found at *Lixus*, not *in situ*, outside the *domus* of Mars and Rhea, in the *garum* factories, and inside "building E", respectively (►**Lix 1.13-15**). Another base with similar profile, dated to the reign of Juba II, was found at *Cotta* underneath some

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Roman period layers (Ponsich 1970, 211, fig. 56.1: base at the right-hand side). In North Africa, a close parallel is with the bases from the mausoleum of Gasr Doga (Libya), featuring a more traditional scotia, dated to the early first century AD (Bigi *et al*. 2009, 30, fig. 10a). In Spain we find two similar bases: one at *Saguntum*, not *in situ*, c. Augustan period (Escrivà Chover 2005, 75, no. A96); the second in a settlement near Salinas de Rosío, perhaps early third century AD (Escrivà Chover 2005, 108, no. A157). **Chronology**: these bases from "temple B" have been considered contemporary with similar examples from the palace of Gordianus (Morestin 1980, 42). However, "temple B" shows different building phases and the architectural elements recovered are not easily associable with a specific phase.

VOL 1.41 (Plate 7; Plan 8). Pilaster base. Lower torus underlined by two fillets, scotia highlighted by upper and lower fillets, second torus slightly smaller than the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: slight deterioration for all the examples. **Material**: Zerhoun limestone. **Measurements**: total h.: 47.8 cm; base: h. 22.1 cm; fillets: h. 1.8-2.4 cm; lower torus: w. 48.2 cm, h. 7.5 cm; scotia: h. 4.8 cm; fillets: h. 0.4 cm; upper torus: w. 47.6 cm, h. 6.7 cm; fillet: h. 0.5 cm; cavetto: h. 6.3 cm; shaft: w. 38.8 cm, h. 14.7 cm. **Examples and location**: four bases *in situ* from the palace of Gordianus: two are placed at the entrance to the corridor which separates room 7 and room 22; the other two are at the entrance to room 33. **Parallels**: a pilaster base with a similar profile, not provided with fillets under the lower torus, comes from *Lepcis Magna*, perhaps datable to between the end of the first century BC and the first half of the first century AD (Mahler 2006, 218, no. 654 AB: provenance unknown). **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.42 (Plate 7; Plan 8). Pilaster base, similar to ►**Vol 1.41**. Lower torus underlined by two fillets, scotia with upper and lower fillets, second torus slightly smaller than the lower torus, fillet, reversed cavetto and shaft decorated with four convex flutes. **State of preservation**: slight deterioration; the edges of the tori are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 53.5 cm; base: h. 24.7 cm; fillets: h. 2.4-2.5 cm; lower torus: w. 52 cm, h. 8.5 cm; scotia: h. 4.3 cm; fillets: h. 0.5 cm; upper torus: w. 50.8 cm, h. 8.7 cm; fillet: h. 0.5 cm; cavetto: h. 5.7 cm; shaft: w. 38.2 cm, h. 17.7 cm. **Examples and**

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location: two bases *in situ*, on the outer wall of room 22 in the palace of Gordianus. **Parallels**: see ►**Vol 1.41**. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.43 (Plate 7; Plan 8). Pilaster base. Lower torus underlined by two fillets, high throat moulding with upper and lower fillets, second torus almost identical to the lower torus, fillet, reversed cavetto and shaft decorated with five convex flutes. **State of preservation**: medium deterioration; the tori of both examples are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 55.1 cm; base: h. 24.2 cm; fillets: h. 1-1.7 cm; lower torus: w. 52.4 cm, h. 7.7 cm; throat moulding: h. 6.9 cm; fillets: h. 0.5 cm; upper torus: w. 51.5 cm, h. 7.1 cm; fillet: h. 0.5 cm; cavetto: h. 6.4 cm; shaft: w. 43.2 cm, h. 21.3 cm. **Examples and location**: two bases *in situ*, decorating the piers at the main entrance to the palace of Gordianus, directly behind the Ionic colonnade. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 1.44 (Plate 7; Plan 7). Pilaster base. Lower torus underlined by two fillets and with a trapezoidal profile, high scotia marked by upper and lower fillets, second smaller torus with trapezoidal, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration; the edges of the tori are damaged. The other examples have a more advanced level of fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: 46.8 cm; base: h. 25.8 cm; fillets: h. 2.5-2.7 cm; lower torus: w. 65.7 cm, h. 9.2 cm; scotia: h. 6.5 cm; fillets: h. 1 cm; upper torus: w. 61 cm, h. 7.5 cm; fillet: h. 1 cm; cavetto: h. 6 cm; shaft: w. 45.5 cm, h. 8.8 cm. **Examples and location**: 10 bases *in situ*, belonging to the pilasters of the *porticus* along the *decumanus maximus* in front of the "maison aux travaux d'Hercule". **References**: Thouvenot 1948a, 90, fig. 4. **Chronology**: uncertain; the "maison aux travaux d'Hercule" might have been built be as early as the late first – early second century AD, while the *porticus* is perhaps associable with a later phase towards the late second century (Thouvenot 1948a, 107-8; see also the remarks in Étienne 1960, 34).

VOL 1.45 (Plate 7; Plan 2). Pilaster base. Lower torus underlined by two fillets, throat moulding with upper and lower fillets, second torus slightly smaller than the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration; the tori are damaged. The other examples are more fragmented. **Material**: Zerhoun limestone.

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Measurements: total h.: 44.7 cm; base: h. 27.5 cm; fillets: h. 2.1-2.7 cm; lower torus: w. 68.1 cm, h. 9.6 cm; throat moulding: h. 6.4 cm; fillets: h. 1-1.5 cm; upper torus: w. 67.8 cm, h. 8.9 cm; fillet: h. 0.8 cm; cavetto: h. 5.9 cm; shaft: w. 55.9 cm, h. 5.7 cm. **Examples and location**: 17 bases (still identifiable), *in situ*, decorating the pilasters of the inner walls of the basilica. Four of these bases, which are located at the south and north sides of the building, are associated with the smooth pseudo-impost capitals ►**Vol 2.68**. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 1.46 (Plate 7; Plan 2). Pilaster base, very similar to ►**Vol 1.45**. The shaft is decorated with eight concave flutes. **State of preservation**: advanced deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 52 cm; base: h. 27.5 cm; fillets: h. 2.4-2.6 cm; lower torus: w. 67.5 cm, h. 8.6 cm; throat moulding: h. 6.9 cm; fillets: h. 0.6 cm; upper torus: w. 67.2 cm, h. 8.7 cm; fillet: h. 0.4 cm; cavetto: h. 4.9 cm; shaft: w. 50.4 cm, h. 14.2 cm. **Examples and location**: one base *in situ*, belonging to one of the pilasters of the basilica's inner wall (east side). **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 1.47 (Plate 8; Plan 3). Pilaster base. Torus shaped as a reversed ovolo underlined by two fillets at the bottom, scotia highlighted by upper and lower fillets, second smaller torus with rounded profile, fillet, high throat moulding and shaft decorated with four concave flutes. **State of preservation**: slight deterioration; the second example is poorly preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 51.2 cm; base: h. 24.4 cm; fillets: h. 2.7-3.2 cm; lower torus: w. 58 cm, h. 7.8 cm; scotia: h. 3.7 cm; fillets: h. 1.6-1.9 cm; upper torus: w. 54.2 cm, h. 6.8 cm; fillet: h. 1.9 cm; throat moulding: h. 7.7 cm; shaft: w. 46 cm, h. 11.3 cm. **Examples and location**: two bases *in situ* at the west entrance to the piazza of the *capitolium* (outer side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.48 (Plate 8; Plan 3). Pilaster base. Lower torus with flat profile and underlined by two fillets, scotia with upper and lower fillets, second torus with flat profile, fillet, reversed cavetto with marked rim at the top, shaft. **State of preservation**: advanced

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deterioration; the right-hand side of both tori is broken. **Material**: Zerhoun limestone. **Measurements**: total h. 51.3 cm; base: h. 19.5 cm; fillets: h. 2-2.1 cm; lower torus: w. 23.4 cm, h. 7.6 cm; scotia: h. 2.8 cm; fillets: h. 1.7-1.9 cm; upper torus: w. 23.6 cm, h. 5.9 cm; fillet: h. 1.7 cm; cavetto: h. 6.1 cm; shaft: w. 16.5 cm, h. 19.9 cm. **Examples and location**: one base *in situ*, carved on the same block of one of the bases ►**Vol 1.47**, at the west entrance to the piazza of the *capitolium*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 1.49 (Plate 8; Plan 3). Pilaster base. Lower torus with a fillet at the bottom, high scotia with upper and lower fillets, upper torus slightly smaller than the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration; the right-hand side of the lower torus is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 36.3 cm; base: h. 26.8 cm; fillet: h. 2.1 cm; lower torus: w. 36.5 cm, h. 6.8 cm; scotia: h. 7.5 cm; fillets: h. 0.8 cm; upper torus: w. 34.5 cm, h. 7.5 cm; fillet: h. 1 cm; cavetto: h. 6.4 cm. **Examples and location**: two bases *in situ*, at the entrance to the room at the left-hand side of the *capitolium*. **Chronology**: uncertain; probably later than the construction of the temple and piazza (first quarter of the third century AD).

2. CAPITALS

Capitals are divided in 73 types, organized according to these groups: Tuscan capitals (►**Vol 2.1-2**); Ionic capitals (►**Vol 2.3**); Corinthian capitals (►**Vol 2.4-56**); composite capitals (►**Vol 2.57-58**); pseudo-Corinthian capitals (►**Vol 2.59-62**); tronco-pyramidal capitals (►**Vol 2.63**); and pseudo-impost capitals[1] (►**Vol 2.64-73**).

Further sub-grouping was also required. For the Corinthian capitals, six sub-groups have been identified on the basis of the leaves' shape: Corinthian capitals with smooth

[1] The label "pseudo-impost" is adopted here to describe the shape of this particular group of capitals. In a recent article, Pensabene (2011) identified them as an imitation of Byzantine impost capitals, dated to the second half of the fifth – early sixth century AD. While the present study aims to present a critical reassessment of this chronology, the nomenclature is an adaptation of the term "impost" traditionally found in the literature. The terms "tronco-pyramidal" and "tronco-conical" used in previous studies to refer to these capitals (Étienne 1960; Jodin 1977; 1987; Faddadi 1991) are neither correct. In fact, while the section at the base of the kalathos is circular, it becomes square at the top, thus creating a hybrid geometric form.

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leaves (►**Vol 2.4-28**); Corinthian capitals with "group 1" acanthus (►**Vol 2.29-34**); Corinthian capitals with "group 2" acanthus (►**Vol 2.35-41**); Corinthian capitals with "group 3" acanthus (►**Vol 2.42-48**); Corinthian capitals with "group 4" acanthus (►**Vol 2.49-52**); and Corinthian capitals with "group 5" acanthus (►**Vol 2.53-56**). Composite capitals are divided in two sub-groups: composite capitals with "group 3" acanthus (►**Vol 2.57**); and composite capitals with "group 5" acanthus (►**Vol 2.58**). Finally, pseudo-Corinthian and pseudo-impost capitals are divided in two sub-groups each: pseudo-Corinthian capitals with "group 3" acanthus (►**Vol 2.59**); pseudo-Corinthian capitals with water plant leaves (►**Vol 2.60-62**); smooth pseudo-impost capitals (►**Vol 2.64-70**); and pseudo-impost capitals with Corinthian-Ionic motifs (►**Vol 2.71-73**).

Tuscan capitals (nine examples).

VOL 2.1 (Plate 8; Plan 2). Engaged half-column capital. The abacus is square with slightly smoothed edges. The echinus has a rounded profile similar to a torus. It is underlined at the bottom by a fillet, cavetto and neck. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken and the bottom of the shaft is slightly damaged. Some of the other examples show a more advanced fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: 44.5 cm; abacus: w. 65.5 cm, h. 7.2 cm; echinus: w. 65.5 cm, h. 8 cm; fillet: h. 1.2 cm; cavetto: h. 9.7 cm; neck: Ø 44.5 cm, h. 18.7 cm. **Examples and location**: eight capitals scattered on the ground and covered by the vegetation in front of the north side of the basilica. The original provenance is unknown. **Parallels**: Tuscan capitals with a torus-shaped echinus and cavetto moulding have been found elsewhere at *Volubilis*: one example in the south-west district, *insula* 40, and two others along the *decumanus maximus* (Jodin 1977, 307, figs. 5-6; 1987, 95, fig. 8Ac). Three capitals with identical profile can be found at *Banasa*, not *in situ*, in the forum area and inside the *curia* (►**Ban 2.1-3**; Lézine 1955, 14, pl. 1, no. 6; Jodin 1977, 306). Another capital comes from the forum area at *Sala*, perhaps found in the layers associated with the pre-Roman period structures (►**Sal 2.2**). One capital is at *Lixus* in the peristyle of the *domus* of Mars and Rhea (►**Lix 2.2**), and single-torus bases with profile identical to these capitals are located in the "quartier des temples": two examples *in situ* belonging to the *porticus* of "temple F", datable to the second half of the first century AD (►**Lix 1.5**); and another one

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on the ground not far distant (►**Lix 1.6**). Other similar capitals in North Africa come from *Caesarea*, first to second century AD (Pensabene 1982a, 50-1, pls. 45-6, nos. 138-9: original provenance unknown); *Lepcis Magna*, with a second fillet under the cavetto, first half of the first century AD (Mahler 2006, 171, pl. 49, no. 220 TK: found along the *decumanus*, south-west of the *macellum*); *Belalis Maior*, Tunisia, with three fillets at the bottom, c. first century AD (Ferchiou 1989a, 75, pl. 12, no. III.V.19a-b: one example from around the forum area; a second from the "petite basilique"). The type is also diffused in Spain: examples are known at Seville (unknown provenance), *Saguntum* (north forum), *Ampurias* (street with *porticus*, *in situ*), Numancia (building 21, *in situ*) and Merida (citadel, *in situ*), all of them dated to the first century AD (Gutiérrez Behemerid 1992, 19, nos. 19-25). Another piece, interpreted as a Tuscan base, comes from Mataró, Barcelona, and is generically dated to the Imperial period (Escrivà Chover 2005, 17, no. T5: provenance unspecified). **Chronology**: uncertain; perhaps first to second century AD (?) according to the dating of the parallels. The lack of information about the original setting of these capitals makes it impossible to advance any further conjectures.

VOL 2.2 (Plate 8; Plan 9). Column capital. The abacus is square with smoothed edges. The profile of the echinus corresponds to a *cyma reversa* moulding. It is separated from the neck by a torus with a rather flattened profile. In the middle of the lower surface one can notice a circular cramp hole. **State of preservation**: advanced state of deterioration; broken in two parts along the middle axis; the right-hand corner of the abacus is also broken. **Material**: sandstone. **Measurements**: total h.: 35.5 cm; abacus: w. 69.5 cm, h. 9 cm; echinus: h. 16.7 cm; torus: h. 3.9 cm; neck: Ø 54.5 cm, h. 5.7 cm. **Examples and location**: one capital, not *in situ*, scattered on the ground inside "temple B", perhaps belonging to the colonnade of the inner *porticus*. **References**: Morestin 1980, 42, fig. 25, no. 8 (interpreted as a column base). **Parallels**: undated Tuscan capitals featuring an echinus with similar profile, not provided with a neck underneath, have been recovered in Tunisia at *Bulla Regia*, *Thuburbo Maius* and Enserune (Lézine 1955, 27, pl. 6, nos. 1-3). Another quite similar capital, with a more shallow echinus underlined by a cavetto, is at *Lepcis Magna*, dated to the first quarter of the first century AD (Mahler 2006, 167, pl. 43, no. 184 TK: from the *Chalcidicum*). In Spain, a similar example without neck at the bottom, interpreted as a column base, comes from *Saguntum*, perhaps datable to the Julio-

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Claudian era (Escrivà Chover 2005, 24, no. T26: original provenance unknown). **Chronology**: uncertain; perhaps between the first half of the second century AD and the third century AD, corresponding to the main construction phases and enlargement of the building, although this chronology is still debated (see Morestin 1980, 40-3; Brouquier-Reddé *et al*. 1998, 71).

Ionic capitals (10 examples).

VOL 2.3 (Plate 8; Plan 8). Column capital. The abacus is square with straight, vertical edges. It shows a tripartite moulding: the upper part is decorated by a fascia, followed by a *cyma recta*, and a fillet at the bottom. A circular cramp hole is visible on the upper surface. The channel of the volutes is horizontal, although it is slightly higher in the central part and it becomes more shallow towards the lateral edges. The volutes are circular and provided with well-marked, internal spirals that terminate in the middle of the volutes' eye with a rounded button. The contour of both the channel and volutes has a marked triangular profile. On the lateral sides of the capital, the *pulvini* have a tronco-conical profile and an undecorated surface. They are tied in the middle by a *balteus* which takes the form of a large double torus with a rounded profile (a typical feature of late Roman and Late Antique Ionic capitals: see Herrmann 1988, 20). The echinus on the frontal face has a semi-circular profile. Two half-palmettes spring from a small cauliculus with rounded collar, placed at the inner edge of the volutes. The half-palmettes have five lobes; each of them has rolled edges decorated with a small circular eyelet. The Ionic *kymation* develops in the central part of the echinus between the half-palmettes; it is composed of three elliptical eggs framed by a marked case with sharp, triangular profile. The eggs are separated from each other by four darts with flat profile; the dart-head features a diamond-shaped point. Underneath the echinus, the upper part of the column shaft is visible. **State of preservation**: slight deterioration for all the examples; some minor signs of damage can be seen at the corners of the abacus and at the edge of the volutes. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.4 cm; abacus: w. 83.5 cm, h. 13.1 cm; fascia: h. 4.4 cm; *cyma recta*: h. 4.9 cm; fillet: h. 3.5 cm; channel: h. 3.8 cm; echinus: h. 18.7 cm; shaft: Ø 58.5 cm, h. 7.8 cm. **Examples and location**: 10 capitals belonging to the colonnade of the palace of Gordianus facing the *decumanus maximus*; seven capitals have

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been repositioned *in situ* on the top of the columns, while the remaining three lie on the ground. **References**: O'Farrell 1941, 100-1, fig. 1; Thouvenot 1958, 13-5, pl. 3a, fig. 1a; Jodin 1987, 86-7, pl. 8.1; Pensabene 2011, 257-8, fig. 62c. **Parallels**: similar Ionic capitals featuring a *kymation* decorated with three eggs, arrow-pointed darts and astragal with rope-pattern motif under the echinus, can be found in North Africa at *Caesarea*, third century up to the early fourth century AD (Pensabene 1982a, 17-9, pls. 6-7, nos. 12-4: unknown provenance). Other similar examples are documented in Spain: *Baelo Claudia*, with beaded and reeled astragal under the echinus, dated to the early Julio-Claudian era (Gutiérrez Behemerid 1992, 32-3, nos. 84-90: from the basilica); Cordoba, second half of the third – fourth century AD (Márquez 1993, 29, pl.10, nos. 25-6: original provenance unknown). **Chronology:** the Ionic colonnade was erected during the major restoration of the palace in AD 238-241 (Thouvenot 1958, 9). The horizontal channel, the reduced size of the volutes and the shape of the eggs allow us to place these capitals within the Romano-African decorative tradition of the Imperial age (Pensabene 2011, 257), and the double torus in the middle of the *pulvini* is a further confirmation for a chronology around the mid-third century AD (Herrmann 1988, 20).

Corinthian capitals (94 examples).

Corinthian capitals with smooth leaves (61 examples).

VOL 2.4 (Plate 9; Plan 2). Column capital. Kalathos with circular section, with two tiers of eight leaves set at the base of the capital. The leaves are rather flattened towards the kalathos surface; they are independent, round-shaped, with a single pointed lobe markedly bowed towards the front. The leaves of the upper tier are placed at the interval among those of the lower tier. The cauliculi are smooth and are set at the interval of the upper tier's leaves, springing from the top of the lower leaves. They are formed by a long and thin stem, with rounded profile, and they run vertically. The top of the cauliculi is highlighted by a small collar with rounded profile. The calyces are smooth with a marked open V shape, which runs almost horizontally. Their profile is flat with a straight contour. The inner and outer edges are rolled; the extremity of the inner half-leaves' edges (joined together in the middle) features a small circular eyelet. The helices are tangent and joined

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to the inner edges of the calyx: a diamond-shaped void is to be seen in the point of junction. The volutes run horizontally and, together with the helices, form an open V shape which recalls that of the calyces underneath. The edges of the volutes are joined to the outer edges of the calyces. Both the volutes and helices have a flat profile and large scrolls at their edges; the scrolls are carved with thin spirals. The abacus is formed by a fillet and an upper fascia with flat profile. The axial motif is represented by a circular fleuron with a simplified design: four petals and a small circular button in the middle. A circular cramp hole is visible on the top of the upper surface, close to one of the edges of the abacus. **State of preservation**: medium level of deterioration; the lobes of the leaves are fragmented, as well as the edge of the volutes and the corners of the abacus. The other examples are more fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 83 cm; kalathos: h. 71.6 cm; lower tier: Ø 66.7 cm, h. 28 cm; upper tier: h. 48.5 cm; abacus: w. 102.8 cm, h. 11.4 cm; cross-section: 71.5 cm. **Examples and location**: six capitals are preserved. Five are inside the basilica: one of them has been repositioned *in situ* on the top of a column; the other four are on the ground, next to as many pedestals of the nave's colonnade. The fifth capital lies on the ground just outside the northern side of the basilica. **References**: Thouvenot 1937, 68-71, fig. 5; Luquet 1967, 427-32, 435-6, pl. 15 (first image from the top, not to scale); Pensabene 2011, 212, fig. 8a-b. **Parallels**: similar smaller capitals can be found at *Volubilis* in the "maison aux gros pilastres", datable to the early third century AD (Pensabene 2011, 251-4, fig. 59). Another example is in the garden of the Musée Archéologique de Rabat (unpublished). The schematic carving of the cauliculi, calyces, helices and volutes – as well as the mouldings of the abacus – recalls the shape of the pseudo-Corinthian capitals of the first storey of the south mausoleum at Wadi Nfed (Libya), perhaps datable to the third century AD (Bauer 1935, 74, figs. 26-7; Sjöström 1993, 265, no. 545 Nf 31; Abdussaid 1996, 78, pl. 31a). **Chronology**: the construction of the basilica is dated to between AD 210 and 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.5 (Plate 9; Plan 8). Pilaster capital, similar to ►**Vol 2.4**. Kalathos with four-lobed section. The lower tier has two leaves, the second has three. The leaves are independent, with a single lobe, and are set at the base of the capital. The cauliculi are more developed, with a thicker stem, although the profile is flattened. The collar at the

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top is more pronounced. The upper part of the kalathos is reduced and the inner edges of the calyces are joined to the mid leaf of the second tier. The calyces have a triangular profile which gives them a more plastic effect. The helices and volutes have a flat profile, but the open V shape is identical to that of the calyces underneath. Both the helices and volutes terminate with carved scrolls, although their size is smaller than those of ►**Vol 2.4**. The abacus is thin, featuring two fillets with flat profile. The axial motif is represented by a semi-spherical disc, with a small button in the middle of the inner surface. **State of preservation**: very slight deterioration; the edge of the volutes shows minor damage. **Material**: Zerhoun limestone. **Measurements**: total h.: 50.2 cm; kalathos: h. 45.9 cm; lower tier: w. 44.5 cm, h. 18.2 cm; upper tier: h. 32.5 cm; abacus: w. 66.5 cm, h. 4.3 cm. **Examples and location**: four capitals; three are carved on the rear face of the blocks of ►**Vol 2.30** and ►**Vol 2.32**; the fourth has no rear carving. One of them lies on the ground, covered by the vegetation, at the left-hand side of the entrance to the palace of Gordianus (room 1); a second capital is on the ground inside the second peristyle of the palace (room 7); the other two come from the third peristyle (room 22). **Parallels**: see ►**Vol 2.4**. **Chronology**: the major restoration of the palace dates to AD 238-241 (Thouvenot 1958, 9; *IAM* 404). Their similarity with the capitals of the basilica confirms a chronology within the first half of the third century AD.

VOL 2.6 (Plate 9; Plan 2). Column capital, similar to ►**Vol 2.4**. Kalathos with circular section, with two tiers of eight leaves set at the base of the capital. The cauliculi are thicker, with a rounded profile, and they terminate with a large rounded collar at the top. The calyces have a more plastic volume, with a triangular profile. The helices and volutes are thin and flat, with carved scrolls at the edges. A diamond-shaped void is created by the junction of the helices with the inner edges of the calyces. The abacus is formed by a fillet and an upper fascia. The axial motif is represented by a schematic fleuron with four petals and a small central button. **State of preservation**: moderate level of deterioration; the lobes of the leaves and the edges of the volutes are broken. The other examples show a more advanced deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 74.4 cm; kalathos: h. 64.1 cm; lower tier: Ø 67 cm, h. 18.5 cm; upper tier: h. 40.2 cm; abacus: w. 100.3 cm, h. 10.3 cm; cross-section: 73.5 cm. **Examples and location**: 12 capitals are preserved on the ground inside the basilica. Three have been repositioned *in situ* on the

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top of the respective columns along the nave (see Luquet 1967, 432-5, fig. 5); the remaining nine capitals lie on the ground, next to as many pedestals of the colonnade. **References**: Luquet 1967, 427-32, 435-6, pl. 15 (first and second image from the bottom, not to scale). **Parallels**: see ►**Vol 2.4**. **Chronology**: the basilica was probably built between AD 210 and 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.7 (Plate 9; Plan 2). Engaged half-column capital, almost identical to ►**Vol 2.6**. Kalathos with semi-circular section. The lower tier has four leaves, the second has five. The leaves are independent and set at the base of the capital. The cauliculi are thick and well-developed, with rounded profile; the collar at the top has a flat profile. The calyces, the helices and the volutes have the same features of ►**Vol 2.6**. **State of preservation**: advanced deterioration; the upper part of the capital is broken and the abacus is not recognizable; the lobes of the leaves and the edges of the volutes are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 78.3 cm; lower tier: Ø 67.5 cm, h. 23.2 cm; upper tier: h. 43.7 cm. **Examples and location**: one capital, upside down and hidden by the vegetation, now positioned on the ground a few metres from the north side of the basilica. It probably belonged to one of the half-columns positioned at the corners of the basilica's apses (at the north and south ends of the building). **Parallels**: see ►**Vol 2.4**. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.8 (Plate 9; Plan 2). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four leaves, the second has five. The leaves are independent and set at the base of the capital; those of the lower tier have a rather slender shape. The cauliculi are thin, flattened, and almost undistinguishable from the kalathos; the top is decorated with a rounded collar. The calyces, the helices and the volutes are flat with an open V shape. At the outer edge of the calyces and volutes, one can observe an hexagonal motif. The abacus is formed by a cavetto moulding and an upper fillet. A stylized fleuron with four petals decorates the middle part of the abacus. **State of preservation**: medium to advanced deterioration; some examples show a higher fragmentation. **Material**: Zerhoun limestone. **Measurements**: total h.: min-max 52-61 cm; lower tier: Ø min-max

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33.6-38 cm; upper tier: h. min-max 35-36 cm; abacus: h. min-max 4-6 cm (from Faddadi 1991, 168-9). **Examples and location**: seven capitals belonging to the outer west façade of the basilica. Six of them were repositioned *in situ* on the top of as many half-columns during the restoration works (Luquet 1967, 427-32), associated with the bases ►**Vol 1.24**. The seventh capital, located at the south-west edge of the façade, was the only one still *in situ* before the beginning of the works (Luquet 1967, 417, pl. 8), associated with the base ►**Vol 1.25**. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.9 (Plate 9; Plan 2). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four leaves, the second has five. The leaves are flattened, independent, and set at the base of the capital. From the interval between the leaves of the upper tier spring two double cauliculi. The lower cauliculus has a flattened (slightly rounded) profile; the upper cauliculus has a triangular profile. The calyces are composed of two thin half-leaves separated at the bottom. The helices and volutes spring from the bottom of the calyces and have a similar flattened and thin shape. Their inner and outer edges are decorated with marked scrolls with carved spirals. The abacus is reduced to a single, shallow fillet. The central fleuron has four petals and a protuberant button in the middle. **State of preservation**: advanced deterioration; the capital is broken along the diagonal at the left-hand side. **Material**: Zerhoun limestone. **Measurements**: see ►**Vol 2.8**. **Examples and location**: one capital belonging to the outer west façade of the basilica, repositioned *in situ* on the top of a half-column (Luquet 1967, 427-32), associated with one of the bases ►**Vol 1.24**. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290). The flattened, triangular profile of the upper cauliculi might recall the schematic shape of the cauliculi belonging to the Asiatic Corinthian capitals from the late Antonine/Severan period onwards (Fischer 1990, 41-53; Pensabene 1993, 154).

VOL 2.10 (Plate 9; Plan 2). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four leaves, the second has five. The leaves are independent and set at the base of the capital. From the interval between the leaves of the upper tier spring directly the calyces, without any cauliculi. The calyces are flattened and the scrolls

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at their edges are only sketched. The helices and volutes are thin, with marked scrolls similar to ►**Vol 2.9**. The abacus features a cavetto and upper fillet. The axil motifs may be represented by an undecorated disc. **State of preservation**: medium deterioration; the edges of the abacus and volutes are broken; the axial motif is only in part recognizable. **Material**: Zerhoun limestone. **Measurements**: see ►**Vol 2.8**. **Examples and location**: one capital belonging to the outer west façade of the basilica, repositioned *in situ* on the top of a half-column (Luquet 1967, 427-32), associated with one of the bases ►**Vol 1.24**. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.11 (Plate 9; Plan 6). Pilaster capital. Kalathos with four-lobed section, highlighted by a torus at the bottom. The lower tier has two leaves, the upper tier has three. The leaves are flattened, independent, and set at the top of the torus. The lower half of the upper tier's leaves is decorated with a schematic flute. The cauliculi are long and rather thick, with a rounded profile. The calyces and helices are flattened. The edges of the calyces' half-leaves are rounded. The abacus is reduced to a single, thin fillet. **State of preservation**: advanced deterioration; the upper kalathos is damaged, the volutes and the axial motif are not preserved. The other examples have a more marked level of deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: min-max 39-59 cm; lower tier: h. min-max 19-21 cm; upper tier: h. min-max 38-41 cm (from Faddadi 1991, 167-8). **Examples and location**: four capitals belonging to the arch of Caracalla, repositioned *in situ* on the top of the pilasters behind the respective columns on the east and west façades. **Chronology**: the arch was inaugurated in AD 216/217 (*IAM* 390-1; Camporeale *et al*. 2008, 290).

VOL 2.12 (Plate 10; Plans 3, 7). Pilaster capital. Kalathos with four-lobed section, featuring a rounded torus at the bottom. The lower tier has two leaves, the upper tier has three. The leaves are flattened, independent, set on the top of the torus. The lower leaves have a rounded shape, while those of the upper tier are more slender and developed in height. The cauliculi are thick, with rounded profile and a thin, rounded collar at the top. The calyces have a sharp triangular profile. The helices are thin with small scrolls at the edges. The scrolls of the volutes are more developed. The abacus is reduced to a single,

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thin fillet. The axial motif is represented by a concave disc with a round button in the middle. A circular cramp hole is visible on the top of the upper surface, close to the right-hand edge of the abacus. **State of preservation**: slight deterioration; the edges of the volutes and the lobes of the leaves are damaged. In the second example the axial motif is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 54.4 cm; kalathos: h. 49.6 cm; torus: w. 46.5 cm, h. 3.5 cm; lower tier: h. 19.3 cm; upper tier: 35.3 cm; abacus: w. 59 cm, h. 1.3 cm. **Examples and location**: two capitals. The first lies on the ground of the piazza of the *capitolium*, close to the west edge, not *in situ*; it might belong to one of the room opening on the piazza. The second capital has been repositioned *in situ* on the top of one of the pilasters belonging to the *porticus* along the *decumanus maximus*. **Chronology**: the *capitolium* was dedicated in AD 217 (*IAM* 355), and the *porticus* and piazza were probably completed at this same stage (Akerraz *et al*. 1987b, 217). The *porticus* along the *decumanus* might date to the end of the second century AD (Thouvenot 1948a, 107-8; see also Étienne 1960, 34).

VOL 2.13 (Plate 10; Plan 7). Pilaster capital, similar to ►**Vol 2.12**. Kalathos with four-lobed section, with a rounded torus at the bottom. Joined to the shaft. The leaves have a marked central lobe, sharp and rolled towards the front. The cauliculi and their collars are both decorated with a rope-pattern motif. The calyces, the helices and the volutes have a rather flat profile. The axial motif is represented by a schematic fleuron with four petals and a central button. **State of preservation**: medium deterioration; signs of damage visible at the left-hand edge of the volutes and along the torus. **Material**: Zerhoun limestone. **Measurements**: impossible to record. **Examples and location**: one capital repositioned *in situ* on the top of a pilaster of the *porticus* along the *decumanus maximus*. **References**: Thouvenot 1948a, 90, fig. 4. **Chronology**: the *porticus* might have been built at the end of the second century AD (Thouvenot 1948a, 107-8; see also Étienne 1960, 34).

VOL 2.14 (Plate 10; Plan 7). Pilaster capital, similar to ►**Vol 2.12**. Kalathos with four-lobed section, with a rounded torus at the bottom. Joined to the shaft. The cauliculi are flat, decorated with a reversed V motif at the top. **State of preservation**: very advanced deterioration; the upper part of the kalathos and the abacus are not preserved. **Material**: Zerhoun limestone. **Measurements**: impossible to record. **Examples and location**: one

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capital, repositioned *in situ*, belonging to the *porticus* along the *decumanus*. **References**: Thouvenot 1948a, 90, fig. 4. **Chronology**: c. end of the second century AD (Thouvenot 1948a, 107-8; see also Étienne 1960, 34).

VOL 2.15 (Plate 10; Plan 7). Pilaster capital, similar to ►**Vol 2.12**. Kalathos with four-lobed section. The cauliculi are flattened, featuring a rope-pattern motif; along the middle axis one can see a vertical groove (a second inner cauliculus?), with a thin frame along its contour decorated with oblique cuts. The calyces are formed by two half-leaves separated at the bottom, and the point of junction with the cauliculi is highlighted by a thin horizontal groove. **State of preservation**: very advanced level of deterioration; the lower and left-hand part of the kalathos and the abacus are not preserved. **Material**: Zerhoun limestone. **Measurements**: impossible to record. **Examples and location**: one capital, repositioned *in situ*, belonging to the *porticus* along the *decumanus*. **References**: Thouvenot 1948a, 90, fig. 4. **Chronology**: c. end of the second century AD (Thouvenot 1948a, 107-8; see also Étienne 1960, 34).

VOL 2.16 (Plate 10; Plan 7). Pilaster capital, similar to ►**Vol 2.12**, carved on a corner block. Kalathos with four-lobed section. The cauliculi take the form of a leaf with five rounded lobes, with no separation from the upper calyces. The scrolls at the edge of the volutes are developed in size, with carved spirals. **State of preservation**: advanced deterioration; the lower part of the kalathos is not preserved. The axial motif is not recognizable. **Material**: Zerhoun limestone. **Measurements**: total h. preserved: 44.5 cm; kalathos: w. c. 45.2 cm, h. c. 42.3 cm; abacus: w. 62 cm, h. 2.2 cm. **Examples and location**: one capital, not *in situ*, on the ground at the south edge of the *porticus* along the *decumanus*. It probably belonged to one of the corner pilasters. **Chronology**: c. end of the second century AD (Thouvenot 1948a, 107-8; see also Étienne 1960, 34).

VOL 2.17 (Plate 10; Plan 2). Column capital. Kalathos with circular section, highlighted by a marked lip at the top. Two tiers of eight leaves set at the base of the capital. The leaves are independent, round-shaped, with a pointed lobe markedly bowed towards the front. The calyces have a triangular profile which enhances the volume of the surface. They spring directly from the interval among the leaves of the upper tier, without

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any cauliculi underneath. The helices have a triangular profile similar to that of the calyces; their edges are decorated with small scrolls that terminate with a round button. The volutes have a flattened profile and run vertically, forming a closed V shape together with the helices. The edges of the volutes feature embossed scrolls, which contribute to give the capital a more naturalistic design, recalling the more "canonical" Corinthian style. The abacus is formed by a cavetto and an upper fillet. The axial motif is replaced here by a schematic, trapezoidal decoration. Two circular cramp holes are visible on the top of the upper surface, close to the corners of the abacus; in the middle one can observe a rectangular lewis hole. **State of preservation**: very slight deterioration; only the lobes of the lower leaves are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 69.8 cm; kalathos: h. 63 cm; lower tier: Ø 53.2 cm, h. 21.2 cm; upper tier: h. 40 cm; abacus: w. 87.9 cm, h. 3.2 cm; cross-section: 66.5 cm. **Examples and location**: one capital, not *in situ*, on the ground next to one of the northern pedestals of the basilica's colonnade. Due to its dimensions, one can assume that it belonged to a column of the upper storey. **References**: Pensabene 2011, 212-4, fig. 9. **Parallels**: five pilaster capitals with identical kalathos lip, calyces, helices and volutes (although the cauliculi are still present) come from the west baths at *Caesarea* and are dated to the end of the second – third century AD (Pensabene 1982a, 63-4, 73, pl. 63-4, nos. 182-5). Two other examples with identical features, with cauliculi and calyces merged together, come from *Uchi Maius*, dated to the first half of the third century AD (Teatini 1997, 374-6, nos. 12-3: original provenance unknown). **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.18 (Plate 10; Plan 3). Engaged half-column capital, almost identical to ►**Vol 2.17**. Kalathos with semi-circular section. The lower tier has four leaves, the upper tier has three. The calyces are more flattened and the edges of the helices are not provided with scrolls. The volutes show marked scrolls with spirals at their edge. **State of preservation**: medium deterioration; the left-hand volute and the abacus are broken. The axial motif is not preserved. **Material**: Zerhoun limestone. **Measurements**: impossible to record. **Examples and location**: one capital, repositioned *in situ* on the top of a half-column of the colonnade of the *capitolium* (right-hand wall of the *cella*). **Parallels**: see ►**Vol 2.17**. **Chronology**: the *capitolium* was dedicated in AD 217 (Barton 1982, 321; *IAM* 355).

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VOL 2.19 (Plate 10; Plan 2). Column capital. Kalathos with circular section. Two tiers of eight leaves set at the base of the capital. The leaves are independent, round-shaped, with a marked mid-rib which runs vertically from the bottom of the leaf to the point of the lobe. The cauliculi are thin, with a slightly triangular profile, and highlighted at the top by flat collars featuring a rope-pattern decoration. The calyces are reduced to thin stems with triangular profile and rolled edges with carved scrolls. The helices and volutes are also thin. The point of junction between the scrolls of the calyces and those of the volutes is decorated with a rhomboid motif, formed by two triangles joined together at the base, which might imitate the shape of an open calyx seen from the top. The abacus is formed by a fillet and upper string. **State of preservation**: advanced deterioration; the lobes of the leaves, one volute, and the abacus are broken. The axial motif is no longer recognizable. **Material**: Zerhoun limestone. **Measurements**: total h.: 75.4 cm; kalathos: h. 68 cm; lower tier: Ø 65.5 cm, h. 23.5 cm; upper tier: h. 46.4 cm; abacus: h. 7 cm. **Examples and location**: one capital, not *in situ*, placed on the ground next to a pedestal of the basilica's inner colonnade. **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.20 (Plate 11; Plan 2). Column capital. Kalathos with circular section. Two tiers of eight leaves set at the base of the capital. The leaves are slender and rather flattened towards the kalathos. The cauliculi are thick, with rounded profile, marked at the top by double rounded collars. The calyces have a flat profile and their half-leaves are separated at the base; the inner and outer edges are swollen, forming a circular motif. The helices and volutes are thin, with a flat profile as well; the bottom features a point which has no direct contact with the calyces. The edges of both the helices and volutes are decorated with a carved scroll. The scrolls of the helices are joined to the edges of the calyces, giving birth to a diamond-shaped void. A thin fleuron stem originates from the top of the central leave of the upper tier, set between the two calyces. It runs vertically to touch the inner edges of the calyces and the scrolls of the helices. The abacus is simplified, composed of two fillets. The axial motif is represented by a schematic fleuron with four petals. A circular cramp hole is present on the top of the upper surface. **State of preservation**: slight deterioration; the lobes of the leaves and the corners of the abacus are moderately fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 73.2 cm; kalathos: h.

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65.2 cm; lower tier: Ø 54.2 cm, h. 23 cm; upper tier: h. 42.5 cm; abacus: w. 81.5 cm, h. 8 cm; cross-section: 67.5 cm. **Examples and location**: one capital, not *in situ*, on the ground next to one of the pedestals of the basilica's colonnade, towards the north side of the building. The reduced size suggests that it might belong to a column of the second storey (Luquet 1967, 440-1). **Chronology**: c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.21 (Plate 11; Plan 3). Column capital. Kalathos with circular section, highlighted by a thin lip at the top. Two tiers of eight leaves set at the base of the capital. The leaves are slender and flattened towards the kalathos. The cauliculi have a flat profile, and they are highlighted at the top by double collars with rounded profile. The calyces have a flat profile as well. Their half-leaves are separated at the base; the inner and outer edges are provided with a circular button. A second, smaller, cauliculus is set at the interval between the two half-leaves of both the calyces. These cauliculi have a flat profile and double rounded collars at the top, recalling the shape of the cauliculi underneath. From them spring short helices and volutes, whose shape is reduced to a very thin, flattened stem. Their edges are rolled, with marked spirals. The abacus is also reduced, composed of a single fillet. A schematic fleuron with four petals is placed in the middle of the abacus. **State of preservation**: slight deterioration; only minor signs of fragmentation are visible. One of the other examples is much more fragmentary (only a small piece of the volutes and abacus is preserved). **Material**: Zerhoun limestone. **Measurements**: total h.: c. 70 cm (from Luquet 1964c, 356). **Examples and location**: five capitals belonging to the colonnade of the *capitolium*. Four have been repositioned *in situ* on the top of as many columns. The fifth capital is a small fragment lying on the ground along the *porticus* at the north-east edge of the piazza. **References**: Pensabene 2011, 211-2, figs. 4-5. **Chronology**: the *capitolium* was dedicated in AD 217 (Barton 1982, 321; *IAM* 355).

VOL 2.22 (Plate 11; Plan 3). Column capital, almost identical to ►**Vol 2.21**. Kalathos with circular section, with two tiers of flattened leaves, set at the base of the capital. The second cauliculi springing from the calyces are reduced to thin stems, with slightly rounded profile. The edges of the helices are joined in the middle and feature a tongue-shape which encircles the lower part of the abacus's fleuron. The edges of the volutes are

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large, with marked spirals. **State of preservation**: moderate deterioration; the lower leaves show some damage. **Material**: Zerhoun limestone. **Measurements**: see ►**Vol 2.21**. **Examples and location**: two capitals, repositioned *in situ* on the top of two columns of the colonnade of the *capitolium*. **Chronology**: AD 217 (Barton 1982, 321; *IAM* 355).

VOL 2.23 (Plate 11; Plan 6). Column capital. Kalathos with circular section. Two tiers of leaves set at the base of the capital. The leaves are slender, with their single lobe markedly bent towards the front; the leaves of the upper tier are much more developed in height than those of the lower tier. From the interval of the upper tier's leaves spring the cauliculi, almost invisible, with a flattened profile and a thin groove at the top replacing the collar. From the cauliculi spring three calyces in succession, representing a variation of the calyces-helices-volutes system typical of the Corinthian order. Their profile is flat, and the inner and outer edges are rolled, although no spirals are carved. At the edges of the "volutes" is visible a schematic rhomboid motif, made of two triangles joined at the base, which might represent an open calyx seen from the top (similar to the decoration of ►**Vol 2.19**). The abacus is reduced to an almost unnoticeable fillet. The axial motif is represented by a schematic fleuron with four petals, replaced on one side of the second example by a shell with vertical grooves carved on its surface. **State of preservation**: moderate level of deterioration; the shell of the second example is fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: min-max 57-60 cm; lower tier: Ø min-max 46.5-48 cm, h. 18 cm; upper tier: h. min-max 38-39 cm (from Faddadi 1991, 193). **Examples and location**: two capitals belonging to the arch of Caracalla, repositioned *in situ* on the top of the two columns decorating the east façade of the monument. **References**: Pensabene 2011, 225-6, figs. 22-3. **Chronology**: the arch was dedicated in AD 216/217 (*IAM* 390-1; Camporeale *et al*. 2008, 290).

VOL 2.24 (Plate 11; Plan 7). Engaged half-column capital (pier with four attached half-columns). Kalathos with semi-circular section, with two tiers of leaves. The lower tier has four leaves joined at the base of the capital, the upper tier has five. The leaves are slender and flattened towards the kalathos. At the interval of the upper tier's leaves are set the cauliculi, featuring a triangular profile; the collars at the top are recognizable only through two thin grooves that mark their contour. The calyces spring from the top of the

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cauliculi and are characterized by two half-leaves bowed towards the bottom; the edges are rolled and decorated with well-marked circular motifs. From them springs a second set of calyces replacing the helices and volutes. These second calyces are thinner, with triangular profile; the outer half-leaves are provided with a central groove which follows the shape of the leaf and contributes to create a more naturalistic impression – in part recalling a wave-pattern motif. The inner and outer edges of the half-leaves are decorated with scrolls bent towards the top of the capital (replacing the typical scrolls of the helices and volutes). A third set of small, schematic calyces is set at the point of junction of the half-leaves; these calyces are made of two half-leaves, both featuring a central groove following their shape. The abacus is thin and made of a single fillet. A fleuron with four petals and a large central button is placed in the middle of the abacus. **State of preservation**: slight to medium deterioration; the axial motif of the second example is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.2 cm; kalathos: h. 42 cm; lower tier: Ø 29.5 cm, h. 15.7 cm; upper tier: h. 26 cm; abacus: w. 50 cm, h. 1.2 cm. **Examples and location**: two capitals, both belonging to a pier decorated with four attached half-columns and with two more capitals on the other sides (►**Vol 2.25-26**). The pier is placed (perhaps *in situ*?) at the south corner of the *porticus* in front of the "maison aux travaux d'Hercule" facing the *decumanus*. **References**: Thouvenot 1937, 72, fig. 7; Domingo Magaña 2008, 1291, fig. 3. **Chronology**: uncertain; the first third of the third century AD was suggested by Thouvenot (1937, 72), but there is no real evidence to support this hypothesis.

VOL 2.25 (Plate 11; Plan 7). Engaged half-column capital (pier with four attached half-columns), almost identical to ►**Vol 2.24**. Kalathos with semi-circular section, with two tiers of leaves. The leaves of the lower tier are adjoining and set at the base of the capital. From the interval between the leaves of the upper tier spring the cauliculi, with flattened profile and decorated in the upper part with six horizontal strings. Three successive calyces originate from them, identical to those of ►**Vol 2.24**. The axial motif is represented on the frontal face of the capital by a shell with reversed V-shaped grooves, and by two fleurons on the lateral sides. **State of preservation**: advanced deterioration; the right-hand part of the upper kalathos is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.7 cm; kalathos: h. 41 cm; lower tier: Ø 28.5 cm, h. 16 cm; upper tier: h. 25.5 cm;

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abacus: h. 2.7 cm. **Examples and location**: one capital, perhaps still *in situ*, belonging to the same pier of ►**Vol 2.24**. **References**: Thouvenot 1937, 72, fig. 7; Domingo Magaña 2008, 1291, fig. 3. **Chronology**: uncertain; perhaps first third of the third century AD (Thouvenot 1937, 72)?

VOL 2.26 (Plate 12; Plan 7). Engaged half-column capital (pier with four attached half-columns), almost identical to ►**Vol 2.24**. Kalathos with semi-circular section, with two tiers of leaves set at the base of the capital. One of the cauliculi has an undecorated flat profile, identical to that of ►**Vol 2.24**. The second cauliculus features a vertical groove with outer frame (similar to that of ►**Vol 2.15**) in the middle of the surface, and a rope-pattern motif at the top. From the interval of the calyces' half-leaves spring a second set of short cauliculi, both with a flat profile, and provided with a small collar at the top. A second and a third set of calyces follow, identical to those of ►**Vol 2.24**. The abacus is represented by a single fillet, almost unnoticeable, decorated in the middle by a fleuron with four petals and circular button. **State of preservation**: advanced deterioration; the right-hand side of the upper kalathos and the abacus are broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.4 cm; kalathos: h. 41.7 cm; lower tier: Ø 30 cm, h. 15.2 cm; upper tier: h. 25.2 cm; abacus: h. 2.7 cm. **Examples and location**: one capital, perhaps *in situ*, belonging to the same pier of ►**Vol 2.24-25**. **References**: Thouvenot 1937, 72, fig. 7; Domingo Magaña 2008, 1291, fig. 3. **Chronology**: uncertain; perhaps first third of the third century AD (Thouvenot 1937, 72)?

VOL 2.27 (Plate 12; Plan 5). Engaged half-column capital (pier with attached half-column and pilaster). Kalathos with semi-circular section. The base of the capital is decorated with an astragal featuring a rope-pattern motif, underlined at the bottom by a string of triangular dentils. Joined to the shaft. Two tiers of independent leaves are set on the top of the astragal. The lower tier has four leaves, the upper tier has five. The leaves are slender and flattened towards the kalathos. The cauliculi are flat and highlighted by an upper collar with rounded profile. Two sets of calyces spring from the cauliculi; their inner half-leaves feature edges with a circular decoration. **State of preservation**: advanced deterioration; the calyces and the upper part of the kalathos are badly preserved and the details of the decoration are almost unrecognizable. The axial motif is not preserved.

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Material: Zerhoun limestone. **Measurements**: total h.: 50.7 cm; shaft: h. 4.5 cm; astragal: h. 3.3 cm; kalathos: h. 40.9 cm; lower tier: h. 18.5 cm; upper tier: h. 29.2 cm; abacus: h. 2 cm. **Examples and location**: one capital, not *in situ*, belonging to a pier found inside the "baths of Gallienus" (room A). There is no evidence to say whether it comes from this building or from elsewhere within the district. **Chronology**: uncertain; the inscription found inside the baths, dedicated to Gallienus, may not relate to the building (Thouvenot 1935, 17; Thébert 2003, 278).

VOL 2.28 (Plate 12; Plan 5). Pilaster capital (pier with attached half-column and pilaster), similar to ►**Vol 2.27**. Kalathos with four-lobed section. The bottom of the capital features an astragal with a rope-pattern motif, joined to the shaft, but not provided with dentils. Two tiers of independent leaves, with rounded shape, are set on the top of the astragal. The lower tier has two leaves, the upper tier has three. The cauliculi are flat, with V-shaped grooves decorating their stem; at the top is visible a small collar with rounded profile. From the cauliculi spring two sets of calyces. The lower calyces have a triangular profile, with rolled edges. The second calyces feature an internal groove which follows their shape; the inner and outer edges are rolled towards the top, and are decorated with a small button in the middle. A star motif is also visible in the part comprised between the outer edges of the second calyces and the abacus. This latter is reduced to a single fillet. The central fleuron has four petals and a circular button in the middle. **State of preservation**: medium deterioration; the leaves show some traces of damage. **Material**: Zerhoun limestone. **Measurements**: total h.: 50.8 cm; shaft: h. 4.5 cm; astragal: h. 2.5 cm; kalathos: h. 42.3 cm; lower tier: h. 16.2 cm; upper tier: h. 28 cm; abacus: w. 45 cm, h. 1.5 cm. **Examples and location**: one capital, not *in situ*, carved on the same pier of ►**Vol 2.27** found in the "baths of Gallienus" (room A). **Chronology**: uncertain; see the remarks advanced for ►**Vol 2.27**.

Corinthian capitals with "group 1" acanthus (eight examples).

VOL 2.29 (Plate 12; Plan 1). Pilaster capital. Kalathos with four-lobed section. The base of the capital is decorated with a rounded, beaded and reeled astragal, underlined by a string of square dentils. Joined to the shaft. The lower tier has two acanthus leaves, the

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upper tier has three. The leaves are independent, set on the top of the astragal, and rather flattened towards the kalathos. The mid-rib of the leaves is formed by a large fascia with a sharp, triangular profile and framed by two vertical grooves; the four side-ribs are represented by thin vertical grooves, highlighted at the top by a small carved cut. The leaves feature a drooping top-leaflet and four side-leaflets with pointed lobes. The lower side-leaflets are separated through circular eyelets; the upper side-leaflets through a triangular cut with inscribed circular eyelets. The presence of round eyelets and triangular voids is a continuity of Hellenistic decorative traditions (see Heilmeyer 1970, 35-6; *Scavi di Ostia* VII, 204; Pensabene 1993, 111). The cauliculi spring from the interval between the leaves of the upper tier. They run vertically and are almost unnoticeable; their profile is flat, and they are decorated at the top by a thin collar with sharp, triangular profile. The calyces are set on the top of the cauliculi and have a flattened profile too. The edges of the inner half-leaves are rolled and tangent. The helices and volutes spring from the calyces. They are formed by thin, flattened stems with a rather open V shape. Both the helices and volutes' edges are rolled, decorated with marked spirals. At the edges of the volutes, under the corners of the abacus, is carved a motif made of two trapezes joined together. The abacus is thin and formed by a single fillet. **State of preservation**: medium deterioration; the outer edges of the calyces are fragmented. The axial motif is not entirely preserved (perhaps a mask?). **Material**: Zerhoun limestone. **Measurements**: total h.: 53.1 cm; astragal: w. 43.8 cm, h. 5.2 cm; kalathos: h. 43.4 cm; lower tier: h. 16.5 cm; upper tier: h. 28.7 cm; abacus: w. 49 cm, h. 4.5 cm. **Examples and location**: one capital, not *in situ*, placed above one of the blocks of the south-east gate of the city walls, probably belonging to the original decoration of the gate (inner façade?). **Chronology**: the construction of the city walls is dated by the twin inscriptions dedicated to Marcus Aurelius and Lucius Verus, AD 168/169 (*IAM* 382-3; Frézouls 1956, 122; Thouvenot and Luquet 1978, 111; Camporeale *et al*. 2008, 289-90).

VOL 2.30 (Plate 12; Plan 8). Pilaster capital. Kalathos with four-lobed section. The base of the capital features a rounded, beaded and reeled astragal. It is underlined by an upper flat fillet and by a second one decorated with a schematic Ionic *kymation*. This latter has semi-circular, framed eggs separated by vertical cuts that replace the canonical darts/tongues. Joined to the shaft at the bottom. The lower tier has two acanthus leaves,

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the upper tier has three. The leaves are independent, set on the top of the astragal, and flattened towards the kalathos surface. The leaves are almost identical to those of ►**Vol 2.29**, although the carving is slightly more schematic and the overall volume is less plastic. The side-ribs have a double cut at the top, and the side-leaflets are separated through triangular eyelets only. The lobes of the leaflets have a marked triangular shape, with pointed edges. The cauliculi are flat and decorated at the top by a collar with rope-pattern motif. The calyces are also flattened, with rolled edges; the inner edges are undecorated, while the outer edges have large, carved spirals. From the first calyces spring a second and a third set of calyces, both of them having a V-shaped profile. The outer edges of the second calyces are rolled towards the top and decorated with carved spirals. The third calyces are reduced in size, with small pointed edges. Under the abacus, at the junction between the lower and upper spirals, is a rhomboid motif (possibly an open calyx: see ►**Vol 2.19** and ►**Vol 2.23**). The abacus is well-developed in height, featuring a cavetto moulding crowned by a fillet. **State of preservation**: moderate deterioration; the corners of the abacus are fragmented and the axial motif is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 56.8 cm; shaft: h. 0.5 cm; lower fillet (with *kymation*): h. 0.5 cm; upper fillet: 0.5 cm; astragal: w. 51.7 cm, h. 2.7 cm; kalathos: h. 46.2 cm; lower tier: h. 17.6 cm; upper tier: h. 31 cm; cavetto: h. 4.9 cm; fillet: h. 1.5 cm; abacus: w. 60 cm. **Examples and location**: two capitals (one is not provided with the astragal at the bottom) carved on the rear side of the two blocks of ►**Vol 2.5**. They are found not *in situ*, on the ground inside the second and third peristyle of the palace of Gordianus (rooms 7 and 22). **References**: Thouvenot 1958, 18, pl. 4.4. **Parallels**: a similar column capital, with circular and triangular eyelets at the interval between the side-leaflets, a well-developed abacus with cavetto and upper fillet, was found in the peristyle of the "maison aux gros pilastres". It may be datable to the early third century AD (Étienne 1960, 86-9, 134, pl. 88, fig. 5), and is now kept in the garden of the Musée Archéologique de Rabat. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 2.31 (Plate 12; Plan 8). Column capital, very similar to ►**Vol 2.30**. Kalathos with circular section. Two tiers of eight independent leaves, set at the base of the capital, with a more simplified carving. The leaves are flattened towards the kalathos, with a drooping top-leaflet and two side-leaflets with pointed lobes. The side-leaflets are separated by

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triangular eyelets. The cauliculi are flat and undecorated, almost undistinguishable from the kalathos, with a thin collar at the top. Three sets of calyces spring from the cauliculi, almost identical to those of ►**Vol 2.30**, although the outer edges of the first calyces are left undecorated. A rhomboid motif is also visible at the junction between the lower and upper spirals. The abacus is reduced to a single fillet. The two preserved axial motifs are represented by a fleuron and a mask, respectively. **State of preservation**: medium deterioration; the right-hand corner of the upper kalathos is fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 42.7 cm; kalathos: h. 40 cm; lower tier: Ø 35.5 cm, h. 14.5 cm; upper tier: h. 27 cm; abacus: h. 1.7 cm; cross-section: 36.5 cm. **Examples and location**: one capital, not *in situ*, on the ground in the corridor between the second and the third peristyle of the palace of Gordianus. **References**: Thouvenot 1958, 18, pl. 4.3. **Parallels**: other capitals with triangular eyelets and reduced abacus are known at *Volubilis* in the room with *nymphaeum* of the "maison aux colonnes" (Pensabene 2011, 234-5, fig. 35), and in the "maison au chien" (Thouvenot 1945a, 111-2, pl. 2.1). **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 2.32 (Plate 13; Plan 8). Pilaster capital, almost identical to ►**Vol 2.31**. Kalathos with four-lobed section. The base of the capital features a large torus with rounded profile. The lower tier has two acanthus leaves, the upper tier has three, both featuring a rather simplified carving. The leaves have a drooping top-leaflet and two side-leaflets with pointed lobes; these latter are separated through triangular eyelets. The cauliculi are flat, decorated with two grooves along the stem and with a flat collar at the top. Three sets of calyces, identical to those of ►**Vol 2.31**, spring from the cauliculi. The rhomboid motif at edges of the "volutes" shows a carved decoration made of four biconvex leaves (two long and two short), joined in the middle and arranged as a cross. The abacus is formed by two fillets. The axial motif is represented by a disc with concave profile. **State of preservation**: slight deterioration; the left-hand corner of the astragal is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.5 cm; torus: w. 43.7 cm, h. 2.5 cm; kalathos: h. 42.7 cm; lower tier: h. 13.5 cm; upper tier: h. 25.5 cm; abacus: w. 49.5 cm, h. 3.3 cm. **Examples and location**: one capital carved on the rear face of one block of ►**Vol 2.5**, not *in situ*, on the ground inside the third peristyle of the palace of Gordianus (room 22). **Parallels**: see ►**Vol 2.31**. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

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VOL 2.33 (Plate 13; Plan 8). Pilaster capital. Kalathos with four-lobed section. The base of the capital is decorated with a rounded torus, underlined by a fillet. Joined to the shaft. The lower tier has two acanthus leaves, the upper tier has three, similar to those of ►**Vol 2.30-32**. The leaves are independent, set on the top of the torus, and much flattened towards the kalathos – showing a more simplified carving, especially in the shape of the lobes. The ribs of the leaves are not provided with grooves, but are highlighted by vertical half round mouldings. The leaves have a drooping top-leaflet and two side-leaflets, separated through triangular voids. The cauliculi are rather flattened, featuring a thick collar with a rope-pattern motif. Three sets of flat calyces spring from them, but their edges are not recognizable. The abacus is reduced to a single fillet. **State of preservation**: advanced deterioration; the upper part of the kalathos is badly fragmented and the axial motif not recognizable. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.5 cm; shaft: w. 40 cm, h. 2.7 cm; fillet: h. 1 cm; torus: h. 2.5 cm; kalathos: h. 39.6 cm; lower tier: h. 14.5 cm; upper tier: h. 26.3 cm; abacus: h. 2.7 cm. **Examples and location**: one capital, not *in situ*, on the ground at the left-hand side of the entrance to the palace of Gordianus (room 1). **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 2.34 (Plate 13; Plan 8). Pilaster capital. Kalathos with four-lobed section. The base of the capital is decorated with a rounded astragal with bead-and-reel motif, underlined by a string of rectangular dentils. The lower tier has two acanthus leaves, the upper tier has three. The leaves are independent, set at the top of the astragal, and flattened towards the kalathos surface – representing a further simplification of the leaves of ►**Vol 2.33**. The ribs of the leaves are marked by vertical half round mouldings, each of them being crowned by two small cuts. The leaves have a drooping top-leaflet and four side-leaflets, separated through triangular eyelets. The cauliculi are flattened, with a marked collar at the top, but their decoration is not recognizable. The calyces are provided with inner half-leaves with rolled edges and marked spirals. The abacus is quite developed in height, formed by a cavetto and upper fillet. The capital is framed on the right and left side by a scroll-pattern decoration carved on the block. The scrolls spring from the bottom of the capital and run vertically towards the top. The edges of each scroll terminate with a rounded button. **State of preservation**: advanced deterioration; the calyces, helices, volutes, and the corners of the abacus are badly fragmented. The axial motif is not

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preserved. The scroll-pattern decoration is much deteriorated too, especially in the upper portion. **Material**: Zerhoun limestone. **Measurements**: total h.: 58.5 cm; dentils: h. 3 cm; astragal: h. 3.2 cm; kalathos: h. 45.5 cm; lower tier: h. 21 cm; upper tier: h. 33.5 cm; abacus: h. 6.8 cm. **Examples and location**: two capitals, not *in situ*, scattered on the ground at the left-hand side of the entrance to the palace of Gordianus (room 1). **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

Corinthian capitals with "group 2" acanthus (nine examples).

VOL 2.35 (Plate 13; Plan 3). Engaged half-column capital (pier with attached half-column and pilaster). Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has three. The leaves are independent, set at the base of the capital, with a very slender shape and are flattened towards the kalathos surface. The contour of the leaves is characterized by a series of small pointed folioles, without any subdivision into side-leaflets. The top-leaflet is replaced by a pointed lobe bowed towards the front of the capital, without any formal distinction with the leaflets along the sides. The inner part of the leaves is decorated with a large mid-rib which takes the shape of a flat fascia, framed by two thin half round mouldings. The leaves of the upper tier are set at the interval between the leaves of the lower tier, and are divided in two halves through two horizontal half round mouldings: the lower half features a flat carved flute, shaped as a reversed drop; the upper half has the same mid-rib of the leaves of the lower tier. A thin fleuron stem springs from the top of the central leaf. The cauliculi are set at the interval between the leaves of the upper tier. They run vertically and have a rounded profile; the stem is decorated with thin convex flutes and the collar at the top features a rope-pattern motif. From the top of the cauliculi spring the calyces, made of two flat half-leaves separated at the bottom. Their edges are rolled; the inner ones are undecorated, while the outer edges are provided with carved spirals. From the space between the half-leaves springs a second set of small cauliculi with triangular profile and a thin collar at the top. A second and a third set of calyces follow, both with triangular profile. The inner edges of the second calyces are shaped as tongues, joined together under the axial motif of the abacus. The outer edges are rolled towards the top. The third calyces are reduced in size, with pointed edges. A rhomboid motif is placed at the corners of the "volutes" under the

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abacus: it shows an outer frame with a triangular profile, inside which is inscribed a second rhomb divided horizontally in two halves by a thin groove. The abacus is reduced to a single fillet. The axial motif on the main face of the capital is not preserved, while at the lateral sides one can see a fleuron and a shell, respectively. **State of preservation**: slight deterioration; the lobes of the lower leaves are fragmented. The second capital which originally decorated the pilaster on the right-hand side of the block is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 50 cm; kalathos: h. 47.5 cm; lower tier: h. 19.4 cm; upper tier: h. 37.5 cm; abacus: h. 2.5 cm. **Examples and location**: three capitals found in the *capitolium* piazza. One has been repositioned *in situ* on the top of an engaged half-column at the left-hand side of the east entrance to the piazza (inner side). The two other capitals both belong to the same heart-shaped pier, which lies on the ground in the corridor between the podium of the temple and the surrounding *porticus*, towards the south edge of the piazza. **References**: Pensabene 2011, 217-8, fig. 13a-b. **Chronology**: first quarter of the third century, probably around AD 217, when the *capitolium* was inaugurated and the restoration of the area surrounding the adjacent forum was completed (*IAM* 355; Akerraz *et al*. 1987, 217).

VOL 2.36 (Plate 13; Plan 3). Pilaster capital, similar to ►**Vol 2.35**. Kalathos with four-lobed section. The lower tier has two acanthus leaves, the upper tier has three. The leaves are independent, set at the base of the capital, with a flat and slender shape almost identical to ►**Vol 2.35**. The decoration of the upper tier's leaves is more elaborated. The two side-leaves show a long elliptical flute, with double frame, that develops from the bottom of the capital. The mid-leaf has the same central flute, but the bottom of the leaf is also decorated with a motif featuring three reversed U shapes. The cauliculi are set at the interval between the leaves of the upper tier. They run vertically and have a rounded profile, with two sets of concave flutes: the three lower flutes are well developed in height, while the four flutes above are much reduced in size. **State of preservation**: advanced deterioration; the whole upper part of the capital is not preserved, and the calyces, helices, volutes and the abacus are not recognizable. **Material**: Zerhoun limestone. **Measurements**: total h.: 45.5 cm; kalathos: w. 32.4 cm; lower tier: h. 17.4 cm; upper tier: h. 29.7 cm. **Examples and location**: one capital in the piazza of the *capitolium*, not *in situ*, lying on the ground behind the last column of the *porticus* towards the

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southern edge of the piazza. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.37 (Plate 13; Plan 3). Engaged half-column capital (pier with attached half-column and pilaster), similar to ►**Vol 2.35**. Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has five. The leaves are independent, set at the base of the capital, with a slender and flat shape. The leaves of the upper tier are decorated with a flute shaped as a reversed drop with outer frame. The cauliculi are smooth, with rounded profile and double rounded collars at the top; the first collar is undecorated, while the second features a rope-pattern motif. Three sets of flattened calyces spring from the cauliculi. The edges of the calyces are rolled; those of the first calyces towards the bottom, while those of the upper calyces towards the top. Both the outer edges have carved spirals. In the space between the edges and under the abacus, one can see an elaborated decorative motif: the lower part is formed by a reversed triangle, while the upper part shows a trapezoidal shape with an inscribed star (four stems joined together in the middle, in order to form eight lobes). The abacus is made of a single fillet. The axial motif on the main face is not preserved (perhaps a fleuron?), while on the lateral sides two shells are visible. **State of preservation**: medium deterioration; the lobes of the leaves and the left-hand upper corner of the capital are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 45.5 cm; lower tier: Ø 35 cm, h. 17.2 cm; upper tier: h. 30.5 cm. **Examples and location**: one capital from the piazza of the *capitolium*, repositioned *in situ* on the top of a half-column at the right-hand side of the east entrance to the piazza (inner side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.38 (Plate 14; Plan 3). Pilaster capital (pier with attached half-column and pilaster), very similar to ►**Vol 2.37**. Kalathos with four-lobed section. The lower tier has two acanthus leaves, the upper tier has three. The leaves are almost identical to those of ►**Vol 2.37**, although the flute of the upper leaves has a double frame. The cauliculi have a fluted stem and are crowned by double collars; the first collar has a rope-pattern motif, while the second is undecorated. The calyces are flat, with rolled edges not provided with any spirals. The second and third set of calyces are only partially recognizable. The abacus

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features two fillets. The axial motif is represented by a fleuron with four petals and a circular button in the middle. **State of preservation**: advanced deterioration; the calyces, the helices and the volutes are almost unidentifiable. **Material**: Zerhoun limestone. **Measurements**: total h.: 45.8 cm; kalathos: h. 42 cm; lower tier: Ø 32.5 cm, h. 16 cm; upper tier: h. 28.5 cm; abacus: h. 3.8 cm. **Examples and location**: one capital, belonging to the same block of ►**Vol 2.37**, repositioned *in situ* on the top of the pilaster at the right-hand side of the east entrance to the piazza of the *capitolium* (inner side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.39 (Plate 14; Plan 8). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has five. The leaves are similar to those of ►**Vol 2.35-38**, although some differences can be noticed. The folioles are thinner and longer, with a slight S shape that creates a more naturalistic effect. The mid-rib is characterized by a large fascia with slightly triangular profile, framed by double half round mouldings at the sides. The flute at the bottom of the upper tier's leaves is just sketched, and one can recognize clearly the upper arch only. The first set of calyces is set directly at the interval between the leaves of the upper tier, without any cauliculi underneath. The edges of the inner half-leaves are rolled, with a circle inscribed. The second and third calyces have a triangular profile. At the outer edges of their spirals is placed a rhomboid motif almost identical to that of ►**Vol 2.35**. The abacus presents a single fillet. **State of preservation**: medium deterioration; the axial motif is not preserved, and the left-hand portion of the upper kalathos and abacus are broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 51.4 cm; kalathos: h. 48 cm; lower tier: Ø 35.2 cm, h. 19.5 cm; upper tier: h. 35.2 cm; abacus: h. 3.4 cm; cross-section: 43.3 cm. **Examples and location**: one capital, not *in situ*, on the ground of the corridor surrounding the first peristyle of the palace of Gordianus, in front of the entrance to room 13. **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

VOL 2.40 (Plate 14; Plan 3). Pilaster capital. Kalathos with four-lobed section. The bottom of the capital is decorated with a thick torus with trapezoidal profile. Joined to the shaft. The lower tier has two leaves, the upper tier has three. The upper leaves are carved only in the upper half, while the bottom is just sketched and left undecorated. The leaves

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follow the same pattern as those of ►**Vol 2.35-38**, although their design is more schematic and simplified. The mid-rib presents a large fascia, framed by two square-cut grooves and two half round mouldings. The calyces spring without any cauliculi from the interval between the upper tier's leaves. Their profile is flattened, the outer edges are rolled, while the inner ones are joined together in the middle (under the axial motif). From the calyces spring the helices and volutes, both featuring a very simplified shape without any rolled edges. A decorative motif is set at the corner of the volutes, under the abacus, but only the lower reversed triangle can be recognized. The abacus is almost undistinguishable from the upper kalathos. **State of preservation**: moderate deterioration; the lobes of the leaves are slightly damaged; the axial motif is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 40 cm; shaft: w. 32.2 cm, h. 4.1 cm; torus: h. 4.5 cm; lower tier: h. 13.2 cm; upper tier: 22.5 cm; abacus: w. 40.8 cm. **Examples and location**: one capital from the piazza of the *capitolium*, not *in situ*, placed on the wall next to the entrance to the last room on the west side of the piazza. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.41 (Plate 14; Plan 6). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has five. The leaves are similar to those of ►**Vol 2.35-38**, although the mid-rib features a decoration made of V-shaped grooves running vertically towards the top of the leaves. The lower half of the upper tier's leaves shows a long flute. The cauliculi have a large stem with flat profile, decorated with a flute identical to that of the upper tier's leaves. They are separated from the calyces through a marked horizontal groove. The calyces have a flat profile; their inner half-leaves are provided with rolled edges and spirals. The lower portion of a second set of calyces is visible. **State of preservation**: advanced deterioration; the whole upper part of the kalathos is damaged; the abacus and the axial motif are not recognizable. **Material**: Zerhoun limestone. **Measurements**: total h.: 37.5 cm; lower tier: Ø 28.7 cm, h. 14.8 cm; upper tier: h. 27.5 cm. **Examples and location**: one capital, not *in situ*, on the ground inside the first room of the "thermes du nord". **Chronology**: uncertain; it is possible that the capital was part of the decoration associated with the second building phase of the baths, c. end of the second century through the mid-third century AD (Lenoir, E. 1991, 153-8; Thébert 2003, 273).

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Corinthian capitals with "group 3" acanthus (eight examples).

VOL 2.42 (Plate 14; Plan 3). Engaged half-column capital (pier with attached half-column and pilaster). Kalathos with semi-circular section. The base of the capital presents a rounded astragal with rope-pattern motif, underlined by a fillet with a bead-and-reel decoration. Joined to the shaft. The lower tier has four acanthus leaves, the upper tier has five. The leaves are independent, set on the top of the astragal, and flattened towards the kalathos. They have pointed folioles similar to those of ►**Vol 2.35-38**, but here one can notice an attempt to imitate the shape of the more "canonical" acanthus. Each leaf is divided into a top-leaflet and two side-leaflets, and the point of junction is marked by a change of direction of the folioles. The mid-rib of the leaves features a large fascia, with slight triangular profile, framed by double half round mouldings. The lower part of the upper tier's leaves is decorated with a flute with a long, elliptical shape. The cauliculi are set at the interval between the leaves of the upper tier. Their profile is flattened and the stem is decorated with a flute identical to that of the upper tier's leaves. A thin collar with rounded profile crowns the top of the cauliculi. Three sets of calyces spring in succession from the cauliculi. They all have a triangular profile, and the inner and outer edges of the first and second calyces are rolled (without spirals). A rhomboid motif is placed at the corner of the "volutes". The abacus is undistinguishable from the kalathos. The axial motif features a shell with vertical grooves. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 59.5 cm; shaft: h. 7.2 cm; fillet: h. 1.8 cm; astragal: h. 3 cm; lower tier: h. 17.5 cm; upper tier: h. 33.3 cm. **Examples and location**: one capital from the piazza of the *capitolium*, repositioned *in situ* on the top of the half-column at the right-hand side of the west entrance (inner side). **References**: Pensabene 2011, 218-9, fig. 14. **Parallels**: a similar pilaster capital at *Volubilis* is found close to the entrance to the "maison à l'éphèbe", dated to the early third century AD (Pensabene 2011, 244, fig. 45). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.43 (Plate 14; Plan 3). Pilaster capital (pier with attached half-column and pilaster), almost identical to ►**Vol 2.42**. Kalathos with four-lobed section. The lower tier has two leaves, the upper tier has three. The decorative motif at the edge of the "volutes"

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is composed of a reversed triangle at the bottom, followed by a horizontal half round moulding with a rope-pattern motif. **State of preservation**: slight deterioration; the astragal is damaged at the right-hand side. **Material**: Zerhoun limestone. **Measurements**: see ►**Vol 2.42**. **Examples and location**: one capital carved on the same block of ►**Vol 2.42**, repositioned *in situ* on the pier at the right-hand side of the west entrance to the piazza of the *capitolium* (inner side). **References**: Pensabene 2011, 218-9, fig. 14. **Parallels**: see ►**Vol 2.42**. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.44 (Plate 15; Plan 4). Engaged half-column capital (heart-shaped pier), similar to ►**Vol 2.42-43**. Kalathos with semi-circular section. The lower tier has four leaves set at the base of the capital, the upper tier has five. The cauliculi have a fluted stem and the collar is thicker, with a rounded profile and a rope-pattern decoration. Three sets of calyces, with triangular profile, spring from the top of the cauliculi. A shell is visible in the middle of the abacus on the main face, replaced by two masks on the lateral sides. **State of preservation**: advanced deterioration; the base of the capital and the corners of the abacus are broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 29.3 cm; kalathos: h. 28.1 cm; lower tier: Ø 23.2 cm, h. 11.5 cm; upper tier: h. 20.7 cm; abacus: h. 1.2 cm. **Examples and location**: one capital carved on the same pier of the pseudo-Corinthian capital ►**Vol 2.59**, repositioned *in situ* along the corridor surrounding the so-called "*macellum*" (or "bâtiment ouest"), in front of the staircase leading to the forum's southern access. **References**: Thouvenot 1971b, 305, fig. 8. **Chronology**: uncertain; the first building phase of the "*macellum*" might be dated after the end of the first century BC, and this complex was annexed to the forum in its final stage at the beginning of the third century AD (Akerraz *et al*. 1987b, 212).

VOL 2.45 (Plate 15; Plan 3). Pilaster capital (pier with two attached pilasters). Kalathos with four-lobed section. The capital presents a torus with trapezoidal profile at the bottom. Joined to the shaft. The lower tier has four acanthus leaves, the upper tier has five. The leaves are almost identical to those of ►**Vol 2.42-44**. The leaves of the upper tier have a long, elliptical flute in the lower half, underlined by a double motif shaped as a reversed U. Three sets of flattened calyces spring from the top of two leaves of the upper

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tier, without any cauliculi underneath. The inner edges of the first calyces are rolled, with a circular decoration in the middle. The third calyces are much reduced in size, with a thin collar in the middle which imitates the shape of a cauliculus. The abacus is formed by a single fillet. **State of preservation**: medium deterioration; the torus and the corners of the abacus are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 52.3 cm; shaft: w. 43 cm, h. 2.2 cm; torus: h. 3.2 cm; kalathos: h. 44.4 cm; lower tier: h. 15.7 cm; upper tier: h. 31.2 cm; abacus: w. 52 cm, h. 2.5 cm. **Examples and location**: one capital, repositioned *in situ* on the top of the pier at the right-hand side of the west entrance to the piazza of the *capitolium* (outer side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.46 (Plate 15; Plan 3). Pilaster capital (pier with two attached pilasters). Kalathos with four-lobed section, very narrow and developed in height. Flattened torus at the bottom. Joined to the shaft. The lower tier has two acanthus leaves, the upper tier has three. The leaves are very similar to those of ►**Vol 2.42-44**. The leaves of the upper tier are carved only in the upper half; the lower portion was left unfinished, shaped as a single parallelepiped block. The calyces are very schematic, made of a thin stem with large, rolled edges that have the function of helices and volutes. A second set of calyces with reduced edges springs from the top of the lower calyces. The abacus shows a thin fillet. **State of preservation**: advanced deterioration; the torus and the leaves are damaged. **Material**: Zerhoun limestone. **Measurements**: total h.: 52.3 cm; shaft: w. 17 cm, h. 2.8 cm; torus: h. 3 cm; kalathos: h. 44.5 cm; lower tier: h. 14.7 cm; upper tier: h. 35.4 cm; abacus: h. 2 cm. **Examples and location**: one capital carved on the same block of ►**Vol 2.45**, repositioned *in situ* at the right-hand side of the west entrance to the piazza of the *capitolium* (outer side). **Parallels**: three sporadic capitals of uncertain chronology, with similar simplified helices ad volutes, are known at *Sala*: two of them are on the ground between the south side of the *nymphaeum* and the mosque, while the third is inside one of the *tabernae* under the *capitolium* (►**Sal 2.14**). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.47 (Plate 15; Plan 3). Column capital. Kalathos with circular section. Two tiers of eight acanthus leaves. The leaves are much flattened towards the kalathos, with a

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slender shape. The mid-rib of the upper tier's leaves is carved only in the upper half of the leaves, while the bottom is left undecorated. From the top of the middle leaf springs the fleuron stem. Two thin cauliculi spring from the interval between the leaves; their stem is long with a flat, almost unnoticeable, profile. At the top of the cauliculi are set the calyces. Their half-leaves are separated at the bottom, with a flat profile and rolled, undecorated edges. A second set of calyces, with outer edges rolled towards the top, springs from the interval between the half-leaves of the first calyces. Under the corners of the abacus is a motif composed of a reversed triangle at the bottom, followed by a rectangle. The abacus is almost invisible, and an oval shell with vertical grooves is set in the middle. **State of preservation**: advanced deterioration; the right-hand corner of the abacus is broken. The second example is fragmented from above the second tier. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.7 cm; lower tier: h. 20.8 cm; upper tier: h. 35 cm. **Examples and location**: two capitals, repositioned *in situ* on the top of two columns belonging to the west colonnade of the *porticus* in the piazza of the *capitolium*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.48 (Plate 15; Plan 8). Engaged half-column capital (heart-shaped pier). Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has five. The leaves are flattened towards the kalathos, with the mid-leaflet markedly bowed towards the front of the capital. The cauliculi have a flat profile and can be distinguished from the kalathos only thanks to the large collar at the top, decorated with four horizontal half round mouldings. From the top of the collars spring the calyces, formed by two half-leaves separated at the base. They have a flat profile and rolled, circular edges. At the interval between the half-leaves are placed two smaller cauliculi, with a flat profile and a large collar at the top (similar to the collar of the larger cauliculi, featuring five half round mouldings). From these cauliculi spring a second and a third set of calyces. The outer edges of the second calyces are rolled towards the top, with carved spirals. At the corner of the "volutes" is a rhomboid decoration – a small rhomboid motif in the middle, surrounded by an outer frame. The abacus is reduced to a single fillet. The axial motif of the main face is represented by a fleuron with four petals, replaced by two shells on the lateral sides of the capital. **State of preservation**: very slight deterioration; some minor signs of damage are visible at the corners of the abacus and at the bottom of the leaves.

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Material: Zerhoun limestone. **Measurements**: total h.: 46 cm; kalathos: h. 44.5 cm; lower tier: Ø 31.5 cm, h. 17.2 cm; upper tier: h. 30.4 cm; abacus: w. 54.5 cm, h. 1.5 cm. **Examples and location**: one capital carved on the same pier of the composite capital ►**Vol 2.57**, not *in situ*, found along the *decumanus maximus* in front of the north-east corner of the palace of Gordianus. **References**: Thouvenot 1971b, 306-8, figs. 9-10. **Chronology**: uncertain; perhaps contemporary with the palace, AD 238-241 (Thouvenot 1958, 9; *IAM* 404), although the association with this building is not certain.

Corinthian capitals with "group 4" acanthus (four examples).

VOL 2.49 (Plate 15; Plan 3). Column capital. Kalathos with circular section. Two tiers of eight acanthus leaves. The leaves are independent, set at the base of the capital, and flattened towards the kalathos surface. The shape of the leaves follows a pattern similar to those of ►**Vol 2.35-38**, although the design is more schematic and simplified. The folioles along the leaves' contour have pointed edges, slightly bowed towards the bottom of the capital, and are not divided into side-leaflets. The mid-rib of the leaves is represented by a large fascia. It is framed by two vertical fillets on each side, representing an attempt to imitate the canonical side-ribs of the acanthus. The cauliculi are set at the interval between the leaves of the upper tier. Their stem is long and thin, much flattened towards the kalathos; they can be distinguished only through the large collars at the top, which feature a series of five horizontal half round mouldings. The calyces spring from the top of the cauliculi. They have a flat profile and are decorated on the entire surface by herring-bone cuts, that re-create the shape of either a feather or an ear of wheat. The inner and outer edges of the half-leaves are rolled with carved spirals. From the first calyces spring two other sets of calyces with sharp, triangular profile. The outer edges of the second calyces are rolled towards the top. At the outer corners is a large rhomboid motif, made of two triangles joined at the base. The abacus is not distinguishable from the top of the kalathos. The axial motif is represented by a shallow shell with vertical grooves on two sides of the capital, replaced by a fleuron on the third side (the fourth motif is not preserved). **State of preservation**: slight deterioration; the bottom of the lower leaves shows minor damage. **Material**: Zerhoun limestone. **Measurements**: total h.: 49.4 cm; lower tier: Ø 32 cm, h. 19.8 cm; upper tier: h. 34.8 cm. **Examples and location**: one capital, repositioned *in situ* on the

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top of a column belonging to the west colonnade of the *porticus* in the piazza of the *capitolium* (towards the southern side). **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.50 (Plate 16; Plan 3). Column capital, similar to ►**Vol 2.49**. Kalathos with circular section. Two tiers of eight acanthus leaves, almost identical to those of ►**Vol 2.49**. The folioles are smaller and set in a horizontal position, with a simplified shape and triangular pointed edges. At the top of the middle leaf of the second tier is a small axial calyx – simply carved on the kalathos surface – from which springs the fleuron stem. The cauliculi are flattened towards the kalathos; the collar at the top is decorated with some (randomly arranged) cuts joined in the middle. The calyces are made of two half-leaves with a flat profile, separated at the base. The outer half-leaf has the same herring-bone decoration of ►**Vol 2.49**, and the edges are rolled with large spirals. The inner half-leaf is decorated with short, vertical cuts and the edges have a circular decoration carved, with a small point in the middle. From the interval between the half-leaves springs a second cauliculus. It is made of a long, thin stem with triangular profile; the collar features two horizontal half round mouldings. From the top of the collars spring a second and a third set of calyces. The edges of the second calyces are rolled towards the top, with large and marked spirals. At the outer corners is placed a rhomboid motif similar to that of ►**Vol 2.49**. The abacus is reduced to a thin fillet. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken and the axial motif not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.2 cm; kalathos: h. 47 cm; lower tier: Ø 34.5 cm, h. 17.5 cm; upper tier: h. 34 cm; abacus: h. 1.2 cm; cross-section: 44 cm. **Examples and location**: one capital from the piazza of the *capitolium*, not *in situ*, placed on the ground inside the second room along the west side. It is quite likely that it belonged to a column of the *porticus*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.51 (Plate 16; Plan 3). Column capital. Kalathos with circular section. Two tiers of eight acanthus leaves, almost identical to those of ►**Vol 2.49**, although the shape of the folioles is simplified. The calyces spring from the interval between the leaves of the upper tier, without any cauliculi. Their surface is undecorated, with a flat profile and rolled

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edges; the inner edges are decorated with a circular carving, the outer edges have carved spirals. A second and a third set of calyces spring from the first. The outer edges of the second calyces are rolled towards the top, with a spiral decoration. At the corner of the "volutes" is a decorative motif made of a star inscribed in a square, underlined by a reversed triangle. The abacus is not distinguishable from the top of the kalathos. **State of preservation**: medium deterioration; the axial motif is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 50.2 cm; lower tier: h. 18.4 cm; upper tier: h. 33.8 cm. **Examples and location**: one capital from the piazza of the *capitolium*, repositioned *in situ* on one of the columns of the west colonnade of the *porticus* (close to the north edge). **References**: Pensabene 2011, 220-1, fig. 16. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.52 (Plate 16; Plan 3). Column capital. Kalathos with circular section. Two tiers of eight acanthus leaves, similar to those of ►**Vol 2.51**. The folioles are further simplified: they are arranged horizontally and their shape is very schematic, similar to small triangles. The upper part of the leaves has undergone more changes, since the folioles appear to be longer and set along the mid-rib of the leaves, rather than following their contour. The mid-rib shows a fascia decorated with V-shaped cuts, running from bottom to top. In the leaves of the upper tier this decoration covers only the upper half, while the bottom features a long flute. The cauliculi are flattened towards the kalathos and their stem is decorated with the same flute visible in the upper tier's leaves. A flat collar is placed on the top of the cauliculi. From here spring the calyces, made of two half-leaves separated at the base. The profile of the half-leaves is flat and the whole surface is decorated with marked, horizontal cuts. The outer edges are rolled and provided with large spirals. At the interval between the half-leaves is placed a second set of small cauliculi with a sharp, triangular profile. From their top springs a second set of thin calyces with triangular profile and outer edges rolled towards the top. A third set of calyces follows: the surface is decorated with small carvings that recall the shape of the leaves' folioles. The corners of the "volutes" feature a double decorative motif: the lower part shows a rhomboid decoration (two triangles joined at the base), in the upper portion one can see two concave trapezes joined together. The abacus cannot be distinguished from the top of the kalathos. The axial motif is represented by a mask on one side, and by

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a fleuron on one of the other sides (the two other motifs are not preserved). **State of preservation**: slight deterioration; the lobes of the leaves and the bottom of the lower tier are partially fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 48.5 cm; lower tier: h. 16.5 cm; upper tier: h. 31.4 cm. **Examples and location**: one capital, repositioned *in situ* on the top of a column of the east colonnade of the *porticus* in the piazza of the *capitolium*. **References**: Pensabene 2011, 220, fig. 15. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

Corinthian capitals with "group 5" acanthus (four examples).

VOL 2.53 (Plate 16; Plan 3). Column capital. Kalathos with circular section. Two tiers of eight acanthus leaves. The leaves are independent, set at the base of the capital, and flattened towards the kalathos. They are formed by large folioles, set along the contour without any division into side-leaflets. The folioles have a flat profile and pointed, triangular edges. The mid-rib of the leaves is represented by a large fascia with slightly rounded profile, framed on both sides by vertical half round mouldings that replace the original side-ribs. At the interval between the leaves of the upper tier are set the cauliculi, almost invisible, with a slightly rounded profile. From the top of the cauliculi spring three sets of calyces, all with slightly triangular profile. The inner and outer edges of their half-leaves are rolled, without any spirals. At the corner of the "volutes" is a rhomboid motif made of two triangles joined together. The abacus is formed by a single fillet. The axial motif is represented by a mask on two sides of the capital, and by a shell on the third side (the fourth motif is not recognizable). **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 44.5 cm; lower tier: h. 17.2 cm; upper tier: h. 29 cm. **Examples and location**: one capital, repositioned *in situ* on the top of a column of the west colonnade of the *porticus* in the piazza of the *capitolium*. **References**: Pensabene 2011, 221-2, fig. 17. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.54 (Plate 16; Plan 3). Column capital, almost identical to ►**Vol 2.53**. Kalathos with circular section. Two tiers of eight acanthus leaves. The cauliculi feature a thin, rounded collar at the top. At the corner of the "volutes" one can see a horizontal half

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round moulding with a rope-pattern motif. The abacus is formed by a thin, almost unnoticeable fillet. **State of preservation**: advanced deterioration; the upper part of the kalathos is fragmented; the right-hand corner of the abacus is broken and the axial motif is not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.8 cm; kalathos: h. 41.1 cm; lower tier: Ø 33.2 cm, h. 16.4 cm; upper tier: h. 28.5 cm; abacus: w. 58 cm, h. 2.7 cm. **Examples and location**: one capital, not *in situ*, placed upside down on the ground of the second room along the west side of the piazza of the *capitolium*. It probably belonged to the colonnade of the *porticus*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.55 (Plate 16; Plan 3). Engaged half-column capital, similar to ►**Vol 2.53**. Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has five. The folioles are bent towards the bottom of the capital. The calyces spring from the interval between the upper tier's leaves, without any cauliculi. Their profile is slightly triangular and they show rolled edges; the inner edges have a circular carving in the middle, while the outer ones have marked spirals. A second set of calyces, with edges rolled towards the top, is visible. At the corners of the "volutes" is a rhomboid motif formed by two triangles joined at the base. The abacus is not distinguishable from the top of the kalathos. The axial motif is represented by a shell. **State of preservation**: slight deterioration; the right-hand corner of the upper kalathos is fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 42.8 cm; lower tier: Ø 34.2 cm, h. 19.4 cm; upper tier: h. 32.7 cm; abacus: w. 58.3 cm. **Examples and location**: one capital from the piazza of the *capitolium*, belonging to a tangent half-column of the *porticus*, repositioned *in situ* at the south-west edge of the piazza. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

VOL 2.56 (Plate 17; Plan 3). Column capital, similar to ►**Vol 2.53**. Kalathos with circular section. Two tiers of eight acanthus leaves. The mid-rib of the leaves is shaped as a fascia with slightly triangular profile, framed by vertical half round mouldings on each side. Two short side-ribs are also visible, parallel to the mid-rib. The leaves of the upper tier are carved only in the upper half, while the bottom was left unfinished. Three sets of flattened calyces spring from the interval between the leaves of the upper tier, without

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any cauliculi underneath. A rhomboid motif is placed at the corners of the "volutes". The abacus features a single fillet. The axial motif is represented by a mask (perhaps a feminine figure?) on one side, and by a fleuron on one of the other sides (the two other motifs are not preserved). **State of preservation**: medium deterioration; the right-hand corner of the abacus and the mask are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 44.5 cm; lower tier: h. 14.8 cm; upper tier: h. 26 cm. **Examples and location**: one capital from the piazza of the *capitolium*, repositioned *in situ* on the top of a column belonging to the east colonnade of the *porticus*. **Chronology**: first quarter of the third century, c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217).

Composite capitals (two examples).

Composite capitals with "group 3" acanthus (one example).

VOL 2.57 (Plate 17; Plan 8). Engaged half-column capital (heart-shaped pier). Kalathos with semi-circular section. The lower tier has four acanthus leaves, the upper tier has five. The leaves are independent and set at the base of the capital; their shape is slender and they are flattened towards the kalathos surface. The folioles along the leaves' contour are bent towards the top, with triangular pointed edges. The division into side-leaflets is visible in the point of junction with the middle lobe, where the folioles change direction towards the bottom. The mid-rib of the leaves is shaped as a large fascia with a slightly rounded profile; it is framed on both sides by two vertical half round mouldings (the outer ones tend to reproduce the function of the side-ribs). The part of the kalathos above the second tier is decorated with vertical, convex flutes framed by protruding rims. The semi-circular upper edge of the flutes is directly attached to a fillet, decorated with a bead-and-reel motif, underlining the bottom of the echinus. The profile of the echinus is flat, shaped as a fascia, without any effective separation from the kalathos lip. It is decorated with an Ionic *kymation*, schematically carved on its surface, which features five eggs (the lateral ones are partially hidden by the volutes) separated by four darts. The eggs have a semi-circular shape, framed by a case; the carving of the darts is just sketched, and one can clearly distinguish only the diamond-shaped dart-heads at the bottom. The volutes are much reduced in size (they are slightly bigger than the eggs of the *kymation*)

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and feature simplified spirals. The outer contour of the volutes is decorated with a rolled leaf, provided with a thin mid-rib along which are set the folioles, clearly resembling the design of the kalathos's leaves. The channel of the volutes is horizontal and shallow, with a flat profile. The abacus is rather reduced in height, made of a cavetto moulding crowned by a fillet. **State of preservation**: slight to medium deterioration; the lobes of the leaves are fragmented; the axial motifs are not easily recognizable (perhaps three shells?). **Material**: Zerhoun limestone. **Measurements**: total h.: 45.1 cm; kalathos: h. 35.2 cm; lower tier: Ø 31.2 cm, h. 18.3 cm; upper tier: h. 29.4 cm; echinus: h. 4 cm; channel: h. 2.1 cm; abacus: w. 49.5 cm, h. 3.8 cm. **Examples and location**: one capital carved on the same pier of the Corinthian capital ►**Vol 2.48**, not *in situ*, positioned along the *decumanus maximus* in front of the north-east corner of the palace of Gordianus. **References**: Thouvenot 1971b, 306-8, figs. 9-10. **Parallels**: similar composite capitals, with a more developed abacus, can be found at *Volubilis* on the top of the columns at the entrance to the "maison aux colonnes" (Pensabene 2011, 229-30, fig. 26). Another undated capital from *Banasa*, with a more simplified design, is now kept in the garden of the Musée Archéologique de Rabat (►**Ban 2.33**). **Chronology**: uncertain; perhaps contemporary with the palace, AD 238-241 (Thouvenot 1958, 9; *IAM* 404), although the connection with this building is not confirmed.

Composite capitals with "group 5" acanthus (one example).

VOL 2.58 (Plate 17; Plan 8). Column capital. Kalathos with circular section. Two tiers of eight acanthus leaves, set at the base of the capital. The leaves of the upper tier are much longer than those of the lower tier. The leaves are independent and flattened towards the kalathos. The folioles are not divided into side-leaflets and have flat, triangular edges. The mid-rib of the leaves takes the form of a fascia with flat profile, framed by two vertical half round mouldings on each side. The upper part of the kalathos is decorated with convex flutes; their design is not accurate, each of them has a different size, and they are not placed at regular intervals. The flutes cover only the frontal part of the kalathos, while the portion under the volutes was left undecorated. The echinus is underlined by a thin fillet with a bead-and-reel motif. The profile of the echinus is flat and is decorated with an Ionic *kymation* made of four semi-circular eggs with a double case;

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the eggs are adjoining, and no darts are set in the interval between them. The volutes have an irregular, ovoid shape and show simplified spirals. Their contour is decorated with a rolled leaf that partially reproduces the design of the kalathos's leaves. The channel of the volutes is almost unnoticeable, reduced to a thin horizontal moulding – although the carving is more schematic. The abacus is more developed, formed by a cavetto and an upper fillet. The axial motif is represented by a rectangular decoration with vertical grooves, perhaps imitating a shell, for which we find parallels in other late Roman and Late Antique capitals across the Empire (e.g. the four sided Ionic capitals of the temple of Saturn in Rome, the design of which was probably influenced by North African productions: Pensabene 1984, 68-70, 152). **State of preservation**: slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 45.2 cm; kalathos: h. 32.2 cm; lower tier: Ø 35.7 cm, h. 14.4 cm; upper tier: h. 27.8 cm; echinus: h. 6.8 cm; cavetto: h. 4.5 cm; fillet: h. 1.7 cm; abacus: w. 57.5 cm. **Examples and location**: one capital, not *in situ*, upside down on the ground in the first peristyle of the palace of Gordianus. **References**: Thouvenot 1958, 17, pl. 4, fig. 2. **Parallels**: a similar composite capital at *Volubilis* comes from the colonnade of the peristyle in the "maison aux colonnes" (Pensabene 2011, 232, fig. 31). **Chronology**: c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404).

Pseudo-Corinthian capitals (nine examples).

Pseudo-Corinthian capitals with "group 3" acanthus (one example).

VOL 2.59 (Plate 17; Plan 4). Engaged half-column capital (heart-shaped pier). Kalathos with semi-circular section, highlighted by a marked lip at the top. One single tier of five acanthus leaves, set at the base of the capital. The leaves are slender and much flattened towards the kalathos surface. The folioles are arranged along the contour of the leaves, without any division into side-leaflets, and they feature a long shape with pointed edges. The mid-rib of the leaves is represented by a large fascia, with flat profile, framed by vertical half round mouldings on both sides. At the interval between the leaves one can see a carved flute, shaped as a reversed drop, crowned by two horizontal half round mouldings (perhaps reproducing the form of a cauliculus). The upper part of the kalathos is provided with a semi-circular – almost semi-elliptical – decoration, whose upper edges

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are joined to the kalathos lip. The abacus is formed by three fillets. **State of preservation**: medium deterioration; the volutes and the axial motif are not preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 28.3 cm; kalathos: h. 24.7 cm; tier: Ø 22.6 cm, h. 16.7 cm; abacus: w. 36.8 cm, h. 3.6 cm. **Examples and location**: one capital carved on the same pier of the Corinthian capital ►**Vol 2.44**, repositioned *in situ* along the corridor surrounding the "*macellum*"(or "bâtiment ouest"), in front of the southern entrance to the forum. **References**: Thouvenot 1971b, 305, fig. 8. **Chronology**: uncertain; the building phases of the "*macellum*" should be comprised between the end of the first century BC and the beginning of the third century AD (Akerraz *et al*. 1987b, 212).

Pseudo-Corinthian capitals with water plant leaves (eight examples).

VOL 2.60 (Plate 17; Plan 4). Column capital. Kalathos with circular section. The bottom of the capital features a large torus with rounded profile. Joined to the shaft. One tier of 12 water plant leaves, set on the top of the torus, rather flattened towards the kalathos. The leaves are independent, slender, with a single protruding lobe with pointed edge. Along the vertical axis of the leaves is a marked mid-rib with semi-circular profile. A rounded rim marks the contour of the leaves. From the interval between the two middle leaves and the lateral ones spring two stems with a V shape, likely reproducing two schematic calyces, and following the upper contour of the leaves underneath. The inner and outer edges are bent and tangent. From these "calyces" spring the helices and volutes, with a rather simplified shape: two stems running vertically with slightly rounded profile, shaped as a closed V. The edges are rolled and terminate with marked spirals. The portion of the kalathos comprised between the inner edges of the helices, straight under the abacus, is decorated with two circular buttons. The abacus is formed by two fillets, without any axial motif. **State of preservation**: slight to medium deterioration; some examples have a more advanced level of fragmentation. **Material**: sandstone. **Measurements**: total h.: 48.8 cm; shaft: Ø 40 cm, h. 4.8 cm; torus: h. 4.2 cm; kalathos: h. 33.9 cm; tier: h. 21.2 cm; abacus: w. 57.5 cm, h. 5.9 cm. **Examples and location**: six capitals, not *in situ*, placed on the ground in the central courtyard of the "*macellum*". The original provenance is not certain. **References**: O'Farrell 1941, 108-9, group IV, fig. 7; Étienne 1960, 134, pl. 42, fig. 2, and pl. 66, fig. 2; Boube 1967, 330-1, pl. 19.3-4; Euzennat and Hallier 1986,

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86-7, fig. 6; Jodin 1987, 91-2, pl. 8.7. **Parallels**: more capitals are documented elsewhere at *Volubilis*: in the south-west district of the town, and in the "maison au compas" close to the arch of Caracalla (Boube 1967, 330; Jodin 1987, 92); similar (later?) capitals made of Zerhoun limestone, with a more shallow kalathos and not provided with the torus at the bottom, decorate the peristyle of the "maison aux demi-colonnes" on the southern end of the *decumanus maximus*, dated to the early third century AD (Étienne 1960, 134, pl. 37, fig. 1.4; pl. 66, fig. 2); another isolated capital, perhaps from the same house, is now kept in the *lapidarium* (unpublished). More examples from *Volubilis* with identical shape are scattered on the ground along the road leading to the "porte à deux baies" in the southern sector of the town (perhaps to be recycled in the Islamic buildings which developed there?). The shape of the leaves also recalls that of two half-column capitals from *Thamusida* – without calyces, helices and volutes – belonging to the *principia* of the military fort; they were perhaps associated with the first building phase, c. second half of the first century AD (Camporeale 2008c, 229, type 5.1, fig. 21). Similar leaves with a single pointed lobe can also be observed in the decoration of some cornices from *Lepcis Magna*, dated to the first quarter of the second century AD (Mahler 2006, 235, pls. 106-7, nos. 827-33 KG: some examples *in situ* on Trajan's arch and others scattered on the ground in the old forum). **Chronology**: despite some attempts to date the production of these capitals to the Mauretanian era (Boube 1967, 330-1; Jodin 1987, 92), their stylistic features and the parallels identified at *Thamusida* (two capitals) and *Lepcis Magna* (various cornices) would rather suggest a later chronology, towards the mid/late first century AD (see also the remarks in O'Farrell 1941, 111; Étienne 1960, 134; Lassère and Hallier 1989, 188-9; Pensabene 2011, 256-7).

VOL 2.61 (Plate 17; Plan 4). Engaged half-column capital. Kalathos with semi-circular section. Almost identical to ►**Vol 2.60**. One tier of six water plant leaves, set on the top of the torus. The inner edges of the "calyces" are more marked. The stem of the helices and volutes is curvilinear, with a more open and naturalistic V shape. **State of preservation**: medium deterioration; the left-hand corner of the upper kalathos is broken. **Material**: sandstone. **Measurements**: total h.: 55.7 cm; shaft: Ø 41 cm, h. 11.8 cm; torus: h. 4.2 cm; kalathos: h. 33.1 cm; tier: h. 21.4 cm; abacus: h. 6.6 cm. **Examples and location**: one capital, not *in situ*, placed on the top of the outer wall of the building located south of the

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"*macellum*". **References**: see ►**Vol 2.60**. **Parallels**: see ►**Vol 2.60**; similar (later?) half-column capitals, made of Zerhoun limestone, decorate the entrance to the "maison aux demi-colonnes", c. early third century AD (Étienne 1960, 66, pl. 66, fig. 1). **Chronology**: c. mid/late first century AD.

VOL 2.62 (Plate 18; Plan 9). Column capital, quite similar to ►**Vol 2.60**. The kalathos has a marked tronco-conical shape, underlined by a thick torus at the bottom. One tier of eight leaves, set on the top of the torus. The leaves are more slender and sharp, much flattened towards the kalathos, and carved with less care. They are provided with a marked mid-rib with triangular profile, and the upper lobe is pointed. From the interval between the leaves spring the helices and volutes, without any calyces. They are shaped as simplified stems, with a rather open V shape, and ending with tangent edges taking the form of circular buttons. The two buttons under the abacus are missing. The abacus is square and very schematic. **State of preservation**: advanced deterioration; the rear of the capital and the lower torus are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 45.7 cm; torus: Ø c. 42 cm, h. 5 cm; kalathos: h. 32.5 cm; tier: h. 22.3 cm; abacus: w. 56.5 cm, h. 8.5 cm. **Examples and location**: one capital, not *in situ*, scattered on the ground inside "temple B". **References**: Morestin 1980, 43, fig. 26. **Parallels**: see ►**Vol 2.60**. **Chronology**: the simplification of the carving suggests that this capital may be one of the latest examples documented for this series, perhaps hinting towards a chronology around the third century AD (thus confirming the remarks already presented by Morestin 1980, 43).

Tronco-pyramidal capitals (one example).

VOL 2.63 (Plate 18; Plan 5). Pillar capital. Kalathos with square section. The bottom of the capital features a thick torus with trapezoidal profile. The kalathos is decorated with four palm leaves, set at the top of the torus, and placed at the respective corners (only two half-leaves can be seen from the front on each side of the capital). The height of the leaves reaches almost the top of the kalathos, and their profile is completely flattened towards the kalathos surface. The leaves have a curvilinear shape which terminates with a pointed lobe at the top. The inner part of the leaves shows 14 grooves (seven are visible on each

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side) that reproduce as many ribs. The grooves run vertically from the bottom of the leaf towards the top, bending horizontally in the upper portion. The central part of the kalathos is decorated with a large carving depicting a *kantharos*, positioned at the interval between the leaves. The foot of the *kantharos* has a simplified, trapezoidal shape and is set on the top of the torus. The lower part of the vase is embossed with four convex flutes shaped as reversed drops. From there develops the upper portion of the vase, with a large and well-marked rim in the middle. At the lateral edges of the rim are set two small handles, joined to the body of the vessel. From the lateral sides of the *kantharos* spring also two long, curvilinear stems with rolled edges and spirals. These stems reach the upper corners of the kalathos, straight under the corners of the abacus. The function of such stems may recall that of the volutes in the orthodox Corinthian capitals. The upper part of the capital is crowned with a rather thin abacus, with a trapezoidal profile (recalling the torus at the bottom). **State of preservation**: slight deterioration; the abacus is partially damaged at the corners. **Material**: Zerhoun limestone. **Measurements**: total h.: 36.6 cm; torus: w. 58 cm, h. 5.2 cm; kalathos: h. 28.2 cm; leaves: h. 23.2 cm; abacus: w. 59.5 cm, h. 3.2 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, placed on a wall outside the "baths of Gallienus", on the north side towards the forum. **References**: Jodin 1987, 90, pl. 7.6; Pensabene 2011, 256-7, fig. 63. **Parallels**: the same decorative motifs – palm leaves and central *kantharos* – can be observed in a pseudo-impost capital from *insula* 12 at *Volubilis* (Jodin 1987, 90, pl. 8.2). In North Africa, two quite similar examples (perhaps representing a "prototype" that inspired the decoration adopted at *Volubilis*?) come from *Caesarea*. These have a lower tier of eight smooth leaves, followed by water plant leaves at the corners above, and a central *kantharos*; they are dated to the third century AD (Pensabene 1982a, 66, pls. 66-7, nos. 191-2: provenance unknown). Another capital with a similar decorative pattern is kept in the archaeological museum of Murcia (Spain), and is likely datable to the fourth century AD, although a later chronology around the fifth-sixth century AD has also been suggested (Domingo Magaña 2011, 137-8, no. 110: provenance uncertain). **Chronology**: the original proposal of dating this decoration to the reign of Juba II (Jodin 1987, 90) must be rejected. The similarities with the capitals in North Africa and Spain would suggest that this production should be placed at least towards the late third century AD, or even in the fourth century AD (see also the remarks in Pensabene 2011, 256-7).

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Pseudo-impost capitals (19 examples).

Smooth pseudo-impost capitals (15 examples).

VOL 2.64 (Plate 18; Plan 6). Column capital. Undecorated kalathos with circular section at the base, becoming square at the top, and with concave profile. The abacus at the top is square, with flat profile and straight edges. **State of preservation**: medium deterioration; the corners of the abacus are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 37.4 cm; kalathos: Ø 34.8 cm, h. 29.2 cm; abacus: w. 54.2 cm, h. 8.2 cm. **Examples and location**: two capitals from the "thermes du nord". One lies on the ground inside the *palaestra*; the second has been repositioned *in situ* on the top of a column at the west edge of the *natatio*. **References**: Étienne 1960, 130; Jodin 1977, 309, fig. 7; 1987, 96-7, fig. 8B; Pensabene 2011, 254. **Parallels**: numerous similar capitals, made either of Zerhoun limestone or sandstone, are docuemented elsewhere at *Volubilis*: from the *porticus* around "temple C" (Euzennat 1957a, 44, pl. 3, fig. 2; Jodin 1987, 96); in the "maison d'Orphée" (Jodin 1987, 96); in the "maison au bain des nymphes" (Étienne 1954, 101; Jodin 1987, 97); in the *atriolum* of the "maison au Bacchus de marbre" (Étienne 1960, 56, pl. 58, fig. 2) and of the "maison aux deux pressoirs" (Étienne 1960, 61, pl. 62, fig. 2; Jodin 1987, 97); in the peristyle of the "maison des Fauves" (Étienne 1954, 144, pl. 23, fig. 1; 1960, 130, pl. 52, fig. 1); in the peristyle and *triclinium* of the "maison à l'ouest du palais du gouverneur" (Étienne 1954, 132, pl. 28, fig. 1; 1960, 47, pl. 53, fig. 2; Jodin 1987, 97); in the peristyle of the "maison au cortège de Vénus" (Étienne 1960, 78, pl. 72, fig. 2); and, finally, in *insula* 7 and *insula* 8 (Jodin 1987, 96). **Chronology**: it has been hypothesized that these capitals may be dated either to the pre-Roman period (Jodin 1977, 309; 1987, 96) or to the Byzantine era, c. end of the fifth – sixth century AD (Pensabene 2011, 254). Both these suggestions are not accepted here; all the other examples at *Volubilis* belong to buildings datable to within the second-third centuries AD. These capitals from the "thermes du nord" should thus be associated with the second building phase of the baths, c. end of the second century – mid-third century AD (Lenoir, E. 1991, 153-8; Thébert 2003, 273).

VOL 2.65 (Plate 18; Plan 6). Column capital, similar to ►**Vol 2.64**. Kalathos with circular section at the base, square at the top, and slightly concave profile. The base of the

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capital features a large torus with rounded profile. Square, thick abacus at the top. **State of preservation**: medium deterioration; the torus is fragmented and the right-hand corner of the abacus is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.6 cm; torus: Ø 42.7 cm, h. 4.8 cm; kalathos: h. 24.6 cm; abacus: w. 53.5 cm, h. 14.2 cm. **Examples and location**: three capitals from the "thermes du nord". One of them is scattered on the ground at the southern edge of the *palaestra*; the other two capitals have been repositioned *in situ* on the top of the columns along the east side of the *natatio*, associated with the base ►**Vol 1.18**. **References**: Jodin 1977, 309, fig. 7; 1987, 97; Pensabene 2011, 254. **Parallels**: see ►**Vol 2.64**. **Chronology**: probably contemporary with the second building phase of the baths, c. end of the second century AD throughout the mid-third century AD (Lenoir, E. 1991, 153-8; Thébert 2003, 273).

VOL 2.66 (Plate 18; Plan 6). Half-column capital, similar to ►**Vol 2.65**. Kalathos with semi-circular section at the base and square section at the top. A torus with rounded profile is set at the base of the capital. Square, thick abacus at the top. **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 44.8 cm; torus: Ø 46.5 cm, h. 4.5 cm; kalathos: h. 27.8 cm; abacus: w. 57.4 cm, h. 12.5 cm. **Examples and location**: one capital from the "thermes du nord", not *in situ*, currently placed on the wall at the north-east edge of the *natatio*; it originally belonged to the half-column tangent to the wall, associated with the base ►**Vol 1.8**. **References**: Pensabene 2011, 254. **Parallels**: see ►**Vol 2.64**. **Chronology**: c. end of the second century throughout the mid-third century AD (Lenoir, E. 1991, 153-8; Thébert 2003, 273).

VOL 2.67 (Plate 18; Plan 9). Column capital. Kalathos with circular section at the base, square at the top. The base of the capital is decorated with a torus with rounded profile. Joined to the shaft. The abacus is square. **State of preservation**: medium deterioration; the abacus and some parts of the torus are damaged. **Material**: Zerhoun limestone. **Measurements**: total h.: 66.2 cm; shaft: Ø 42.5 cm, h. 27.8 cm; torus: h. 4.5 cm; kalathos: h. 20.4 cm; abacus: w. 57.2 cm, h. 13.5 cm. **Examples and location**: one capital, not *in situ*, lying on the ground and covered by the vegetation inside "temple B" (perhaps belonging to the surrounding *porticus*?); two more examples from this building were found during the 1960-61 excavations (Morestin 1980, 42). **References**: Morestin 1980, 42. **Parallels**: see

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►**Vol 2.64**. **Chronology**: uncertain; perhaps belonging to the main building phase of the temple, c. second century to third century AD, although this chronology is debated (see Morestin 1980, 40-3; Brouquier-Reddé *et al*. 1998, 71).

VOL 2.68 (Plate 19; Plan 2). Pilaster capital. Kalathos with four-lobed section. A thick torus is set at the base of the capital. Square abacus. **State of preservation**: medium to advanced deterioration. **Material**: Zerhoun limestone. **Measurements**: impossible to record. **Examples and location**: five capitals *in situ*, positioned at the north and south sides of the basilica's inner walls. Four of them are at the top of the pilasters associated with the bases ►**Vol 1.45**; the fifth capital is positioned along the shaft of one of these pilasters, under the respective capital (perhaps it was used by mistake as a course block, or because of shortage of other building materials). **Parallels**: see ►**Vol 2.64**. **Chronology**: contemporary with the construction of the basilica, c. AD 210 – 216/217 (Luquet 1967, 408; Akerraz *et al*. 1987b, 217; Risse 2001, 37-8; Camporeale *et al*. 2008, 290).

VOL 2.69 (Plate 19; Plan 8). Pilaster capital. Kalathos with four-lobed section. A torus with rounded profile is visible at the base of the capital. Joined to the shaft. The abacus is square. **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.5 cm; shaft: w. 24 cm, h. 8.8 cm; torus: h. 4.6 cm; kalathos: h. 21.6 cm; abacus: w. 46.3 cm, h. 8.5 cm. **Examples and location**: two capitals, not *in situ*, found inside the palace of Gordianus. The first capital is located on the ground of room 20; the second is in the corridor which leads to room 24. **References**: Jodin 1987, 97, fig. 8B (?). **Parallels**: two similar capitals were part of the decoration of "porte 1" or "porte sud-ouest" that gave access to the court of "temple B" (Morestin 1980, 18-9, figs. 6-7: only two reconstructive drawings of the gate were published, while no photographs of the capitals exist). **Chronology**: perhaps contemporary with the major reconstruction of the palace, c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404), although their association with this building is only hypothetical.

VOL 2.70 (Plate 19; Plan 8). Pilaster capital. Kalathos with four-lobed section, provided with double concavities at the top (straight under the abacus). The capital features at the base a torus with rounded profile, underlined by a fillet. Joined to the shaft.

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The abacus is reduced to a single, thin fillet and it has a circular axial motif in the middle (an unfinished fleuron?). **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 52.8 cm; shaft: w. 44 cm, h. 5.1 cm; fillet: h. 1.5 cm; torus: h. 3.2 cm; kalathos: h. 41.6 cm; abacus: w. 55.6 cm, h. 1.4 cm. **Examples and location**: one capital, not *in situ*, on the ground inside room 3 at the south-east corner of the palace of Gordianus. **Chronology**: perhaps contemporary with the reconstruction of the palace, c. AD 238-241 (Thouvenot 1958, 9; *IAM* 404), but the association with this building cannot be confirmed.

Pseudo-impost capitals with Corinthian-Ionic motifs (four examples).

VOL 2.71 (Plate 19; Plan 8). Column capital. Kalathos with circular section at the base, becoming square at the top. The base of the capital features a large torus with elliptical profile, underlined by a fillet. Joined to the shaft. The kalathos is decorated with two tiers of palm leaves flattened towards its surface. The lower tier has eight independent leaves, set on the top of the torus; the upper tier has four leaves, set on the top of the side leaves of the lower tier (corresponding to the corners of the capital). The leaves recall closely those of the tronco-pyramidal capital ►**Vol 2.63**. They have a pentagonal shape, provided with a pointed lobe at the top; the leaves' ribs are represented by eight grooves, running vertically from bottom to top and bending horizontally in the upper portion. At the top of the lower tier's mid leaf is placed an axial calyx with flat profile. It is formed by two open half-leaves with pointed edges; the upper part features a fleuron stem, shaped as a reversed drop. From the interval between the middle leaf and the side leaves of the lower tier spring two cauliculi. They present a long, vertical stem with rounded profile, highlighted at the top by a collar which takes the form of an elliptical bead. At the top of the collars are set the calyces. They are flattened and have an open V shape, with a groove that decorates the internal surface. Their half-leaves terminate with large scrolls at both ends. From the point of junction of the calyces' half leaves spring two thin vertical stems that reach the top of the kalathos – perhaps representing additional fleuron stems. The abacus is square and decorated with an Ionic *kymation* with and outer frame along all its contour. The *kymation* is made of four interconnected eggs with a semi-circular shape (only two are preserved); they are separated by three triangular-shaped dart-heads, not

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provided with stems. **State of preservation**: medium deterioration; the corners of the abacus are broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 52.8 cm; shaft: Ø 35.1 cm, h. 5.8 cm; fillet: h. 1.6 cm; torus: h. 4.5 cm; kalathos: h. 32.4 cm; lower tier: h. 15.5 cm; upper tier: h. 29.8 cm; abacus: w. 54.7 cm, h. 8.5 cm. **Examples and location**: one capital from the palace of Gordianus, not *in situ*, found inside room 42 at the north-east corner of the complex. It belonged to the colonnade of the peristyle surrounding the small fountain in the middle of the room, associated with one of the bases ►**Vol 1.17**. **References**: Thouvenot 1958, 30, pl. 6, fig. 1. **Parallels**: similar pseudo-impost capitals featuring a hybrid pseudo-Corinthian and Ionic decoration – or with other motifs such as a *kantharos* in the middle of the kalathos – are found elsewhere at *Volubilis*, mainly in the south-west district (Jodin 1987, 96-7, pl. 8, figs. 2-3). Similar pseudo-Corinthian motifs are known in Spain: a more classicistic "prototype" is represented by three pilaster capitals in the archaeological museum at Tarragona, c. second-third century AD (Domingo Magaña 2011, 120-1, nos. 11-3: unknown provenance); another similar capital is in the museum at Seville, third century AD (Gutiérrez-Behemerid 1992, 201-2, no. 891: provenance unknown). Two later capitals in the mosque of Cordoba, with a decoration possibly inspired by the motifs of the capitals from *Volubilis*, are dated approximately towards the sixth-seventh century AD (Domingo Magaña 2011, 164, nos. 278-9: provenance unknown). **Chronology**: the initial suggestion to date these capitals during the reign of Juba II (Jodin 1987, 96-7) must be discarded. At the same time, the hypothesis that they may represent a local variation of Byzantine impost capitals, datable to the end of the fifth – sixth century AD (Pensabene 2011, 254), should be reassessed judging by the absence of pottery and other finds at *Volubilis* datable to that period. The association of this capital with the recycled base ►**Vol 1.17** would suggest that it belonged to a later phase of the palace (post AD 238-241), perhaps datable towards the late third or fourth century AD (see also the chronology advanced for the tronco-pyramidal capital ►**Vol 2.63**).

VOL 2.72 (Plate 19; Plans 6, 8). Column capital, similar to ►**Vol 2.71**. Kalathos with circular section at the base, square at the top. The leaves of the lower tier are adjoining and are set at the base of the capital. They have concave sides and six ribs in the internal surface. The axial calyx on the top of the middle leaf is more developed in height, with two bowed half-leaves at the sides and a long, drop-shaped fleuron stem in the middle.

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The collars of the cauliculi are separated from the stem only thorough a groove, and the calyces above have a more simplified design. The Ionic *kymation* decorating the abacus has four independent eggs, separated by three heart-shaped dart-heads (the vertical stem of the darts is not carved). **State of preservation**: slight deterioration; the second example is broken and only a fragment is preserved. **Material**: Zerhoun limestone. **Measurements**: total h.: 44.4 cm; kalathos: Ø 35.5 cm, h. 35.7 cm; lower tier: h. 14.2 cm; upper tier: h. 33.2 cm; abacus: w. 56 cm, h. 8.7 cm. **Examples and location**: two capitals, not *in situ*. The first lies on the ground of the *palaestra* in the "thermes du nord", and it likely belonged to the colonnade surrounding the *natatio*. The second capital comes from the palace of Gordianus, found inside room 42, and it belonged to one of the columns of the peristyle around the small fountain (associated with one of the bases ►**Vol 1.17**). **References**: Pensabene 2011, 256-7, fig. 61b. **Parallels**: see ►**Vol 2.71**. **Chronology**: perhaps datable towards the end of the third – fourth century AD (see also the remarks advanced for ►**Vol 2.63** and ►**Vol 2.71**).

VOL 2.73 (Plate 19; Plan 8). Column capital, similar to ►**Vol 2.71-72**. Kalathos with circular section at the base, square at the top. The leaves of the lower tier are adjoining and set at the base of the capital. They are provided with eight ribs in the internal surface; the upper part of the leaves is rounded. The half-leaves of the axial calyx are joined to the collars of the cauliculi. The calyces are larger, with a more sinusoid shape; at their top is placed an additional set of calyces, which follow the contour of the lower calyces, and from which spring the lateral fleuron stems. **State of preservation**: slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 44.4 cm; kalathos: Ø 37.3 cm, h. 36 cm; lower tier: h. 14.8 cm; upper tier: h. 30.2 cm; abacus: w. 55.2 cm, h. 8.4 cm. **Examples and location**: one capital from the palace of Gordianus, not *in situ*, lying on the ground inside the fountain of room 42. It belonged to the colonnade of the peristyle surrounding the fountain (associated with one of the bases ►**Vol 1.17**). **Parallels**: see ►**Vol 2.71**. **Chronology**: perhaps datable towards the end of the third – fourth century AD.

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CATALOGUE: *BANASA*

In the Catalogue are included 138 elements of architectural decoration: 76 bases and 62 capitals (Plates 20-33; Plans 10-16). The materials were recorded during two fieldwork seasons, in May 2013 and September 2014, during which the whole archaeological area was surveyed. In addition, in the Catalogue are also described some pieces kept in the local *lapidarium* and in the Musée Archéologique de Rabat.

The environmental conditions at the time of the recording were not particularly favourable, since many buildings were covered by vegetation. The forum and the buildings along the *kardo maximus* were fairly clear, thus allowing me to record all the evidence in that area. In contrast, the north, north-east and north-west districts were infested by plants, and this made the recording more complicated. Therefore, it is possible that a few architectural elements were hidden from view and could not be documented. Even so, the evidence collected constitutes a good and representative sample of the material from this site for the purpose of this thesis.

1. BASES

All the bases belong to the same group (Attic bases), divided into 36 types. The following sub-groups have been adopted: Attic bases with plinth (►**Ban 1.1-5**); Attic bases with plinth, joined to the shaft (►**Ban 1.6-16**); Attic bases without plinth (►**Ban 1.17**); and Attic bases without plinth, joined to the shaft (►**Ban 1.18-36**).

Attic bases (76 examples).

Attic bases with plinth (six examples).

BAN 1.1 (Plate 20; Plan 14). Column base. Plinth, torus, scotia highlighted by upper and lower fillets, second smaller torus. **State of preservation**: medium to advanced deterioration; the corners of the plinth are broken. **Material**: calcarenite. **Measurements**:

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total h.: 27.8 cm; plinth: w. 52.4 cm, h. 10.2 cm; base: h. 17.6 cm; lower torus: Ø 52.4 cm, h. 6.6 cm; scotia: h. 5.8 cm; fillets: h. 1.5-2 cm; upper torus: Ø 42.5 cm, h. 4.2 cm. **Examples and location**: one base, not *in situ*, on the ground between the "maison à la mosaïque de Vénus" and the "thermes aux fresques". **Chronology**: the "maison à la mosaïque de Vénus" probably predates the first building phase of the "thermes aux fresques", mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 1.2 (Plate 20; Plan 15). Column base. Plinth, torus with flattened profile, scotia with upper and lower fillets, second smaller torus. **State of preservation**: advanced deterioration; the corners of the plinth and both the tori are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 33 cm; plinth: w. 55 cm, h. 8.5 cm; base: h. 24.5 cm; lower torus: Ø 55 cm, h. 8 cm; scotia: h. 6.5 cm; fillets: h. 1 cm; upper torus: Ø 50 cm, h. 6.3 cm. **Examples and location**: one base, not *in situ*, on the ground close to the central peristyle of the "maison du diplôme de Domitien". **Parallels**: Attic bases with a similar profile can be found at *Volubilis* in the *porticus* surrounding the *capitolium*, c. AD 217, and in the palace of Gordianus, c. AD 238-244 (►**Vol 1.1**). **Chronology**: the "maison au diplôme de Domitien" was built after the construction of the city walls, c. second half of the second century AD (Camporeale 2004-05, 203).

BAN 1.3 (Plate 20; Plan 14). Column base. Plinth, torus, high scotia marked by upper and lower fillets, second smaller torus. **State of preservation**: advanced deterioration; the left-hand corner of the plinth is fragmented and the base is broken on the rear side along the vertical axis. **Material**: Zerhoun limestone. **Measurements**: total h.: 33.4 cm; plinth: w. 56 cm, h. 8.5 cm; base: h. 24.9 cm; lower torus: Ø 56 cm, h. 7.5 cm; scotia: h. 7.9 cm; fillets: h. 1 cm; upper torus: Ø 51 cm, h. 5.8 cm. **Examples and location**: one base, not *in situ*, on the ground between the "maison à la mosaïque de Vénus" and the "thermes aux fresques". **Parallels**: similar column and half-column bases come from the *porticus* of the *capitolium* and from the palace of Gordianus at *Volubilis*, c. AD 217 and AD 238-244, respectively (►**Vol 1.5-7**); another undated base is in the productive district at *Sala* (►**Sal 1.22**). In North Africa, two similar column bases of unknown dating are attested at *Caesarea* (Pensabene 1982b, 146, pl. 49, no. 235: from the west baths; no. 237: provenance unknown); *Lepcis Magna*, datable from the first quarter of the second century AD onwards

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(Mahler 2006, 203, pl. 79, no. 518 AB: from the *Calchidicum*). **Chronology**: see ►**Ban 1.1**, c. early to mid-second century AD?

BAN 1.4 (Plate 20). Column base. Plinth, torus with rounded profile, high scotia with flattened profile highlighted by upper and lower fillets, second smaller torus with triangular profile. **State of preservation**: medium deterioration; the right-hand corner of the plinth is broken. **Material**: white limestone. **Measurements**: total h.: 38.8 cm; plinth: w. 57.2 cm, h. 9.4 cm; base: h. 29.4 cm; lower torus: Ø 57.2 cm, h. 7.8 cm; scotia: h. 11.8 cm; fillets: h. 1.2-1.5 cm; upper torus: Ø 51.2 cm, h. 6.4 cm. **Examples and location**: one base, not *in situ* and of unknown provenance, placed on the ground in the *lapidarium*. **Parallels**: see ►**Ban 1.3**. **Chronology**: uncertain; perhaps between the early/mid-second century AD and the third century on the basis of the parallels.

BAN 1.5 (Plate 20; Plan 10). Column base. Plinth, torus, square-cut groove with upper and lower fillets, second smaller torus, fillet. **State of preservation**: advanced deterioration; the plinth, the upper torus and the fillet are poorly preserved. **Material**: calcarenite. **Measurements**: total h.: 58 cm; plinth: w. 94.5 cm, h. 16.5 cm; base: h. 41.5 cm; lower torus: Ø 94.5 cm, h. 14.3 cm; square-cut groove: h. 3.1 cm; fillets: h. 1.4-2.2 cm; upper torus: Ø c. 88 cm, h. 14.5 cm; fillet: impossible to record. **Examples and location**: two bases, not *in situ*, on the podium of the temple with seven *cellae* in the forum: one is positioned close to the edge of the podium, the second base is at the entrance to the fourth *cella*. Judging by the compatible measurements, they should be associated with the pseudo-lotus capitals ►**Ban 2.42** found in the same spot, probably belonging to the colonnade of the temple. **References**: Boube 1967, 338. **Chronology**: the pseudo-lotus capitals are probably datable after the mid-second century AD, perhaps even to the third century AD. It seems that the temple with seven *cellae* underwent some restorations at this same time (Thouvenot 1941a, 10-3; 1954b, 16; Euzennat and Hallier 1986, 82).

Attic bases with plinth, joined to the shaft (15 examples).

BAN 1.6 (Plate 20; Plan 14). Pilaster base. Plinth, torus, scotia highlighted by upper and lower fillets, second smaller torus, shaft provided with three convex flutes. **State of**

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preservation: medium deterioration; the plinth is slightly damaged and a circular hole is visible at the base of the shaft. **Material**: calcarenite. **Measurements**: total h.: 39.4 cm; plinth: w. 50.5 cm, h. 8.2 cm; base: h. 31.2 cm; lower torus: w. 50.5 cm, h. 5.4 cm; scotia: h. 5.2 cm; fillets: h. 1.5-2.4 cm; upper torus: w. 40.4 cm, h. 4.5 cm; shaft: w. 36 cm, h. 10.5 cm. **Examples and location**: two bases *in situ* at the entrance to the "thermes aux fresques". **Chronology**: probably contemporary with the first building phase of the baths, c. second half of the second century AD (Lenoir, E. 1991, 158; Thébert 2003, 257-8).

BAN 1.7 (Plate 21; Plan 15). Column base. Plinth, torus, high scotia highlighted by upper and lower fillets, second smaller torus, fillet, shaft. **State of preservation**: medium to advanced deterioration; the plinth is fragmented at the bottom. **Material**: calcarenite. **Measurements**: total h.: 41.7 cm; plinth: w. 62.5 cm, h. 8.5 cm; base: h. 28.2 cm; lower torus: Ø 62.5 cm, h. 7.9 cm; scotia: h. 8.5 cm; fillets: h. 1.7-2.2 cm; upper torus: Ø 57.9 cm, h. 6.3 cm; fillet: h. 2 cm; shaft: Ø 46.5 cm, h. 3 cm. **Examples and location**: two bases, not *in situ*, inside the "maison à l'aureus de Juba II"; one is on the ground, the other base is positioned on a wall facing the central peristyle. **Chronology**: the "maison à l'aureus de Juba II" was probably built after the construction of the city walls, c. second half of the second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 1.8 (Plate 21; Plan 15). Column base. Plinth, torus, throat moulding with upper and lower fillets, second smaller torus, fillet, shaft. **State of preservation**: medium deterioration; the right-hand corner of the plinth is broken. **Material**: calcarenite. **Measurements**: total h.: 55 cm; plinth: w. 65.5 cm, h. 11 cm; base: h. 25 cm; lower torus: Ø 65.5 cm, h. 7 cm; throat moulding: h. 4.7 cm; fillets: h. 1 cm; upper torus: Ø 63.5 cm, h. 7 cm; fillet: h. 2 cm; shaft: Ø 45 cm, h. 17 cm. **Examples and location**: one base, not *in situ*, positioned on the ground next to the inner wall at the entrance to the "maison au diplôme de Domitien". **Chronology**: uncertain; perhaps towards the second half of the second century AD (Camporeale 2004-05, 202-3)?

BAN 1.9 (Plate 21; Plan 11). Column base. Plinth, lower torus, square-cut groove highlighted by upper and lower fillets, second torus with the same diameter of the lower torus, fillet, shaft. **State of preservation**: advanced deterioration; the whole upper part of

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the base is badly fragmented. **Material**: calcarenite. **Measurements**: total h.: 37.7 cm; plinth: w. 55.2 cm, h. 9.5 cm; base: h. 23.4 cm; lower torus: Ø 55.2 cm, h. 7.7 cm; square-cut groove: h. 4.5 cm; fillets: h. 1.4 cm; upper torus: Ø 55.2 cm, h. 5 cm; fillet: h. 0.5 cm; shaft: Ø 42.7 cm, h. 4.3 cm. **Examples and location**: one base *in situ* at the south corner of the peristyle in the "maison de Fonteius". **Parallels**: a similar base, with plinth and both tori with the same diameter, belongs to the peristyle of the *domus* of Mars and Rhea at *Lixus*, c. end of the first – early second century AD (see ►**Lix 1.11**). **Chronology**: it seems that the construction of the "maison de Fonteius" took place at some point of the second century AD (Camporeale 2004-05, 203).

BAN 1.10 (Plate 21; Plan 16). Pilaster base. High plinth, lower torus, high throat moulding highlighted by upper and lower fillets, second smaller torus, fillet, shaft. **State of preservation**: advanced deterioration; the mouldings of the second example are almost unrecognizable. **Material**: calcarenite. **Measurements**: total h.: 66.1 cm; plinth: w. 64 cm, h. 37.8 cm; base: h. 23 cm; lower torus: h. 7.2 cm; throat moulding: h. 9.3 cm; upper torus: h. 6.5 cm; fillet: h. 3 cm; shaft: w. 33.5 cm, h. 2.3 cm. **Examples and location**: two bases *in situ*, belonging to the piers at the entrance to the so-called "bâtiment à pilastres" (of uncertain function) in the south district. **Chronology**: the construction of the "bâtiment à pilastres" should be dated between the second half/late first century AD and the early second century AD (Arharbi and Lenoir 2004, 221; Camporeale 2004-05, 202).

BAN 1.11 (Plate 21; Plan 12). Column base. Plinth, lower torus decorated with a rope-pattern motif, scotia highlighted by upper and lower fillets, upper undecorated torus with the same diameter of the lower torus, fillet, shaft. **State of preservation**: moderate deterioration. **Material**: calcarenite. **Measurements**: total h.: 53.8 cm; plinth: w. 62.8 cm, h. 10.2 cm; base: h. 25.9 cm; lower torus: Ø 62 cm, h. 9.3 cm; scotia: h. 4.8 cm; fillets: h. 1.4-1.9 cm; upper torus: Ø 62 cm, h. 7.4 cm; fillet: h. 2 cm; shaft: Ø 48.9 cm, h. 15.7 cm. **Examples and location**: one base, not *in situ*, on the ground inside the "maison M5" in the north-east district. At the moment of its discovery, it was recycled in a wall together with one of the pseudo-Corinthian capitals ►**Ban 2.40** (see Thouvenot 1954c, 35, pl. 3, fig. 4). Judging by the compatible measurements, the base and the capital likely belonged to the same column. **References**: Thouvenot 1971a, 246, fig. 3. **Chronology**: uncertain; the capital

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►**Ban 2.40** may be dated to within the first or second century AD. The buildings in the north and north-east district are not easily datable, although the analysis of the building techniques suggests a chronology towards the second century AD (Camporeale 2004-05, 203). The wall where the base and capital were reused should belong to one of the last phases of occupation (perhaps end of the third century AD?).

BAN 1.12 (Plate 21; Plan 16). Engaged half-column base (pier with attached half-column and pilaster). Plinth, lower torus, throat moulding with upper and lower fillets, second smaller torus, fillet, reversed cavetto and shaft. **State of preservation**: medium to advanced deterioration; the shaft is fragmented. **Material**: calcarenite. **Measurements**: total h.: 58 cm; plinth: w. 54 cm, h. 10 cm; base: h. 23 cm; lower torus: Ø 52 cm, h. 9 cm; throat moulding: h. 3.5 cm; fillets: h. 1-1.5 cm; upper torus: Ø 48.5 cm, h. 8 cm; fillet: h. 1 cm; cavetto: h. 5.5 cm; shaft: Ø 40.5 cm, h. 18.5 cm. **Examples and location**: one base, not *in situ*, re-employed in a wall of the building (of unknown function) at the eastern edge of the south district. **Chronology**: uncertain; the construction of this building is undated, while the adjoining buildings are dated between the second half/late first century AD and the early second century AD (Arharbi and Lenoir 2004, 221; Camporeale 2004-05, 202). The later phases, with the recycling of materials, may date to the end of the third century AD, or shortly after (Camporeale 2004-05, 204).

BAN 1.13 (Plate 22; Plan 16). Pilaster base (pier with attached half-column and pilaster), almost identical to ►**Ban 1.12**. **State of preservation**: advanced deterioration. **Material**: calcarenite. **Measurements**: see ►**Ban 1.12**. **Examples and location**: one base, not *in situ*, belonging to the same pier of ►**Ban 1.12** and set into a (later) wall of the building at the eastern edge of the south district. **Chronology**: uncertain; see the observations advanced for ►**Ban 1.12**.

BAN 1.14 (Plate 22; Plan 16). Column base. Plinth, lower torus with sharp triangular profile, high scotia with flattened profile and highlighted by upper and lower fillets, second torus of the same diameter of the lower torus and with triangular profile, fillet, reversed cavetto and shaft. **State of preservation**: slight deterioration; the right-hand corner of the plinth is broken. **Material**: calcarenite. **Measurements**: total h.: 49 cm; plinth:

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w. 52.5 cm, h. 10 cm; base: h. 24 cm; lower torus: Ø 52.5 cm, h. 8.5 cm; scotia: h. 8 cm; fillets: h. 1 cm; upper torus: Ø 52.5 cm, h. 8 cm; fillet: h. 1 cm; cavetto: h. 8 cm; shaft: Ø 37 cm, h. 6 cm. **Examples and location**: one base, not *in situ*, on the ground inside the corridor of the building at the eastern limit of the south district. **Chronology**: uncertain; the adjoining buildings are dated to between the second half/late first century AD and the early second century AD (Arharbi and Lenoir 2004, 221; Camporeale 2004-05, 202).

BAN 1.15 (Plate 22; Plan 16). Column base, similar to ►**Ban 1.14**. Plinth, groove, lower torus with rounded profile, high scotia with flattened profile and marked by upper and lower fillets, second rounded torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: medium deterioration; the corners of the plinth and the top of the shaft are fragmented. **Material**: calcarenite. **Measurements**: total h.: 59.5 cm; plinth: w. 51.5 cm, h. 10.5 cm; base: h. 23.5 cm; groove: h. 1.7 cm; lower torus: Ø 51 cm, h. 6.7 cm; scotia: h. 7.4 cm; fillets: h. 1 cm; upper torus: Ø 51 cm, h. 7.7 cm; fillet: h. 1 cm; cavetto: h. 6.8 cm; shaft: Ø 37.2 cm, h. 17.7 cm. **Examples and location**: one base, not *in situ*, scattered on the ground inside the building at the eastern limit of the south district (close to the bases ►**Ban 1.12-13**). **Chronology**: uncertain; the adjoining buildings should be dated to between the second half/late first century AD and the early second century AD (Arharbi and Lenoir 2004, 221; Camporeale 2004-05, 202).

BAN 1.16 (Plate 22; Plan 11). Column base. Plinth, groove, lower torus, square-cut groove with upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: medium deterioration. **Material**: calcarenite. **Measurements**: plinth: w. 57 cm; base: h. 20.9 cm; groove: h. 3.7 cm; lower torus: Ø 57 cm, h. 6.8 cm; square-cut groove: h. 4 cm; fillets: h. 1.4-1.5 cm; upper torus: Ø 57 cm, h. 6.8 cm; fillet: h. 1.7 cm; cavetto: h. 5.5 cm; shaft: Ø 41.5 cm, h. 12.7 cm. **Examples and location**: two bases *in situ*, belonging to the colonnade of the peristyle of the "maison de Fonteius", positioned next to base ►**Ban 1.9**. They could be associated with the capital ►**Ban 2.20**. **Parallels**: a similar base, with plinth and tori with the same diameter, is found at *Lixus* in the peristyle of the *domus* of Mars and Rhea, c. end of the first – early second century AD (►**Lix 1.11**). **Chronology**: probably contemporary with the construction of the house, c. second century AD (Camporeale 2004-05, 203).

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Attic bases without plinth (one example).

BAN 1.17 (Plate 22; Plan 11). Pilaster base. Lower torus underlined by a fillet at the bottom, scotia with upper and lower fillets, second torus with the same diameter of the lower torus, fillet and *cyma recta*. **State of preservation**: slight deterioration. **Material**: calcarenite. **Measurements**: total h.: 35.5 cm; base: h. 27 cm; fillet: h. 2 cm; lower torus: w. 52.8 cm, h. 6.5 cm; scotia: h. 7 cm; fillets: h. 2-2.2 cm; upper torus: w. 52.8 cm, h. 7 cm; fillet: h. 1.5 cm; *cyma recta*: h. 5 cm. **Examples and location**: one base belonging to a corner pillar, not *in situ*, on the ground close to the entrance to the "*macellum*" on the left-hand side. **Parallels**: two similar half-column bases are placed in the palace of Gordianus at *Volubilis*, c. AD 238-244 (►**Vol 1.36**). Other similar examples in North Africa are at *Lepcis Magna*, c. end of the first century BC – first half of the first century AD (Mahler 2006, 207-8, nos. 557-9 AB: from the *porticus* south-west of the *macellum*). More bases, of unknown chronology, are found in Spain at *Iuliobriga* (Escrivà Chover 2005, 109, nos. A158-9). **Chronology**: uncertain; the "*macellum*" was probably built within the second century AD (Camporeale 2004-05, 203), although it has been suggested that later phases around the third century AD are also recognizable (Euzennat and Hallier 1986, 82). The association of the base with this building, however, is only hypothetical.

Attic bases without plinth, joined to the shaft (54 examples).

BAN 1.18 (Plate 22; Plan 14). Column base. Lower torus, square-cut groove highlighted by upper and lower fillets, second torus with the same diameter of the lower torus, fillet and shaft. **State of preservation**: medium deterioration; the edges of the tori are fragmented. **Material**: calcarenite. **Measurements**: total h.: 57 cm; base: h. 30 cm; lower torus: Ø 73.5 cm, h. 12 cm; square-cut groove: h. 2 cm; fillets: h. 1.2-2 cm; upper torus: Ø 73.5 cm, h. 8 cm; fillet: h. 2.5 cm; shaft: Ø 61.2 cm, h. 24.5 cm. **Examples and location**: one base, not *in situ* and of unknown provenance, on the ground outside the southern side of the "maison à la mosaïque de Vénus". **Chronology**: uncertain.

BAN 1.19 (Plate 23; Plan 10). Column base. Lower torus, square-cut groove marked by upper and lower fillets, upper torus with the same diameter of the lower torus, fillet,

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reversed cavetto and shaft. **State of preservation**: slight deterioration. **Material**: calcarenite. **Measurements**: total h.: 48.2 cm; base: h. 27.2 cm; lower torus: Ø 75.7 cm, h. 8.5 cm; square-cut groove: h. 2.5 cm; fillets: h. 2-2.2 cm; upper torus: Ø 75.7 cm, h. 9.5 cm; fillet: h. 2.5 cm; cavetto: h. 5 cm; shaft: Ø 59.5 cm, h. 13.5 cm. **Examples and location**: one base, not *in situ*, placed on the podium of the temple with seven *cellae* in the forum. The size of the base, however, suggests that it did not belong to the colonnade of the temple, and that it rather comes from another building. **References**: Boube 1967, 336-8, pl. 21.2, fig. 11b; Euzennat and Hallier 1986, 81-2, fig. 5 (erroneously associated with the pseudo-lotus capitals ►**Ban 2.42** and attributed to the temple with seven *cellae*). **Parallels**: similar smaller bases are known in *Tingitana*. One base is on the ground inside "temple B" at *Volubilis* (►**Vol 1.40**), perhaps datable to the third century AD (?). Another base comes from *Sala*, associated with the pre-Roman layers discovered underneath the forum, c. mid-late first century BC (►**Sal 1.24**; Boube 1967, 322, fig. 11a). Other undated examples are at *Thamusida*, inside the "insula aux piliers" (Camporeale 2008c, 218-9, type 2.1, fig. 7), and at *Lixus*, outside the *domus* of Mars and Rhea, in the *garum* factories, and in "building E", respectively (►**Lix 1.13-15**). A last base, dated to the reign of Juba II, was found at *Cotta* under some layers attributed to the Roman era (Ponsich 1970, 211, fig. 56.1: base at the right-hand side). **Chronology**: uncertain.

BAN 1.20 (Plate 23; Plan 13). Engaged half-column base. Lower torus, square-cut groove with upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto, shaft. **State of preservation**: advanced deterioration; the top of the shaft and the lower torus are fragmented. **Material**: calcarenite. **Measurements**: total h.: 42.7 cm; base: h. 17.5 cm; lower torus: Ø 53.2 cm, h. 6 cm; square-cut groove: h. 2.2 cm; fillets: h. 1 cm; upper torus: Ø 53.2 cm, h. 6.5 cm; fillet: h. 2.4 cm; cavetto: h. 5.6 cm; shaft: Ø 37.5 cm, h. 17.2 cm. **Examples and location**: one base, not *in situ*, found inside a room of the building (a commercial installation?) at the eastern limit of the north-east district. **Chronology**: uncertain; the main construction phase of the buildings in this sector seems to be datable to within the second century AD (Camporeale 2004-05, 203).

BAN 1.21 (Plate 23; Plan 11). Column base. Lower torus, scotia with flattened profile marked by upper and lower fillets, second torus with the same diameter of the lower

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torus, fillet, reversed cavetto and shaft. **State of preservation**: medium to advanced deterioration. One example is broken under the upper torus. **Material**: calcarenite. **Measurements**: total h.: 56.3 cm; base: h. 30.5 cm; lower torus: Ø 58.2 cm, h. 8.5 cm; scotia: h. 6 cm; fillets: h. 1.4-2 cm; upper torus: Ø 58.2 cm, h. 8.5 cm; fillet: h. 1.5 cm; cavetto: h. 6.5 cm; shaft: Ø 41.5 cm, h. 17.8 cm. **Examples and location**: five bases, not *in situ*, on the ground inside the "maison de Fonteius". It is possible that they belonged to the colonnade of the peristyle, used together with the bases with plinth ►**Ban 1.16** (with a very similar profile). One of these bases (or one of ►**Ban 1.16**) could be associated with the capital ►**Ban 2.20**, found in the same spot. **Chronology**: uncertain; perhaps datable to within the second century AD, contemporary with the construction of the house (Camporeale 2004-05, 203).

BAN 1.22 (Plate 23; Plan 10). Pilaster base. Lower torus, throat moulding with upper and lower fillets, upper torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration; the lower torus and the shaft are damaged. **Material**: calcarenite. **Measurements**: total h.: 57.5 cm; base: h. 28.1 cm; lower torus: w. 54.7 cm, h. 10 cm; throat moulding: h. 6.5 cm; fillets: h. 1-1.5 cm; upper torus: w. 54.7 cm, h. 10 cm; fillet: h. 1.5 cm; cavetto: h. 6.7 cm; shaft: w. 36.5 cm, h. 21.2 cm. **Examples and location**: one base *in situ*, decorating the left-hand pilaster at the gate of the forum giving access to the north side of the area. **Chronology**: the gate belongs to the second building phase of the forum, c. early second century AD (Brouquier-Reddé *et al*. 2004, 1891-6; Camporeale 2004-05, 201-2).

BAN 1.23 (Plate 23; Plan 12). Column base. Lower torus, throat moulding with upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto with flattened profile, shaft. **State of preservation**: advanced deterioration of the whole surface. **Material**: calcarenite. **Measurements**: total h.: 40.4 cm; base: h. 26.5 cm; lower torus: Ø 67.8 cm, h. 8.5 cm; throat moulding: h. 6 cm; fillets: h. 2 cm; upper torus: Ø 67.8 cm, h. 8.5 cm; fillet: h. 2.2 cm; cavetto: h. 8.4 cm; shaft: Ø 53.5 cm, h. 3.3 cm. **Examples and location**: two bases from the peristyle of the "maison du génie de l'abondance"; one is found still *in situ* on a pedestal at the south-west corner, the second base lies upside down on the ground inside the peristyle. **References**: Thouvenot 1954c, 22. **Chronology**:

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uncertain; the "maison du génie de l'abondance" was built after the adjoining "thermes du nord" at some point in the second century AD (Thébert 2003, 255; Camporeale 2004-05, 203).

BAN 1.24 (Plate 23; Plan 12). Pilaster base. Lower torus, square-cut groove with upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto (with moulded profile carved only along the left-hand side of the base), and shaft. **State of preservation**: advanced deterioration. **Material**: calcarenite. **Measurements**: total h.: 39.6 cm; base: h. 26.9 cm; lower torus: w. 35.5 cm, h. 9.3 cm; square-cut groove: h. 2.1 cm; fillets: h. 1.8-2.5 cm; upper torus: w. 35.5 cm, h. 8.5 cm; fillet: h. 1.7 cm; cavetto: h. 3.5 cm; shaft: w. 26 cm, h. 7.5 cm. **Examples and location**: two bases at the entrance to the peristyle in the "maison du génie de l'abondance"; one is *in situ* along the wall, the second example lies on the ground. **Chronology**: uncertain; perhaps second century AD (Camporeale 2004-05, 203).

BAN 1.25 (Plate 24; Plan 12). Pilaster base. Lower torus, square-cut groove marked by upper and lower fillets, upper torus with the same width of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: medium deterioration; the left-hand edges of the tori are damaged. **Material**: calcarenite. **Measurements**: total h.: 58.8 cm; base: h. 25.8 cm; lower torus: w. 44 cm, h. 9.5 cm; square-cut groove: h. 4 cm; fillets: h. 2.2-2.7 cm; upper torus: w. 44 cm, h. 8 cm; fillet: h. 1.5 cm; cavetto: h. 7.7 cm; shaft: w. 32.2 cm, h. 23.8 cm. **Examples and location**: one base, not *in situ*, belonging to a corner-block pillar placed on the south-east corner of the outer wall of the "maison M3", facing the street. **Chronology**: uncertain; the houses in the north district are all undated, although the analysis of the building techniques would suggest a chronology within the second century AD (Camporeale 2004-05, 203).

BAN 1.26 (Plate 24; Plan 11). Pilaster base. Lower torus, scotia highlighted by upper and lower fillets, upper torus with the same width of the lower torus, fillet, reversed cavetto, and shaft decorated with four concave flutes. **State of preservation**: advanced deterioration. **Material**: calcarenite. **Measurements**: total h.: 48 cm; base: h. 25.7 cm; lower torus: w. 55.5 cm, h. 7.5 cm; scotia: h. 7 cm; fillets: h. 1.7-2 cm; upper torus: w. 55.5 cm, h.

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7.5 cm; fillet: h. 1.8 cm; cavetto: h. 6 cm; shaft: w. 45.5 cm, h. 14.5 cm. **Examples and location**: one base, not *in situ*, belonging to a corner pillar that decorated the entrance to the "*macellum*". Some blocks of the shaft are preserved, while the pseudo-lotus capital originally positioned at the top of the pillar is now lost. **References**: Thouvenot and Luquet 1951c, 87, pl. 18. **Chronology**: c. second half of the second century AD – third century AD, possibly in association with the last building phase of the "*macellum*" (Euzennat and Hallier 1986, 82).

BAN 1.27 (Plate 24; Plan 11). Engaged half-column base. Lower torus, high scotia marked by upper and lower fillets, second torus with the same diameter of the lower torus, fillet, high fascia, shaft. **State of preservation**: medium deterioration; the upper part of the shaft is fragmented. **Material**: calcarenite. **Measurements**: total h.: 80.3 cm; base: h. 22.8 cm; lower torus: Ø 36.5 cm, h. 6.4 cm; scotia: h. 6.7 cm; fillets: h. 1.6-1.8 cm; upper torus: Ø 36.5 cm, h. 5.2 cm; fillet: h. 1.7 cm; fascia: h. 10.2 cm; shaft: Ø 34.5 cm, h. 45.6 cm. **Examples and location**: one base *in situ*, at the edge of a wall in the southern part of the "maison de Fonteius". **Chronology**: c. second century AD (Camporeale 2004-05, 203).

BAN 1.28 (Plate 24; Plan 10). Column base. Lower torus underlined by a fillet at the bottom, square-cut groove with upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: slight to medium deterioration. Some examples show a more advanced fragmentation; one of them is broken under the upper torus. **Material**: calcarenite. **Measurements**: total h.: 61.9 cm; base: h. 21.5 cm; fillet: h. 2.7 cm; lower torus: Ø 56 cm, h. 6 cm; square-cut groove: h. 4.2 cm; fillets: h. 1.5 cm; upper torus: Ø 56 cm, h. 6.5 cm; fillet: h. 1.7 cm; cavetto: h. 7.5 cm; shaft: Ø 45 cm, h. 28.5 cm. **Examples and location**: 23 bases belonging to the *porticus* in the forum area; 22 of them have been repositioned *in situ* on the pedestals on both sides of the colonnade, while one lies on the ground at the entrance to the *curia*. **Parallels**: one base with similar profile is on the ground inside "temple B" at *Volubilis* (►**Vol 1.40**), perhaps datable to the third century AD. Another similar base comes from *Sala*, belonging to the pre-Roman structures found under the forum area, c. mid-late first century BC (►**Sal 1.24**; Boube 1967, 322, fig. 11a). Other undated bases are at *Thamusida*, inside the "insula aux piliers" (Camporeale 2008c, 218-9, type 2.1, fig. 7), and at *Lixus*, outside the *domus* of Mars

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and Rhea, in the *garum* factories, and in "building E", respectively (►**Lix 1.13-15**). Another base with similar profile, dated to the reign of Juba II, was found at *Cotta* under some layers attributed to the Roman era (Ponsich 1970, 211, fig. 56.1: base at the right-hand side). Two more examples are found in Spain: at *Saguntum*, c. Augustan period (Escrivà Chover 2005, 75, no. A96), and in a settlement near Salinas de Rosío, early third century AD? (Escrivà Chover 2005, 108, no. A157). **Chronology**: the forum was enlarged in the early second century AD (Thouvenot 1954b, 16; Brouquier-Reddé *et al*. 2004, 1891-6; Camporeale 2004-05, 201-2).

BAN 1.29 (Plate 24; Plan 10). Engaged half-column base. Similar to ►**Ban 1.28**; the base is larger and both tori are thicker. **State of preservation**: medium deterioration; the lower torus is fragmented. **Material**: calcarenite. **Measurements**: total h.: 59.8 cm; base: h. 28.3 cm; lower torus: Ø 69.7 cm, h. 11 cm; square-cut groove: h. 3.4 cm; fillets: h. 1.5-2.3 cm; upper torus: Ø 69.7 cm, h. 8.5 cm; fillet: h. 3 cm; cavetto: h. 8.5 cm; shaft: h. 20 cm. **Examples and location**: two basess *in situ*, placed at the south edge of the colonnade of the *porticus* of the *forum* (on both sides), and attached to the podium of the temple with seven *cellae*. **Parallels**: see ►**Ban 1.28**. **Chronology**: early second century AD (Thouvenot 1954b, 16; Brouquier-Reddé *et al*. 2004, 1891-6; Camporeale 2004-05, 201-2).

BAN 1.30 (Plate 24; Plan 12). Pilaster base. Lower torus underlined by a fillet, square-cut groove with upper and lower fillets, second torus with the same width of the lower torus, fillet, reversed cavetto, shaft. **State of preservation**: medium deterioration. **Material**: calcarenite. **Measurements**: total h.: 58.8 cm; base: h. 24.8 cm; fillet: h. 1.7 cm; lower torus: w. 41.7 cm, h. 9.3 cm; square-cut groove: h. 3.7 cm; fillets: h. 2-2.3 cm; upper torus: w. 41.7 cm, h. 7.8 cm; fillet: h. 1.7 cm; cavetto: h. 5.7 cm; shaft: w. 34.7 cm, h. 24.9 cm. **Examples and location**: one base, not *in situ*, belonging to a corner block in the corridor of the "maison M3" (associable with the capital ►**Ban 2.14**?). **Chronology**: uncertain; perhaps datable to within the second century AD (Camporeale 2004-05, 203).

BAN 1.31 (Plate 25; Plan 14). Column base. Lower torus underlined by a fillet at the bottom, square-cut groove marked by upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto, and shaft. **State of preservation**:

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medium deterioration; the lower torus is damaged. **Material**: calcarenite. **Measurements**: total h.: 52.5 cm; base: h. 22.5 cm; fillet: h. 3 cm; lower torus: Ø 60 cm, h. 8.5 cm; square-cut groove: h. 3.4 cm; fillets: h. 1.7-2.3 cm; upper torus: Ø 60 cm, h. 7.4 cm; fillet: h. 2.2 cm; cavetto: h. 6.5 cm; shaft: Ø 42.7 cm, h. 18.3 cm. **Examples and location**: three bases *in situ*, belonging to the colonnade of the peristyle in the "maison à la mosaïque de Vénus". Judging by the compatible measurements, the bases should be associated with the Corinthian capitals ►**Ban 2.15** found nearby. **Parallels**: see ►**Ban 1.28**. **Chronology**: the "maison à la mosaïque de Vénus" is probably datable to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 1.32 (Plate 25; Plan 14). Column base. Lower torus underlined by a fillet at the bottom, square-cut groove with upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto, and shaft. **State of preservation**: advanced deterioration; the lower part of the base is broken. **Material**: calcarenite. **Measurements**: base: h. 23.6 cm; fillet: h. 1.8 cm; lower torus: h. 6.7 cm; square-cut groove: h. 5.8 cm; fillets: h. 2.1-2.2 cm; upper torus: h. 6.8 cm; fillet: h. 2.3 cm; cavetto: h. 9.3 cm. **Examples and location**: two bases; one is still *in situ* at the entrance to the small temple (?) on the front of the "maison à la mosaïque de Vénus" along the *kardo maximus*, the second base is on the ground inside one of the other *tabernae*. They were likely associated with the capitals ►**Ban 2.39**. **Chronology**: c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 1.33 (Plate 25; Plan 14). Pilaster base. Lower torus provided with a fillet at the bottom, square-cut groove highlighted by upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: advanced deterioration; both tori are damaged at the right-hand corners. **Material**: calcarenite. **Measurements**: total h.: 40.3 cm; base: h. 23.5 cm; fillet: h. 1.7 cm; lower torus: w. 55.7 cm, h. 5.5 cm; square-cut groove: h. 5.5 cm; fillets: h. 2.1-2.7 cm; upper torus: w. 55.7 cm, h. 4.3 cm; fillet: h. 2.5 cm; cavetto: h. 5.5 cm; shaft: w. 53.5 cm, h. 7.1 cm. **Examples and location**: one base *in situ*, at the entrance to the last *taberna* on the front of the "maison à la mosaïque de Vénus". **Chronology**: c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

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BAN 1.34 (Plate 25; Plan 14). Pilaster base (pier with attached half-column and pilaster). Lower torus with fillet at the bottom, throat moulding highlighted by upper and lower fillets, second torus with the same diameter of the lower torus, fillet, reversed cavetto, fluted shaft. **State of preservation**: advanced deterioration; the left-hand side of the base is fragmented. **Material**: calcarenite. **Measurements**: total h.: 59.8 cm; base: h. 27.2 cm; fillet: h. 2.7 cm; lower torus: w. 57.2 cm, h. 9.1 cm; throat moulding: h. 4.5 cm; fillets: h. 1.8-2 cm; upper torus: w. 57.2 cm, h. 9.2 cm; fillet: h. 1.5 cm; cavetto: h. 7.2 cm; shaft: h. 21.2 cm. **Examples and location**: three bases; two are *in situ* at the entrance to the "maison à la mosaïque de Vénus" and to the adjoining *taberna*, while the third base is on the ground along the *kardo*. The bases were originally associated with the Corinthian pilaster capitals ►**Ban 2.24**. **Chronology**: c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 1.35 (Plate 25; Plan 14). Engaged half-column base (pier with attached half-column and pilaster), almost identical to ►**Ban 1.34**. **State of preservation**: advanced deterioration; the frontal part of the base is poorly preserved. **Material**: calcarenite. **Measurements**: see ►**Ban 1.34**. **Examples and location**: two bases *in situ*, belonging to the same piers of the pilaster bases ►**Ban 1.34**, in the "maison à la mosaïque de Vénus". Associated with the Corinthian half-column capitals ►**Ban 2.23**. **Chronology**: c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 1.36 (Plate 25; Plan 10). Pilaster base. Lower torus underlined by two fillets at the bottom, high square-cut groove marked by upper and lower fillets, second torus with the same width of the lower torus, fillet, reversed cavetto and shaft. **State of preservation**: medium deterioration; the corners of the tori are damaged. **Material**: calcarenite. **Measurements**: total h.: 63 cm; base: h. 28.5 cm; fillets: h. 1.4-3.2 cm; lower torus: w. 53.5 cm, h. 8 cm; square-cut groove: h. 9.4 cm; fillets: h. 1.5-1.8 cm; upper torus: w. 53.5 cm, h. 8.2 cm; fillet: h. 1.5 cm; cavetto: h. 4 cm; shaft: w. 37 cm, h. 24.4 cm. **Examples and location**: one base *in situ*, decorating the gate at the north entrance to the forum (opposite to the base ►**Ban 1.22**). **Chronology**: the gate is contemporary with the second building phase of the forum, c. early second century AD (Brouquier-Reddé *et al*. 2004, 1891-6; Camporeale 2004-05, 201-2).

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2. CAPITALS

Capitals are divided in 47 types, grouped as follows: Tuscan capitals (►**Ban 2.1-7**); Corinthian capitals (►**Ban 2.8-30**); composite capitals (►**Ban 2.31-33**); pseudo-Corinthian capitals (►**Ban 2.34-40**); pseudo-lotus capitals (►**Ban 2.41-43**); tronco-conical capitals (►**Ban 2.44-45**); bell-shaped capitals (►**Ban 2.46**); and roughed-out capitals (►**Ban 2.47**).

Corinthian capitals are further divided in three sub-groups: Corinthian capitals with smooth leaves (►**Ban 2.8-22**); Corinthian capitals with "*acanthus mollis*" (►**Ban 2.23-25**); and Corinthian capitals with "group 6" acanthus[1] (►**Ban 2.26-30**). For composite capitals, two sub-groups are distinguished: composite capitals with smooth leaves (►**Ban 2.31-32**); and composite capitals with "group 3" acanthus[2] (►**Ban 2.33**). Finally, pseudo-Corinthian capitals are thus divided: pseudo-Corinthian capitals with smooth leaves (►**Ban 2.34-35**); pseudo-Corinthian capitals with palm leaves (►**Ban 2.36-38**); and pseudo-Corinthian capitals with water plant leaves (►**Ban 2.39-40**).

Tuscan capitals (eight examples).

BAN 2.1 (Plate 26; Plan 10). Column capital. The abacus is square and the echinus has a torus-shaped profile. It is underlined at the bottom by a fillet, cavetto and neck. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken. **Material**: calcarenite. **Measurements**: total h.: 52.5 cm; abacus: w. 62.2 cm, h. 7.7 cm; echinus: Ø 62.2 cm, h. 6.8 cm; fillet: h. 1.7 cm; cavetto: h. 6 cm; neck: Ø 47.7 cm, h. 27.3 cm. **Examples and location**: one capital, not *in situ*, erroneously repositioned as a column base on the last pedestal at the northern edge of the forum *porticus* (colonnade on the east side). **References**: Lézine 1955, 14, pl. 1, no. 6 (?); Jodin 1977, 306 (?). **Parallels**: similar capitals have been found at *Volubilis*: eight examples of unknown provenance and chronology are on the ground in front of the north side of the basilica (►**Vol 2.1**); one capital in the south-west district, *insula* 40, and two others along the *decumanus maximus* (Jodin 1977, 307, figs. 5-6; 1987, 95, fig. 8Ac). Another capital is in the forum at *Sala*, perhaps coming from the

[1] These capitals are productions of *Volubilis*, made of Zerhoun limestone, imported to *Banasa*. This shape of acanthus is not documented in the sample described in *Volubilis*'s Catalogue, and the label "group 6" follows the numbering of the last group attested there.
[2] This capital is another imported product from *Volubilis*, featuring the same type of "group 3" acanthus documented there (see ►**Vol 2.42-48**; ►**Vol 2.57**; and ►**Vol 2.59**).

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pre-Roman layers (►**Sal 2.2**). One capital is attested at *Lixus* in the peristyle of the *domus* of Mars and Rhea (►**Lix 2.2**), while single-torus bases with profile identical to these capitals are in the "quartier des temples": one capital *in situ* belonging to the *porticus* of "temple F", dated to the second half of the first century AD (►**Lix 1.5**), and another one on the ground not far distant (►**Lix 1.6**). In North Africa we find parallels at *Caesarea*, first to second century AD (Pensabene 1982a, 50-1, pls. 45-6, nos. 138-9: original provenance unknown); *Lepcis Magna*, with a second fillet under the cavetto, first half of the first century AD (Mahler 2006, 171, pl. 49, no. 220 TK: found along the *decumanus*, south-west of the *macellum*); *Belalis Maior*, Tunisia, with three fillets at the bottom, c. first century AD (Ferchiou 1989a, 75, pl. 12, no. III.V.19a-b: one example from around the forum area; a second from the "petite basilique"). The type is also known in Spain at Seville (unknown provenance), *Saguntum* (north forum), *Ampurias* (street with *porticus*, *in situ*), Numancia (building 21, *in situ*) and Merida (citadel, *in situ*), all dated to the first century AD (Gutiérrez Behemerid 1992, 19, nos. 19-25); another piece, interpreted as a Tuscan base, comes from Mataró, Barcelona (Escrivà Chover 2005, 17, no. T5: provenance unspecified). **Chronology**: uncertain; it is not clear whether the capital should be attributed to the colonnade of the *porticus* (the measurements would be compatible), or whether it was originally part of the structures obliterated by the enlargement of the forum at the beginning of the second century AD – then perhaps reused in this second phase?

BAN 2.2 (Plate 26; Plan 10). Engaged half-column capital, similar to ►**Ban 2.1**. The echinus is thicker. **State of preservation**: medium deterioration; the abacus is fragmented at the top. **Material**: calcarenite. **Measurements**: total h.: 64.5 cm; abacus: w. 61 cm, h. 9 cm; echinus: Ø 61 cm, h. 9.5 cm; fillet: h. 2.5 cm; cavetto: h. 9 cm, neck: Ø 48 cm, h. 32.7 cm. **Examples and location**: one capital, not *in situ*, erroneously repositioned as a column base at the northern edge of the *porticus* of the forum (east colonnade, next to ►**Ban 2.1**). **Parallels**: see ►**Ban 2.1**. **Chronology**: uncertain; perhaps predating the second building phase of the forum in the early second century AD?

BAN 2.3 (Plate 26; Plan 10). Column capital, similar to ►**Ban 2.1**. The profile of the echinus is more flattened. **State of preservation**: advanced deterioration; the right-hand corner of the abacus, the cavetto and the neck are fragmented. **Material**: calcarenite.

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Measurements: total h.: 27.2 cm; abacus: w. 49.5, h. 7.8 cm; echinus: Ø 49.5 cm, h. 7.8 cm; fillet: h. 1.5 cm; cavetto: h. 9.2 cm; neck: Ø 33 cm. **Examples and location**: one capital, not *in situ*, lying on the ground inside the *curia* along the east side of the forum. **Parallels**: see ►**Ban 2.1**. **Chronology**: uncertain; perhaps belonging to the first building phase of the forum, before the second century AD?

BAN 2.4 (Plate 26; Plan 15). Column capital, similar to ►**Ban 2.1**. The profile of the echinus is more flattened and the cavetto is larger. **State of preservation**: advanced deterioration; the corners of the abacus and the upper part of the neck are fragmented. **Material**: calcarenite. **Measurements**: total h.: 48.2 cm; abacus: w. 65.4 cm, h. 7.8 cm; echinus: Ø 65.4 cm, h. 8.5 cm; fillet: h. 2.3 cm; cavetto: h. 10.8 cm; neck: Ø 41.5 cm, h. 19 cm. **Examples and location**: one capital, not *in situ*, on the ground inside the *taberna* at the northern edge of the "maison au diplôme de Domitien". **Parallels**: see ►**Ban 2.1**. **Chronology**: uncertain; perhaps datable towards the second half of the second century AD, if the capital belonged to this building (Camporeale 2004-05, 201-3).

BAN 2.5 (Plate 26; Plan 16). Column capital, similar to ►**Ban 2.1**. The abacus and the echinus are separated by a groove. **State of preservation**: advanced deterioration; the abacus, all the upper mouldings and the neck are fragmented. **Material**: calcarenite. **Measurements**: total h.: 25.5 cm; abacus: w. 65 cm, h. 7 cm; echinus: Ø 65 cm, h. 8 cm; fillet: h. 1 cm; cavetto: h. 6.5 cm; neck: Ø 42.5 cm, h. 2 cm. **Examples and location**: one capital, not *in situ*, positioned on the wall of a building (perhaps a productive installation?) in the south-east district. **Parallels**: see ►**Ban 2.1**. **Chronology**: uncertain; it has been suggested that the building might belong to the late first – second century AD (Euzennat 1989, 66, note 113; Camporeale 2004-05, 202).

BAN 2.6 (Plate 26; Plan 16). Column capital, similar to ►**Ban 2.1**. The echinus has a flattened profile, with a horizontal groove around the circumference. The cavetto is highlighted at the bottom by a fillet. **State of preservation**: advanced deterioration. **Material**: calcarenite. **Measurements**: total h.: c. 51.5 cm; abacus: impossible to record; echinus: h. 9.5 cm; fillet: h. 2 cm; cavetto: h. 4.2 cm; fillet: h. 3 cm; neck: Ø 40.5 cm, h. 22.5 cm. **Examples and location**: one capital, not *in situ* and partially covered by the earth,

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visible on the ground inside a building in the south-east district, close to ►**Ban 2.5**. **Parallels**: see ►**Ban 2.1**. **Chronology**: uncertain; perhaps late first – second century AD (see ►**Ban 2.5**)?

BAN 2.7 (Plate 27; Plan 12). Column capital. Square abacus. The echinus has a torus-like profile. Underneath is a large cavetto underlined at the bottom by a torus with round profile, followed by the neck. The second example has a large circular hole on the lower surface of the neck. **State of preservation**: medium to advanced deterioration; the abacus of the second example is broken. **Material**: calcarenite. **Measurements**: total h.: 51.2 cm; abacus: w. 60.3 cm, h. 8.5 cm; echinus: Ø 54 cm, h. 8.7 cm; cavetto: h. 7.3 cm; torus: h. 4.8 cm; neck: Ø 42.5 cm, h. 20.5 cm. **Examples and location**: two capitals not *in situ*. The first is on the ground inside the "thermes du nord"; the second capital is in the "maison du génie de l'abondance", close to the entrance. **Chronology**: uncertain; the "maison du génie de l'abondance" was built after the "thermes du nord" in the second century AD (Thébert 2003, 255; Camporeale 2004-05, 203), but there is no evidence to confirm whether the capitals really belonged to these two buildings.

Corinthian capitals (29 examples).

Corinthian capitals with smooth leaves (19 examples).

BAN 2.8 (Plate 27; Plans 11, 12). Column capital. Kalathos with circular section, underlined at the bottom by a thick torus with rounded profile. The diameter at the base of the kalathos is very narrow and it becomes much wider at the top, thus giving the capital a marked conical shape. Two tiers of eight leaves are set at the top of the torus. The leaves are quite flattened towards the kalathos surface; they are independent and provided with a round profile, a single lobe at the top, and a slight vertical mid-rib in the middle of their surface. The leaves of the upper tier are placed at the interval among those of the lower tier. The cauliculi are smooth and set at the interval of the upper tier's leaves, springing from the top of the lower leaves. They are formed by a long and thin stem, with rounded profile, and they run vertically. The top of the cauliculi is highlighted by a marked collar with rounded profile. The calyces are flattened and cannot be easily

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distinguished from the helices and volutes springing from them. The helices have rolled edges, joined together straight under the axial motif, carved with spirals. The edges of the volutes are not recognizable. The abacus is formed by a single fillet with flat profile. In one of the examples, the axial motif is represented by a fleuron with four (?) petals and a small circular button in the middle. **State of preservation**: medium to advanced deterioration; the edges of the volutes and the lobes of the leaves are damaged. **Material**: calcarenite. **Measurements**: total h.: 57.7 cm; torus: Ø 39.5 cm, h. 5.7 cm; kalathos: h. 47.2 cm; lower tier: h. 21 cm; upper tier: h. 32.8 cm; abacus: h. 4.8 cm; cross-section: 42.5 cm. **Examples and location**: three capitals not *in situ*. Two are on the ground inside one of the *tabernae* on the front of the so-called "*macellum*", next to the pseudo-lotus capital ►**Ban 2.41**; the third capital is inside the "thermes du nord", close to the entrance. **References**: Boube 1967, pl. 21.1 (capital at the right-hand side of the picture). **Chronology**: the construction of the "thermes du nord" is perhaps attributable to the early second century AD (Thébert 2003, 255), while the main building phase of the "*macellum*" is generically dated to the second century AD (Camporeale 2004-05, 203).

BAN 2.9 (Plate 27; Plans 14, 15). Column capital. Kalathos with circular section, underlined at the bottom by a torus with flattened profile. Joined to the shaft. Two tiers of eight independent leaves set at the top of the torus. The leaves are flattened towards the kalathos, round-shaped and provided with a single pointed lobe bent towards the front. The leaves of the upper tier are placed at the interval between those of the lower tier. The cauliculi are set at the interval among the upper tier's leaves. They are rather thick and have a smooth, rounded profile; they are highlighted at the top by a thin collar with rounded profile. The calyces have a rounded profile and the edges of the inner half-leaves are joined together. The helices and volutes springing from the calyces have a rounded profile as well. The helices are thin and their edges are joined together straight under the axial motif. The abacus is formed by a single fillet with flat profile, and the axial motif features a circular fleuron (only partially recognizable). **State of preservation**: medium deterioration; the edges of the volutes and the corners of the abacus are broken. **Material**: calcarenite. **Measurements**: total h.: 67.5 cm; shaft: h. 3.3 cm; torus: h. 3.5 cm; kalathos: h. 55 cm; lower tier: h. 19.2 cm; upper tier: h. 39 cm; abacus: h. 5.7 cm. **Examples and location**: two capitals not *in situ*. The first capital lies on the ground outside the southern

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side of the "maison à la mosaïque de Vénus"; the second one is on the ground inside the "maison à l'aureus de Juba II", close to the central peristyle. **Chronology**: uncertain; perhaps comprised between the mid- and the second half of the second century AD, if the capitals belong to the buildings where they are currently found (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 2.10 (Plate 27; Plan 13). Column capital. Kalathos with circular section. Two tiers of eight leaves set at the base of the capital. The leaves are independent, round-shaped, flattened towards the kalathos surface and with a single lobe slightly bent towards the front. The leaves of the upper tier are set at the interval among those of the lower tier. The cauliculi spring from the interval among the upper tier's leaves. They are quite short and thin, with a slightly rounded profile, marked at the top by a flattened collar. The calyces are almost indistinguishable from the helices and volutes. The helices have rolled edges and carved spirals, joined together under the axial motif. **State of preservation**: advanced deterioration; the volutes and the abacus are fragmented; the decoration of the axial motif is not recognizable (perhaps a smooth disc?). **Material**: calcarenite. **Measurements**: total h.: 59.2 cm; lower tier: Ø 37.5 cm, h. 18.4 cm; upper tier: h. 34.6 cm; abacus: w. 51.8 cm. **Examples and location**: one capital, not *in situ*, inside one of the (commercial?) buildings in the north-east district. **Parallels**: nine rather similar capitals are documented at *Sala*, belonging to the *porticus* of the *capitolium* (one is kept in the storehouse), dated to c. AD 120 (►**Sal 2.4-5**). The decoration of the helices in this example is slightly different. **Chronology**: uncertain; the main construction phase of the buildings in this sector seems to be datable to within the second century AD (Camporeale 2004-05, 203). Such a dating would also be confirmed by the parallel with the examples from *Sala*.

BAN 2.11 (Plate 27; Plan 12). Pilaster capital. Kalathos with four-lobed section, underlined at the base by a torus with flat profile and highlighted at the top by a rather marked lip. The lower tier has two independent leaves, the upper tier has three. The leaves are set at the top of the torus; they are round-shaped, flattened towards the kalathos, with a single pointed lobe. The leaves of the upper tier are placed at the interval among those of the lower tier. The cauliculi spring from the interval among the leaves of the upper tier. They have a flattened profile and are marked at the top by a flat collar. The

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calyces have a marked V shape and a quite rounded profile; the edges of the inner half-leaves are rolled and joined together. The helices and volutes are flattened and rather thin. The abacus is formed by a single fillet. **State of preservation**: advanced deterioration of the whole surface. **Material**: calcarenite. **Measurements**: total h.: 50.8 cm; torus: w. 40.5 cm, h. 4 cm; kalathos: h. 41.5 cm; lower tier: h. 15.7 cm; upper tier: h. 25.2 cm; abacus: h. 5.3 cm. **Examples and location**: one capital, not *in situ*, on the ground inside the "maison du génie de l'abondance". **Parallels**: three similar capitals, not provided with the torus at the base, come from *Sala*: two of them belong to the *capitolium* or to the annexed *tabernae*, c. AD 120; the third capital belongs to the "basilica/*curia Ulpia*" complex, c. Trajan's period (►**Sal 2.7-8**). **Chronology**: the dating of the "maison du génie de l'abondance" – if the capital belonged to this building at all – and that of the examples from *Sala* would hint towards a chronology within the second century AD (see Thébert 2003, 255; Camporeale 2004-05, 203).

BAN 2.12 (Plate 27; Plan 11). Column capital. Kalathos with circular section, underlined at the base by a torus with rounded profile. Two tiers of eight independent leaves placed at the top of the torus. The leaves are rounded, flattened towards the kalathos and provided with a single pointed lobe, markedly bent towards the front. The leaves of the upper tier are set at the interval among those of the lower tier. The cauliculi spring from the top of the lower tier's leaves, placed at the interval among the leaves of the upper tier. They run vertically and are formed by a long, thin stem with round profile, marked at the top by a rather thick collar. The calyces are slightly rounded and have an open V shape; the edges of the inner half-leaves are joined together. The helices and volutes imitate the same V shape of the calyces. The abacus features a thin fillet. **State of preservation**: advanced deterioration; the leaves are damaged and the axial motif is not preserved. **Material**: calcarenite. **Measurements**: total h.: 51.5 cm; torus: Ø 44.5 cm, h. 3.4 cm; kalathos: h. 45.6 cm; lower tier: h. 14.2 cm; upper tier: h. 30.5 cm; abacus: h. 2.5 cm. **Examples and location**: one capital, not *in situ*, now placed on the outer wall of the "*macellum*", close to the pilaster base ►**Ban 1.17**. **Chronology**: uncertain; the "*macellum*" was probably built in the second century AD (Camporeale 2004-05, 203), although third-century phases probably exist too (Euzennat and Hallier 1986, 82). The association of the capital with this building, however, cannot be proved.

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BAN 2.13 (Plate 28; Plan 10). Pilaster capital. Kalathos with four-lobed section, marked at the bottom by a torus with flattened profile. The lower tier has four leaves, the upper tier has five. The leaves are independent, round-shaped and much flattened towards the kalathos surface; they have a single lobe slightly bent towards the front. The calyces spring from the interval among the leaves of the upper tier, without any cauliculi. Their shape is much simplified. They are provided with a rounded profile, and run vertically; the edges of their inner half-leaves are rolled and joined together. The helices and volutes are almost impossible to recognize, and only the rolled edges are clearly visible. The abacus presents a single fillet. The axial motif is represented by a smooth, undecorated disc. **State of preservation**: medium deterioration; the upper part of the kalathos is damaged. **Material**: calcarenite. **Measurements**: total h.: 57.7 cm; torus: w. 64.5 cm, h. 5.2 cm; kalathos: h. 46.3 cm; lower tier: h. 23 cm; upper tier: h. 39.8 cm; abacus: w. 67.8 cm, h. 6.2 cm. **Examples and location**: two twin capitals, not *in situ*, belonging to the same block (both are carved on the frontal side), scattered on the ground not far distant from the entrance to the "grands thermes ouest". **References**: Thouvenot 1941a, 32, pl. 4, fig. 10. **Chronology**: uncertain; the "grands thermes ouest" may be datable to the late first – early second century AD (Camporeale 2004-05, 202). However, the association of these capitals with the baths is just hypothetical.

BAN 2.14 (Plate 28; Plan 12). Pilaster capital. Kalathos with four-lobed section, underlined at the bottom by a torus with rounded profile. Joined to the shaft. The lower tier has four leaves, the upper tier has three. The leaves are set at the top of the torus; they are independent, round-shaped, with a single pointed lobe bent towards the front. The leaves of the upper tier are placed at the interval among those of the lower tier. Helices and volutes spring directly from a vertical stem with rounded profile, set between the leaves of the upper tier, without any cauliculi and calyces underneath (reminiscent of Hellenistic decorative styles). The edges of both helices and volutes both feature marked spirals, and are joined to the top of the leaves underneath. The abacus is composed of two sets of fillets with flat profile. The axial motif features an undecorated disc. **State of preservation**: medium deterioration; the torus and the corners of the abacus are damaged. **Material**: calcarenite. **Measurements**: total h.: 56.8 cm; shaft: w. 36.7 cm, h. 3.8 cm; torus: w. 48.8 cm, h. 5.2 cm; kalathos: h. 41.8 cm; lower tier: h. 17.4 cm; upper tier: h. 35.5 cm;

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abacus: w. 65.5 cm, h. 6 cm. **Examples and location**: one capital, not *in situ*, belonging to a corner block scattered on the ground inside the "maison M3", close to base ►**Ban 1.25**. It may be associated with the pilaster base ►**Ban 1.30**, carved on a corner block as well, although the measurements do not match perfectly. **Parallels**: two quite similar column capitals, with a flat collar at the top of the helices and volutes' stem, come from the "insula aux piliers" at *Thamusida*, undated (Camporeale 2008c, 225-6, types 4.2 and 4.3, fig. 18). **Chronology**: uncertain; perhaps second century AD on the basis of the building techniques identified in this district (Camporeale 2004-05, 203).

BAN 2.15 (Plate 28; Plan 14). Column capital, similar to ►**Ban 2.14**. Kalathos with circular section, provided with a slightly rounded torus at the bottom. Two tiers of eight independent leaves, featuring a slight vertical rib in the middle of their surface. The abacus is formed by a single fillet with flat profile. **State of preservation**: advanced deterioration; the abacus and the bottom of the capital are damaged. **Material**: calcarenite. **Measurements**: total h.: 56.5 cm; torus: Ø 42.5 cm, h. 4.7 cm; kalathos: h. 44.2 cm; lower tier: h. 20.5 cm; upper tier: h. 34.2 cm; abacus: w. 59.5 cm, h. 7.6 cm. **Examples and location**: two capitals, not *in situ*, on the ground inside the "maison à la mosaïque de Vénus". The compatible size suggests that they should be associated with the bases ►**Ban 1.31**, belonging to the colonnade of the peristyle. **Parallels**: see ►**Ban 2.14**. **Chronology**: the "maison à la mosaïque de Vénus" is probably datable to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 2.16 (Plate 28; Plan 12). Column capital, similar to ►**Ban 2.14**. Kalathos with circular section, underlined by a torus with rounded profile. Joined to the shaft. Two tiers of eight independent leaves, shallow, and with a marked rounded shape. **State of preservation**: advanced deterioration; the upper part of the kalathos and the abacus are damaged. **Material**: calcarenite. **Measurements**: total h.: 79.8 cm; shaft: Ø 39.4 cm, h. 30.2 cm; torus: h. 4 cm; kalathos: h. 41.9 cm; lower tier: h. 16.7 cm; upper tier: h. 33 cm; abacus: w. 48.5 cm, h. 3.7 cm. **Examples and location**: one capital, not *in situ*, on the ground at the entrance to the "maison M2". **Parallels**: see ►**Ban 2.14**. **Chronology**: uncertain; the buildings of the north district would be datable to within the second century AD on the basis of the building techniques (Camporeale 2004-05, 203).

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BAN 2.17 (Plate 28; Plan 14). Column capital. Kalathos with circular section. Two tiers of eight independent leaves set at the base of the kalathos. The leaves are round-shaped, with a single lobe, flattened towards the kalathos. The leaves of the upper tier are placed at the interval among those of the lower tier. Helices and volutes spring directly from the interval among the leaves of the upper tier, without any cauliculi. Their profile is rather flat and the edges of the helices are joined together. The abacus is formed by a single fillet. **State of preservation**: advanced deterioration; the corners of the abacus and the lower part of the kalathos are broken; the axial motif is not preserved. **Material**: calcarenite. **Measurements**: total h.: 32.5 cm; kalathos: h. 30 cm; lower tier: Ø 26.2 cm, h. 12 cm; upper tier: h. 21.8 cm; abacus: h. 2.5 cm. **Examples and location**: one capital, not *in situ*, on the ground inside one of the *tabernae* on the front of the "maison à la mosaïque de Vénus". **Chronology**: uncertain; perhaps datable to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203), but it is not possible to say whether the capital belonged to this building.

BAN 2.18 (Plate 28; Plan 12). Column capital, similar to ►**Ban 2.17**. The kalathos is underlined by a torus with rounded profile. **State of preservation**: advanced deterioration of the whole surface. **Material**: calcarenite. **Measurements**: total h.: 53.5 cm; torus: Ø 43.5 cm, h. 4 cm; kalathos: h. 42.8 cm; lower tier: h. 16.2 cm; upper tier: h. 32.8 cm; abacus: w. 53.5 cm, h. 6.7 cm. **Examples and location**: one capital, not *in situ*, on the ground at the north edge of the "maison M4". **Chronology**: uncertain; perhaps datable towards the second century AD (Camporeale 2004-05, 203)?

BAN 2.19 (Plate 29; Plan 11). Column capital. Kalathos with circular section. Two tiers of eight independent leaves set at the base of the kalathos. The leaves are round-shaped, with a slight mid-rib and a single pointed lobe at the top. The leaves of the upper tier are placed at the interval among those of the lower tier. The helices and volutes spring directly from the interval among the upper tier's leaves, without any cauliculi and calyces. They are thin, provided with a rounded profile, and their edges are rolled towards the top, terminating with marked spirals. The abacus is formed by two throat mouldings separated by a horizontal fillet. **State of preservation**: advanced deterioration; the lower portion of the kalathos is fragmented and the axial motif is not preserved. **Material**:

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calcarenite. **Measurements**: total h.: 49.5 cm; kalathos: h. 43 cm; lower tier: h. 23.3 cm; upper tier: h. 32.2 cm; abacus: w. 52.5 cm, h. 6.5 cm. **Examples and location**: one capital, not *in situ*, on the ground inside the "maison de Fonteius". It is likely that it belonged to the colonnade of the peristyle, associated with either base ►**Ban 1.9** or ►**Ban 1.16**. **Chronology**: c. second century AD (Camporeale 2004-05, 203).

BAN 2.20 (Plate 29; Plan 11). Column capital, almost identical to ►**Ban 2.19**. The kalathos is underlined by a torus with rounded profile. Joined to the shaft. The axial motif takes the form of an undecorated disc. **State of preservation**: medium deterioration. **Material**: calcarenite. **Measurements**: total h.: 51.6 cm; shaft: Ø 37.3 cm, h. 4.3 cm; torus: h. 4.9 cm; lower tier: h. 19.5 cm; upper tier: h. 30.5 cm; abacus: w. 51.5 cm, h. 6.8 cm. **Examples and location**: one capital, not *in situ*, in the "maison de Fonteius" close to the capital ►**Ban 2.19**, and probably associated with either base ►**Ban 1.9** or ►**Ban 1.16**. **Chronology**: c. second century AD (Camporeale 2004-05, 203).

BAN 2.21 (Plate 29; Plan 14). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four independent leaves, the upper tier has five. The leaves are set at the base of the kalathos; they are round-shaped with a single pointed lobe at the top. Helices and volutes spring directly from the interval among the leaves of the upper tier, without any cauliculi and calyces. They have a rather flattened profile and their edges are rolled. The abacus is formed by a flat fascia. **State of preservation**: advanced level of deterioration; the axial motif is not recognizable. **Material**: calcarenite. **Measurements**: total h.: 55 cm; kalathos: h. 50 cm; lower tier: h. 22 cm; upper tier: h. 43 cm; abacus: w. 58 cm, h. 5 cm. **Examples and location**: one capital, not *in situ*, inside the north corridor of the "thermes aux fresques". **Chronology**: uncertain; perhaps contemporary with the first building phase of the baths, c. second half of the second century AD (Lenoir, E. 1991, 158; Thébert 2003, 257-8), although later phases dated to the third century AD are attested as well (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203-4).

BAN 2.22 (Plate 29; Plan 14). Column capital. Kalathos with circular section. Two tiers of eight independent leaves, featuring a round shape and a single lobe at the top. The leaves are flattened towards the kalathos surface. Helices and volutes are set at the

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interval among the leaves of the upper tier, and they spring directly from a stem with rounded profile, without any cauliculi and calyces underneath. Their edges are rolled. The abacus is formed by a high fascia with flat profile. The axial motif is represented by a flat disc with a carved circle in the middle. **State of preservation**: advanced deterioration; the base of the kalathos and the first tier of leaves are not preserved; the edges of the abacus are broken. **Material**: calcarenite. **Measurements**: total h.: c. 40.4 cm; abacus: h. 6.1 cm. **Examples and location**: one capital, not *in situ*, on the ground outside the southern side of the "thermes aux fresques". **Chronology**: uncertain; perhaps comprised between the second half of the second century AD (Lenoir, E 1991, 158; Thébert 2003, 257-8) and the third century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203-4). The association of the capital with this building, however, is impossible to prove.

Corinthian capitals with "acanthus mollis" (four examples).

BAN 2.23 (Plate 29; Plan 14). Engaged half-column capital (pier with attached half-column and pilaster). Kalathos with semi-circular section, highlighted at the top by a marked lip. The base of the kalathos is underlined by a large astragal with rounded profile: it features an Ionic *kymation* composed of circular eggs with an outer rim, flanked by schematic vertical darts. Two tiers of eight independent leaves. The lower tier has four leaves, the upper tier has five. The leaves are set at the top of the astragal. The leaves have the typical features of the late Flavian – second-century Corinthian capitals of the western Mediterranean (see Heilmeyer 1970, 133-43; *Scavi di Ostia* VII, 217-8). They are rather flattened towards the kalathos and are provided with four side-leaflets, plus a top-leaflet bent towards the front. The lobes of the leaflets are round-shaped; they are separated through small eyelets with an oval shape and running vertically. The mid-rib of each leaf is represented by two parallel channels, running from the bottom towards the top of the leaf; two additional channels (side ribs) are visible on both sides of the mid-rib. It is possible that an axial calyx was carved on the top of the mid-leaf, although it is not recognizable anymore. From the interval among the leaves of the upper tier spring the vertical cauliculi. They are formed by thin stems decorated with vertical grooves, highlighted at the top by a collar with flattened profile. The calyces are placed at the top of the collar; they have a rounded profile and the edges of the half-leaves are rolled. From

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the calyces spring the helices and volutes; they are both formed by thin stems with a much flattened profile, and are provided with large rolled edges. The edges of the helices are joined together through a small hyphen. The abacus presents a throat moulding decoration with rather flattened profile, crowned at the top by a fillet. The axial motif is represented by a large fleuron with a circular button in the middle. **State of preservation**: medium deterioration; the edges of the volutes and the corners of the abacus are fragmented. **Material**: calcarenite. **Measurements**: total h.: 67.5 cm; astragal: Ø 56.7 cm, h. 6.2 cm; kalathos: h. 52.5 cm; lower tier: h. 19.7 cm; upper tier: h. 35.2 cm; throat moulding: h. 6.5 cm; fillet: h. 2.3 cm. **Examples and location**: one capital, not *in situ*, on the ground inside the *taberna* next to the entrance to the "maison à la mosaïque de Vénus", originally associated with one of the bases ►**Ban 1.35**. **References**: Thouvenot 1941a, 33-4, pl. 4, fig. 13. **Chronology**: the "maison à la mosaïque de Vénus" is probably datable to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203). A dating of the capital to within the second century AD is confirmed by the features of the acanthus leaves that recall the Roman official style diffused in North Africa through Carthage (see Harrazi 1982, 66-8; Pensabene 1986, 364-7).

BAN 2.24 (Plate 29; Plan 14). Pilaster capital (pier with attached half-column and pilaster), almost identical to ►**Ban 2.23**. The lower tier has two independent leaves, the upper tier has three. The mid-rib of the leaves is represented by a single, vertical channel. An axial calyx, possibly shaped as a triangular leaf or tongue, is in part visible on the top of the mid-leaf. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken. **Material**: calcarenite. **Measurements**: see ►**Ban 2.23**. **Examples and location**: one capital, not *in situ*, belonging to the same block of capital ►**Ban 2.23**, inside the *taberna* next to the entrance to the "maison à la mosaïque de Vénus". It was associated with one of the bases ►**Ban 1.34**. **References**: Thouvenot 1941, 33-4, pl. 4, fig. 13. **Chronology**: see ►**Ban 2.23**; c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 2.25 (Plate 30; Plan 14). Column capital, similar to ►**Ban 2.24**. Kalathos with circular section, highlighted at the top by a marked lip. The Ionic *kymation* decorating the astragal at the base of the kalathos features circular eggs and schematic tongues, which

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take the form of small vertical grooves. Two tiers of eight independent leaves placed at the top of the astragal. The leaves of the lower tier are identical to those of ►**Ban 2.24**, with the mid-rib being represented by a single vertical channel. In the upper tier's leaves, the mid-rib takes the shape of a reversed Y groove that covers only the upper half of the leaves' surface. From the top of the upper tier's mid-leaf springs an axial calyx, shaped as a flat triangular leaf (not provided with fleuron stem). The collar at the top of the cauliculi, as well as the calyces above them, are both decorated with carved incisions. The helices and volutes are thin, with a flat profile and with a marked V shape. The edges of the helices are rolled with large spirals, joined together through a short hyphen. The abacus is formed by a throat moulding with flat profile and by a fillet at the top. The axial motif takes the form of a large shell with vertical grooves. **State of preservation**: medium deterioration; the edges of the volutes and the corners of the abacus are broken. **Material**: calcarenite. **Measurements**: total h.: 63.7 cm; astragal: Ø 58.8 cm, h. 5.8 cm; kalathos: h. 50.4 cm; lower tier: h. 20.2 cm; upper tier: h. 34.7 cm; throat moulding: h. 5.8 cm; fillet: h. 1.7 cm; abacus: w. 71.5 cm. **Examples and location**: two capitals, not *in situ*, on the ground in front of the entrance to the "maison à la mosaïque de Vénus", originally belonging to the colonnade facing the *kardo*. **References**: Thouvenot 1941a, 33-4, pl. 4, fig. 12. **Parallels**: the decoration of the upper tier's leaves recalls that of a later capital (c. fourth century AD?) from Cordoba (Domingo-Magaña 2011, 150, no. 197: original provenance unknown). **Chronology**: see ►**Ban 2.23**: c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

Corinthian capitals with "group 6" acanthus (six examples).

BAN 2.26 (Plate 30; Plan 14). Column capital. Kalathos with circular section. Two tiers of eight leaves set at the base of the kalathos. The leaves are independent, rather flattened towards the kalathos and provided with a single lobe at the top. The leaves of the upper tier are placed at the interval among the leaves of the lower tier. The ribs of the leaves are formed by four vertical fasciae. The contour of each leaf is decorated by a wavy-line motif that replaces the acanthus folioles; at the top of the leaf, in the point where the mid-lobe is set, are visible two small buttons with inscribed circles. The calyces spring from the interval among the leaves of the upper tier, without any cauliculi underneath. Their

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profile is flat and the edges of the half-leaves are rolled, with a round disc replacing the spirals. From the calyces spring the helices and volutes, provided with a concave V-shaped profile. The edges of the helices are joined to the axial motif in the middle of the abacus; the edges of the volutes are rolled towards the top and have a circular decoration identical to that of the calyces underneath. At the corner of the volutes is a rhomboid motif, composed of two triangles joined together. The abacus is undistinguishable from the top of the kalathos. The axial motif is represented by a fleuron with four petals and a circular button in the middle on two sides of the capital, possibly replaced by a mask on the two other sides. **State of preservation**: slight deterioration; the lobes of the leaves are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 38.2 cm; lower tier: Ø 29.7 cm, h. 18.5 cm; upper tier: h. 31.2 cm; abacus: w. 59.3 cm. **Examples and location**: one capital, not *in situ*, placed upside down along the *kardo maximus*, between the "grands thermes ouest" and the "maison à la mosaïque de Vénus". **Parallels**: capitals with identical acanthus leaves can be found at *Volubilis* in the peristyle of the "maison de Flavius Germanus", c. early third century AD (Pensabene 2011, 243, fig. 42), and in the "maison au buste de bronze" (Étienne 1960, 81-2, pl. 74, fig. 1, pl. 88, fig. 4). Another capital is in Spain – likely imported from *Volubilis* as a finished product – re-employed in a wall of the "ermita de los Santos Mártires" in Cadiz, although the putative chronology around the fourth century AD should be revised (Domingo-Magaña 2008, 1291-3, fig. 2; 2011, 147, no. 177). **Chronology**: uncertain; perhaps datable to within the early third century AD, judging by the parallels from *Volubilis*.

BAN 2.27 (Plate 30). Column capital, similar to ►**Ban 2.26**. Kalathos with circular section. The top of the leaves features a set of small folioles that complete the wavy-line motif along the contour. The axial motif is represented by a mask on three sides of the capital, replaced by a cross on the fourth side. **State of preservation**: advanced level of deterioration; the lower part of the kalathos is broken. **Material**: Zerhoun limestone. **Measurements**: total h.: 30.4 cm; lower tier: max h. 14.3 cm; upper tier: max h. 23.7 cm; abacus: w. 58.2 cm; cross-section: 50 cm. **Examples and location**: one capital, not *in situ*, perhaps recovered during the excavation of the "maison au diplôme de Domitien" and currently displayed in the garden of the Musée Archéologique de Rabat. **Parallels**: see ►**Ban 2.26**. **Chronology**: the "maison au diplôme de Domitien" seems to be datable

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towards the second half of the second century AD, after the construction of the city walls (Camporeale 2004-05, 201-3).

BAN 2.28 (Plate 30). Engaged half-column capital. Kalathos with semi-circular section. The lower tier has four independent leaves, the upper tier has five. The circular buttons at the top of the leaves are small and difficult to distinguish. From the interval among the leaves of the upper tier spring the cauliculi. They are short and vertical, with a triangular profile, and decorated at the top by a reversed triangle and a cross. From the cauliculi spring the calyces, formed by half-leaves decorated with small horizontal cuts along their whole surface, and provided with rolled edges. The point of junction at the base of the helices and volutes is decorated by a reversed triangle. Both helices and volutes have a concave V-shaped profile. The edges of the helices are joined to the axial motif in the middle of the capital; the edges of the volutes are rolled towards the top and decorated by a disc with an inscribed cross and a central button. The corners of the volutes show a rhomboid motif. The axial motif is represented by a (broken) mask on the frontal side, replaced by a fleuron or a disc on the lateral sides of the capital. The abacus is formed by a single fillet. On the left-hand side of the block is carved the inscription *Ti. Iulius / Mercuria/lis fecit*, which refers to the owner of the workshop. **State of preservation**: medium deterioration; the right-hand corner of the abacus and the axial motif are fragmented. **Material**: Zerhoun limestone. **Measurements**: total h.: 52.3 cm; kalathos: h. 51.1 cm; lower tier: Ø 33.1 cm, h. 22.6 cm; upper tier: h. 38.8 cm; abacus: w. 59.4 cm, h. 1.2 cm; cross-section: 43 cm. **Examples and location**: one capital, not *in situ*, perhaps found in the southern district of the town, currently displayed in the garden of the Musée Archéologique de Rabat. **References**: Euzennat 1958, 226; *IAM* 142. **Parallels**: another similar half-column capital (now lost) was found at *Banasa* during the excavations at the time of the French Protectorate (Thouvenot 1941, 32-3, pl. 5, fig. 16: capital at the left-hand side of the photograph). For the decoration of the leaves see ►**Ban 2.26**. **Chronology**: uncertain; perhaps datable to within the early third century AD (see the observations advanced for ►**Ban 2.26**).

BAN 2.29 (Plate 30; Plans 11, 15). Engaged half-column capital. Kalathos with semi-circular section. Two tiers of leaves set at the base of the kalathos. The lower tier has four

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leaves, the upper tier has five. The leaves are independent, flattened towards the kalathos, and the fascia along the mid axis is decorated with a series of small V-shaped grooves that run from the bottom towards the top. The upper part of the leaves presents a set of small folioles highlighting the protruding lobe. From the interval between the leaves of the upper tier spring the cauliculi. They run vertically and have a flat profile decorated with vertical grooves; the top of the cauliculi is marked by a thin collar with flat profile. The calyces spring from these collars, featuring a flat profile and inner half-leaves with rolled edges. From the space at the base of the calyces' half-leaves springs a second set of calyces; these are thinner and their profile shows a concave V shape. The edges of the inner half-leaves are joined to the axial motif. From these calyces springs a third set of calyces, reduced in size, with a similar V-shaped profile; their inner edges are also joined to the axial motif. The abacus is reduced to a single thin fillet (almost undistinguishable from the top of the kalathos). **State of preservation**: medium deterioration; the edges of abacus and the axial motif are damaged; the second example shows a more advanced deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 43.4 cm; kalathos: h. 42.9 cm; lower tier: Ø 35.5 cm, h. 16.3 cm; upper tier: h. 27.2 cm; abacus: w. 56.4 cm, h. 0.5 cm. **Examples and location**: two capitals not *in situ*: the first lies in the middle of the peristyle in the "maison aux quatre piliers"; the second capital is found on the ground of the *taberna* next to the entrance to the "maison au diplôme de Domitien". **Parallels**: two capitals with similar decoration were found at *Banasa* in the late nineteenth century (Saladin 1890, pl. 25), although the suggested dating to the sixth century AD should be rejected. The first example is made of Zerhoun limestone, but cannot be located anymore at the site; the second capital is made of the same white limestone used for the base ►**Ban 1.4**, and is currently kept in the Andalusian gardens of the Kasbah des Oudayas in Rabat. **Chronology**: uncertain; the "maison aux quatre piliers" is dated to within the second century AD (Camporeale 2004-05, 203), while the "maison au diplôme de Domitien" should date to the second half of the second century AD (Camporeale 2004-05, 201-3). The association of these capitals with the respective buildings is only hypothetical.

BAN 2.30 (Plate 31; Plan 14). Column capital. Kalathos with circular section. Two tiers of eight independent leaves set at the base of the kalathos. The leaves are flattened towards the kalathos surface and feature a set of seven vertical fasciae with a triangular

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profile. The contour of each leaf is decorated with a wavy-line motif, without any buttons at the top. The single mid-lobe is markedly bent towards the front. A first set of flat calyces, with a simplified shape, springs from the interval of the upper tier's leaves, without any cauliculi underneath. The edges of the half-leaves are pointed and those of the inner half-leaves are joined together. A second and a third set of calyces are visible, both with a flat profile and pointed edges. The corners under the abacus are decorated with horizontal grooves. The abacus cannot be distinguished from the top of the kalathos. The axial motif is represented by a concave disc with a central button on three sides of the capital, replaced by a fleuron on the fourth side. **State of preservation**: very slight deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 42.5 cm; lower tier: Ø 35.6 cm, h. 17.5 cm; upper tier: h. 31.4 cm; abacus: w. 56 cm. **Examples and location**: one capital, not *in situ*, on the ground of the room along the south-east side of the "thermes aux fresques". **Chronology**: uncertain; the "thermes aux fresques" have building phases comprised between the second half of the second century AD (Lenoir, E. 1991, 158; Thébert 2003, 257-8) and the third century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203-4), although the original setting of the capital is unknown.

Composite capitals (three examples).

Composite capitals with smooth leaves (two examples).

BAN 2.31 (Plate 31; Plan 14). Column capital. Kalathos with circular section. Two tiers of eight independent leaves set at the base of the kalathos. The leaves of the upper tier are placed at the interval among those of the lower tier. The leaves are round-shaped, flattened towards the kalathos, with a single mid-lobe at the top markedly bowed towards the front. The upper part of the kalathos is decorated with seven concave flutes. The volutes are circular and show simple carved spirals. They spring directly from the corners of the kalathos, without the canonical echinus and volutes' channel. The abacus is formed by two flat fillets. **State of preservation**: advanced deterioration of the whole surface. **Material**: calcarenite. **Measurements**: total h.: 45 cm; kalathos: h. 37.5 cm; lower tier: Ø 33.5 cm, h. 15 cm; upper tier: h. 25.5 cm; abacus: h. 7.5 cm. **Examples and location**: one capital, not *in situ*, lying on the ground in the north corridor of the "thermes aux

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fresques". **Chronology**: comprised between the first building phase of the "thermes aux fresques", second half of the second century AD (Lenoir, E 1991, 158; Thébert 2003, 257-8), and the third century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203-4).

BAN 2.32 (Plate 31; Plan 14). Engaged half-column capital, almost identical to ►**Ban 2.31**. The lower tier has four independent leaves, the upper tier has five. The volutes show a small rosette in the central eye, provided with four petals and a circular button in the middle. The axial motif is rectangular and undecorated. **State of preservation**: medium deterioration; the lobes of the leaves and the corners of the abacus are damaged. **Material**: calcarenite. **Measurements**: total h.: 39 cm; kalathos: h. 30.8 cm; lower tier: Ø 42 cm, h. 16 cm; upper tier: h. 25 cm; abacus: h. 8.2 cm. **Examples and location**: two capitals, not *in situ*, in the corridor between the "thermes aux fresques" and the "maison à la mosaïque de Vénus". **Chronology**: see ►**Ban 2.31**: probably comprised between the second half of the second century AD (Lenoir, E. 1991, 158; Thébert 2003, 257-8) and the third century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203-4).

Composite capitals with "group 3" acanthus (one example).

BAN 2.33 (Plate 31). Column capital. Kalathos with circular section. Two tiers of eight independent leaves. The leaves of the upper tier are placed at the interval among those of the lower tier. The leaves are set at the base of the kalathos; they are slender and flattened towards the kalathos surface. The leaves' contour is decorated with pointed folioles, and with a single middle lobe markedly bent towards the front. The mid-rib of the leaves is shaped as a large fascia with a slightly triangular profile, framed on both sides by vertical half round mouldings. The upper part of the kalathos is decorated with vertical, convex flutes framed by protruding rims. A fillet provided with a bead-and-reel motif separates the kalathos from the echinus above. The echinus is shaped as a flat fascia, without any effective separation from the kalathos lip. It is decorated with a schematic Ionic *kymation*, which features three eggs separated by four darts. The eggs have a semi-circular shape, framed by a case. The darts are just sketched; one can clearly distinguish only the triangular dart-heads at the bottom, while the upper stems were omitted. The volutes are much reduced in size (they are just slightly bigger than the eggs of the *kymation*) and

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feature simplified spirals. The outer contour of the volutes is decorated with a double, reversed triangular motif. The channel of the volutes is horizontal, with a concave profile. The abacus is made of a throat moulding crowned by a fillet. The axial motif is different on each side, and it features respectively: a reversed triangle; a semi-circular motif with carved grooves; a square, undecorated shape; and an elliptic motif (perhaps an eye?). **State of preservation**: very slight level of deterioration. **Material**: Zerhoun limestone. **Measurements**: total h.: 40.2 cm; kalathos: h. 28.4 cm; lower tier: Ø 21.4 cm, h. 13.8 cm; upper tier: h. 24.7 cm; fillet: h. 1.5 cm; echinus: h. 3.9 cm; channel: h. 1.8 cm; throat moulding: h. 2.2 cm; fillet: h. 2.4 cm; abacus: w. 42.3 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, now displayed in the garden of the Musée Archéologique de Rabat. **References**: Thouvenot 1941a, 32-3, pl. 5, fig. 16 (capital on the right-hand side of the picture). **Parallels**: similar capitals can be seen at *Volubilis* along the *decumanus maximus* outside the palace of Gordianus (►**Vol 2.57**), and on the top of the columns at the entrance to the "maison aux colonnes" (Pensabene 2011, 229-30, fig. 26), both probably datable to within the first half of the third century AD. **Chronology**: uncertain; perhaps not later than the mid-third century AD, as the parallels from *Volubilis* would suggest.

Pseudo-Corinthian capitals (13 examples).

Pseudo-Corinthian capitals with smooth leaves (four examples).

BAN 2.34 (Plate 31; Plan 12). Column capital. Kalathos with circular section, underlined at the bottom by a torus with rounded profile. Two tiers of leaves set at the top of the torus. The lower tier has 12 leaves, the upper tier has only eight. The leaves are independent, round-shaped, and much flattened towards the kalathos (almost undistinguishable from its surface). The leaves of the upper tier are placed at the interval among those of the lower tier. Helices and volutes spring directly from the interval of the upper tier's leaves, without any cauliculi or calyces. Their profile is rather flatten and their shape much simplified; their inner and outer edges are joined together, without any spirals, thus forming a continuous motif. The abacus almost shows no effective separation from the top of the kalathos, and is shaped as a large fascia with flat profile. The axial

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motif is represented by a schematic square with no decoration. **State of preservation**: medium deterioration. **Material**: calcarenite. **Measurements**: total h.: 45.8 cm; torus: Ø 45.5 cm, h. 4.5 cm; kalathos: h. 34.6 cm; lower tier: h. 16.5 cm; upper tier: h. 31 cm; abacus: w. 54 cm, h. 6.7 cm. **Examples and location**: three capitals not *in situ*. One is on the ground at the entrance to the "maison M4" and a second one is positioned at the north edge of the same building; the third capital is re-employed in a later wall of the "maison M5". **Chronology**: perhaps datable towards the second century AD (Camporeale 2004-05, 203), although the original setting of these capitals is uncertain.

BAN 2.35 (Plate 31; Plan 10). Column capital. Kalathos with circular section. A single tier of eight independent leaves set at the base of the kalathos. The leaves are much flattened towards the kalathos. They are provided with a marked rim which follows the whole contour, a vertical mid-rib and a single pointed lobe at the top. The helices and volutes are replaced by a schematic decoration that runs obliquely, featuring a curve with two spirals at the respective edges, underlined by a straight line at the bottom. The abacus is formed by two fillets with flat profile. **State of preservation**: advanced deterioration; parts of the leaves and the corners of the abacus are fragmented; the axial motif is not preserved. **Material**: calcarenite. **Measurements**: total h.: 87.2 cm; kalathos: h. 77.8 cm; tier: Ø 65.8 cm, h. 53.5 cm; abacus: w. 85 cm, h. 9.4 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance (quite likely employed in a public building, judging by the remarkable size), placed on the ground not far distant from the entrance to the "grands thermes ouest". **References**: Thouvenot 1941a, 32. **Parallels**: the marked rim of the leaves recalls the pseudo-Corinthian capitals with water plant leaves in the "*macellum*" at *Volubilis*, c. first to early second century AD (►**Vol 2.60**). **Chronology**: uncertain; perhaps datable to within the first half of the second century AD, judging by stylistic criteria.

Pseudo-Corinthian capitals with palm leaves (three examples).

BAN 2.36 (Plate 32; Plan 14). Column capital. Kalathos with circular section, underlined by a torus with round profile. Two tiers of independent leaves set at the top of the torus. The leaves of the upper tier are placed at the interval among those of the lower

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tier. The leaves are round-shaped and flattened towards the kalathos; they have a marked external rim with rounded profile and a single mid-rib running vertically from bottom to top. Each half divided by the mid-rib is decorated with oblique cuts that reproduce the shape of palm leaves. From the interval among the leaves of the upper tier spring the helices and volutes, which originate from a stem without any cauliculi and calyces underneath. Their profile is rounded and the shape is much simplified. The inner and outer edges are joined together. The abacus features a single fillet, almost indistinguishable from the top of the kalathos. **State of preservation**: advanced deterioration of the whole surface; the axial motif is not recognizable. **Material**: calcarenite. **Measurements**: total h.: 52.9 cm; torus: Ø 52.2 cm, h. 3.7 cm; kalathos: h. 45.2 cm; lower tier: h. 17 cm; upper tier: h. 30.5 cm; abacus: w. 50.5 cm, h. 4 cm. **Examples and location**: one capital, not *in situ*, lying on the ground in the corridor at the entrance to the "maison à la mosaïque de Vénus". **References**: Thouvenot 1941, 32, pl. 3, fig. 9 (capital at the right-hand side). **Parallels**: two similar capitals, one of which is provided with a single tier of palm leaves, belong to the corner pilasters of the mausoleum at *Thuburnica*, dated to the Julio-Claudian period (Ferchiou 1986, 680-2, fig. 10a-b; 1989a, 247, pl. 45a, no. IX.II.B.2.2). **Chronology**: uncertain; the construction of the "maison à la mosaïque de Vénus" is dated to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203). However, the provenance of the capital is uncertain, and the parallels identified would rather indicate an earlier dating to within the first century AD.

BAN 2.37 (Plate 32; Plan 14). Column capital. Kalathos with circular section, underlined by a torus with rounded profile and a thin fillet underneath. Joined to the shaft. Two tiers of eight independent leaves set at the top of the torus. The leaves of the upper tier are placed at the interval among those of the lower tier. The leaves are flattened towards the kalathos; they have a slender, semi-elliptical shape and culminate at the top with a single pointed lobe. The inner surface features a vertical mid-rib and two oblique cuts in each half, highlighted by circular eyelets at the bottom. From the interval among the upper tier's leaves spring the long cauliculi; they run vertically and are shaped as thin, undecorated stems with a marked collar at the top. From them spring the helices and volutes, without any calyces. They feature an open V shape, running almost horizontally, and have rolled edges with marked spirals. The abacus is formed by a single fillet. The

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axial motif is shaped as a schematic fleuron with four petals and a small button in the middle. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken. **Material**: calcarenite. **Measurements**: total h.: 58.5 cm; shaft: Ø 41 cm, h. 9.6 cm; fillet: h. 0.5 cm; torus: h. 3.2 cm; kalathos: h. 39.1 cm; lower tier: h. 18.5 cm; upper tier: h. 31.6 cm; abacus: h. 6.1 cm. **Examples and location**: one capital, not *in situ*, on the ground at the north-east side of the "thermes aux fresques". **Parallels**: the shape of the helices and volutes recalls that of the capitals from the mausoleum at *Thuburnica*, see ►**Ban 2.36**. **Chronology**: uncertain; the first building phase of the "thermes aux fresques" is dated to the second half of the second century AD (Lenoir, E. 1991, 158; Thébert 2003, 257-8). The association of the capital with this building is hypothetical, and the parallels recognized are dated to the first century AD.

BAN 2.38 (Plate 32; Plan 12). Column capital, similar to ►**Ban 2.37** with a single tier of eight leaves. The torus lacks the fillet underneath. The cauliculi are decorated with a second flat collar placed at mid-height along their stem. The axial motif seems to be represented by a flat disc. **State of preservation**: medium deterioration; the torus is damaged. **Material**: calcarenite. **Measurements**: total h.: 61.5 cm; shaft: Ø 40.8 cm, h. 25.5 cm; torus: h. 4.5 cm; kalathos: h. 25.7 cm; tier: 16.2 cm; abacus: w. 55.6 cm, h. 5.8 cm. **Examples and location**: one capital, not *in situ*, found inside the corridor of the "maison M3". **Parallels**: see ►**Ban 2.36**. **Chronology**: uncertain; the buildings of this district are generically dated to the second century AD (Camporeale 2004-05, 203), while the parallels recognized may suggest an earlier dating to within the first century AD.

Pseudo-Corinthian capitals with water plant leaves (six examples).

BAN 2.39 (Plate 32; Plan 14). Column capital. Kalathos with circular section at the bottom, underlined by a torus with rounded profile. Joined to the shaft. Two tiers of independent leaves set at the top of the torus. The leaves are slender and rounded, with a marked rim along the contour, and are flattened towards the kalathos. In the middle of their surface is visible a slight, vertical mid-rib. The upper part of the kalathos has a square section. From the interval among the leaves of the upper tier spring the cauliculi, shaped as long, thin stems with rounded profile. From them spring the helices and

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volutes, without any calyces. They have an open V shape and their inner edges are joined to the axial motif. The abacus features a single fillet with flat profile. **State of preservation**: medium to advanced deterioration; the upper kalathos is damaged. **Material**: calcarenite. **Measurements**: total h.: 76.5 cm; shaft: Ø 42.5 cm, h. 16.2 cm; torus: h. 5.7 cm; kalathos: h. 49.4 cm; lower tier: h. 24.2 cm; upper tier: h. 31.8 cm; abacus: w. 51 cm, h. 5.2 cm. **Examples and location**: two capitals, not *in situ*, on the ground along the *kardo*, between the "grands thermes ouest" and the "maison à la mosaïque de Vénus". They were probably associated with the bases ►**Ban 1.32** belonging to the small temple (?) on the front of the "maison à la mosaïque de Vénus". **References**: Thouvenot 1941a, 32, pl. 3, fig. 7 and pl. 4, fig. 14. **Chronology**: the construction of the "maison à la mosaïque de Vénus" is dated to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 2.40 (Plate 32; Plans 12, 15). Column capital. Kalathos with circular section at the base, highlighted at the bottom by a torus with rounded profile. Joined to the shaft. Two tiers of eight independent leaves, similar to those of ►**Ban 2.39**, placed at the top of the torus. The rim of the leaves is thicker and more marked. The upper part of the kalathos is shallow, with a square section, and decorated with two schematic rosettes on each side of the capital. The kalathos of one of these capitals was originally decorated with two small figurines (perhaps two signs of the Zodiac: see Thouvenot 1971a, 246-7), not recognizable anymore. The abacus is formed by a large fascia and the axial motif is represented by an undecorated square. **State of preservation**: medium deterioration; the right-hand corner of the abacus is broken; some examples show a more advanced fragmentation. **Material**: calcarenite. **Measurements**: total h.: 53.5 cm; shaft: Ø 45.4 cm, h. 12.2 cm; torus: h. 4.5 cm; kalathos: h. 27.1 cm; lower tier: h. 19.8 cm; upper tier: h. 26.8 cm; abacus: w. 52.2 cm, h. 9.7 cm. **Examples and location**: four capitals not *in situ*. Three of them lie on the ground inside the "maison M5"; one of these was originally re-employed in a later wall, together with the base ►**Ban 1.11** (see Thouvenot 1954c, 35, pl. 3, fig. 4). The fourth capital is inside the *taberna* next to the entrance to the "maison au diplôme de Domitien". **References**: Thouvenot 1954c, 35, pl. 3, fig. 4; 1971a, 245-50, figs. 2-3. **Parallels**: capitals with identical water plant leaves (possibly of Egyptian tradition: Jéquier 1924, 196-201, figs. 121-5) are reused in the arch with three fornices at *Mustis*, perhaps datable to between the first

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century BC and the first century AD (Ferchiou 1989a, 243, pl. 63d, no. IX.II.A.2.2, with helices and volutes; 252, pl. 67a, no. IX.III.B.3, with a female bust). **Chronology**: uncertain; the "maison au diplôme de Domitien" is dated to the second half of the second century AD (Camporeale 2004-05, 201-3). The buildings in the north district are dated to the second century AD (Camporeale 2004-05, 203), while the wall where one of these capitals was re-employed belongs to a later phase (third century AD?).

Pseudo-lotus capitals (four examples).

BAN 2.41 (Plate 32; Plan 11). Column capital. Kalathos with circular section, underlined by a torus with rounded profile. Joined to the shaft. Two tiers of 20 independent leaves placed at the top of the torus. The leaves of the upper tier are set at the interval among those of the lower tier. The leaves are much flattened towards the kalathos and cover almost its whole surface. They are slender and well-developed in height, provided with a rounded lobe at the top. They recall the shape of Egyptian-like lotus leaves. The upper part of the kalathos is very shallow, decorated with schematic helices and volutes that run almost horizontally. The edges of both helices and volutes are rolled, provided with simple spirals rather reduced in size. The abacus is formed by two fillets with flat profile. **State of preservation**: medium deterioration; the torus and the corners of the abacus are fragmented; the axial motif is not recognizable. **Material**: calcarenite. **Measurements**: total h.: 51.8 cm; shaft: Ø 36.2 cm, h. 4 cm; torus: h. 4.7 cm; kalathos: h. 36.1 cm; lower tier: h. 13 cm; upper tier: h. 17.7 cm; abacus: h. 7 cm. **Examples and location**: one capital, not *in situ*, positioned on the ground in the second *taberna* next to the entrance to the so-called "*macellum*". It is likely that it belongs to this building, since an identical pilaster capital (now lost) was attested *in situ* at the entrance, originally associated with the base ►**Ban 1.26** (Thouvenot and Luquet 1951c, 87, pl. 18). **References**: Boube 1967, 336, pl. 21.1 (capital at the left-hand side of the picture); Thouvenot 1971a, 250-3, fig. 5 (capital in the middle); Euzennat and Hallier 1986, 81-2. **Chronology**: the original dating to the Mauretanian era (Boube 1967, 334; Thouvenot 1971a, 252-3) should now be discarded. The reduced size of the upper kalathos and the schematic shape of helices and volutes rather suggest a chronology around the second half of the second century AD, or perhaps even in the third century. In the "*macellum*" it might be possible to

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recognize a later building phase around this same period (Euzennat and Hallier 1986, 82), thus confirming this chronology.

BAN 2.42 (Plate 33; Plan 10). Column capital, similar to ►**Ban 2.41**. Kalathos with circular section, highlighted at the bottom by a torus with rounded profile and a fascia underneath. Joined to the shaft. Two tiers of 21 (?) independent leaves. The lower tier's leaves are set at the top of the torus; those of the upper tier are placed straight above them and spring from the interval among the lower leaves. The leaves are flattened towards the kalathos, and are shaped as reversed drops. It is likely that the upper portion of the kalathos (possibly provided with schematic helices and volutes?) and the abacus were carved on a separate block, not preserved anymore. **State of preservation**: advanced deterioration on both the examples; the rear of the capital is broken and the exact number of leaves cannot be surely identified. **Material**: calcarenite. **Measurements**: total h.: 64.8 cm; shaft: Ø 67.5 cm, h. 9 cm; fascia: h. 7.8 cm; torus: h. 7.3 cm; lower tier: h. 20.5 cm; upper tier: Ø at the top 88.5 cm, h. 22 cm. **Examples and location**: two capitals, not *in situ*, on the podium of the temple with seven *cellae* in the forum area. It is likely that they belonged to the frontal colonnade of the temple, associated with the bases ►**Ban 1.5**. **References**: Boube 1967, 334, pl. 20.1-2; Thouvenot 1941a, 31, pl. 2, fig. 4; 1971a, 250-3; Euzennat and Hallier 1986, 81-2. **Parallels**: an almost identical capital, with 12 lotus leaves and missing the upper part of the kalathos as well, can be seen at *Sala* outside the west limit of the forum (►**Sal 2.22**; Boube 1967, 332-4, fig. 10; Thouvenot 1971a, 250, fig. 4). **Chronology**: see ►**Ban 2.41**: c. second half of the second century AD – third century AD. The temple with seven *cellae* possibly underwent some restorations at this same time (Thouvenot 1941a, 10-3; 1954b, 16; Euzennat and Hallier 1986, 82).

BAN 2.43 (Plate 33; Plan 11). Column capital, almost identical to ►**Ban 2.42**. The torus at the bottom of the kalathos is more flattened. Both tiers possibly have 23 leaves. The upper part of the kalathos and the abacus are missing. **State of preservation**: medium deterioration; the rear of the capital is damaged. **Material**: calcarenite. **Measurements**: total h.: 74.2 cm; shaft: Ø 70.5 cm, h. 19.3 cm; fascia: h. 7.5 cm; torus: h. 6.8 cm; lower tier: h. 19.4 cm; upper tier: h. 19 cm. **Examples and location**: one capital, not *in situ*, re-employed (upside down) in a later wall developing around the peristyle of the "maison

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aux quatre piliers". Judging by the size, it is possible that the capital originally belonged to the colonnade of the temple with seven *cellae* (see Thouvenot and Luquet 1951c, 83), together with the capitals ►**Ban 2.42** and the base ►**Ban 1.5**. **References**: Boube 1967, 334-5, pl. 20.3. **Parallels**: see ►**Ban 2.42**. **Chronology**: see ►**Ban 2.41**: c. second half of the second century AD – third century AD. The wall where the capital is recycled is probably datable to a post-third century AD phase of occupation (Camporeale 2004-05, 204).

Tronco-conical capitals (two examples).

BAN 2.44 (Plate 33; Plan 15). Column capital. Kalathos with circular section, underlined by a torus with rounded profile. The kalathos is shaped as a smooth cone. It features a protruding lip at the top with slightly triangular profile, and is separated from the upper abacus by a groove. The abacus is reduced to a single fillet and the axial motif is represented by an undecorated square. Judging by its design, this capital may be a simplified variation of the pseudo-lotus examples (see in particular ►**Ban 2.41**). **State of preservation**: medium deterioration; the torus and the abacus are fragmented. **Material**: calcarenite. **Measurements**: total h.: 44 cm; torus: Ø 44 cm, h. 4.2 cm; kalathos: h. 32 cm; abacus: w. 53.5 cm, h. 6.5 cm. **Examples and location**: one capital, not *in situ*, scattered on the ground in the room behind the peristyle of the "maison à l'aureus de Juba II". **Chronology**: c. second half of the second century AD – third century AD (see ►**Ban 2.41**). The "maison à l'aureus de Juba II" was probably built after the city walls, in the second half of the second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203).

BAN 2.45 (Plate 33; Plan 14). Column capital, similar to ►**Ban 2.44** (possibly representing a further simplification). Kalathos with circular section, underlined by two tori with rounded profile. Joined to the shaft. The lip of the kalathos is less marked. The abacus is shaped as a single fascia and is not provided with any axial motifs. **State of preservation**: medium deterioration. **Material**: calcarenite. **Measurements**: total h.: 41.5 cm; shaft: Ø 39.8 cm, h. 8.2 cm; lower torus: h. 2 cm; upper torus: h. 2.2 cm; kalathos: h. 19.5 cm; abacus: w. 47.3 cm, h. 8.6 cm. **Examples and location**: one capital, not *in situ*, inside the *taberna* at the right-hand side of the entrance to the "maison à la mosaïque de Vénus". **Chronology**: probably datable to the second half of the second century AD –

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third century AD (see ►**Ban 2.41**). The construction of the "maison à la mosaïque de Vénus" dates to the mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203), but it is not clear whether the capital really belonged to this building.

Bell-shaped capitals (one example).

BAN 2.46 (Plate 33; Plan 11). Column capital. The kalathos/echinus is shaped as a reversed bell, undecorated and highlighted by a fillet at the top. The abacus is formed by three strings of fillets. The lower part of the capital is provided with a neck and torus, joined to the shaft at the bottom. **State of preservation**: slight deterioration. **Material**: calcarenite. **Measurements**: total h.: 40.5 cm; shaft: Ø 35.8 cm, h. 3.8 cm; torus: h. 4 cm; neck: h. 4.2 cm; kalathos/echinus: h. 18 cm; fillet: h. 1.8 cm; abacus: w. 52.5 cm, h. 9.3 cm. **Examples and location**: one capital, not *in situ*, lying on the ground in the central peristyle of the "*macellum*". **Parallels**: a quite similar example interpreted as a Tuscan capital, with the echinus shaped as a *cyma recta* and the abacus carved as an undecorated block, comes from *Acholla* and is dated approximately to the first century AD (Lézine 1955, 19-20, pl. 2, no. 4). Two other similar capitals with three tori at the bottom, perhaps influenced by the Tuscan style, are in the market at *Lepcis Magna*, dated to between the second half of the first century AD and the second century AD (Caputo 1968, 70, pl. 44c; Mahler 2006, 183-4, nos. 339-40 TK). **Chronology**: uncertain; perhaps first to second century AD, based on the parallels identified. The main building phase of the "*macellum*" is generically dated to the second century AD (Camporeale 2004-05, 203).

Roughed-out capitals (one example).

BAN 2.47 (Plate 33; Plan 10). Column capital. Kalathos with circular section. The base of the capital is plain, with a well-defined contour. It features a circular collar, perhaps corresponding to the top of the shaft (?). The carving of the upper part of the capital was left unfinished, approximately corresponding to the "workmanship stage 6" described by Asgari (1988, 116, figs. 1, 6; 1995, 275-6, fig. 11; see also Russell 2013, 241-7, figs. 6.15-6; Toma 2014, 89-90, fig. 9; 2015, 816-8, fig. 9). There seems to be sufficient space for a single tier of leaves only, thus hinting towards an identification as a pseudo-Corinthian capital

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(although the shape of the leaves cannot be determined). Otherwise, one may assume that the capital was made of two separate blocks and that the lower one is not preserved. The upper part of the block is provided with large rectangular protuberances from which the helices and volutes should have been carved. The corners of the abacus are partially identifiable, but there is no effective separation between the kalathos and the abacus. **State of preservation**: advanced deterioration; one side of the block is broken vertically. **Material**: calcarenite. **Measurements**: total h.: 47.5 cm; collar: Ø 73 cm, h. 4.5 cm. **Examples and location**: one capital, not *in situ*, positioned on the podium of the temple with seven *cellae* in the forum, close to the bases ►**Ban 1.5** and to the pseudo-lotus capitals ►**Ban 2.42**. Judging by the preliminary stage of workmanship, it would appear that the capital was not meant to be employed (perhaps moved in that spot after the abandonment of the building?). **Chronology**: uncertain.

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CATALOGUE: *SALA*

In the Catalogue are described 84 elements of architectural decoration: 53 bases and 31 capitals (Plates 34-40; Plans 17-19). These materials were documented during three fieldwork seasons: in September 2011, June 2012, and September 2014. The research involved a survey of the entire site of Chellah, which corresponds to the monumental district of the Mauretano-Roman town of *Sala*, also including the Islamic buildings that developed around the ancient ruins and were later enclosed by the Marinid ribat. Some elements of decoration kept in the local storehouse are described as well.

With regard to the environmental conditions during the fieldwork, no particular problems had to be overcome. Maintenance works are carried out on a regular basis and all the excavated buildings are clear from vegetation. In addition, the reduced extension of the archaeological area allowed for an in-depth analysis of these structures. Therefore, it is possible to state with confidence that the architectural elements recorded for this study represent the whole of the evidence still preserved at this site.

1. BASES

Bases are divided in 24 types, organized as follows: disc bases (►**Sal 1.1-2**); square bases (►**Sal 1.3-6**); single-torus bases (►**Sal 1.7-8**); and Attic bases (►**Sal 1.9-24**). Among the Attic bases, four sub-groups are identifiable: Attic bases with plinth (►**Sal 1.9-10**); Attic bases with plinth, joined to the shaft (►**Sal 1.11-22**); square Attic bases with plinth (►**Sal 1.23**); and Attic bases without plinth (►**Sal 1.24**).

Disc bases (two examples).

SAL 1.1 (Plate 34). Column base. Plinth, disc, and apophyge. **State of preservation**: slight deterioration; the corners of the plinth and the upper part of the base are damaged. **Material**: white marble. **Measurements**: total h.: 11.8 cm; plinth: w. 24.3 cm, h. 4.9 cm; disc: Ø 23.7 cm, h. 2.7 cm; apophyge: Ø at the top 19.5 cm, h. 4.2 cm. **Examples and**

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location: one base, not *in situ* and of unknown provenance, currently kept in the storehouse. **Parallels**: various bases with a similar profile (and some others with minor variations of the mouldings) are reused in the colonnade of the main hall in the Islamic mosque. **Chronology**: uncertain.

SAL 1.2 (Plate 34). Column base. Disc and fillet. Joined to the shaft, with a large circular hole on the upper surface. **State of preservation**: moderate deterioration; slightly fragmented in the upper portion of the shaft and at the disc's base. **Material**: calcarenite. **Measurements**: total h.: 35.7 cm; disc: Ø 45.4 cm, h. 3.9 cm; fillet: Ø 38.3 cm, h. 3.1 cm; shaft: Ø 33.1 cm, h. 28.7 cm. **Examples and location**: one base, not *in situ* and of uncertain provenance, now placed on the ground inside the Islamic bath complex below the southern limit of the forum. **Chronology**: uncertain.

Square bases (four examples).

SAL 1.3 (Plate 34; Plan 18). Pilaster base. Plinth, square-shaped moulding, and upper fillet. Joined to the shaft (with seven courses still *in situ*). **State of preservation**: medium deterioration; the shaft shows several signs of fragmentation, and the upper course is broken at the top. **Material**: calcarenite. **Measurements**: total h. (including all courses): 391.5 cm; base: h. 14.1 cm; plinth: w. 70.9 cm, h. 16.2 cm; moulding: w. 65 cm, h. 11.6 cm; fillet: h. 2.5 cm; shaft: w. 53 cm, h. 23.8 cm. **Examples and location**: one base, *in situ*, located at the south-west corner of the first *taberna* under the *capitolium* (below the street level, hidden from view by the drainage channel set between the *tabernae* and the paving in front of the complex). **Chronology**: the construction of the *capitolium*, with the annexed *tabernae* on the lower level, is dated to the beginning of Hadrian's reign, c. AD 120 (*IAM* Suppl. 861; Boube 1990a, 240; 1999, 17-8).

SAL 1.4 (Plate 34; Plan 18). Pilaster base, almost identical to ►**Sal 1.3** but smaller. Shaft with two courses still preserved. **State of preservation**: slight deterioration. **Material**: calcarenite. **Measurements**: total h. (including all courses): 156.6 cm; base: h. 10.5 cm; plinth: w. 48.6 cm, h. 15.2 cm; moulding: w. 41.7 cm, h. 7.7 cm; fillet: h. 2.8 cm; shaft: w. 31 cm, h. 21.8 cm. **Examples and location**: one base *in situ*, at the right-hand side of base

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►**Sal 1.3** (also hidden from view by the drainage channel). **Chronology**: beginning of Hadrian's reign, c. AD 120 (*IAM* Suppl. 861; Boube 1990a, 240; 1999, 17-8).

SAL 1.5 (Plate 34; Plan 18). Square half-column base. Plinth, cavetto-like moulding, and upper fillet. Joined to the shaft. **State of preservation**: marked deterioration of the whole surface; the bottom of the plinth is fragmentary and the moulding is not entirely recognizable. **Material**: calcarenite. **Measurements**: total h.: 84.7 cm; base: h. 4.8 cm; plinth: w. 47.8 cm, h. 11.4 cm; moulding: w. 42.2 cm, h. 3.1 cm; fillet: h. 1.7 cm; shaft: w. 34 cm, h. 68.5 cm. **Examples and location**: one base, not *in situ*, on the floor close to the rear wall of the fourth *taberna* under the *capitolium*. **Chronology**: uncertain; the base does not belong to the *capitolium*, and it was probably moved here when the complex was converted into a dump in the fourth century AD (Boube 1966c, 28-9).

SAL 1.6 (Plate 34; Plan 18). Square half-column base. Plinth, square-shaped moulding, and upper fillet. Joined to the shaft. **State of preservation**: advanced level of deterioration; the lower corner of the plinth and the top of the shaft are fragmented. **Material**: calcarenite. **Measurements**: total h.: 41 cm; base: h. 8.1 cm; plinth: w. c. 43.4 cm, h. 10.9 cm; moulding: w. 39.4 cm, h. 4 cm; fillet: h. 4.1 cm; shaft: w. 25.1 cm, h. 22 cm. **Examples and location**: one base, not *in situ*, next to the base ►**Sal 1.5** close to the rear wall of the fourth *taberna* underneath the *capitolium*. **Chronology**: uncertain; see the observations advanced for ►**Sal 1.5**.

Single-torus bases (three examples).

SAL 1.7 (Plate 34; Plan 17). Column base. Plinth, torus with flattened profile underlined by a marked groove at the bottom, and fillet. Joined to the shaft. **State of preservation**: medium deterioration; fragmented at the top and at the corners of the plinth. **Material**: calcarenite. **Measurements**: total h.: 44.5 cm; plinth: w. 50.2 cm, h. 11.2 cm; torus: Ø 47.4 cm, h. 10.2 cm; fillet: h. 2.7 cm; shaft: Ø 36.1 cm, h. 20.4 cm. **Examples and location**: two bases, not *in situ*, lying on the ground in a room of the building at the right-hand side of "temple A". **Parallels**: a rather similar base of undetermined chronology was found *in situ* at *Thamusida* during the excavation of a trench in front of the

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"insula aux bases de colonnes" (Camporeale 2008c, 217, type 1.1, fig. 4; *Thamusida* III, 287). Two other bases, perhaps reused from a previous building, are found at *Cotta* at the entrance to the *triclinium* in the residential building discovered there (Ponsich 1970, 320, pl. 104). In North Africa, similar examples interpreted as column capitals come from *Caesarea*, c. first to second century AD (Pensabene 1982a, 49-50, pls. 43-5, nos. 132-6). **Chronology**: the building technique recognized in this edifice seems to be in use from the first century AD to the mid-second century AD (Camporeale 2004-05, 240). Such dating for these bases would be confirmed by the parallels identified at *Caesarea*.

SAL 1.8 (Plate 34; Plan 18). Column base. Plinth, torus, and fillet. Joined to the shaft, provided with a square-shaped moulding at the top with two large vertical grooves on two sides. **State of preservation**: medium deterioration; fragmented at the corners of the upper moulding. **Material**: calcarenite. **Measurements**: total h.: 43.8 cm; plinth: w. 53.4 cm, h. 8.7 cm; torus: Ø 53 cm, h. 6.7 cm; fillet: h. 3.4 cm; shaft: h. 12.8 cm; upper moulding: w. 36.4 cm, h. 12.2 cm. **Examples and location**: one base, not *in situ*, on the floor facing the rear wall of the second *taberna* under the *capitolium*. **Chronology**: uncertain; the base was probably moved here when the *capitolium* was converted into a dump in the fourth century AD (Boube 1966c, 28-9).

Attic bases (38 examples).

Attic bases with plinth (six examples).

SAL 1.9 (Plate 35; Plans 18, 19). Column base. Plinth, torus, scotia marked by lower and upper fillets, second smaller torus. One example is provided with a square cramp hole and a pouring channel on the upper surface; the second example has a circular cramp hole only. **State of preservation**: medium deterioration; the lower corner of the plinth and parts of both the tori are partially fragmented. **Material**: bio-calcarenite of the oued Akreuch. **Measurements**: total h.: 25.1 cm; base: h. 17.5 cm; plinth: w. 65.5 cm, h. 7.6 cm; lower torus: Ø 65.5 cm, h. 4.6 cm; fillets: h. 1.2 cm; scotia: h. 3.8 cm; upper torus: Ø 61.2 cm, h. 5.8 cm. **Examples and location**: two bases not *in situ*. One is on the floor of the second *taberna* under the *capitolium*; the other base lies on the ground behind the south-

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east side of the *nymphaeum*, in front of the mosque's perimeter wall. **Parallels**: an identical base was found, originally *in situ*, inside room 12 of the "thermes du fleuve" at *Thamusida*; it is attributed to the first phase of the building, c. second half of the first century AD (Camporeale 2008c, 219, type 2.2, fig. 8; *Thamusida* II, 40-1). **Chronology**: perhaps not earlier than the mid/late first century AD, as suggested by the parallel from *Thamusida*, although the setting of these bases at *Sala* is unknown.

SAL 1.10 (Plate 35; Plan 19). Column base, similar to ►**Sal 1.9**. Plinth, torus, scotia with lower and upper fillets, second smaller torus, fillet and reversed cavetto. **State of preservation**: medium deterioration; the corners of the plinth and parts of the tori are fragmented. **Material**: bio-calcarenite of the oued Akreuch. **Measurements**: total h.: 33.9 cm; base: h. 22.1 cm; plinth: w. 58.6 cm, h. 9.7 cm; lower torus: Ø 58.4 cm, h. 6.6 cm; fillets: h. 1.3-1.6 cm; scotia: h. 4.4 cm; upper torus: Ø 50.4 cm, h. 5.2 cm; fillet: h. 2.2 cm; cavetto: Ø 41.8 cm; h. 2.9 cm. **Examples and location**: four bases, not *in situ*, all lying on the ground behind the south-east side of the *nymphaeum*, at the base of the mosque's perimeter wall. On the basis of the compatible measurements, it is possible that they were associated with the capitals ►**Sal 2.14**. **Parallels**: see ►**Sal 1.9**. **Chronology**: uncertain; the capitals might be dated to within the third century AD, although other hypotheses can be advanced (see ►**Sal 2.14**). The parallel identified at *Thamusida* is dated to the second half of the first century AD (see ►**Sal 1.9**).

Attic bases with plinth, joined to the shaft (36 examples).

SAL 1.11 (Plate 35; Plan 18). Pilaster base. Plinth, torus shaped as a reversed ovolo with markedly oblong profile, scotia highlighted by lower and upper fillets, second smaller torus with a profile similar to the lower torus, fillet. Joined to the shaft. **State of preservation**: advanced deterioration on the whole surface; the left-hand side of the base is broken. Other examples are in a more fragmentary state. **Material**: calcarenite. **Measurements**: total h.: 49.5 cm; base: h. 18.8 cm; plinth: w. 73 cm, h. 8.2 cm; lower torus: w. 70.5 cm, h. 6.2 cm; fillets: h. 1-1.7 cm; scotia: h. 3.4 cm; upper torus: w. 59 cm, h. 3.7 cm; fillet: h. 2.8 cm; shaft: w. 49.2 cm, h. 22.5 cm. **Examples and location**: five bases *in situ* still identifiable, placed at the frontal edge of the partition walls of the *tabernae* under the

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capitolium. **Parallels**: a similar base, still *in situ*, comes from the military fort at *Thamusida*, set into a wall of the *principia* and dating to the first construction phase of the building, c. second half of the first century AD (Camporeale 2008c, 223, type 2.9, fig. 15). **Chronology**: the construction of the *capitolium* dates to the beginning of Hadrian's reign, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 1.12 (Plate 35; Plan 18). Pilaster base, similar to ►**Sal 1.11**. Both tori are shaped as reversed ovoli, although the profile is more rounded. **State of preservation**: advanced deterioration; the base is fragmented on the whole surface (especially on the left-hand side). The other examples have a more advanced level of fragmentation. **Material**: calcarenite. **Measurements**: total h.: 48.1 cm; base: h. 13.2 cm; plinth: w. 51.2 cm, h. 7.9 cm; lower torus: w. 51.4 cm, h. 6.4 cm; fillets: h. 1.5 cm; scotia: h. 3.8 cm; upper torus: w. c. 38.9 cm, h. c. 3.6 cm; fillet: h. 2.1 cm; shaft: w. 27 cm, h. 27 cm. **Examples and location**: 13 bases *in situ*, belonging to the *tabernae* under the *capitolium*; they are positioned at the left- and right-hand side of the bases ►**Sal 1.11**, and at the corners of the remaining *tabernae* partition walls. **Parallels**: see ►**Sal 1.11**. **Chronology**: beginning of Hadrian's reign, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 1.13 (Plate 35; Plan 18). Column base. Plinth, torus with flattened profile, throat moulding marked by lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: medium to advanced deterioration; one example is fragmented at the bottom and at the lower corners, and one of the other bases presents a wide longitudinal groove along its middle axis. **Material**: calcarenite. **Measurements**: total h.: 44.1 cm; base: h. 23.9 cm; plinth: w. 68 cm, h. 10.8 cm; lower torus: Ø 67.5 cm, h. 6.5 cm; fillets: h. 1.5-1.9 cm; throat moulding: h. 4.8 cm; upper torus: Ø 61.4 cm, h. 6.6 cm; fillet: h. 2.6 cm; shaft: Ø 50.4 cm, h. 9.4 cm. **Examples and location**: four bases are preserved, associable with the capitals ►**Sal 2.4-5**, belonging to the *porticus* surrounding the *capitolium*. Three bases are still *in situ*, placed on the stylobate of the *porticus*; one of these belongs to a column incorporated in the perimeter wall (south side of the complex). The fourth base is not *in situ* anymore, repositioned along the *porticus*. **Parallels**: three similar bases come from *Thamusida*: two are *in situ* on the northern wall of an undefined structure in Area VII, perhaps dating to the second half of the first century AD; the third

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base is not *in situ* anymore, placed outside the "thermes du fleuve" (Camporeale 2008c, 220, type 2.4, fig. 10). **Chronology**: the construction of the *porticus* is contemporary with the *capitolium*, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 1.14 (Plate 35; Plan 19). Engaged half-column base, quite similar to ►**Sal 1.13**. Plinth, high torus with slightly rounded profile, scotia with lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: advanced level of deterioration; fragmented at the bottom of the plinth. One example has a vertical groove, running from the lower torus up to the shaft. **Material**: calcarenite. **Measurements**: total h.: 50.5 cm; base: h. 29.6 cm; plinth: w. 73.2 cm, h. 11.3 cm; lower torus: Ø 73 cm, h. 8.9 cm; scotia: h. 2.9 cm; fillets: h. 1.7-2.7 cm; upper torus: Ø 62.8 cm, h. 5.9 cm; fillet: h. 3.9 cm; shaft: Ø 54.8 cm, h. 13.2 cm. **Examples and location**: two bases *in situ*, along the north perimeter wall of the "basilica/*curia Ulpia*"; one of them is placed at the south-west corner. **Parallels**: see ►**Sal 1.13**. **Chronology**: the "basilica/*curia Ulpia*" may be dated to the reign of Trajan – early reign of Hadrian (*IAM* 307; Boube 1999, 18).

SAL 1.15 (Plate 35; Plan 19). Pilaster base, almost identical to ►**Sal 1.14**. The lower torus has a more rounded profile. **State of preservation**: advanced level of deterioration; fragmented at the corners of the plinth. **Material**: calcarenite. **Measurements**: total h.: 58.6 cm; base: h. 33.5 cm; plinth: w. 74.4 cm, h. 12.7 cm; lower torus: w. 74.3 cm, h. 11.2 cm; fillets: h. 2.3-3.9 cm; scotia: h. 4.2 cm; upper torus: w. 65.9 cm, h. 8.2 cm; fillet: h. 3.7 cm; shaft: w. 59.8 cm, h. 12.4 cm. **Examples and location**: four bases from the "basilica/*curia Ulpia*" are preserved. Three are still *in situ*: one of them is located along the north perimeter wall, alternating with the half-column bases ►**Sal 1.14**; the second base is placed at the corner between the south-west and north-west wall; the third is along the south-west wall. The fourth base is not *in situ*, scattered on the ground inside the first room on the south-west side of the building. **Parallels**: see ►**Sal 1.13**. **Chronology**: c. reign of Trajan – early reign of Hadrian (*IAM* 307; Boube 1999, 18).

SAL 1.16 (Plate 35; Plan 19). Pilaster base. Plinth, lower torus with rounded profile, scotia marked by lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: medium deterioration; the upper torus and the shaft are

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fragmented at the left-hand side of the block. **Material**: calcarenite. **Measurements**: total h.: 50.4 cm; base: h. 29.7 cm; plinth: w. 73.7 cm, h. 13.2 cm; lower torus: w. 73.5 cm, h. 11.7 cm; scotia: h. 3.6 cm; fillets: h. 2.4-3.1 cm; upper torus: w. 67.4 cm, h. 6.7 cm; fillet: h. 2.2 cm; shaft: w. 54.7 cm, h. 7.5 cm. **Examples and location**: one base belonging to a corner block, repositioned *in situ* at the south-west corner of the so-called "building D" north of the baths. **Chronology**: uncertain; the construction of this building – intensively spoliated in the Islamic period – may either date to the late Mauretanian era (Boube 1999, 17), or, more likely, to the end of the first – mid-second century AD (see the observations in Camporeale 2004-05, 239-40).

SAL 1.17 (Plate 36; Plan 19). Pilaster base. High plinth, lower torus shaped as a reversed ovolo, scotia marked by lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: advanced level of deterioration; fragmented on the left-hand side. **Material**: calcarenite. **Measurements**: total h.: 44.6 cm; base: h. 25.2 cm; plinth: w. 67 cm, h. 18.5 cm; lower torus: w. 58.6 cm, h. 7.5 cm; scotia: h. 3.9 cm; fillets: h. 2.8 cm; upper torus: w. 49.6 cm, h. 4.2 cm; fillet: h. 2.8 cm; shaft: w. 43.6 cm, h. 1.5 cm. **Examples and location**: two bases *in situ*, at the corners of the central fornix of the arch, placed on the west and east façade respectively. **Chronology**: it has been suggested that the arch might be contemporary with the construction of the "basilica/*curia Ulpia*" and *capitolium* (reign of Trajan – early years of Hadrian's: Boube 1999, 18), or slightly later during the reign of Antoninus Pius (Chatelain 1930, 339-40; 1944, 87-8).

SAL 1.18 (Plate 36; Plan 18). Pilaster base. Plinth, lower torus shaped as a reversed ovolo with rounded profile, square-cut groove marked by lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: medium deterioration; the lower left-hand corner of the plinth is fragmented, and the top of the shaft is broken. **Material**: calcarenite. **Measurements**: total h.: 55.1 cm; base: h. 18.5 cm; plinth: w. 40.4 cm, h. 7.1 cm; lower torus: w. 39 cm, h. 5.9 cm; groove: h. 2 cm; fillets: h. 1.4-1.8 cm; upper torus: w. 34.9 cm, h. 5.4 cm; fillet: h. 2 cm; shaft: w. 30.4 cm, h. 29.5 cm. **Examples and location**: one base *in situ*, at the left-hand side of the entrance to the upper level of the *capitolium* (north-west, outer side of the complex). **Chronology**: early Hadrianic period, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

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SAL 1.19 (Plate 36; Plan 18). Half-column base. Plinth, lower torus shaped as a reversed ovolo, throat moulding, second smaller torus. Joined to the shaft. **State of preservation**: advanced level of deterioration; broken at the bottom of the plinth and along the tori. **Material**: calcarenite. **Measurements**: total h.: 57.1 cm; base: h. 17.5 cm; plinth: h. 9.6 cm; lower torus: h. 6.7 cm; throat moulding: h. 3.2 cm; upper torus: Ø 47.6 cm, h. 7.6 cm; shaft: Ø 34.4 cm, h. 30 cm. **Examples and location**: one base, not *in situ*, at the back corner of the second *taberna* under the *capitolium*. **Chronology**: uncertain; the base was probably moved here in the fourth century AD (Boube 1966c, 28-9).

SAL 1.20 (Plate 36; Plan 17). Column base. Plinth, lower torus with flattened profile and underlined by a high groove at the bottom, square-cut groove with lower and upper fillets, second torus with the same diameter of the lower torus, fillet. Joined to the shaft. **State of preservation**: advanced deterioration; broken at the bottom of the plinth and along the tori. **Material**: calcarenite. **Measurements**: total h.: 52.8 cm; base: h. 32.8 cm; plinth: h. 11.1 cm; groove: h. 4.7 cm; lower torus: Ø 69.8 cm, h. 9.3 cm; square-cut groove: h. 2.9 cm; fillets: h. 2.1-2.3 cm; upper torus: Ø 69.6 cm, h. 8.8 cm; fillet: h. 6.8 cm; shaft: Ø 53.2 cm, h. 4.8 cm. **Examples and location**: one base, not *in situ*, currently placed on the ground at the south-east limit of the forum, next to the base without plinth ►**Sal 1.24** and to the Tuscan capitals ►**Sal 2.1** and ►**Sal 2.2**. **Parallels**: a smaller base with similar profile can be found *in situ* at *Thamusida* in the "thermes du fleuve", set into the apsidal wall of room 18 and dating to a late construction phase, c. first half of the third century AD (Camporeale 2008c, 221, type 2.6, fig. 12). **Chronology**: uncertain; the base ►**Sal 1.24** and the capital ►**Sal 2.1** were associated with the layers of the pre-Roman structures under the forum (Boube 1967, 320-6, pls. 18.2 and 18.3, fig. 11a), but we do not know if this base comes from the same context.

SAL 1.21 (Plate 36; Plan 18). Column base. Plinth, lower torus underlined by a high groove, scotia with lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: medium deterioration; the lower corners of the plinth and the upper torus are fragmented. **Material**: calcarenite. **Measurements**: total h.: 47.9 cm; base (including groove): h. 32.3 cm; plinth: w. 51.2 cm, h. 9.8 cm; groove: h. 5.7 cm; lower torus: Ø 48.4 cm, h. 8.4 cm; fillets: h. 1-1.2 cm; scotia: h. 4.9 cm; upper torus: h. 11.1 cm; fillet: h. 1

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cm; shaft: Ø 41.4 cm, h. 4 cm. **Examples and location**: one base, not *in situ*, currently placed on the foundation of the *porticus* of the *capitolium*, close to the bases ►**Sal 1.13** and perhaps associable with the capitals ►**Sal 2.6**. We can hypothesize that it might have belonged to a column of the *porticus* – if this was provided with a second storey with smaller columns. **Chronology**: uncertain; perhaps contemporary with the *capitolium* and its *porticus*, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 1.22 (Plate 36). Column base. High plinth, lower torus with rounded profile, high scotia with flattened profile and marked by lower and upper fillets, second smaller torus, fillet. Joined to the shaft. **State of preservation**: slight deterioration; fragmented at the lower corners of the plinth. **Material**: calcarenite. **Measurements**: total h.: 47.1 cm; base: h. 30.8 cm; plinth: w. 52.4 cm, h. 9.2 cm; lower torus: Ø 47 cm, h. 5.9 cm; scotia: h. 6.4 cm; fillets: h. 1.9-2.1 cm; upper torus: Ø 47.4 cm, h. 3.9 cm; fillet: h. 2.9 cm; shaft: Ø 37 cm, h. 10.5 cm. **Examples and location**: one base, repositioned *in situ* at the corner of one of the (partially excavated) buildings in the productive district. **Parallels**: bases with high plinth and high scotia are common at *Volubilis* (►**Vol 1.5**): seven examples belong to the *porticus* of the *capitolium*, dated to c. AD 217 (*IAM* 355; Akerraz *et al*. 1987b, 217); three bases come from the palace of Gordianus, AD 238-244 (*IAM* 404); other bases are in the "maison au cortège de Venus", datable to the mid-third century AD (Étienne 1960, 79, pl. 73, fig. 2). More parallels are at *Banasa*: one lies on the ground of the "maison à la mosaïque de Vénus" (►**Ban 1.3**); the other is in the *lapidarium* (►**Ban 1.4**). In North Africa, two bases with similar profile come from *Caesarea* (Pensabene 1982b, 146, pl. 49, no. 235: from the west baths; no. 237: provenance unknown); *Lepcis Magna*, one base datable from the first quarter of the second century AD onwards (Mahler 2006, 203, pl. 79, no. 518 AB: from the *Calchidicum*). A similar base from Spain is reused in the mosque of Cordoba (Peña Jurado 2010, 60, pl. 10, no. 29). **Chronology**: uncertain; perhaps not later than first half of the third century AD, as the parallels seem to suggest.

Square Attic bases with plinth (one example).

SAL 1.23 (Plate 37; Plan 19). Column base. High plinth, torus, scotia marked by lower and upper fillets, second smaller torus. **State of preservation**: advanced deterioration;

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only half of the base is preserved, broken vertically along the middle axis. Fragmented at the top and at the lower corners of the plinth. **Material**: bio-calcarenite of the oued Akreuch. **Measurements**: total h.: 35.3 cm; base: h. 20.6 cm; plinth: h. 14.7 cm; lower torus: h. 8.2 cm; scotia: h. 5.1 cm; fillets: h. 1.4-2.5 cm; upper torus: h. 3.4 cm. **Examples and location**: one base, not *in situ* and of unknown provenance, on the ground above the foundation of the east wall of "the basilica/*curia Ulpia*". **Chronology**: uncertain; the "basilica/*curia Ulpia*" may date to the reign of Trajan – early reign of Hadrian (*IAM* 307; Boube 1999, 18), but the original setting of this base is unknown.

Attic bases without plinth (one example).

SAL 1.24 (Plate 37; Plan 17). Column base. Torus with rather flattened profile, square-cut groove highlighted by lower and upper fillets, second torus with the same diameter of the lower torus, fillet. **State of preservation**: advanced deterioration; broken at the bottom of the lower torus. **Material**: calcarenite. **Measurements**: base: h. 32.8 cm; lower torus: Ø 68.7 cm, h. 10.3 cm; square-cut groove: h. 4.1 cm; fillets: h. 2.1-2.5 cm; upper torus: Ø 69 cm, h. 11.1 cm; fillet: h. 2.7 cm. **Examples and location**: one base, not *in situ*, lying at the south-east limit of the forum, next to the base ►**Sal 1.20** and to the Tuscan capitals ►**Sal 2.1** and ►**Sal 2.2**. **References**: Boube 1967, 322, fig. 11. **Parallels**: an isolated base with similar profile is on the ground inside "temple B" at *Volubilis* (►**Vol 1.40**). Other identical bases can be found at *Banasa*: 25 bases from the colonnade of the *porticus* in the forum (►**Ban 1.28-29**), c. early second century AD (Brouquier-Reddé *et al*. 2004, 1891-6); one larger base, not *in situ*, is now positioned on the podium of the temple with seven *cellae* (►**Ban 1.19**); three more bases are in the "maison à la mosaïque de Vénus", c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203) (►**Ban 1.31**). Two other bases come from *Lixus*, not *in situ*, outside the *domus* of Mars and Rhea, in the *garum* factories, and on the ground inside "building E", respectively (►**Lix 1.13-15**). Another base, attributed to the reign of Juba II, was recovered at *Cotta* underneath some layers dated to the Roman period (Ponsich 1970, 211, fig. 56.1: base at the left-hand side of the drawing). Two similar bases without plinth are known in Spain as well: one example at *Saguntum*, not *in situ*, c. Augustan period (Escrivà Chover 2005, 75, no. A96); the second base is located in a small settlement near Salinas de Rosío, perhaps datable to the early

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third century AD (Escrivà Chover 2005, 108, no. A157). **Chronology**: the base was found during the excavation of the structures obliterated by the Roman forum, perhaps together with the Tuscan capital ►**Sal 2.1**, and can be dated to the second half – late first century BC (Boube 1967, 310-1).

2. CAPITALS

Capitals are divided in 22 types, catalogued following these five groupings: Tuscan capitals (►**Sal 2.1-2**); Ionic capitals (►**Sal 2.3**); Corinthian capitals (►**Sal 2.4-20**); composite capitals (►**Sal 2.21**); and pseudo-lotus capitals (►**Sal 2.22**).

The Corinthian capitals are further divided according to these sub-groups: Corinthian capitals with smooth leaves (►**Sal 2.4-16**); Corinthian capitals with "*acanthus mollis*" (►**Sal 2.17**); and Asiatic Corinthian capitals (►**Sal 2.18-20**). The single composite capital attested belongs to the type with fine-toothed acanthus (►**Sal 2.21**).

Tuscan capitals (two examples).

SAL 2.1 (Plate 37; Plan 17). Column capital. Echinus shaped as a quarter round, underlined by a fillet and neck at the bottom. Square, undecorated abacus. Some traces of white stucco are visible on the surface. **Material**: calcarenite. **State of preservation**: medium deterioration; partially fragmented at the bottom of the neck. **Measurements**: total h.: 38.4 cm; neck: Ø 42.2 cm, h. 7.6 cm; fillet: h. 3.9 cm; echinus: Ø 59.6 cm, h. 16.7 cm; abacus: w. 65.2 cm, h. 10.2 cm. **Examples and location**: one capital, not *in situ*, placed upside down on the ground near the south-east corner of the forum area, next to the Tuscan capital ►**Sal 2.2** and to the bases ►**Sal 1.20** and ►**Sal 1.24**. It was discovered during the excavations of the layers that obliterated the Mauretanian complex in the lower terrace under the forum (Boube 1967, 310-1). **References**: Boube 1967, 322-4, pl. 18.2-3, figs. 8-9 (interpreted either as a capital or as a column base); Jodin 1977, 306-7, fig. 3 (image at the bottom). **Parallels**: two Tuscan capitals with identical profile are found at *Lixus* in the "quartier des temples", belonging to the *porticus* of "temple F" and datable to the second half of the first century AD (►**Lix 2.1**). Another identical capital was recovered

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at Mogador, dated more generically to the period of Juba II (Jodin 1967, 52, pl. 20; 1977, 304-5, figs. 2-3). A similar capital was found at *Volubilis*, reused as a column base in a building east of the basilica (Boube 1967, 324, pl. 18, fig. 1); other examples from this town, interpreted as capitals, are in the so-called "*curia*", in an *insula* of the west district, and in the storehouse (all dated, rather arbitrary, to the pre-provincial era: Jodin 1977, 307-9, fig. 4; 1987, 95, fig. 8a-c). Similar capitals are attested in North Africa: at *Bulla Regia*, one capital with identical profile (Ferchiou 1989a, 71, pl. 11a, fig. 13, no. III.IV.7), and another one provided with a fillet between the echinus and the abacus, both of uncertain chronology (Lézine 1955, 26, pl. 6, no. 7); *Caesarea*, c. first century AD (Pensabene 1982a, 49, pl. 43, no. 130: unknown provenance); in the region of *Segermes*, at Sidi Zid (Ferchiou 1995, 664-5, fig. 11), Ksar Soudane (Ferchiou 1995, 665, fig. 12), and at an unknown ancient site (Ferchiou 1995, 665, fig. 13), all undated. The type is also known in Spain: *Ampurias*, late Republican to Augustan period (Gutiérrez Behemerid 1992, 18, nos. 10-1: *in situ*); Tarragona, first century AD (Gutiérrez Behemerid 1992, 18, no. 12: uncertain provenance); another example, interpreted as a column base, comes from *Saguntum*, perhaps datable to the Julio-Claudian era (Escrivà Chover 2005, 25, no. T28: unknown provenance). **Chronology**: the Mauretanian structures obliterated by the forum are dated to the second half – late first century BC (Boube 1967, 310-1).

SAL 2.2 (Plate 37; Plan 17). Column capital. The profile of the echinus is shaped as a torus, underlined by a cavetto and neck. Square abacus. **State of preservation**: advanced deterioration; the abacus and the lower portion of the echinus are fragmented. **Measurements**: total h.: 51.9 cm; neck: Ø 42.6 cm, h. 21.7 cm; cavetto: Ø 64 cm, h. 10.3 cm; echinus: Ø 68.4 cm, h. 9.7 cm; abacus: h. 10.2 cm. **Examples and location**: one capital, not *in situ*, positioned next to the bases ►**Sal 1.20** and ►**Sal 1.24** and to the capital ►**Sal 2.1**, on the ground near the south-east corner of the forum. **Parallels**: three identical capitals, provided with a torus-shaped echinus and cavetto underneath, can be found at *Banasa*, not *in situ*, in the forum area and inside the *curia* (►**Ban 2.1-3**; Lézine 1955, 14, pl. 1, no. 6; Jodin 1977, 306). Other similar capitals are attested at *Volubilis*: eight examples of unknown provenance are scattered on the ground in front of the north side of the basilica (►**Vol 2.1**); one capital is in the south-west district, *insula* 40, and two others along the *decumanus maximus* (Jodin 1977, 307, figs. 5-6; 1987, 95, fig. 8Ac). Another capital is at *Lixus*

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in the peristyle of the *domus* of Mars and Rhea (►**Lix 2.2**), while single-torus bases with profile identical to these capitals are in the "quartier des temples": one example *in situ* belonging to the *porticus* of "temple F", dated to the second half of the first century AD (►**Lix 1.5**); and another one on the ground not far distant (►**Lix 1.6**). In North Africa parallels are known at *Caesarea*, first to second century AD (Pensabene 1982a, 50-1, pls. 45-6, nos. 138-9: provenance unknown); *Lepcis Magna*, with a second fillet under the cavetto, first half of the first century AD (Mahler 2006, 171, pl. 49, no. 220 TK: found along the *decumanus*, south-west of the *macellum*); *Belalis Maior*, Tunisia, with three fillets at the bottom, c. first century AD (Ferchiou 1989a, 75, pl. 12, no. III.V.19a-b: one example found close to the forum; a second from the "petite basilique"). Other similar capitals are in Spain: at Seville (unknown provenance), *Saguntum* (north forum), *Ampurias* (street with *porticus*, *in situ*), Numancia (building 21, *in situ*) and Merida (citadel, *in situ*), all dated to the first century AD (Gutiérrez Behemerid 1992, 19, nos. 19-25); another piece, interpreted as a Tuscan base, was recovered at Mataró, Barcelona (Escrivà Chover 2005, 17, no. T5: provenance unspecified). **Chronology**: uncertain; the base ►**Sal 1.24** and the capital ►**Sal 2.1** were associated with the pre-Roman structures obliterated by the forum (Boube 1967, 320-6, pls. 18.2 and 18.3, fig. 11a), but we do not know if this capital comes from the same context. According to the dating of the known parallels, we may suggest a chronology towards the first to second century AD.

Ionic capitals (two examples).

SAL 2.3 (Plate 37; Plan 17). Engaged half-column capital. The abacus is smooth and is not separated from the volutes and echinus underneath. It shows a flat profile on the front, becoming triangular on the lateral sides. The channel of the volutes is not recognizable from the echinus. The volutes are circular and smooth, without any carved spirals in the middle. The *pulvini* are shaped as simplified single cones and are not provided with a *balteus* in the middle. The echinus has an undecorated, semi-circular shape completely flattened on the front. Joined to the shaft at the bottom. Scant traces of stucco are visible on some spots of the surface. It is likely that the decoration (the spirals of the volutes and perhaps the central motifs in the middle of the echinus) was originally painted on the stucco. The features of the capital suggest that it should be identified as an

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Ionic capital of Punic-Hellenistic tradition (see Lézine 1960, 76-80). **State of preservation**: advanced level of deterioration on the whole surface; the volutes, especially that at the right-hand side, are fragmented. **Material**: calcarenite. **Measurements**: total h.: 44.9 cm; abacus: w. 62.6 cm, h. 7 cm; volutes: Ø 22.1 cm; echinus: h. 22.1 cm; shaft: Ø 50.9 cm, h. 12.8 cm. **Examples and location**: two capitals, not *in situ*, placed upside down near the north-east corner of the forum's middle terrace, at the base of "temple A" and likely belonging to its decoration. It is possible that the capitals were associated with the eight blocks of an Egyptian gorge cornice found in the same spot (Boube 1967, 328-30, fig. 16). **References**: Boube 1967, 320, figs. 5, 16. **Parallels**: a similar capital with undecorated echinus, although provided with carved spirals, was found at *Volubilis* in the Mauretanian layers under the Roman forum (Boube 1966b; 1967, 320, pl. 17.1-2). Two rather similar capitals, with the echinus showing a button in the middle and with carved spirals, are known at *Lixus*, perhaps datable towards the second half – end of the first century AD: the first example is in the "quartier des temples", perhaps belonging to "corridor A" (►**Lix 2.3**); the second comes from the *domus* of Mars and Rhea (►**Lix 2.4**). In North Africa, similar undecorated (perhaps unfinished?) capitals, with a triangular echinus, are found at *Lepcis Magna* and are dated approximately from the first century BC to the first century AD (Mahler 2006, 164-5, nos. 161-5 IdK: from the *decumanus*, in the baths in *Regio* VI, and in the Late Antique baths in *Regio* V). Another capital with similar profile belongs to the Numidian mausoleum of *Siga*, Tunisia, dated to the second century BC (Rakob 1979, 150-1, fig. 77). Another capital from Tunisia, with carved spirals and undecorated echinus, comes from *Tacape* (Ferchiou 1989a, 140-1, pl. 32a, no. V.VIII.E.1: uncertain provenance and dating). **Chronology**: the construction of "temple A" is dated to the mid/second half of the first century BC (Boube 1967, 320, 328-30, 348-52; 1999, 16).

Corinthian capitals (25 examples).

Corinthian capitals with smooth leaves (21 examples).

SAL 2.4 (Plate 37; Plan 18). Column capital. Kalathos with circular section. Two tiers of eight leaves set at the base of the capital. The leaves are independent, round-shaped, flattened towards the kalathos and with a single pointed lobe bent towards the front. The

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leaves of the upper tier are set at the interval among those of the lower tier. The cauliculi run vertically and are shaped as thin stems with a slightly rounded profile. They are marked at the top by a large rounded collar. The calyces are smooth, with a triangular profile. The rounded edges of the inner half-leaves are joined together in the middle. From the calyces spring the helices and volutes, with a flattened profile and rolled edges. The abacus is simplified, represented by two fillets with flat profile. The axial motif seems to correspond to a fleuron, although it is not easily recognizable. One example shows numerous traces of white stucco on its surface. **State of preservation**: advanced level of deterioration; the volutes are damaged at the edge. The other examples are more fragmentary, especially in the upper part of the kalathos, and show a more marked deterioration of the surface. **Material**: calcarenite. **Measurements**: total h.: 63.4 cm; kalathos: h. 56.5 cm; lower tier: Ø 45.7 cm, h. 19.9 cm; upper tier: h. 35.3 cm; abacus: w. 70.2 cm, h. 6 cm. **Examples and location**: three capitals not *in situ*. Two have been placed on the stylobate of the *porticus* around the *capitolium*; one is on the ground facing the entrance of the temple. Due to their compatible measurements, it is very likely that they belonged to the colonnade of the *porticus* and were associated with the bases ►**Sal 1.13**. **Parallels**: a similar column capital is attested at *Banasa*, found not *in situ* inside one of the buildings in the north-east district (►**Ban 2.10**). In North Africa, six similar capitals made of local limestone come from *Caesarea*, dated from the end of the second century AD to the early fourth century AD (Pensabene 1982a, 57-9, pls. 54-5, nos. 162-7: one from the west baths, the others of unknown provenance). Other similar capitals, made of limestone and of unknown dating, are reused in the Great Mosque of Kairouan (Harrazi 1982, 104-5, nos. 130-5). Other capitals with smooth leaves, with an axial calyx and a more refined abacus with cavetto and ovolo, are attested at *Thuburbo Maius* (Pensabene 1986, 387, fig. 40c-d: from the forum and the building annexed to the Temple of Peace) and at El Djem (Pensabene 1986, 387, fig. 41b: from the amphitheatre), dated to the second century AD. Similar capitals are found in Spain as well: various examples of unknown provenance are recycled in the mosque at Cordoba, dated to the late second century AD (Márquez 1993, 151-2, pls. 86-7, nos. 288-91), and in the church of Sant Miquel de Tarrassa (Barcelona), dated approximately to the third century AD (Domingo Magaña 2011, 124-5, nos. 36-9). **Chronology**: the construction of the *porticus* is contemporary with the *capitolium*, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

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SAL 2.5 (Plate 38; Plan 18). Column capital, almost identical to ►**Sal 2.4**. The cauliculi are provided at the top with a marked double collar with rounded profile. The axial motif corresponds to a fleuron with six petals and a small button in the middle. **State of preservation**: moderate deterioration; the volutes, the corners of the abacus and the fleuron are slightly damaged. **Material**: calcarenite. **Measurements**: total h.: 60.4 cm; kalathos: h. 54.7 cm; lower tier: Ø 44.6 cm, h. 17.5 cm; upper tier: h. 32.1 cm; abacus: w. 69.9 cm, h. 5.4 cm; cross-section: 48.5 cm. **Examples and location**: one capital from the *capitolium*, not *in situ*, positioned on the floor next to the outer wall of the *cella*. Like the capitals ►**Sal 2.4**, this example seems to belong to the *porticus* surrounding the temple, associable with the bases ►**Sal 1.13**. **Parallels**: see ►**Sal 2.4**. **Chronology**: early Hadrianic period, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 2.6 (Plate 38; Plan 18). Column capital, similar to ►**Sal 2.4** but smaller. The leaves are more slender and more flattened towards the kalathos. The cauliculi are thin and long, with a flat profile, marked at the top by a single collar. Calyces, helices and volutes have a flattened profile. In the middle of the abacus is a decorative motif with a plain surface. **State of preservation**: medium to advanced deterioration; the volutes are only partially recognizable, and the capital is fragmented at the bottom of the first tier. Some other examples are broken at the top; among them one is badly fragmented and only the upper tier survives. **Material**: calcarenite. **Measurements**: total h.: 47.6 cm; kalathos: h. 44.7 cm; lower tier: Ø 34.2 cm, h. 15.9 cm; upper tier: h. 29.7 cm; abacus: h. 7.1 cm. **Examples and location**: five capitals not *in situ*. Two are placed along the *porticus* of the *capitolium*; one lies instead on the ground near the corner of the temple; another one is found on the paved street under the complex, in front of the wall between the fourth and fifth *taberna*. The fifth capital, badly fragmented, is kept in the storehouse. The measurements would be compatible with the base ►**Sal 1.21**, and it should not be discarded that they belonged to the same colonnade (perhaps as part of a second storey of the *porticus* around the temple?). **Parallels**: see ►**Sal 2.4**. **Chronology**: perhaps contemporary with the *capitolium*, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 2.7 (Plate 38; Plan 19). Engaged half-column capital (pier with attached half-column and pilaster). Kalathos with semi-circular section. Two tiers of smooth leaves set

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at the base of the capital. The lower tier has four leaves; the upper tier has five, placed at the interval among the leaves of the lower tier. The leaves are independent, round-shaped, with a slightly bowed rounded lobe and a slight mid-rib. The cauliculi are smooth, set at the interval of the leaves of the upper tier, with a flattened profile. The collars, if at all present, are no longer identifiable. The calyces are smooth with a square profile. The helices feature marked swollen edges, running obliquely. The volutes have swollen edges as well. Abacus with slightly rounded corners, formed by two fillets. The axial motif is shaped as a smooth, undecorated square. **State of preservation**: advanced level of deterioration; fragmented at the bottom, at the edge of the left-hand volute, and at the left-hand corner of the abacus. **Material**: calcarenite. **Measurements**: total h.: 61.3 cm; kalathos: h. 54.8 cm; lower tier: Ø 48.8 cm, h. 17.4 cm; upper tier: h. 29.9 cm; abacus: w. c. 79.3 cm, h. 6.5 cm; cross-section: 63 cm. **Examples and location**: one capital, repositioned *in situ* at the north-west corner of the outer wall of the "basilica/*curia Ulpia*". **Chronology**: c. reign of Trajan – early reign of Hadrian (*IAM* 307; Boube 1999, 18).

SAL 2.8 (Plate 38; Plan 19). Pilaster capital (pier with attached half-column and pilaster), similar to ►**Sal 2.7**. Kalathos with four-lobed section. Both tiers are provided with three leaves (one frontal leaf and two leaves at the sides). **State of preservation**: advanced level of deterioration; the upper part of the kalathos is poorly preserved. **Material**: calcarenite. **Measurements**: total h.: 61.3 cm; kalathos: h. 54.8 cm; lower tier: w. 60.3 cm, h. 17.3 cm; upper tier: h. 29.8 cm; abacus: w. c. 93.5 cm, h. 6.5 cm. **Examples and location**: one capital, belonging to the same pier of capital ►**Sal 2.7**, repositioned *in situ* at the north-west corner of the "basilica/*curia Ulpia*". **Chronology**: c. reign of Trajan – early reign of Hadrian (*IAM* 307; Boube 1999, 18).

SAL 2.9 (Plate 38; Plan 18). Pilaster capital. Kalathos with four-lobed section. Two tiers of smooth leaves set at the base of the capital. The lower tier has two frontal leaves; the upper tier has one frontal leaf and two lateral leaves, placed at the interval among the leaves of the lower tier. The leaves are independent, slender and flattened towards the kalathos. They are provided with a slightly bowed lobe at the top, and a very slight mid-rib is visible on the front. The cauliculi are smooth with rounded profile, running vertically, and placed at the interval of the upper tier's leaves. The top of the cauliculi

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presents a collar with rounded profile. The calyces are smooth, with a triangular profile. The edges of the inner half-leaves are rolled and joined together in the middle. Tangent helices, with rolled edges as well, and lateral volutes, both running obliquely. The abacus is poorly preserved, perhaps composed of a single fillet. **State of preservation**: advanced deterioration; the upper part of the kalathos is badly fragmented; the lateral edges of the volutes and the axial motif are not preserved. **Material**: calcarenite. **Measurements**: total h.: 65.2 cm; lower tier: w. 51 cm; h. 24.5 cm; upper tier: h. 39.9 cm. **Examples and location**: one capital, not *in situ*, placed on the ground in front of the south-west corner of the perimeter wall of the *capitolium* (lower level). Due to the compatible measurements, it is likely that is was associated with either base ►**Sal 1.3** or ►**Sal 1.11**, decorating the pilasters on the front of the *tabernae*. **Chronology**: contemporary with the construction of the *capitolium*, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 2.10 (Plate 38; Plan 18). Pilaster capital, similar to ►**Sal 2.9**. The leaves are more rounded and shallow. The stem of the cauliculi is thicker and more flattened, while the collar at the top is thinner. The abacus is formed by two flat fillets, and the axial motif in the middle features a circular shape (perhaps a fleuron?). **State of preservation**: advanced deterioration of the whole surface; the upper part of the kalathos is fragmented; the right-hand calyx, volutes, and helices are no longer recognizable. **Material**: calcarenite. **Measurements**: total h.: 83.8 cm; kalathos: h. 68.9 cm; lower tier: w. 65.8 cm; h. 26.5 cm; upper tier: h. 42.5 cm; abacus: h. 14.9 cm. **Examples and location**: one capital, not *in situ*, on the street flanking the north-west side of the *capitolium* on the upper level. Judging by the remarkable size, it might have belonged to a pilaster decorating the front of the temple, but it cannot be excluded that it comes from another public building. **Chronology**: uncertain; perhaps contemporary with the *capitolium*, c. AD 120 (*IAM* Suppl. 861; Boube 1990, 240; 1999, 17-8).

SAL 2.11 (Plate 39). Column capital (?). Kalathos with circular section (?). Two tiers of smooth leaves set at the base of the capital. The lower tier has four leaves still identifiable; the upper tier has three, placed at the interval among the leaves of the lower tier. The leaves are independent, round-shaped and flattened towards the kalathos. They have a pointed lobe, markedly bowed towards the front, and with a slight mid-rib. The cauliculi

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are very short and smooth, with a flat profile, almost indistinguishable from the kalathos surface. They run vertically, placed at the interval of the upper tier's leaves, and set on the top of the lower leaves. A small rounded collar seems to be recognizable at the top of the cauliculi. Large smooth calyces with flat profile spring from the top of the cauliculi. The helices run almost vertically and feature a flat profile as well. The lateral volutes run obliquely and are provided with a marked scroll at their edge. The abacus is formed by two fillets, with slightly rounded corners. **State of preservation**: advanced deterioration; the capital is broken approximately along the middle axis; the edges of the helices are not preserved and the axial motif, if at all present, is not recognizable anymore. **Material**: bio-calcarenite of the oued Akreuch. **Measurements**: total h.: 43.4 cm; kalathos: h. 38.8 cm; lower tier: h. 14.2 cm; upper tier: h. 13.1 cm; abacus: h. 4.6 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, kept in the storehouse. **Chronology**: uncertain; the carving and motifs of this example are quite similar to other capitals with smooth leaves attested at *Sala* (see ►**Sal 2.4-10**), and perhaps it may have a similar dating towards the second century AD.

SAL 2.12 (Plate 39). Column capital. Kalathos with circular section. Only a fragment corresponding to the lower tier is preserved, featuring eight independent leaves set at the base of the capital. The leaves are round-shaped and flattened towards the kalathos, with a slightly bowed rounded lobe and a mid-rib. It was probably an imported, roughed-out capital. **State of preservation**: advanced deterioration; only a small fragment is preserved. **Material**: white marble. **Measurements**: tier: h. c. 19.9 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, in the storehouse. **Chronology**: uncertain; perhaps second century AD?

SAL 2.13 (Plate 39). Column capital. Kalathos with circular section. Two tiers of eight smooth leaves set at the base of the capital. The leaves are rather flattened towards the kalathos. They are independent, round-shaped, with a large rounded lobe bowed towards the front. Along their middle axis, they feature a marked mid-rib with a semi-circular profile (shaped as a vertical groove). The leaves of the upper tier are placed at the interval among those of the lower tier. The cauliculi are rather short, smooth, and with a rounded profile. They run vertically and are placed at the interval of the upper tier's leaves, set on

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the top of the lower leaves. The collars at the top of the cauliculi are marked and thick, with a rounded profile. The calyces springing from the cauliculi are smooth with a rounded profile. They feature an open V shape, running almost horizontally. The edges of the inner half-leaves are rolled, provided with marked scrolls, and joined together in the middle. Tangent helices and lateral volutes, both running obliquely (like the calyces underneath) and ending with large scrolls at their edges. The lip of the kalathos is underlined by a marked horizontal groove. The abacus is formed by two fillets with rounded corners. The axial motif is represented by a large fleuron, provided with four petals and a large button in the middle. Its shape and large size seem to recall the motif of the Italic and Alexandrian Corinthian capitals (see Lauter-Bufe 1987; Gros 2001, 472-5; Mahler 2006, 30-1, 37-42), and perhaps it may represent a later (?) revival of this type of decoration. **State of preservation**: slight deterioration; the lobes of the leaves, the collars of the cauliculi, and the right-hand corner of the abacus show some minor damage. **Material**: bio-calcarenite of the oued Akreuch. **Measurements**: total h.: 27.2 cm; kalathos: h. 23 cm; lower tier: Ø 18.7 cm, h. 9.1 cm; upper tier: h. 15.4 cm; abacus: w. 28.3 cm, h. 4.2 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, kept in the storehouse. **Chronology**: uncertain; perhaps datable towards the (late?) second century AD, or to within the third century AD, if the hypothesis of a later revival of the Italic and Alexandrian style is accepted.

SAL 2.14 (Plate 39; Plans 18, 19). Column capital. Kalathos with circular section. The bottom of the capital features a torus with round profile, joined to the shaft. Two tiers of eight smooth leaves set on the top of the torus. The leaves are independent, round-shaped, with a bowed rounded lobe and a mid-rib. The leaves of the upper tier are placed at the interval among those of the lower tier. Smooth cauliculi with a slightly rounded profile and highlighted rim at the top (although they are not provided with a collar). They run vertically, placed at the interval of the upper tier's leaves, and set on the top of the lower leaves. The calyces are reduced in size; they are smooth and with a triangular profile. The helices and volutes springing from the calyces have a much simplified design. They present a flattened profile and are V-shaped, running obliquely and ending with very large and marked scrolls at their edges. Under the abacus, at the edge of the volutes, is a square decorative motif highlighted by a horizontal bar at the top. The abacus is

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formed by two fillets, with rounded corners. The axial motif is represented by a flat, undecorated disc. **State of preservation**: slight deterioration; the lobes of the leaves and the lateral edges of the calyx are slightly damaged. Two other examples are fragmented above the second tier. **Material**: bio-calcarenite of the oued Akreuch. **Measurements**: total h.: 45.7 cm; kalathos: h. 36.8 cm; shaft: Ø 38.4 cm, h. 1.2 cm; torus: Ø 41.9 cm, h. 3.2 cm; lower tier: Ø 37.3 cm, h. 12.8 cm; upper tier: h. 22.6 cm; abacus: h. 4.5 cm. **Examples and location**: three capitals not *in situ*. One of them lies on the floor in front of the entrance of the second *taberna* under the *capitolium*. The other two capitals are placed upside down on the ground between the south side of the *nymphaeum* and the mosque's perimeter wall. Judging by the compatible measurements, it is likely that they were associated with the bases ►**Sal 1.10**. **Parallels**: a capital with similar helices and volutes (taking the place of the original calyces) is found *in situ* at *Volubilis*, belonging to a pilaster at the west entrance to the piazza of the *capitolium* and datable to the first quarter of the third century, c. AD 217 (►**Vol 2.46**). The simplified design of the helices and volutes recalls also some sporadic capitals from *Numidia*, kept in the Musée de Carthage, dated to the Byzantine era, c. fifth to sixth century AD (Pinard 1951, 234, pls. 1-3). Another possible parallel is with a late (pre-Islamic?) capital from the region of Tiaret, Algeria (Cadenat 1979, 256, fig. 11). Other capitals in North Africa with simplified helices and volutes are reused in the Great Mosque of Kairouan, dated approximately to the post-Byzantine era (Harrazi 1982, 195-6, nos. 433-41). Capitals with similar helices and volutes can be found in Spain, in the archaeological museum and in the church of San José y Espíritu Santo at Cordoba, dated to the sixth-seventh centuries AD (Domingo Magaña 2011, 157, nos. 241-4). **Chronology**: uncertain; the parallel with the capital from *Volubilis* would suggest a dating to within the third century AD, although the other (less exact) parallels identified in the rest of north Africa and Spain have a much later chronology.

SAL 2.15 (Plate 39; Plan 18). Column capital. Kalathos with circular section. Two tiers of eight smooth leaves set at the base of the capital. The leaves are independent, slender and much flattened towards the kalathos. They have a round shape at the top, provided with a bowed, pointed lobe and a mid-rib. The leaves of the upper tier are placed at the interval among those of the lower tier. The cauliculi are long and smooth with a flat profile. They run vertically, placed at the interval of the upper tier's leaves and set on the

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top of the lower leaves. As a variation of the design of the normal Corinthian capital, the cauliculi are separated on the front side by two leaves rather than one. The helices and volutes, both running obliquely, spring directly from the cauliculi without any calyces. The helices are provided with large and marked scrolls at the edge, joined together in the middle. The abacus has rounded corners and is formed by two fillets. The axial motif features a circular shape without any decoration. **State of preservation**: advanced deterioration; fragmented at the bottom of the kalathos and at the edge of the volutes. **Material**: calcarenite. **Measurements**: total h.: 50.1 cm; kalathos: h. 43.2 cm; lower tier: Ø 36.9 cm, h. 19.8 cm; upper tier: h. 31.8 cm; abacus: h. 6.9 cm. **Examples and location**: one capital, not *in situ*, placed upside down on the floor at entrance of the second *taberna* under the *capitolium*, next to the Asiatic Corinthian capital ►**Sal 2.18**. **Chronology**: uncertain; apart from the peculiar position of the cauliculi and the absence of the calyces, the other decorative features are quite similar to other second century capitals with smooth leaves found at *Sala* (see ►**Sal 2.4-10**). It is possible that this capital represents just a variation of the more canonical type, with a similar dating.

SAL 2.16 (Plate 39; Plan 19). Pilaster capital. Kalathos with four-lobed section. Two tiers of smooth leaves set at the base of the capital. The lower tier has two frontal leaves; the upper tier has one frontal leaf and two lateral leaves, placed at the interval among the leaves of the lower tier. The leaves are independent, round-shaped and flattened towards the kalathos. They have a slightly bowed lobe at the top with rounded shape. Along the middle axis of each leaf is visible a marked mid-rib, with a triangular profile and highlighted by a vertical groove on each side. The cauliculi are represented by long, thin stems. They have a flat profile, running vertically, and are placed at the interval of the upper tier's leaves and set on the top of the lower leaves. At the top of the cauliculi is a small collar with a rather flattened profile. From the cauliculi springs a first set of calyces, with a slightly rounded profile and featuring an open V shape. The edges of the inner half-leaves are rolled and joined together in the middle. The outer half-leaves show a large scroll with carved spirals. Two additional sets of calyces spring from the first calyces, replacing the canonical helices and volutes of the "normal" Corinthian capital. They both have a flattened profile, an open V shape, and pointed edges. The abacus is reduced to a single thin fillet, almost invisible. The right-hand side of the block is

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decorated with a large lotus scroll, featuring a concave profile and provided with pointed leaves springing from the stem. It is likely that the decoration continued in the adjacent block, as the upper part of the lotus stem would indicate. **State of preservation**: advanced deterioration on the whole surface; fragmented at the upper corners of the block. **Material**: calcarenite. **Measurements**: total h.: 51.9 cm; kalathos: h. 49.1 cm; lower tier: w. 38.7 cm, h. 19.4 cm; upper tier: h. 35.3 cm; abacus: h. 2.8 cm. **Examples and location**: one capital, not *in situ*, placed on the ground in front of the central fornix of the arch, facing the east façade of the monument. Judging on the compatible measurements, it is very likely that it was part of the decoration of the arch. **Parallels**: capitals with three sets of calyces are a peculiar production of *Volubilis*, observable in many buildings across the site: for instance, examples also provided with smooth leaves belong to the arch of Caracalla, AD 216/217 (►**Vol 2.23**). More capitals with three calyces (and various types of acanthus leaves) can be found in the palace of Gordianus, c. AD 238-241 (e.g. ►**Vol 2.30-33**) and in the piazza of the *capitolium*, c. AD 217 (e.g. ►**Vol 2.35-38**). **Chronology**: the construction of the arch may be contemporary with the "basilica/*curia Ulpia*" and *capitolium* (reign of Trajan – early years of Hadrian's: Boube 1999, 18), or it may be dated slightly later during the reign of Antoninus Pius (Chatelain 1930, 339-40; 1944, 87-8).

Corinthian capitals with "acanthus mollis" (one example).

SAL 2.17 (Plate 40). Column capital. Kalathos with circular section. Two tiers of acanthus leaves set at the base of the capital (only the second tier is identifiable). The leaves show the typical features of the late Flavian – second-century Corinthian capitals of the western Mediterranean (see Heilmeyer 1970, 133-43; *Scavi di Ostia* VII, 217-8). They are flattened towards the kalathos and are provided with four side-leaflets, plus a top-leaflet slightly bent towards the front. The lobes of the leaflets are decorated with round-shaped folioles and are separated through small circular eyelets. The mid-rib of each leaf is represented by two vertical channels, running from the bottom and narrowing towards the top of the leaf. Two more channels (side ribs) are carved on both sides of the mid-rib; they follow the opposite pattern, narrowing towards the bottom of the leaf. From the interval among the leaves of the upper tier spring the cauliculi, set on the top of the lower tier's leaves. The stem of the cauliculi has a slightly rounded profile, provided with three

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vertical flutes with rounded top, covering the whole surface. At the top of the cauliculi is a very thin, flattened collar, almost indistinguishable from the stem. The calyces spring from the top of the cauliculi. They have a rounded profile and are decorated through carved grooves on their surface, although only the lower portion is still identifiable. From the top of the frontal leaf of the second tier springs a central calyx. It takes the form of a large leaf, or a tongue, with a much flattened profile, provided with a vertical groove along the middle axis. **State of preservation**: advanced deterioration; the capital is broken at the bottom and on the rear side; the lower tier of leaves, the helices and volutes, and the abacus are not preserved anymore. **Material**: white limestone (?). **Measurements**: max h. preserved: 42.3 cm; kalathos: max h. 35.4 cm; upper tier: max h. 23 cm; abacus: h. c. 6.7 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, currently found in the storehouse. **Parallels**: four capitals with similar acanthus leaves (with a large astragal at the bottom decorated with an Ionic *kymation*), made of local calcarenite, can be seen at *Banasa* along the *cardo maximus*. They originally belonged to the colonnade on the front of the "maison à la mosaïque de Vénus", dated to the mid-second century AD (►**Ban 2.23-25**). **Chronology**: a dating of this capital towards the mid- to the second half of the second century AD is confirmed by the parallels at *Banasa* and by the features of the acanthus leaves that recall the Roman official style diffused across North Africa through Carthage (see Harrazi 1982, 66-8; Pensabene 1986, 364-7).

Asiatic Corinthian capitals (three examples).

SAL 2.18 (Plate 40; Plan 18). Column capital. Kalathos with circular section, highlighted by a thin groove at the bottom and by a marked lip at the top. Two tiers of eight prickly acanthus leaves set at the base of the capital, rather flattened towards the kalathos surface. The lower leaves are adjoining at the base, formed by five lobes decorated with pointed folioles. Each leaf is provided with two long, curvilinear channels along the middle axis forming its mid-rib, and with two shorter channels at the sides. The leaves of the upper tier are placed at the interval among those of the lower tier. They are provided with three lobes only, separated by large, drop-shaped eyelets. The mid-rib is carved only in the upper half of the leaf, thus leaving the lower portion undecorated (recalling stylistic features first diffused in *Asia Minor* in the late Flavian era: Heilmeyer

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1970, 87, pl. 24.3; Vandeput 1997, 135, pl. 84.1). The cauliculi are much reduced in size and are placed at the interval of the upper tier's leaves, set on the top of the lower leaves. They show a sharp triangular profile, without any rim at the top, and they run vertically. The calyces spring from the top of the cauliculi, without any collars underlining them. They are long and vertical, with a flattened profile; the carving reproduces the shape of two acanthus half-leaves. The helices are small, much flattened towards the kalathos surface, and provided with a rounded profile. They run vertically and present rolled spirals at their edges. From the top of the second tier's central leaf springs a small leaf-shaped calyx with five lobes. It features a triangular profile, with a marked rib along its axis, and is joined to the inner half-leaves of the lateral calyces and to the edges of the helices at its sides. The abacus is formed by a cavetto moulding. A circular cramp hole can be seen on the lower surface of the capital. **State of preservation**: advanced deterioration; only half of the capital is preserved. It is broken longitudinally and at the corners of the abacus. The volutes and the axial motif are not preserved. **Material**: white marble (Proconnesian?). **Measurements**: total h.: 58.2 cm; kalathos: h. 51.4 cm; lower tier: Ø 43 cm, h. 20.2 cm; upper tier: h. 33 cm; abacus: h. 6.8 cm. **Examples and location**: one capital, not *in situ*, placed upside down on the floor inside the second *taberna* under the *capitolium*, near the north partition wall. **Parallels**: Asiatic Corinthian capitals with analogous features are common in North Africa. Two capitals are reused in the Great Mosque of Kairouan, dated approximately to the second half of the second century AD (Harrazi 1982, 80, nos. 85-6); one example is in the archaeological museum at Alexandria, dated to the late second century AD (Pensabene 1993, 399, pl. 49, no. 400). Various analogous capitals are at *Lepcis Magna*: from the Hadrianic baths, AD 137 (Pensabene 2001a, 119, figs. 74-5; Bianchi 2009, 49-51, figs. 2a-f, 5a-h), from the temple of Rome and Augustus (Pensabene 2001a, 68-9, fig. 17; Livadiotti and Rocco 2005, 298, figs. 2.72, 2.109a), and from the temple of *Liber Pater* (Masturzo 2005, 105-7, 155, 160, figs. 1.107-8, nos. A149, A287), belonging to the mid-second century restoration. Other capitals come from Spain: one capital is in the archaeological museum at Barcelona, c. second half of the second century AD (Gutiérrez Behemerid 1992, 148, no. 646: unknown provenance); another capital comes from Cordoba, c. second half of the second century AD (Márquez 1993, 157-8, pl. 90, no. 304: provenance unknown). **Chronology**: a dating to the Hadrianic period is suggested by the features of the capital: the carving of the leaves, with drop-shaped eyelets separating the

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lobes; the second tier of leaves not extended over half of the capital's total height and featuring mid-ribs that cover only the upper portion; and the presence of small, triangular cauliculi (see Fischer 1990, 40-1, pl. 9, type IBa, nos. 45-7; 1998, 64-5, tab. 2, no. 67; Pensabene 2001a, 68-9). A chronology within Hadrian's reign is also confirmed by the parallels identified at *Lepcis Magna*. The capital was probably moved in the *taberna* after the *capitolium* was converted into a dump in the fourth century AD (Boube 1966c, 28-9).

SAL 2.19 (Plate 40). Column capital, almost identical to ►**Sal 2.18**. Only a fragment of the upper part of the capital is preserved. Kalathos with circular section, provided with a highlighted lip at the top. A portion of the carved calyces, running vertically and with a flat profile, is visible. The helices are quite schematic, with a rounded profile and rolled edges. They are joined together in the middle through a flat, rectangular hyphen. The upper part of the leaf-shaped axial calyx, joined to the inner half-leaves of the calyces, is also preserved. **State of preservation**: advanced deterioration; the kalathos is broken underneath the upper part of the calyces; the volutes and the axial motif motif of the abacus are not preserved. **Material**: white marble (Proconnesian?). **Measurements**: Ø max 43.8 cm, h. max 26.7 cm; abacus: h. 9.1 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, kept in the storehouse. **Parallels**: for the carving of the upper part kalathos, see ►**Sal 2.18**. **Chronology**: datable towards Hadrian's reign (see the observations advanced for ►**Sal 2.18**).

SAL 2.20 (Plate 40). Column capital (?), similar to ►**Sal 2.18** but larger. Kalathos with circular section (?). Only a single fragment of the upper part of the capital is preserved. It features a portion of the carved calyces, formed by two acanthus half-leaves. They both run vertically and their volume is enhanced, giving them a more plastic and naturalistic effect. Underneath the calyces is the upper part of the cauliculi, featuring a triangular profile without any collars. A leaf-shaped axial calyx, joined to the inner half-leaves of the lateral calyces, is also visible. **State of preservation**: advanced deterioration of the whole surface; in a fragmentary state. **Material**: white marble (Proconnesian?). **Measurements**: w. max 42.2 cm, h. max 25.8 cm. **Examples and location**: one capital, not *in situ*, in the storehouse. **Parallels**: for the shape of the cauliculi and the axial calyx, see ►**Sal 2.18**. **Chronology**: datable towards Hadrian's reign (see ►**Sal 2.18**).

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Composite capitals (one example).

Composite capitals with fine-toothed acanthus (one example).

SAL 2.21 (Plate 40). Column capital. Kalathos with circular section, highlighted by a thick astragal at the bottom. The astragal has a rounded profile. It is decorated with a horizontal motif composed of small pointed leaves, separated by small circular eyelets, and running obliquely. Two tiers of eight fine-toothed acanthus leaves set on the top of the astragal. The lower leaves are adjoining and formed by five lobes. They are provided with two long vertical channels along the middle axis, reproducing a mid-rib, running from the bottom of the leaf towards the top. Two smaller channels are visible at the sides. The lobes of the leaves feature small, pointed folioles (or dentils) separated through small eyelets. The leaves of the upper tier are markedly bowed towards the front, and are placed at the interval among the leaves of the lower tier. Two main channels (mid-rib) are carved on their surface, covering only the upper half of the leaf and leaving the lower portion undecorated. The upper part of the kalathos, where the echinus and *kymation* were originally set, is highlighted by a thin lip. A circular cramp hole is visible in the middle of the lower surface of the capital. **State of preservation**: advanced deterioration; broken vertically and at the top of the kalathos. Echinus, volutes, abacus and axial motif are not preserved. **Material**: white marble. **Measurements**: total h.: c. 34.2 cm; kalathos: h. max 29.3 cm; astragal: Ø 34.3 cm, h. 4.9 cm; lower tier: h. 13.4 cm; upper tier: h. 20.7 cm. **Examples and location**: one capital, not *in situ* and of unknown provenance, kept in the storehouse. **Parallels**: similar Byzantine capitals with fine-toothed acanthus are largely diffused across North Africa and in the Mediterranean. Numerous identical capitals are reused in the Great Mosque of Kairouan (Harrazi 1982, 119-44, nos. 187-305), and in other mosques at Tunisi and Mahdia, as well as in the Great Mosque at Sfax (Harrazi 1982, 172; Pensabene 1986, 397). A large capital was recovered in the eastern basilica on the Byrsa hill at Carthage, belonging to the later occupation of the building (*Byrsa* III, 121-3, figs. 145-6). In the same city, a fragmented, figured (?) example comes from the church of Bir el Knissia (Ferchiou 1993, 234-5, fig. 16). **Chronology**: composite capitals with fine-toothed acanthus are a typical decoration of Constantinople, diffused all over the Mediterranean, dated from the second half of the fifth century to the early sixth century AD (Kautzsch

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1936, 115-39; Harrazi 1982, 172-5; Pensabene 1986, 397; Barsanti 1989, 141-50; Minguzzi 2000, 132-3).

Pseudo-lotus capitals (one example).

SAL 2.22 (Plate 40; Plan 17). Column capital. Kalathos with circular section, underlined by a torus with slightly rounded profile and a fillet underneath. Joined to the shaft, with one drum of the column still preserved. Two tiers of 12 smooth leaves with a plain surface, carved on a separate block (still in its original position above the torus); the lower tier is set on the top of the torus and the upper tier is set directly on the top of the lower tier's leaves. The leaves are independent and round-shaped; those of the upper tier are more slender and more bowed frontally. The upper part of the kalathos was originally carved on a separate block. **State of preservation**: medium deterioration on the surface; the upper part of the kalathos (with the volutes and helices) and the abacus are not preserved. **Material**: calcarenite. **Measurements**: total h. (including drum): 129.6 cm; kalathos: h. 51.2 cm; torus: Ø 81.2 cm, h. 10.1 cm; lower tier: h. 23.5 cm; upper tier: Ø 97.2 cm; h. 51.2 cm; shaft: Ø 67.2 cm, h. 13.6 cm. **Examples and location**: one capital, not *in situ*, standing on the ground outside the south-west side of the forum area. It was found while excavating a building later obliterated by the Roman paving, but the original context of provenance is unclear (Boube 1967, 334). It seems quite likely that it was found while excavating the subsoil layers. **References**: Boube 1967, 332-4, fig. 10; Thouvenot 1971a, 250, fig. 4; Euzennat and Hallier 1986, 81-2. **Parallels**: three similar capitals, missing the upper part of the kalathos as well, are found at *Banasa*: two of them, provided with two tiers of 21 (?) leaves, are positioned on the podium of the temple with seven *cellae* in the forum, and perhaps belong to its decoration (►**Ban 2.42**); the third capital, with tiers of 23 leaves, is reused in a wall of the "maison aux quatre piliers" (►**Ban 2.43**). **Chronology**: the original dating to the Mauretanian era (Boube 1967, 334; Thouvenot 1971a, 252-3) should be discarded. The features of a fourth capital from *Banasa*, where the upper kalathos (with schematic helices and volutes running horizontally) is preserved (►**Ban 2.41**), rather suggest a chronology towards the second half of the second century AD, or within the third century.

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CATALOGUE: *LIXUS*

The Catalogue counts 30 elements of architectural decoration: 25 bases and five capitals (Plates 41-43; Plans 20-23). These materials were recorded during the fieldwork carried out in September 2011 and September 2012, which involved a survey of all the excavated structures of the site. Some pieces from *Lixus* kept in the Musée de la Kasbah de Tanger and the Musée Archéologique de Tétouan are also included.

While undertaking the fieldwork during both seasons, most of the buildings were covered by a thick vegetation, in particular the *domus* of Helios and the *domus* of Mars and Rhea on the top of the Tchemmich hill, and the *garum* factories at its base. It is not to be excluded that some materials were (and still are) hidden by the vegetation, thus eluding their recording. In addition, the ancient buildings were systematically spoliated in the Islamic era, from the eleventh century onwards. It is likely that numerous architectural elements – perhaps including (now lost) marble decoration – were burnt in the limekilns found across the site. These two reasons explain the relatively small number of pieces described, if compared with the evidence from the other case studies.

1. BASES

Bases are divided in 16 types, grouped following this classification: cylindrical drum bases (►**Lix 1.1**); disc bases (►**Lix 1.2-3**); single-torus bases (►**Lix 1.4-10**); and Attic bases (►**Lix 1.11-16**). Among the Attic bases, three sub-groups are distinguished: Attic bases with plinth (►**Lix 1.11-12**); Attic bases without plinth (►**Lix 1.13-15**); and square Attic bases without plinth (►**Lix 1.16**).

Cylindrical drum bases (seven examples).

LIX 1.1 (Plate 41; Plan 20). Column base. High cylindrical drum. Joined to the shaft. **State of preservation**: marked level of deterioration; some examples are broken at the bottom. **Material**: sandstone. **Measurements**: total h.: 24.5 cm; drum: Ø 48 cm, h. 19 cm;

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shaft: Ø 36 cm, h. 5.5 cm. **Examples and location**: seven bases *in situ*, belonging to the colonnade of "*patio* D" flanking the west side of "temple F" (Ponsich 1981, 62, pl. 21). **Chronology**: the annexes of "temple F", where "*patio* D" is located, were probably modified at some point in the second to third century AD. The colonnade seems to belong to this later phase (Brouquier-Reddé *et al*. 2006, 2166, fig. 4).

Disc bases (two examples).

LIX 1.2 (Plate 41; Plan 21). Column base. Plinth and disc with four hyphens in conjunction with the corners of the plinth. Highlighted by a fillet at the top. Joined to the shaft. **State of preservation**: advanced deterioration; slightly fragmented at the corners of the plinth and at the top of the shaft. **Material**: sandstone. **Measurements**: total h.: 33.6 cm; plinth: w. 51.2 cm, h. 12 cm; disc: Ø 46.4 cm, h. 2.6 cm; fillet: h. 2.8 cm; shaft: Ø 32 cm, h. 11.5 cm. **Examples and location**: one base, not *in situ*, lying inside a basin of the *garum* factories (installation no. 1) at the base of the hill. **Chronology**: uncertain; the *garum* factories were built towards the end of the first century BC – early first century AD (Ponsich and Tarradell 1965, 11, 37), but the original setting of this base is unknown.

LIX 1.3 (Plate 41; Plan 20). Column base. Large disc crowned by a fillet. Joined to the shaft. **State of preservation**: advanced deterioration; broken at the right-hand side of the disc. **Material**: sandstone. **Measurements**: total h.: 29.7 cm; disc: Ø c. 56 cm (?), h. 6 cm; fillet: h. 3.2 cm; shaft: Ø 30.4 cm, h. 17.5 cm. **Examples and location**: one base, not *in situ*, on the ground of "corridor G" at the west limit of the "quartier des temples", likely belonging to the colonnade along its axis. **Chronology**: the construction of "corridor G" is contemporary with the annexes of "temple F" and the main phase of "temple G", c. second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164).

Single-torus bases (nine examples).

LIX 1.4 (Plate 41; Plan 20). Column base. Torus underlined by one fillet at the bottom and one at the top, followed by a *cyma reversa*. Joined to the shaft. **Material**: sandstone. **State of preservation**: advanced level of deterioration; broken at the top of the shaft.

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Measurements: total h.: 30.5 cm; lower fillet: h. 1.5 cm; torus: Ø 46.5 cm, h. 6.5 cm; upper fillet: h. 1.8 cm; *cyma reversa*: h. 3 cm; shaft: Ø 36.7 cm, h. 17.6 cm. **Examples and location**: one base, not *in situ*, on the ground of "thermes J" in the "quartier des temples", perhaps belonging to the colonnade of the room. **Parallels**: a similar base, not provided with the fillet under the torus and the *cyma reversa* at the top, comes from *Lepcis Magna*, c. second half of the first century AD (Mahler 2006, 219, pl. 89, no. 662: from the "*basilica Ulpia*" in *regio* V). Another base, with a high *cyma recta* at the top, is recorded in Spain at *Asturica Augusta*, undated (Escrivà Chover 2005, 38, no. T52). **Chronology**: the main construction phase of "thermes J" should date to the second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164; see also Thébert 2003, 263).

LIX 1.5 (Plate 41; Plan 20). Column base. Plinth, torus, fillet and reversed cavetto. Joined to the shaft. Some traces of white stucco are visible on the surface. **Material**: sandstone. **State of preservation**: marked level of deterioration on the whole surface. The second example is broken at the bottom. **Measurements**: total h.: 109.3 cm; plinth: w. 53.2 cm, h. 7.8 cm; torus: Ø 53 cm, h. 5.7 cm; fillet: h. 1.8 cm; cavetto: h. 5.3 cm; shaft: Ø 32.4 cm, h. 88.6 cm. **Examples and location**: two bases *in situ*, belonging to the *porticus* of "temple F" and likely associated with the Tuscan capitals ►**Lix 2.1**. **Parallels**: putative Tuscan capitals with profile identical to these bases are attested in *Tingitana*. At *Volubilis*, eight examples are scattered on the ground in front of the north side of the basilica (►**Vol 2.1**); another capital is in the south-west district, *insula* 40, and two others along the *decumanus maximus* (Jodin 1977, 307, figs. 5-6; 1987, 95, fig. 8Ac). At *Banasa*, three capitals can be found, not *in situ*, in the forum area and inside the *curia* (►**Ban 2.1-3**; Lézine 1955, 14, pl. 1, no. 6; Jodin 1977, 306). Another capital is in the forum at *Sala*, perhaps coming from the pre-Roman layers (►**Sal 2.2**). In North Africa, similar bases – with a fillet above the cavetto – are known at *Lepcis Magna*, dated to the first half of the first century AD (Mahler 2006, 219-20, pl. 90, nos. 664-7 TB: south-west of the *macellum*; west *porticus* of the *macellum*; north of the *Chalcidicum*; and in the Late Antique baths in *regio* V). Another base generically dated to the Imperial era is in Spain at Mataró, Barcelona (Escrivà Chover 2005, 17, no. T5: provenance unspecified). **Chronology**: "temple F" and its *porticus* were built in the second half of the first century AD (Lenoir, M. 1992, 282; Brouquier-Reddé *et al*. 2006, 2164-6; 2008, 136; Mugnai 2013, 168; Papi 2013, 805-6).

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LIX 1.6 (Plate 41; Plan 20). Column base, similar to ►**Lix 1.5** but slightly larger. Plinth, torus, fillet and reversed cavetto. Joined to the shaft. **Material**: sandstone. **State of preservation**: advanced deterioration; fragmented at the corners of the plinth. **Measurements**: total h.: 31.5 cm; plinth: w. 57 cm, h. 7 cm; torus: Ø 57 cm, h. 6.5 cm; fillet: h. 3.5 cm; cavetto: h. 5.5 cm; shaft: Ø 38.5 cm, h. 9 cm. **Examples and location**: one base, not *in situ*, on the ground at the north-west corner of the *porticus* around "temple F". **Parallels**: see ►**Lix 1.5**. **Chronology**: uncertain; perhaps contemporary with "temple F" and its annexes, c. second half of the first century AD (Lenoir, M. 1992, 282; Brouquier-Reddé *et al*. 2006, 2164-6; 2008, 136; Mugnai 2013, 168; Papi 2013, 805-6).

LIX 1.7 (Plate 41; Plan 20). Column base. Plinth, shallow torus shaped as a reversed quarter round, fillet, reversed *cyma recta* and upper fillet. Joined to the shaft. A square hole is visible on the top of the shaft. **Material**: sandstone. **State of preservation**: advanced deterioration; fragmented at the bottom of the plinth and broken vertically along the shaft on the rear side. **Measurements**: total h.: 36.4 cm; plinth: w. 58.5 cm, h. 9.5 cm; torus: Ø 51.5 cm, h. 5.4 cm; fillet: h. 0.5 cm; *cyma recta*: h. 2.5 cm; fillet: h. 1 cm; shaft: Ø 37.5 cm, h. 17.5 cm. **Examples and location**: one base, repositioned *in situ* on one of the pedestals of the colonnade along the middle axis of "building E" (east limit of the "quartier des temples"). **Parallels**: similar bases, with a reversed cavetto replacing the *cyma recta*, can be found in North Africa at *Lepcis Magna*, datable to the first half of the first century AD (Mahler 2006, 219-20, pl. 90, nos. 664-7 TB: south-west of the *macellum*; west *porticus* of the *macellum*; north of the *Chalcidicum*; and in the Late Antique baths in *regio* V). **Chronology**: the construction of "building E" is dated to the first half of the first century BC. It was obliterated by the later constructions of the district in the second half of the first century AD (Ponsich 1981, 52; Brouquier-Reddé *et al*. 2006, 2162-4).

LIX 1.8 (Plate 41; Plan 20). Column base. Plinth, high torus shaped as a reversed quarter round, fillet. Joined to the shaft. A thick layer of white stucco is visible on the surface. **Material**: sandstone. **State of preservation**: advanced deterioration; fragmented at the corners of the plinth. The second example is broken at the bottom. **Measurements**: total h.: 22.2 cm; plinth: w. 51.5 cm, h. 7.7 cm; torus: h. 8.5 cm; fillet: h. 3 cm; shaft: Ø 46 cm, h. 3 cm. **Examples and location**: two bases, not *in situ*, on the ground of the room

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opening on "corridor A", next to the wall at the southern limit of "temple G". They might belong to the colonnade of the room, perhaps associated with the Ionic capital ►**Lix 2.3** (Ponsich 1981, 62), although the measurements do not match perfectly. **Chronology**: the construction of "corridor A" should be contemporary with "temple F", c. second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164-6, fig. 4).

LIX 1.9 (Plate 42). Column base. Plinth, torus, fascia and fillet. Joined to the shaft. **Material**: sandstone. **State of preservation**: advanced deterioration; fragmented at the corners of the plinth and along the torus. **Measurements**: total h.: 24.7 cm; plinth: w. c. 46 cm, h. 7.5 cm; torus: w. c. 46 cm, h. 6.1 cm; fascia: h. 3.7 cm; fillet: h. 2.6 cm; shaft: Ø 32.5 cm, h. 3.7 cm. **Examples and location**: one base, not *in situ* and of unknown provenance, kept in the Musée Archéologique de Tétouan. **Chronology**: uncertain.

LIX 1.10 (Plate 42; Plan 21). Column base. Plinth, torus, fillet. Joined to the shaft. **Material**: sandstone. **State of preservation**: marked level of deterioration on the whole surface; broken at the bottom of the plinth and along the shaft. **Measurements**: total h.: 33.7 cm; plinth: w. 45.3 cm, h. 9 cm; torus: Ø 45.3 cm, h. 10.2 cm; fillet: h. c. 1 cm (?); shaft: Ø 35 cm, h. 11.2 cm. **Examples and location**: one base, not *in situ*, on the ground at the north limit of the *garum* factories (installation no. 1). **Chronology**: uncertain; the factories were built towards the late first century BC – early first century AD (Ponsich and Tarradell 1965, 11, 37), but the provenance of the base is unknown.

Attic bases (seven examples).

Attic bases with plinth (three examples).

LIX 1.11 (Plate 42; Plan 22). Tangent column base. Plinth, torus, scotia underlined by lower and upper fillets, second torus with the same diameter of the lower torus, fillet and reversed cavetto. Joined to the shaft. The mouldings in the right-hand portion of the base were not carved. **Material**: sandstone. **State of preservation**: marked deterioration; fragmented at the bottom of the plinth and at the top of the shaft. **Measurements**: total h.: 38.5 cm; base: h. 22.5 cm; plinth: w. 52.5 cm, h. 7 cm; lower torus: Ø 48.5 cm, h. 6 cm;

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scotia: h. 3 cm; fillets: h. 2 cm; upper torus: Ø 48 cm, h. 5.5 cm; fillet: h. 2 cm; cavetto: h. 2 cm; shaft: Ø 33.5 cm, h. 9 cm. **Examples and location**: one base *in situ*, at the south-east corner of the peristyle of the *domus* of Mars and Rhea. It may be associated with the Tuscan capital ►**Lix 2.2**, erroneously repositioned as a base on the pedestal next to this base. **Parallels**: similar bases, with plinth and both tori with the same diameter, are known at *Banasa* in the peristyle of the "maison de Fonteius", perhaps datable to the second century AD (►**Ban 1.9** and ►**Ban 1.16**). **Chronology**: the *domus* of Mars and Rhea was probably built at the end of the first – early second century AD, and destroyed around the mid-third century AD (Tarradell 1959, 61; Lenoir, M. 1992, 276).

LIX 1.12 (Plate 42; Plan 23). Engaged half-column base (pier with attached half-column and pilaster). High plinth, torus with trapezoidal profile, high scotia underlined by lower and upper fillets, second smaller torus. **Material**: limestone. **State of preservation**: slight level of deterioration. The upper torus of the second example is fragmented at the top. The pilaster bases at the lateral sides of the pier are broken and impossible to record. **Measurements**: total h.: 52.5 cm; base: h. 35.1 cm; plinth: w. 61.7 cm, h. 17.4 cm; lower torus: Ø 61.7 cm, h. 11.2 cm; scotia: h. 13.3 cm; fillets: h. 1.7-2.1 cm; upper torus: Ø 56.7 cm, h. 6.3 cm. **Examples and location**: two bases, repositioned *in situ* at the entrance to the *domus* of Helios. **Parallels**: similar half-column and pilaster bases, provided with high (decorated) plinth and high scotia, can be found at *Volubilis* at the east entrance to the *capitolium* piazza, datable to c. AD 217 (►**Vol 1.29-32**). Other bases are found in Spain at Xàbia, perhaps datable from the second half of the first century AD to the second half of the second century AD (Escrivà Chover 2005, 98, no. A140: from a fishing factory and *villa*). **Chronology**: the *domus* of Helios is contemporary with the *domus* of Mars and Rhea, built at the end of the first – early second century AD, and destroyed in the mid-third century AD (Tarradell 1959, 56-7; Lenoir, M. 1992, 276).

Attic bases without plinth (three examples).

LIX 1.13 (Plate 42; Plan 22). Column base. Torus, square-cut groove underlined by lower and upper fillets, second torus with the same diameter of the lower torus, and reversed cavetto. Joined to the shaft. **Material**: sandstone. **State of preservation**: marked

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level of deterioration; the lower torus and the shaft are fragmented. **Measurements**: total h.: 37.5 cm; base: h. 29.5 cm; lower torus: Ø 66.5 cm, h. 8 cm; square-cut groove: h. 3.5 cm; fillets: h. 2 cm; upper torus: Ø 66.5 cm, h. 8 cm; cavetto: h. 6 cm; shaft: Ø 42.5 cm, h. 8 cm. **Examples and location**: one base, not *in situ*, on the ground outside the *domus* of Mars and Rhea. **Parallels**: bases with similar profile are known in *Tingitana*. Numerous bases are at *Banasa*: 25 examples belong to the colonnade of the *porticus* in the forum (►**Ban 1.28-29**), c. early second century AD (Brouquier-Reddé *et al*. 2004, 1891-6); one larger base, not *in situ*, is on the podium of the temple with seven *cellae* (►**Ban 1.19**); three bases are in the peristyle of the "maison à la mosaïque de Vénus", c. mid-second century AD (Arharbi *et al*. 2001, 149; Camporeale 2004-05, 203) (►**Ban 1.31**). An isolated base is inside "temple B" at *Volubilis* (►**Vol 1.40**). A similar base is at *Sala* in the layers under the forum, c. mid-late first century BC (►**Sal 1.24**; Boube 1967, 322, fig. 11a). An undated base at *Thamusida*, not *in situ*, is inside the "insula aux piliers" (Camporeale 2008c, 218-9, type 21, fig. 7). Another base, dated to the reign of Juba II, was found at *Cotta* (Ponsich 1970, 211, fig. 56.1: base at the right-hand side). More parallels are in Spain: one at *Saguntum*, not *in situ*, c. Augustan period (Escrivà Chover 2005, 75, no. A96); and the second in a small settlement near Salinas de Rosío, c. early third century AD (Escrivà Chover 2005, 108, no. A157). **Chronology**: uncertain; if the base belonged to the *domus* of Mars and Rhea, one may advance a dating between the end of the first – early second century AD and the mid-third century AD (Tarradell 1959, 61; Lenoir, M. 1992, 276).

LIX 1.14 (Plate 42; Plan 21). Column base, similar to ►**Lix 1.13**. Torus, throat moulding underlined by lower and upper fillets, second torus with the same diameter of the lower torus, fillet, and reversed cavetto with flattened profile. Joined to the shaft. **Material**: sandstone. **State of preservation**: marked level of deterioration; the lower torus and the shaft are fragmented. Broken vertically. **Measurements**: total h.: 39.1 cm; base: h. 31.7 cm; lower torus: Ø 54 cm, h. 9.2 cm; throat moulding: h. 4 cm; fillets: h. 1.9-2 cm; upper torus: Ø 53.2 cm, h. 9.3 cm; fillet: h. 2.4 cm; cavetto: h. 6 cm; shaft: Ø 45.6 cm, h. 1.4 cm. **Examples and location**: one base, not *in situ*, on the ground at the base of the hill, towards the north limit of the *garum* factories (installation no. 1). **Parallels**: see ►**Lix 1.13**. **Chronology**: uncertain; perhaps contemporary with the construction of the factories, c. first century BC – early first century AD (Ponsich and Tarradell 1965, 11, 37).

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LIX 1.15 (Plate 43; Plan 20). Column base. Torus, throat moulding underlined by lower and upper fillets, second torus with the same diameter of the lower torus, fillet. Joined to the shaft. **Material**: sandstone. **State of preservation**: marked deterioration; fragmented along both the tori. **Measurements**: total h.: 36 cm; base: h. 22.5 cm; lower torus: Ø 50 cm, h. 6.5 cm; throat moulding: h. 4 cm; fillets: h. 2 cm; upper torus: Ø 50 cm, h. 7 cm; fillet: h. 1 cm; shaft: Ø 46.4 cm, h. 13.5 cm. **Examples and location**: one base, not *in situ*, now placed upside down on the ground along the colonnade of "building E". **Parallels**: see ►**Lix 1.13**. **Chronology**: uncertain; perhaps early first century AD (?).

Square Attic bases without plinth (one example).

LIX 1.16 (Plate 43; Plan 20). Column base. Torus, throat moulding underlined by lower and upper fillets, second torus with the same width of the lower torus, fillet. Joined to the shaft. **Material**: sandstone. **State of preservation**: marked level of deterioration; broken at the bottom of the lower torus. **Measurements**: total h.: 28.5 cm; base: h. 19.2 cm; lower torus: w. c. 66.4 cm, h. 6.2 cm; throat moulding: h. 2.5 cm; fillets: h. 2-2.7 cm; second torus: w. 68 cm, h. 7.2 cm; fillet: h. 2.1 cm; shaft: w. 57.5 cm, h. 8.8 cm. **Examples and location**: one base, not *in situ*, scattered on the ground inside "thermes J", next to the southern perimeter wall of "temple H". **Chronology**: uncertain; "thermes J" were probably built in the second half of the first century AD (Brouquier-Reddé *et al*. 2006, 2164; see also Thébert 2003, 263), but the original setting of this base is unknown.

2. CAPITALS

Capitals are divided in four types, belonging to two groups: Tuscan capitals (►**Lix 2.1-2**); and Ionic capitals (►**Lix 2.3-4**).

Tuscan capitals (three examples).

LIX 2.1 (Plate 43; Plan 20). Column capital. Neck, fillet, and echinus provided with a quarter round profile. Square abacus. Various traces of white plaster are visible on the

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whole surface. **Material**: sandstone. **State of preservation**: advanced deterioration; fragmented at the corners of the abacus and at the bottom of the shaft. **Measurements**: total: h. 28 cm; neck: Ø 33.2 cm, h. 4 cm; fillet: h. 3.5 cm; echinus: h. 11.5 cm; abacus: w. 49.5 cm, h. 9 cm. **Examples and location**: two capitals, not *in situ*, on the ground at the north-west corner of the *porticus* of "temple F". Due to the compatible measurements, they likely belonged to the colonnade of the *porticus*, associated with the bases ►**Lix 1.5**. **Parallels**: an identical capital is at *Sala*, belonging to the pre-Roman layers under the forum, c. second half – late first century BC (►**Sal 2.1**; Boube 1967, 322-4, pl. 18.2-3, figs. 8-9; Jodin 1977, 306-7, fig. 3). Another capital is at Mogador, datable to the period of Juba II (Jodin 1967, 52, pl. 20; 1977, 304-5, figs. 2-3). A similar capital is at *Volubilis*, reused as a base in a building east of the basilica (Boube 1967, 324, pl. 18, fig. 1); other examples from this town, interpreted as Tuscan capitals, are in the so-called "*curia*", in an *insula* of the west district, and in the storehouse (dated, rather arbitrary, to the pre-Roman era: Jodin 1977, 307-9, fig. 4; 1987, 95, fig. 8a-c). Similar capitals are known in North Africa: at *Bulla Regia*, one capital with identical profile (Ferchiou 1989a, 71, pl. 11a, fig. 13, no. III.IV.7), and another one with a fillet between the echinus and the abacus, both undated (Lézine 1955, 26, pl. 6, no. 7); *Caesarea*, c. first century AD (Pensabene 1982a, 49, pl. 43, no. 130: unknown provenance); in the region of *Segermes*, at Sidi Zid (Ferchiou 1995, 664-5, fig. 11), Ksar Soudane (Ferchiou 1995, 665, fig. 12), and at an unknown ancient site (Ferchiou 1995, 665, fig. 13), all undated. In Spain this type is known at *Ampurias*, late Republican to Augustan period (Gutiérrez Behemerid 1992, 18, nos. 10-1: *in situ*); Tarragona, first century AD (Gutiérrez Behemerid 1992, 18, no. 12: uncertain provenance); another piece (a base?) is at *Saguntum*, perhaps datable to the Julio-Claudian era (Escrivà Chover 2005, 25, no. T28: unknown provenance). **Chronology**: the construction of "temple F" and its *porticus* dates to the second half of the first century AD (Lenoir, M. 1992, 282; Brouquier-Reddé *et al*. 2006, 2164-6; 2008, 136; Mugnai 2013, 168; Papi 2013, 805-6).

LIX 2.2 (Plate 43; Plan 22). Column capital. Neck and fillet. The echinus has a torus profile. The abacus is no longer recognizable. A thick layer of red stucco is visible on the surface. **Material**: sandstone. **State of preservation**: advanced deterioration; broken at the top of the echinus and at the bottom of the shaft. **Measurements**: total h.: 50.6 cm; neck: Ø 32.2 cm, h. 27.7 cm; fillet: h. 1.7 cm; cavetto: h. 7.8 cm; echinus: Ø 48.3 cm, h. 7.7 cm.

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Examples and location: one capital, not *in situ*, likely belonging to the *domus* of Mars and Rhea. It has been erroneously repositioned as a column base on one of the pedestals of the peristyle; however, due to the compatible measurements, it may be associated with the base ►**Lix 1.11**. **Parallels**: three capitals with identical profile are attested at *Banasa*, not *in situ*, in the forum area and inside the *curia* (►**Ban 2.1-3**; Lézine 1955, 14, pl. 1, no. 6; Jodin 1977, 306). Other similar capitals are at *Volubilis*: eight examples of unknown provenance on the ground in front of the north side of the basilica (►**Vol 2.1**); one capital in the south-west district, *insula* 40, and two others along the *decumanus maximus* (Jodin 1977, 307, figs. 5-6; 1987, 95, fig. 8Ac). A last capital is found at *Sala*, not *in situ*, at the south-west edge of the forum, perhaps belonging to the pre-Roman period structures (►**Sal 2.2**). In North Africa numerous parallels can be identified at *Caesarea*, first to second century AD (Pensabene 1982a, 50-1, pls. 45-6, nos. 138-9: provenance unknown); *Lepcis Magna*, with a second fillet under the cavetto, first half of the first century AD (Mahler 2006, 171, pl. 49, no. 220 TK: found along the *decumanus*, south-west of the *macellum*); *Belalis Maior*, Tunisia, with three fillets at the bottom, c. first century AD (Ferchiou 1989a, 75, pl. 12, no. III.V.19a-b: one example close to the forum; a second from the "petite basilique"). Other similar capitals are known in Spain: at Seville (unknown provenance), *Saguntum* (north forum), *Ampurias* (street with *porticus*, *in situ*), Numancia (building 21, *in situ*) and Merida (citadel, *in situ*), all dated to the first century AD (Gutiérrez Behemerid 1992, 19, nos. 19-25); another piece, interpreted as a base, was recovered at Mataró, Barcelona (Escrivà Chover 2005, 17, no. T5: provenance unspecified). **Chronology**: probably datable towards the end of the first – early second century AD, contemporary with the construction of the *domus* of Mars and Rhea (Tarradell 1959, 61; Lenoir, M. 1992, 276).

Ionic capitals (two examples).

LIX 2.3 (Plate 43). Column capital. The abacus is square, with slightly rounded corners. It is flat on the frontal side of the capital, while on the lateral sides the profile is triangular and sharp. A groove with triangular section separates the abacus from the lower part of the capital. The channel of the volutes is represented by a straight and thin fillet, running horizontally. The volutes are well-developed in size, with a circular shape and with large spirals carved in the middle. The lateral *pulvini* have a simple conical

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shape, only slightly narrowing towards the centre; the *balteus* in the middle is formed by two vertical tori with rounded profile. On the front, the echinus is flat and represented by a semi-circular shape, taking the form of an egg. It is decorated in the middle with a circular button – a typical feature of the Ionic capitals of Punic-Hellenistic tradition (see Lézine 1960, 76-80). The contour of the echinus is highlighted by a marked rim. Joined to the shaft at the bottom. Several traces of white stucco are recognizable on various spots of the surface. **Material**: sandstone. **State of preservation**: advanced deterioration; the right-hand volute is damaged and the rear face of the capital is broken. **Measurements**: total h.: 20.8 cm; abacus: w. 50.4 cm, h. 5 cm; volutes: Ø 15.4 cm; echinus: h. 10.9 cm; shaft: Ø 34.8 cm. **Examples and location**: one capital, not *in situ*, kept in the Musée de la Kasbah de Tanger. It was found in the "quartier des temples", close to "corridor A", and it has been suggested that it might have belonged to the colonnade of that room (Ponsich 1981, 62). If so, it should be associated with the bases ►**Lix 1.8**, although the measurements do not match perfectly. **References**: Ponsich 1981, 62, pl. 22. **Parallels**: similar capitals are known in *Tingitana*. One example with undecorated echinus, highlighted by a marked rim and provided with carved spirals, was found at *Volubilis* in the Mauretanian layers under the Roman forum (Boube 1966b; 1967, 320, pl. 17.1-2). Two other undecorated capitals with a rather similar shape are known at *Sala* in the forum area, likely belonging to the entablature of "temple A" and datable to the mid/second half of the first century BC (►**Sal 2.3**; Boube 1967, 320, 328-30, 348-52; 1999, 16). In North Africa, a similar undated capital with triangular-shaped echinus (not provided with a button in the middle) comes from *Caesarea* (Pensabene 1982a, 56, pl. 53, no. 159: from the theatre). Another close parallel is with a capital with triangular echinus and central button from *Lepcis Magna*, c. first century BC (Mahler 2006, 1645, no. 166 IdK: uncertain provenance). One capital with similar profile belongs to the Numidian mausoleum of *Siga*, Tunisia, dated to the second century BC (Rakob 1979, 150-1, fig. 77). Another example from Tunisia, with carved spirals and undecorated echinus, comes from *Tacape* (Ferchiou 1989a, 140-1, pl. 32a, no. V.VIII.E.1: uncertain provenance and dating). One undated capital with identical volutes and echinus, decorated with a schematic fleuron in the middle, is currently kept in the Bardo Museum (Ferchiou 1989a, 144, pl. 33, no. V.VIII.F.2: provenance unknown). Later capitals, with a semi-circular echinus decorated with a large fleuron in the middle, also provided with an astragal featuring an Ionic *kymation*, come from *Gigthis*, perhaps datable

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to the second century AD (Constans 1916, 111-2, fig. 1; Lézine 1960, 76-7, fig. 39; Ferchiou 1989a, 167-8, pl. 45, no. V.XII.C.1: from the forum area). **Chronology**: uncertain; perhaps datable in the second half of the first century AD, contemporary with the construction of "temple F" and its annexes in the district (Lenoir, M. 1992, 282; Brouquier-Reddé *et al*. 2006, 2164-6; 2008, 136; Mugnai 2013, 168; Papi 2013, 805-6).

LIX 2.4 (Plate 43). Column capital, quite similar to ►**Lix 2.3**. The abacus is tripartite: a fillet at the top, followed by a fascia with slightly rounded profile (quite similar to a torus-like moulding), and another fillet at the bottom. The volutes are circular and reduced in size, not provided with the canonical horizontal channel. They are highlighted by a marked rim along their contour. They are not provided with carved spirals, featuring only a circular button in the middle. The *pulvini* on the lateral sides are shaped as simple cones, only slightly narrowing in the middle, and the *balteus* takes the form of a single torus. The echinus is large, with a semi-circular shape. It is also highlighted by a marked rim along its contour and the central part is decorated with a circular button (typical of Ionic capitals of Punic-Hellenistic tradition: Lézine 1960, 76-80). Joined to the shaft at the bottom. Traces of white stucco are visible on the surface. **Material**: sandstone. **State of preservation**: advanced deterioration; the right-hand corner of the abacus and the volute underneath are broken. **Measurements**: total h.: 33.5 cm; abacus: w. 51.5 cm, h. 9.2 cm; volutes: Ø 10.4 cm; echinus: h. 14.5 cm. **Examples and location**: one capital, not *in situ*, found in the *domus* of Mars and Rhea (now kept in the Musée Archéologique de Tétouan). **References**: Tarradell 1959, 78, pl. 40; Boube 1967, 318-20, pl. 17.3. **Parallels**: see ►**Lix 2.3**. **Chronology**: a dating to the Mauretanian period, as initially suggested (Boube 1967, 318-9), would not match the chronological phases of the *domus* of Mars and Rhea. The capital is more likely datable towards the end of the first – early second century AD, contemporary with the construction of the house (Tarradell 1959, 61; Lenoir, M. 1992, 276).

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SUMMARY TABLE

The table below summarizes the main information about the architectural decoration described in the Catalogue. The types are listed in the first column according to the site acronym (Vol = *Volubilis*; Ban = *Banasa*; Sal = *Sala*; Lix = *Lixus*) and type number criteria. In the second column is indicated the concordance between the Catalogue number and the number given to each example of the same type during the recording (each number corresponds to one piece). For the decoration kept in the archaeological museums, an acronym is indicated in brackets: MAR = Musée Archéologique de Rabat; MAT = Musée Archéologique de Tétouan; MKT = Musée de la Kasbah de Tanger. The third column provides a synthetic description of the type of decoration.

No.	Recording no(s).	Type of decoration
Vol 1.1	107-12; 114-6; 124; 126-9; 342-5	*Attic base with plinth*
Vol 1.2	113	*Attic base with plinth*
Vol 1.3	123	*Attic base with plinth*
Vol 1.4	285	*Attic base with plinth*
Vol 1.5	117-22; 125; 340-1; 346	*Attic base with plinth*
Vol 1.6	105-6	*Attic base with plinth*
Vol 1.7	366	*Attic base with plinth*
Vol 1.8	271	*Attic base with plinth*
Vol 1.9	228-9	*Attic base with plinth*
Vol 1.10	359-60	*Attic base with plinth*
Vol 1.11	361-2	*Attic base with plinth*
Vol 1.12	239-42; 249-51	*Attic base with plinth*
Vol 1.13	168-70	*Attic base with plinth*

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Vol 1.14	171	*Attic base with plinth*
Vol 1.15	308-22	*Attic base with plinth*
Vol 1.16	37	*Attic base with plinth*
Vol 1.17	383-7	*Attic base with plinth and moulded pedestal*
Vol 1.18	268-70	*Attic base with plinth, joined to the shaft*
Vol 1.19	83-4	*Attic base with plinth, joined to the shaft*
Vol 1.20	85-6	*Attic base with plinth, joined to the shaft*
Vol 1.21	89-90; 95-6	*Attic base with plinth, joined to the shaft*
Vol 1.22	91-2	*Attic base with plinth, joined to the shaft*
Vol 1.23	73-4; 87-8	*Attic base with plinth, joined to the shaft*
Vol 1.24	3-14	*Attic base with plinth, joined to the shaft*
Vol 1.25	1	*Attic base with plinth, joined to the shaft*
Vol 1.26	347-9	*Attic base with plinth, joined to the shaft*
Vol 1.27	38-52	*Attic base with plinth, joined to the shaft*
Vol 1.28	33-6	*Attic base with plinth, joined to the shaft*
Vol 1.29	75	*Attic base with decorated plinth*
Vol 1.30	77	*Attic base with decorated plinth*
Vol 1.31	76	*Attic base with decorated plinth*
Vol 1.32	78	*Attic base with decorated plinth*
Vol 1.33	93-4	*Attic base with decorated plinth, joined to the shaft*
Vol 1.34	97	*Attic base with decorated plinth, joined to the shaft*
Vol 1.35	98	*Attic base with decorated plinth, joined to the shaft*
Vol 1.36	351; 353	*Attic base without plinth*
Vol 1.37	350; 352	*Attic base without plinth*

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Vol 1.38	371-2	*Attic base without plinth*
Vol 1.39	101	*Attic base without plinth*
Vol 1.40	287	*Attic base without plinth, joined to the shaft*
Vol 1.41	364-5; 380-1	*Attic base without plinth, joined to the shaft*
Vol 1.42	373-4	*Attic base without plinth, joined to the shaft*
Vol 1.43	334-5	*Attic base without plinth, joined to the shaft*
Vol 1.44	291-300	*Attic base without plinth, joined to the shaft*
Vol 1.45	15-22; 24-32	*Attic base without plinth, joined to the shaft*
Vol 1.46	23	*Attic base without plinth, joined to the shaft*
Vol 1.47	79-80	*Attic base without plinth, joined to the shaft*
Vol 1.48	81	*Attic base without plinth, joined to the shaft*
Vol 1.49	99-100	*Attic base without plinth, joined to the shaft*
Vol 2.1	231-8	*Tuscan capital*
Vol 2.2	286	*Tuscan capital*
Vol 2.3	323-32	*Ionic capital*
Vol 2.4	53-7; 218	*Corinthian capital with smooth leaves*
Vol 2.5	368; 370; 376; 394	*Corinthian capital with smooth leaves*
Vol 2.6	58-69	*Corinthian capital with smooth leaves*
Vol 2.7	230	*Corinthian capital with smooth leaves*
Vol 2.8	205-6; 208-12	*Corinthian capital with smooth leaves*
Vol 2.9	204	*Corinthian capital with smooth leaves*
Vol 2.10	207	*Corinthian capital with smooth leaves*
Vol 2.11	245-8	*Corinthian capital with smooth leaves*
Vol 2.12	104; 302	*Corinthian capital with smooth leaves*

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Vol 2.13	301	*Corinthian capital with smooth leaves*
Vol 2.14	304	*Corinthian capital with smooth leaves*
Vol 2.15	303	*Corinthian capital with smooth leaves*
Vol 2.16	307	*Corinthian capital with smooth leaves*
Vol 2.17	72	*Corinthian capital with smooth leaves*
Vol 2.18	166	*Corinthian capital with smooth leaves*
Vol 2.19	71	*Corinthian capital with smooth leaves*
Vol 2.20	70	*Corinthian capital with smooth leaves*
Vol 2.21	161-2; 165; 167	*Corinthian capital with smooth leaves*
Vol 2.22	163-4	*Corinthian capital with smooth leaves*
Vol 2.23	243-4	*Corinthian capital with smooth leaves*
Vol 2.24	277; 279	*Corinthian capital with smooth leaves*
Vol 2.25	278	*Corinthian capital with smooth leaves*
Vol 2.26	276	*Corinthian capital with smooth leaves*
Vol 2.27	284	*Corinthian capital with smooth leaves*
Vol 2.28	283	*Corinthian capital with smooth leaves*
Vol 2.29	2	*Corinthian capital with "group 1" acanthus*
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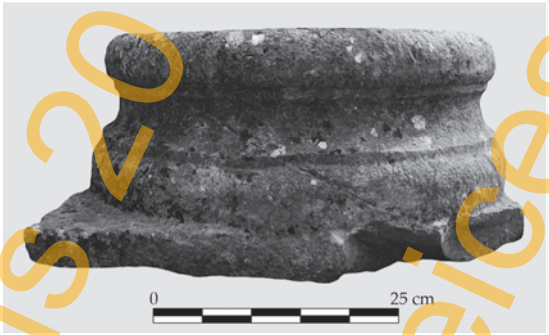

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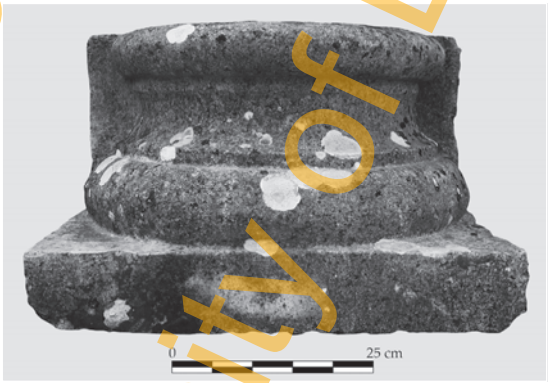

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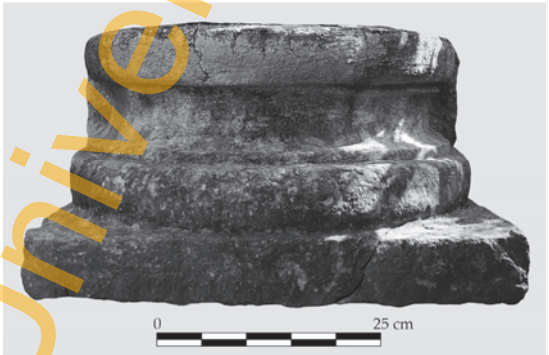

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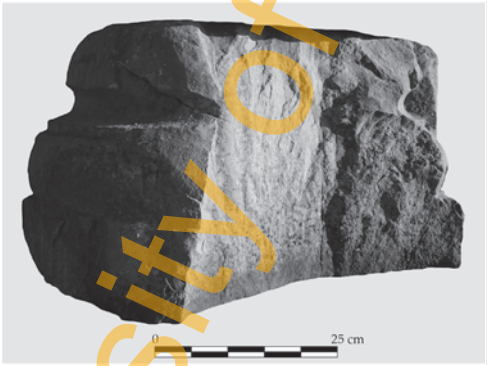

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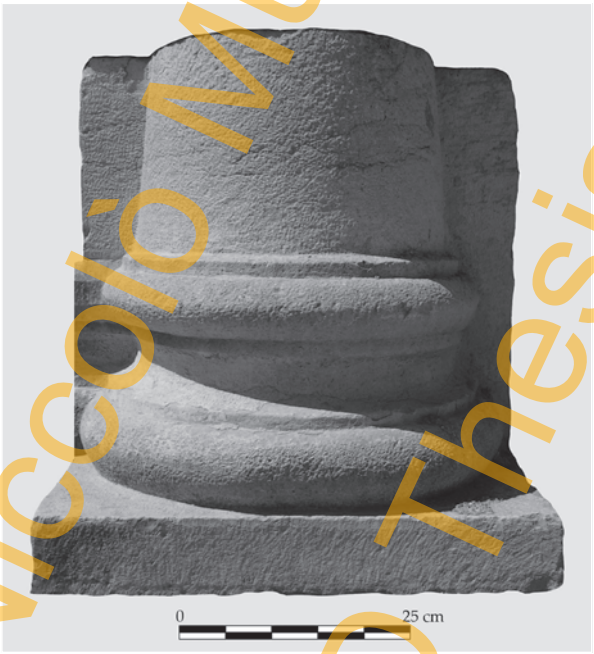

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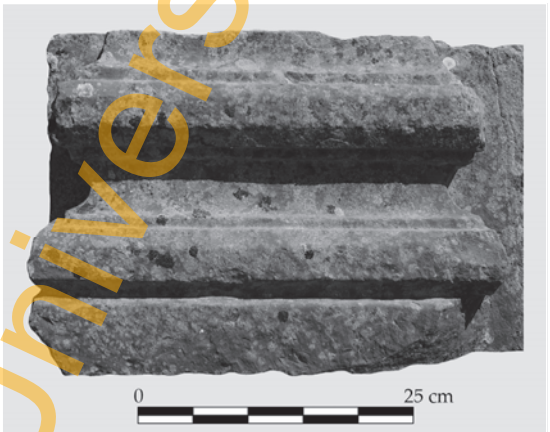

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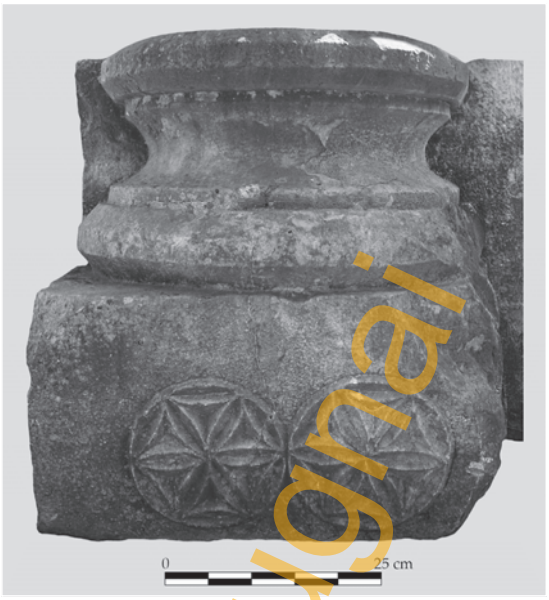

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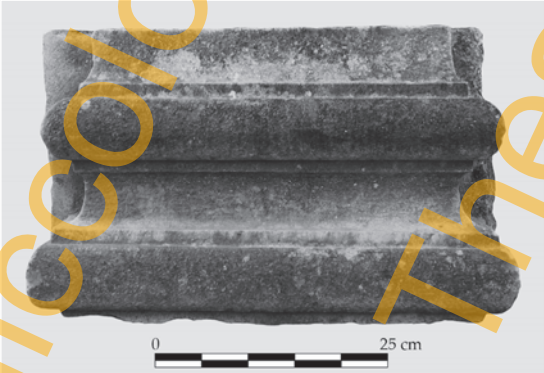

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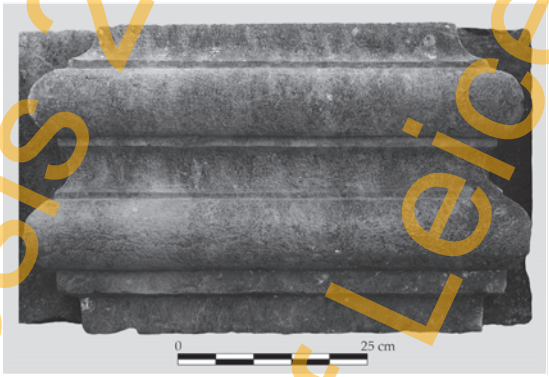

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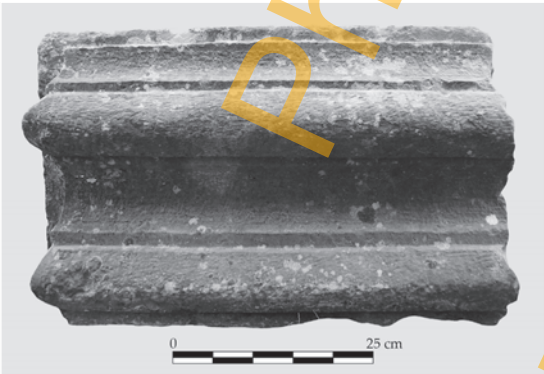

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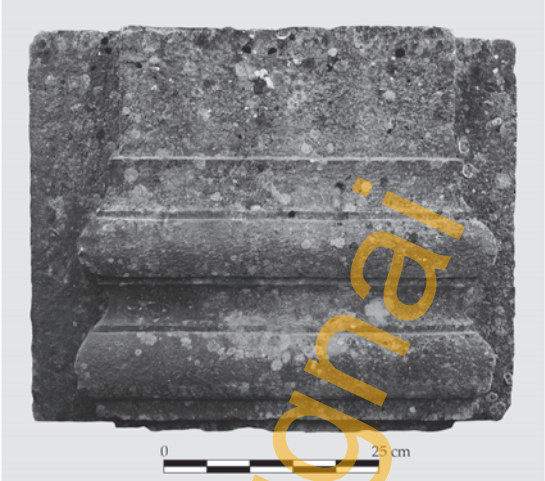

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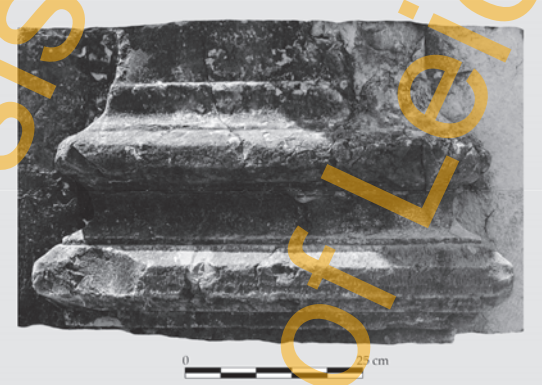

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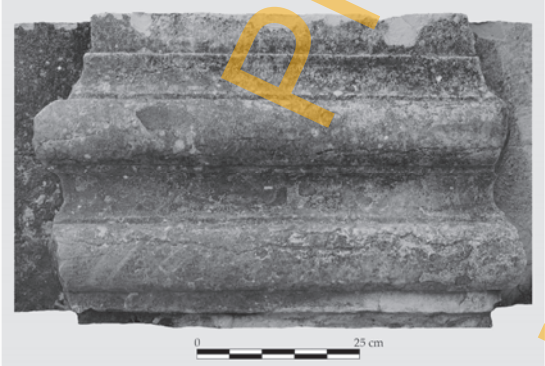

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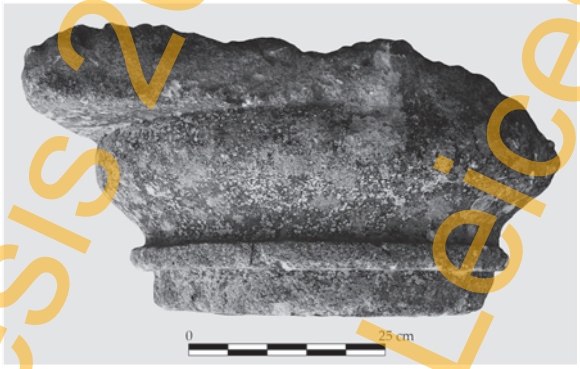

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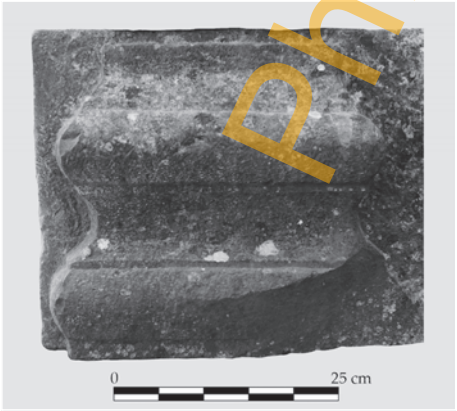

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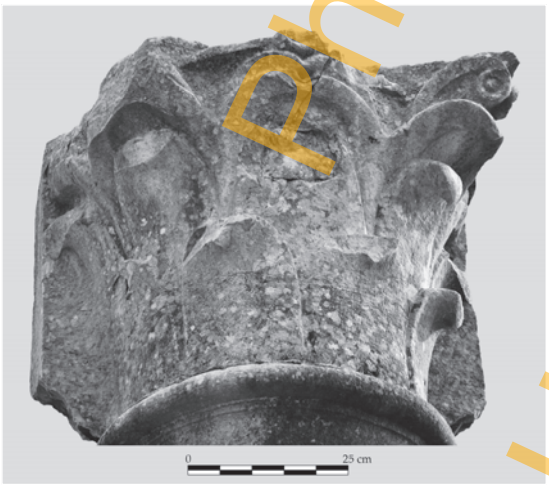

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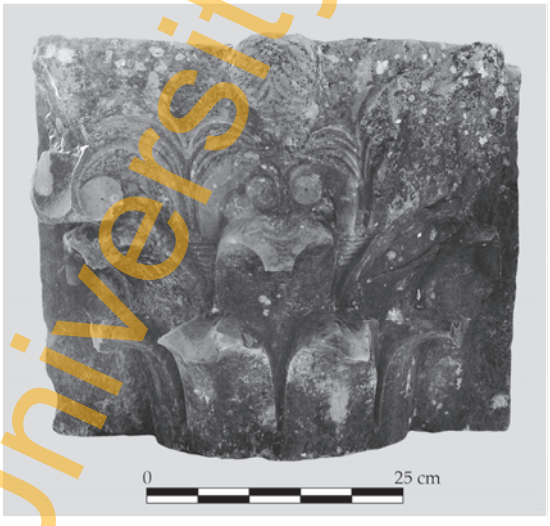

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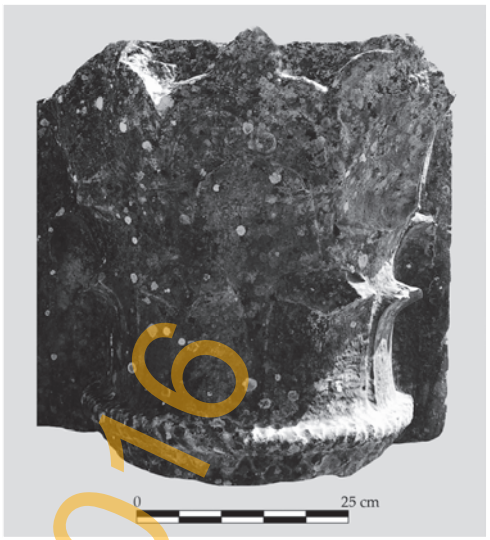

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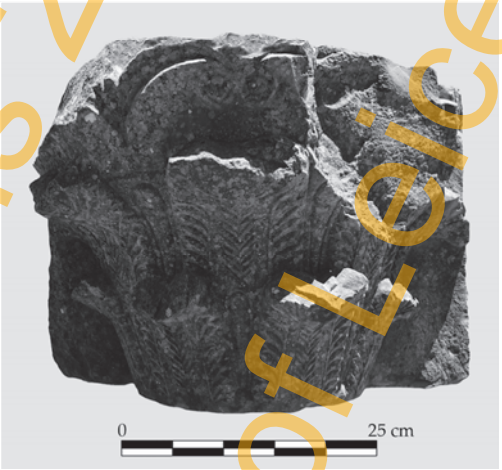

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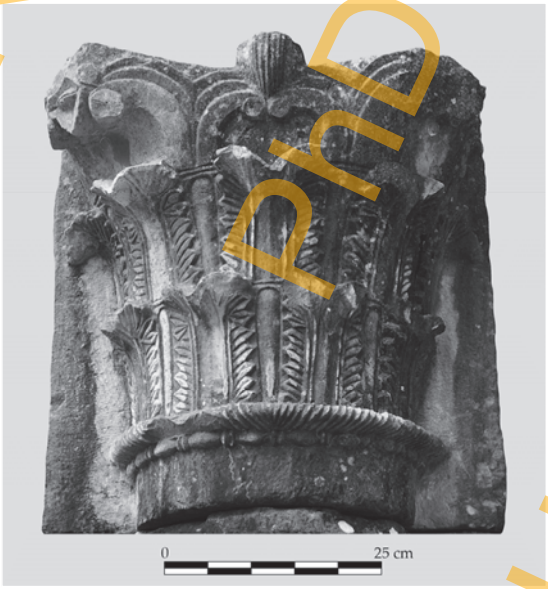

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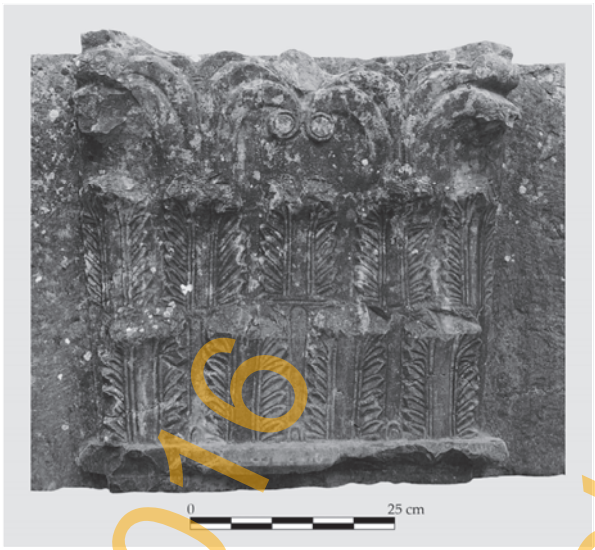
Volubilis: Corinthian capitals with "group 2" acanthus (**Vol 2.38-41**);
Corinthian capitals with "group 3" acanthus (**Vol 2.42-43**)

Vol 2.44



Vol 2.45

Vol 2.46

Vol 2.47

Vol 2.48

Vol 2.49

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Volubilis: Corinthian capitals with "group 3" acanthus (**Vol 2.44-48**);
Corinthian capital with "group 4" acanthus (**Vol 2.49**)

Vol 2.50

Vol 2.51

Vol 2.52

Vol 2.53

Vol 2.54

Vol 2.55

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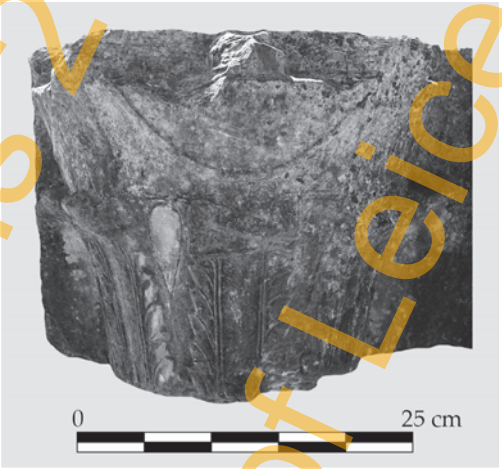
Volubilis: Corinthian capitals with "group 4" acanthus (**Vol 2.50-52**);
Corinthian capitals with "group 5" acanthus (**Vol 2.53-55**)

Vol 2.56

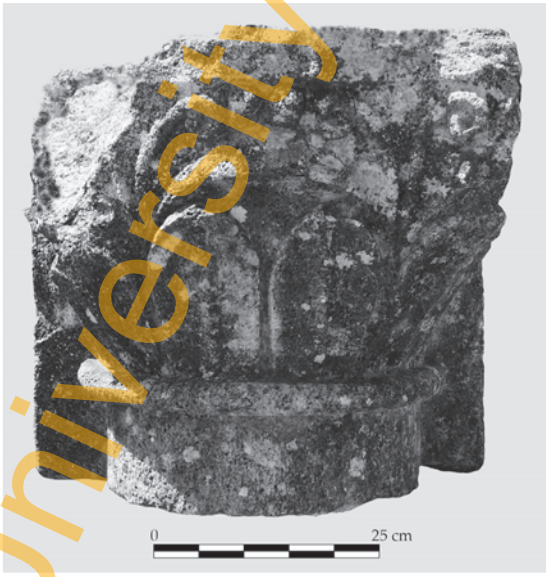
Vol 2.57

Vol 2.58



Vol 2.59

Vol 2.60



Vol 2.61

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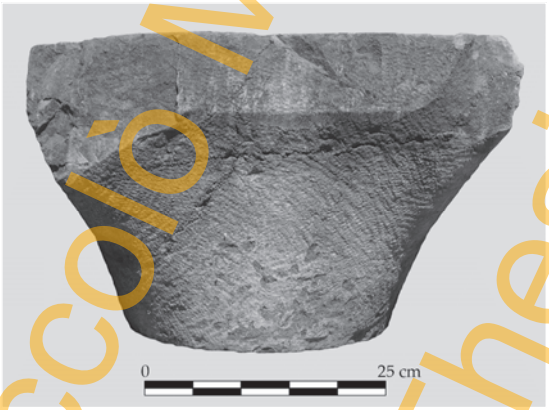
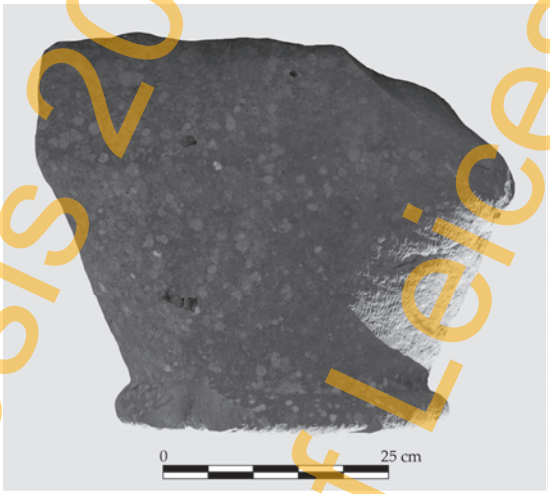
Volubilis: Corinthian capital with "group 5" acanthus (**Vol 2.56**); composite capitals with "group 3" (**Vol 2.57**) and"group 5" acanthus (**Vol 2.58**); pseudo-Corinthian capitals with "group 3" acanthus (**Vol 2.59**) and water plant leaves (**Vol 2.60-61**)

Vol 2.62

Vol 2.63



Vol 2.64



Vol 2.65

Vol 2.66

Vol 2.67

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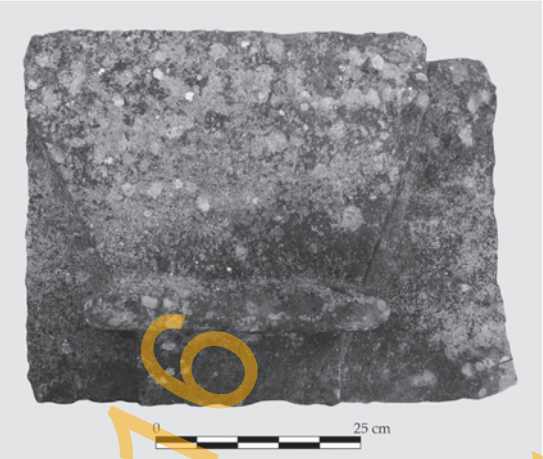
Volubilis: Pseudo-Corinthian capital with water plant leaves (**Vol 2.62**); tronco-pyramidal capital (**Vol 2.63**); smooth pseudo-impost capitals (**Vol 2.64-67**)

Vol 2.68



Vol 2.69

Vol 2.70

Vol 2.71

Vol 2.72

Vol 2.73

Volubilis: Smooth pseudo-impost capitals (**Vol 2.68-70**);
pseudo-impost capitals with Corinthian-Ionic motifs (**Vol 2.71-73**)

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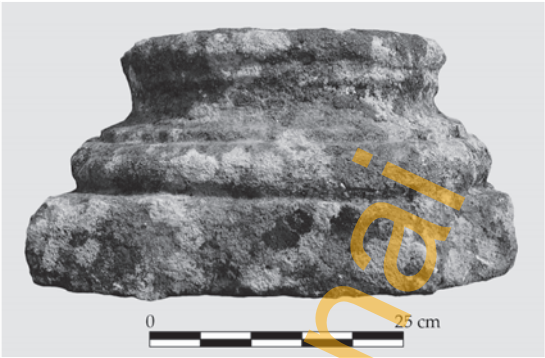
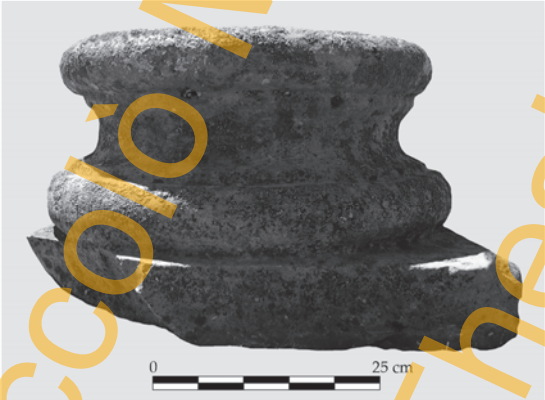


Ban 1.1

Ban 1.2



Ban 1.3

Ban 1.4

Ban 1.5

Ban 1.6

Banasa: Attic bases with plinth (**Ban 1.1-5**); Attic base with plinth, joined to the shaft (**Ban 1.6**)

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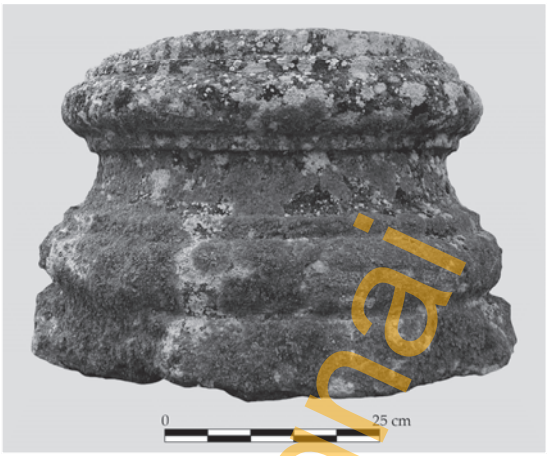
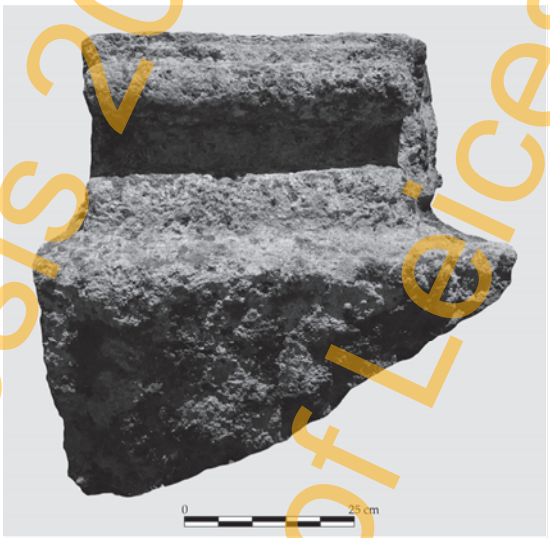


Ban 1.7

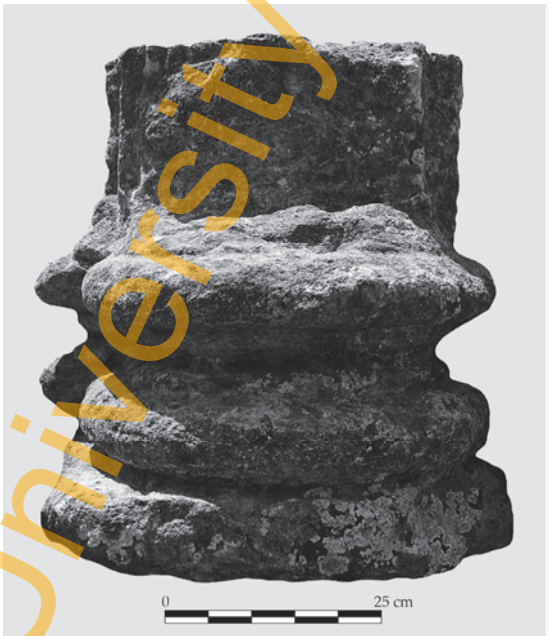
Ban 1.8

Ban 1.9



Ban 1.10

Ban 1.11



Ban 1.12

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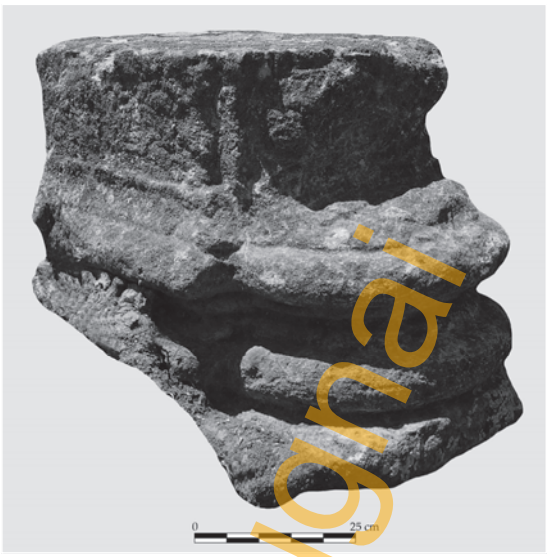
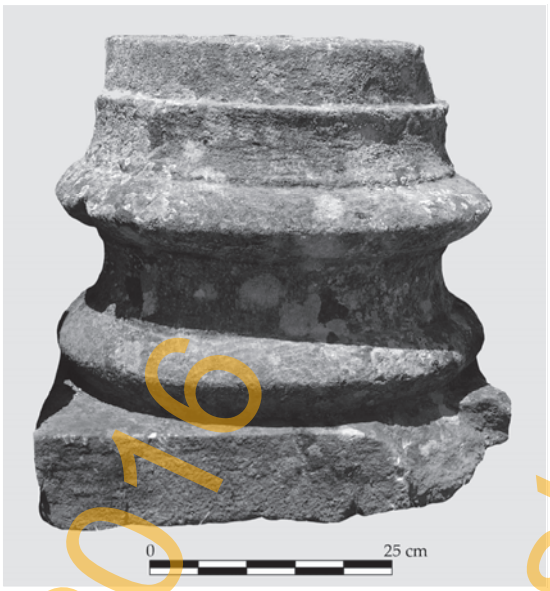
Banasa: Attic bases with plinth, joined to the shaft (**Ban 1.7-12**)



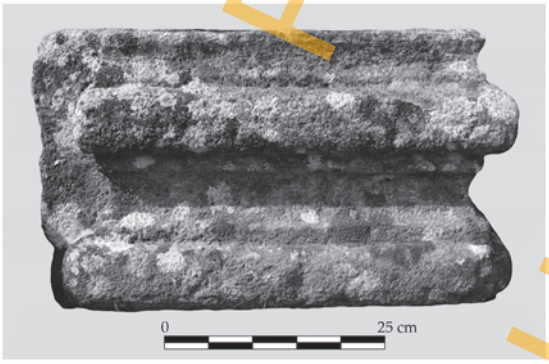
Ban 1.13



Ban 1.14

Ban 1.15

Ban 1.16



Ban 1.17

Ban 1.18

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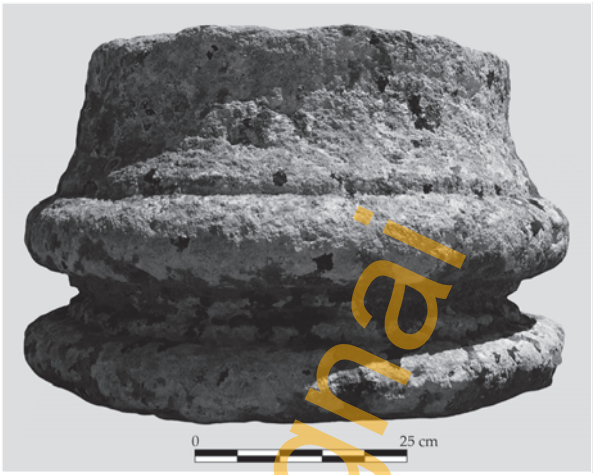
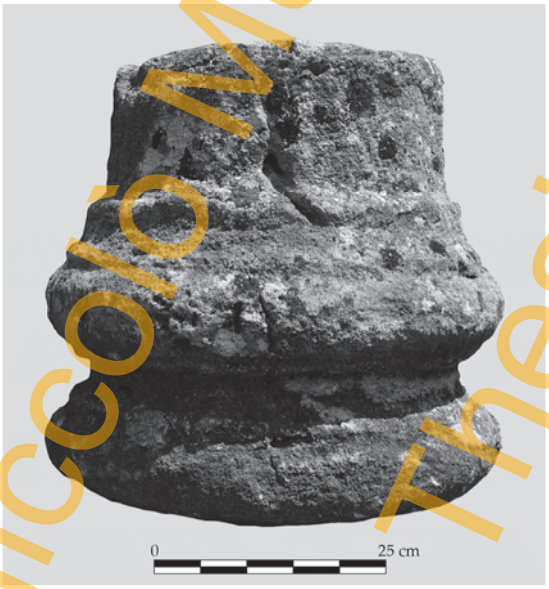
Banasa: Attic bases with plinth, joined to the shaft (**Ban 1.13-16**); Attic base without plinth (**Ban 1.17**); Attic base without plinth, joined to the shaft (**Ban 1.18**)

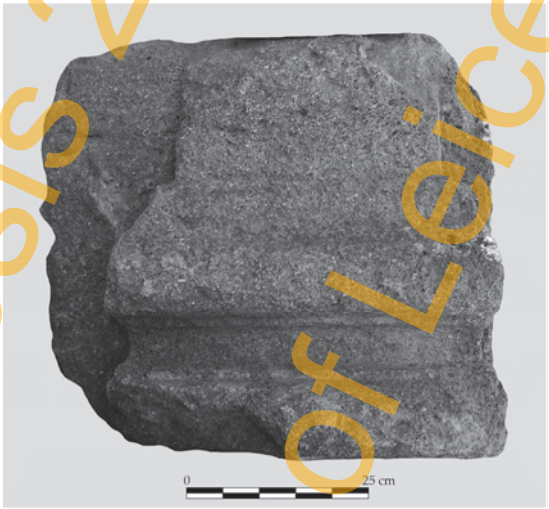


Ban 1.19

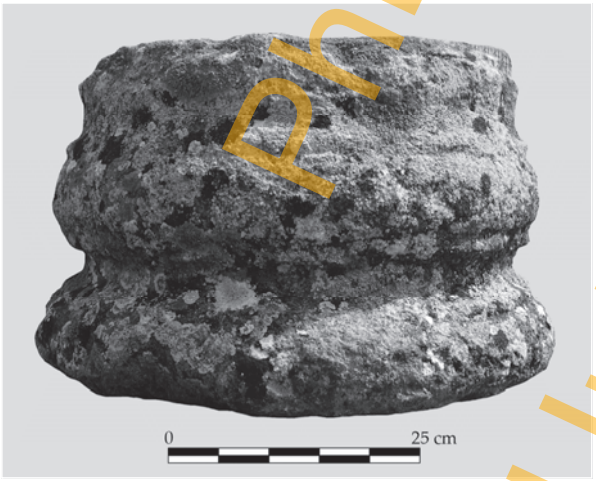
Ban 1.20



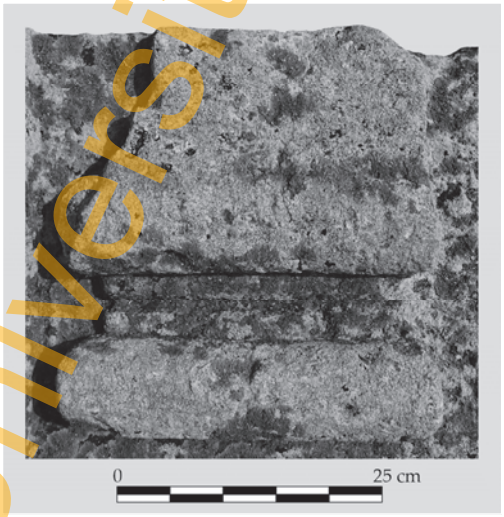
Ban 1.21



Ban 1.22



Ban 1.23



Ban 1.24

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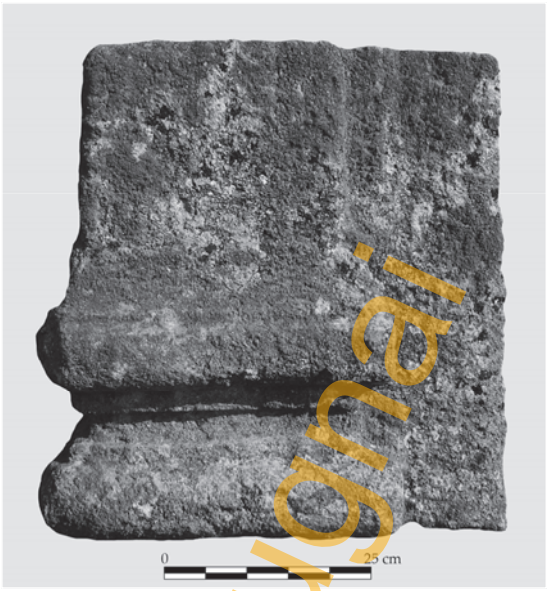
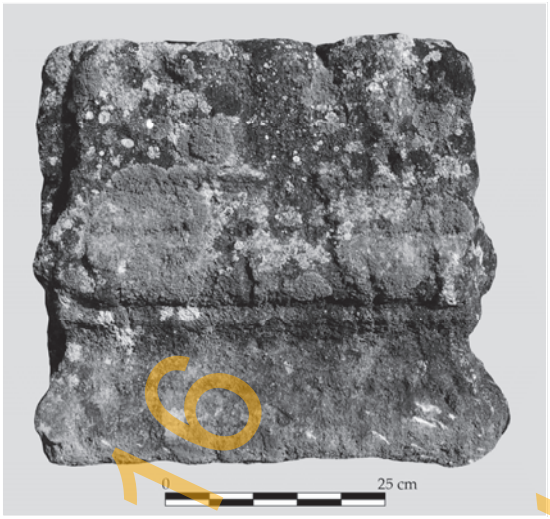
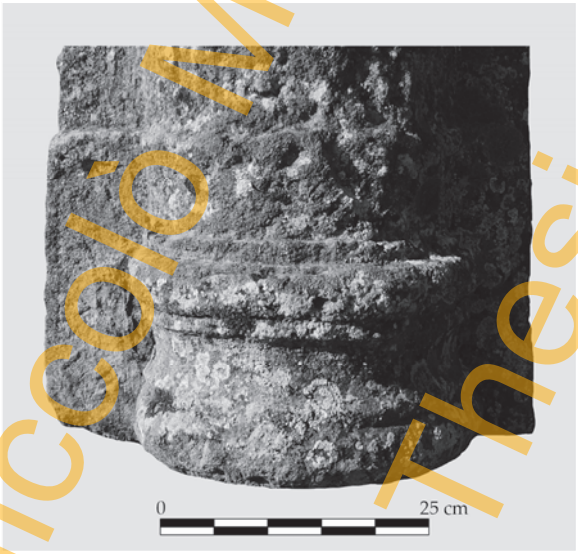
Banasa: Attic bases without plinth, joined to the shaft (**Ban 1.19-24**)



Ban 1.25

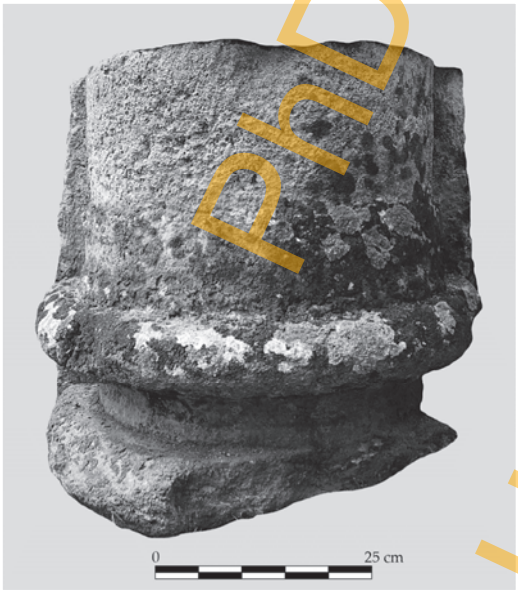


Ban 1.26

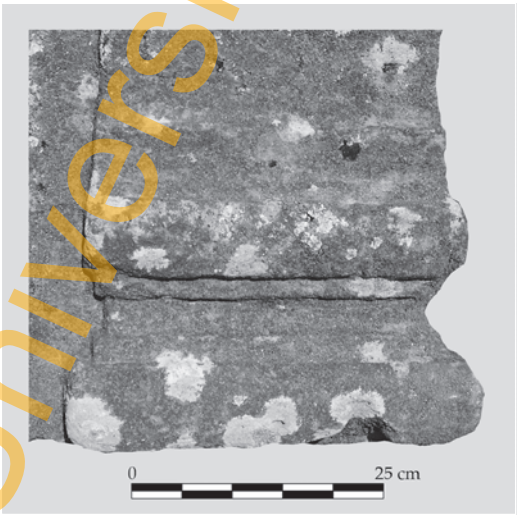


Ban 1.27

Ban 1.28



Ban 1.29



Ban 1.30

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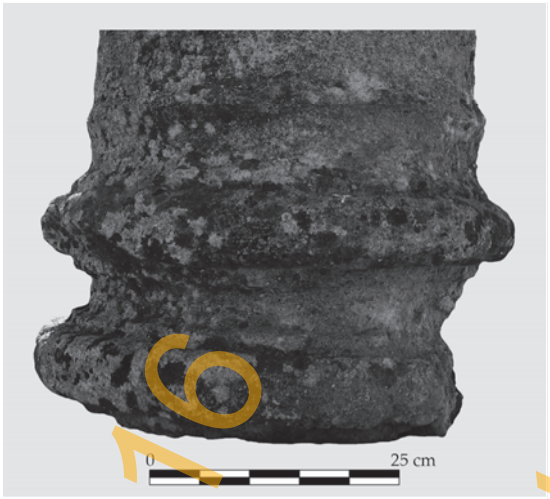
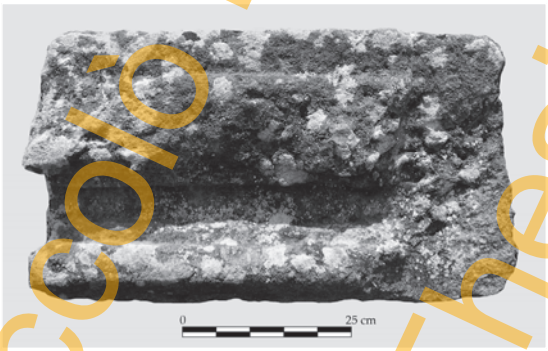
Banasa: Attic bases without plinth, joined to the shaft (**Ban 1.25-30**)

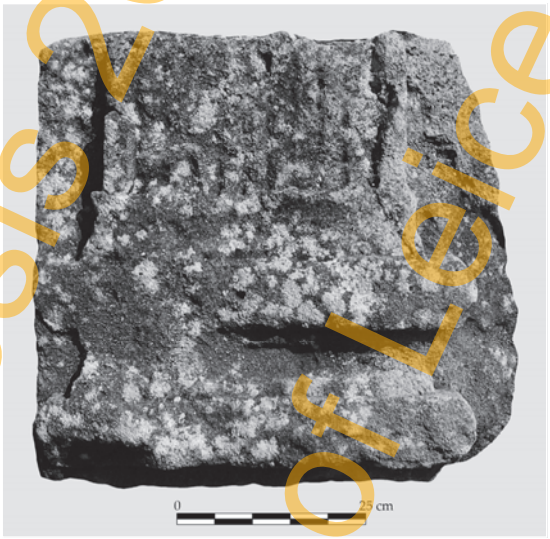
Ban 1.31



Ban 1.32

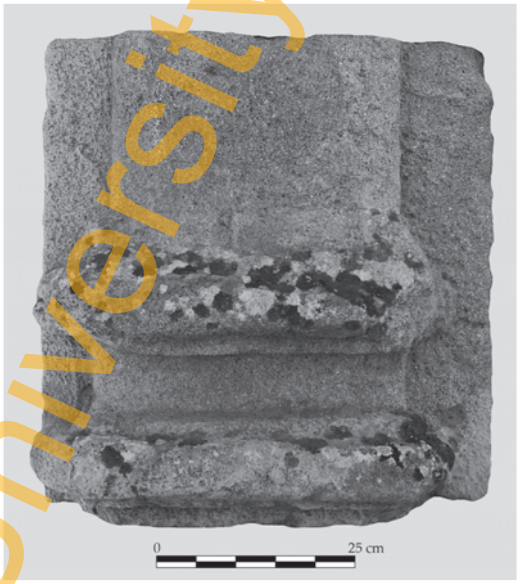


Ban 1.33



Ban 1.34

Ban 1.35



Ban 1.36

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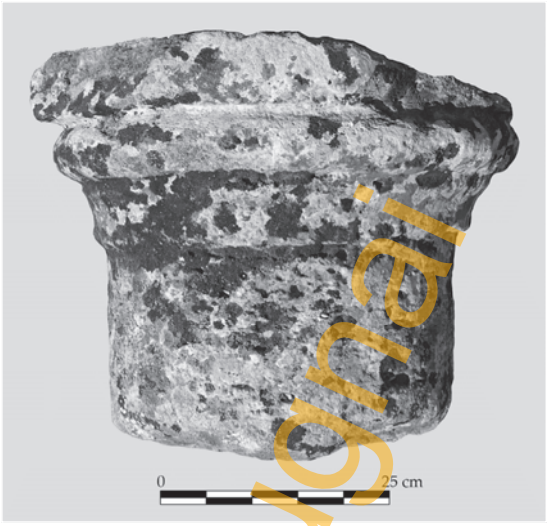
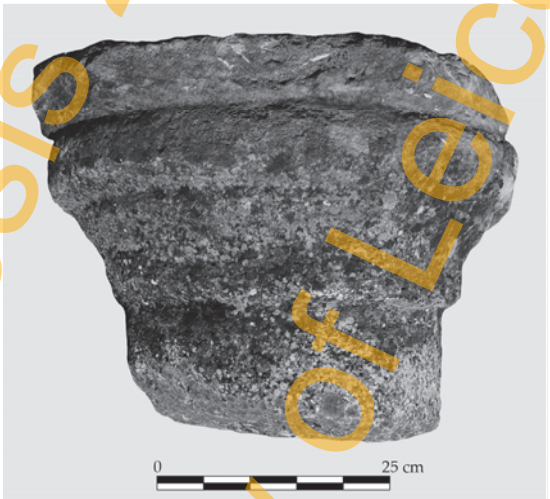
Banasa: Attic bases without plinth, joined to the shaft (**Ban 1.31-36**)



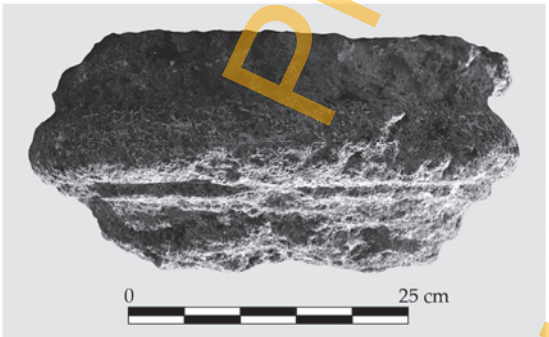
Ban 2.1

Ban 2.2

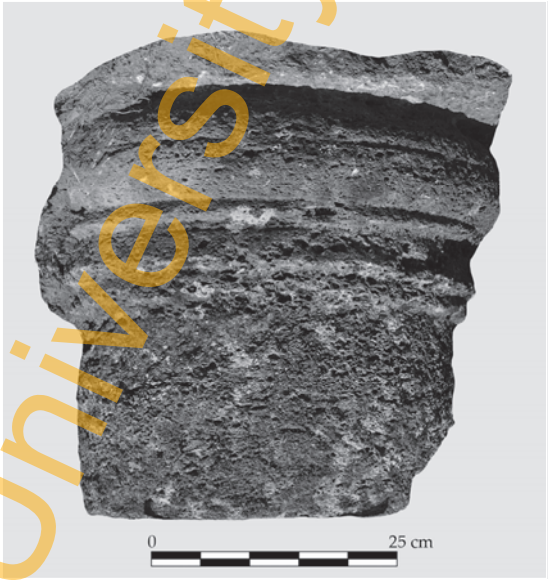
Ban 2.3



Ban 2.4



Ban 2.5



Ban 2.6

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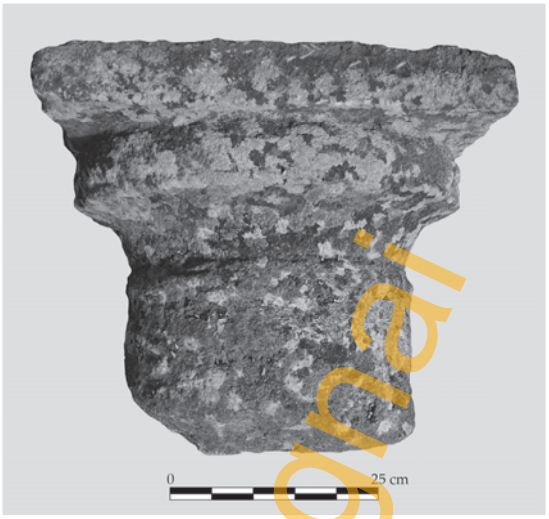
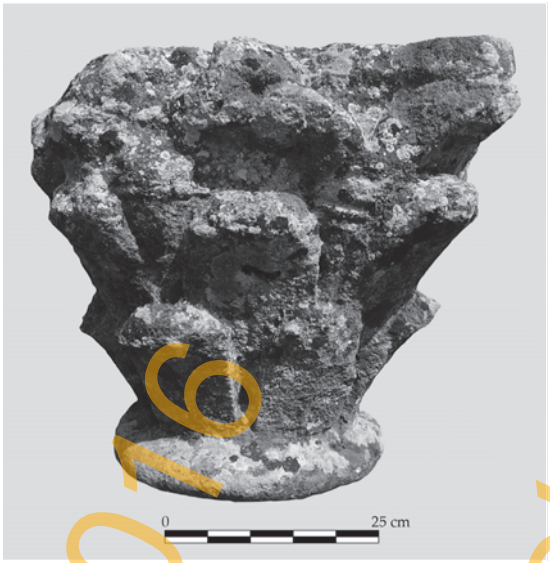
Banasa: Tuscan capitals (**Ban 2.1-6**)

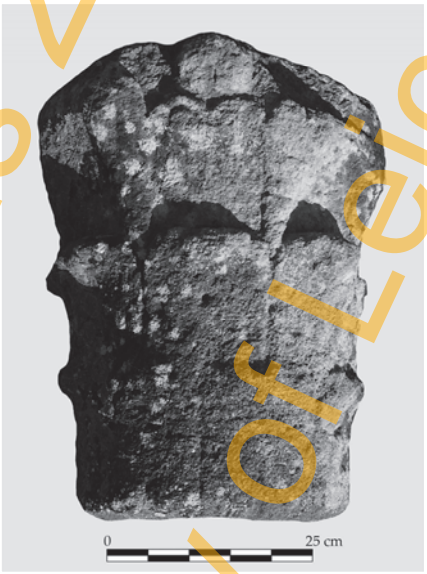


Ban 2.7



Ban 2.8

Ban 2.9



Ban 2.10

Ban 2.11

Ban 2.12

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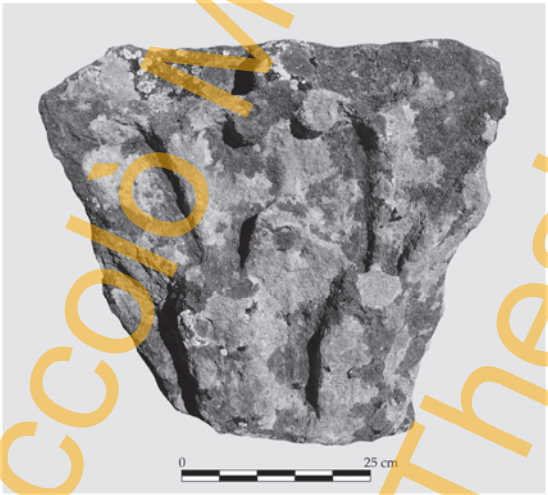
Banasa: Tuscan capital (**Ban 2.7**); Corinthian capitals with smooth leaves (**Ban 2.8-12**)

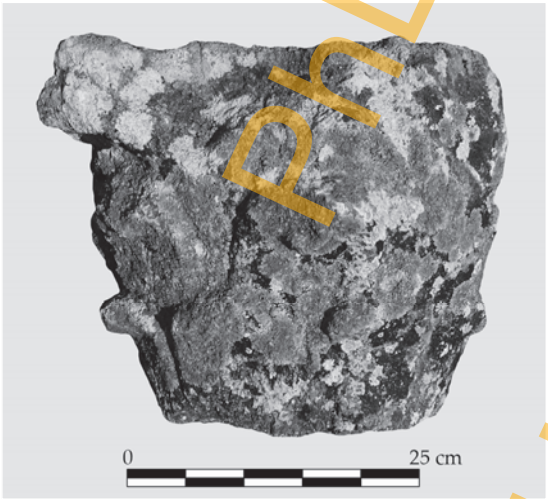
Ban 2.13

Ban 2.14



Ban 2.15

Ban 2.16



Ban 2.17

Ban 2.18

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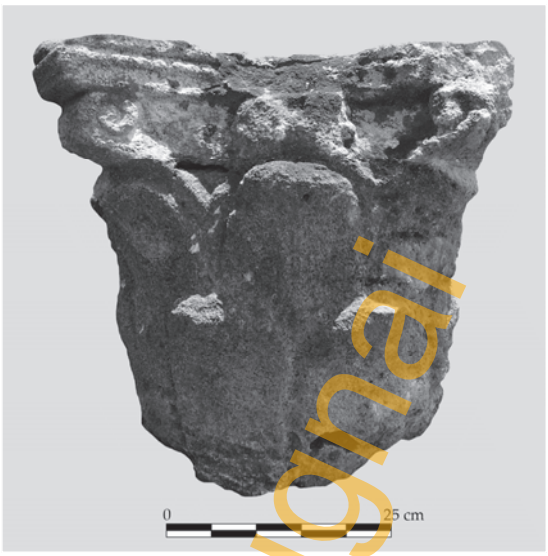
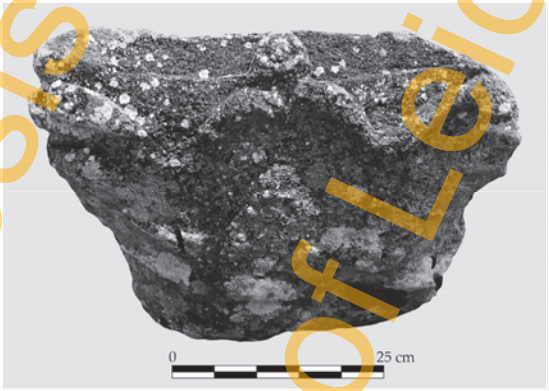
Banasa: Corinthian capitals with smooth leaves (**Ban 2.13-18**)



Ban 2.19

Ban 2.20

Ban 2.21



Ban 2.22

Ban 2.23

Ban 2.24

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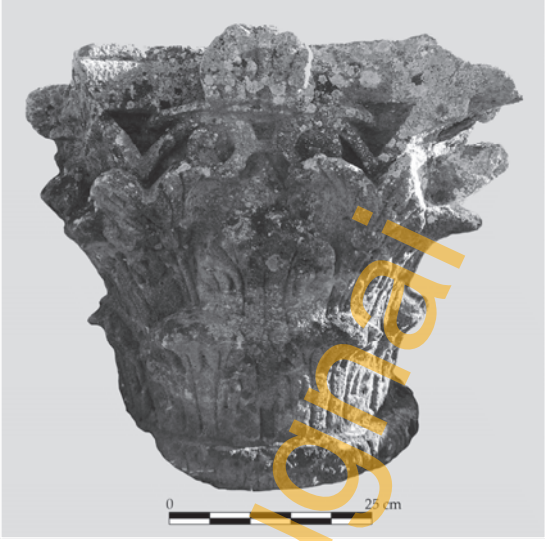
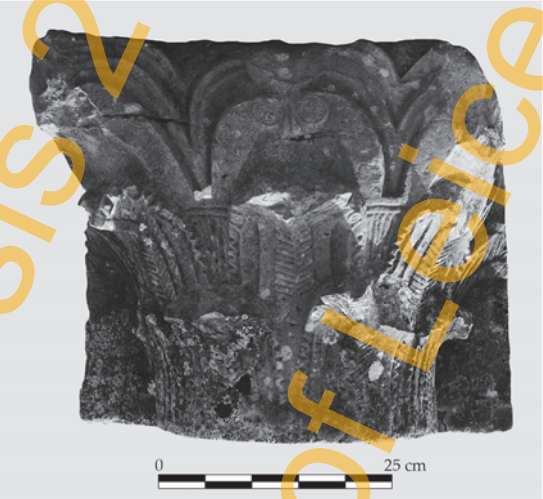
Banasa: Corinthian capitals with smooth leaves (**Ban 2.19-22**);
Corinthian capitals with "*acanthus mollis*" (**Ban 2.23-24**)



Ban 2.25

Ban 2.26

Ban 2.27



Ban 2.29

Ban 2.28 (frontal and lateral side)

Banasa: Corinthian capital with "*acanthus mollis*" (**Ban 2.25**);
Corinthian capitals with "group 6" acanthus (**Ban 2.26-29**)

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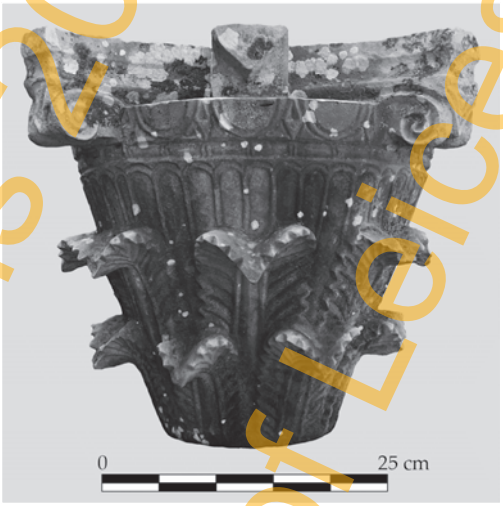
Ban 2.30

Ban 2.31

Ban 2.32



Ban 2.33

Ban 2.34

Ban 2.35

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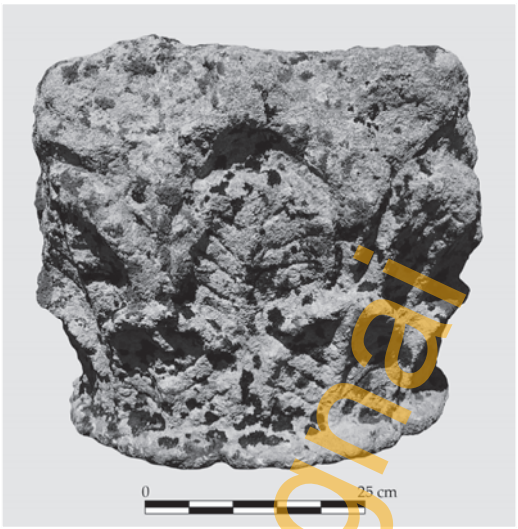
Banasa: Corinthian capital with "group 6" acanthus (**Ban 2.30**); composite capitals with smooth leaves (**Ban 2.31-32**) and "group 3" acanthus (**Ban 2.33**); pseudo-Corinthian capitals with smooth leaves (**Ban 2.34-35**)



Ban 2.36

Ban 2.37

Ban 2.38

Ban 2.39

Ban 2.40

Ban 2.41

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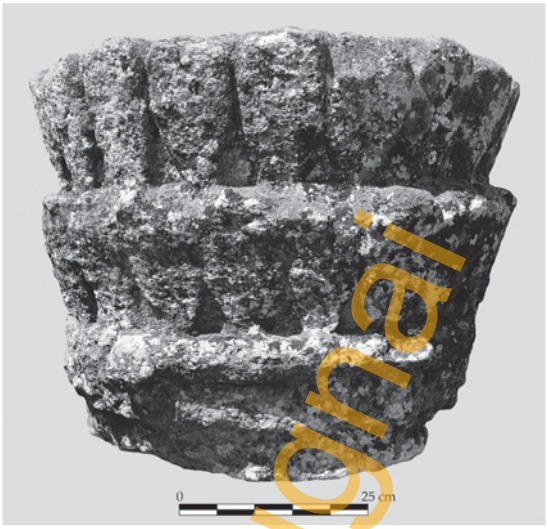
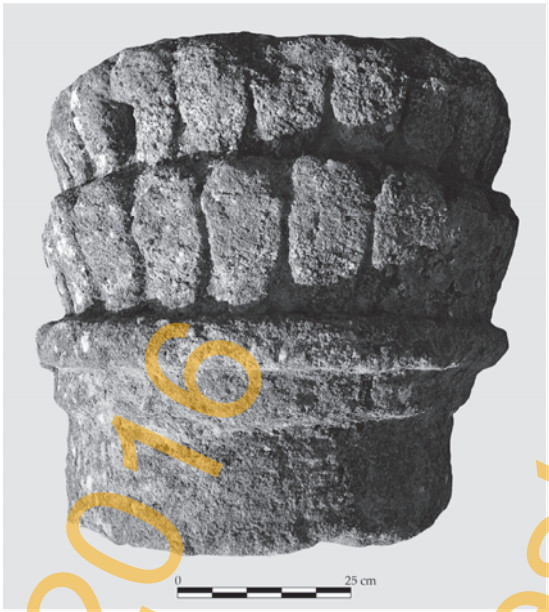
Banasa: Pseudo-Corinthian capitals with palm leaves (**Ban 2.36-38**); pseudo-Corinthian capitals with water plant leaves (**Ban 2.39-40**); pseudo-lotus capital (**Ban 2.41**)

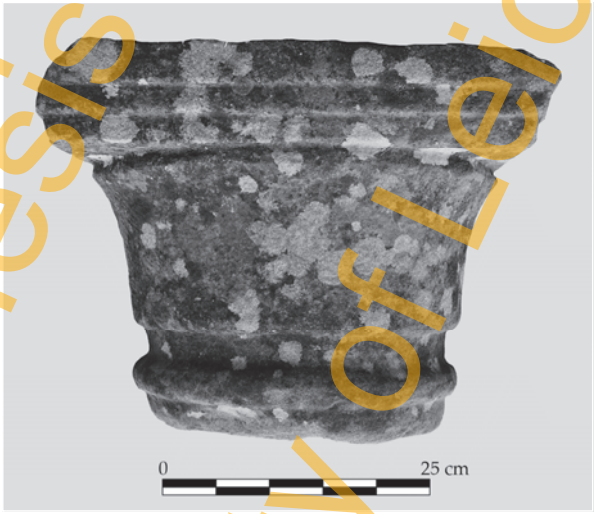


Ban 2.42



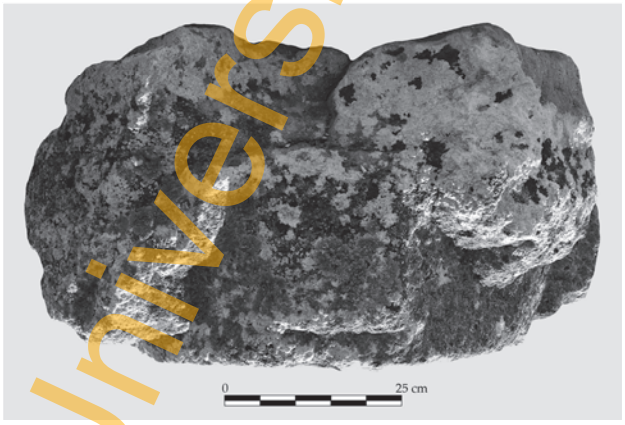
Ban 2.43

Ban 2.44



Ban 2.46

Ban 2.45



Ban 2.47

Banasa: Pseudo-lotus capitals (**Ban 2.42-43**); tronco-conical capitals (**Ban 2.44-45**); bell-shaped capital (**Ban 2.46**); roughed-out capital (**Ban 2.47**)

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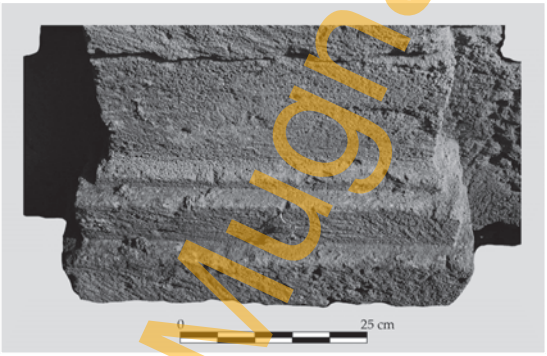
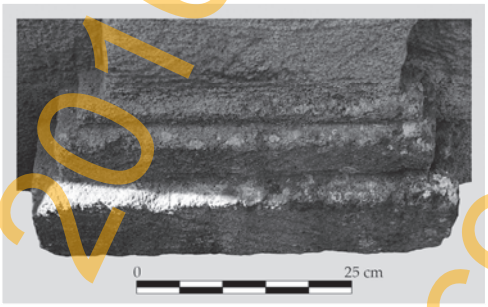
Sal 1.1

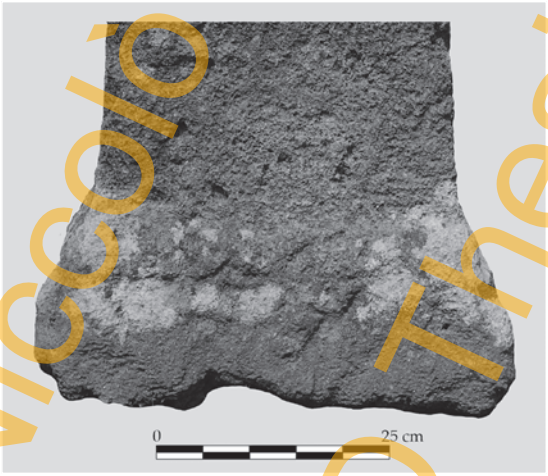
Sal 1.2



Sal 1.3



Sal 1.4



Sal 1.5

Sal 1.6

Sal 1.7

Sal 1.8

Sala: Disc bases (**Sal 1.1-2**); square bases (**Sal 1.3-6**); single-torus bases (**Sal 1.7-8**)

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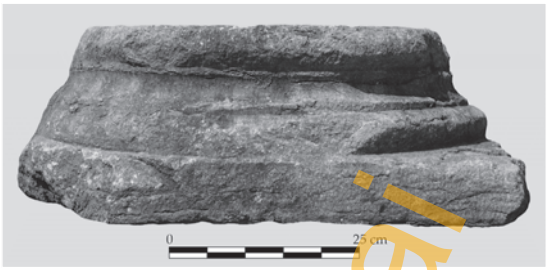
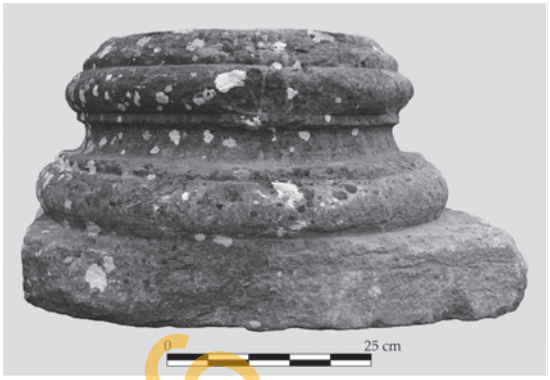
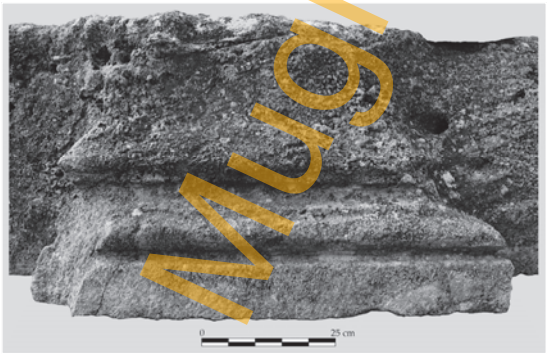


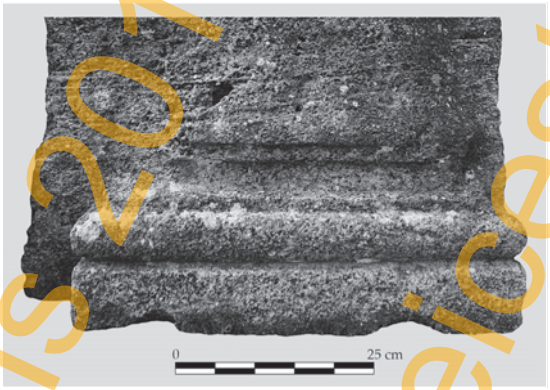
Sal 1.9



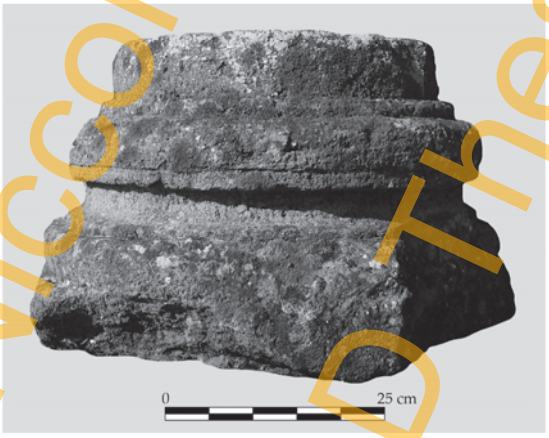
Sal 1.10



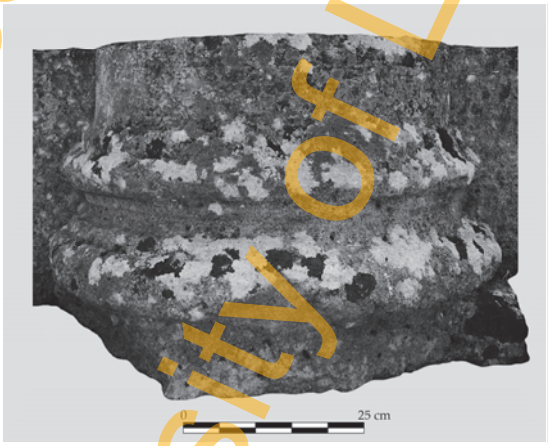
Sal 1.11



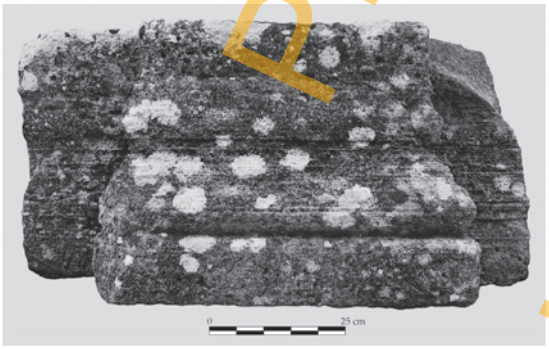
Sal 1.12



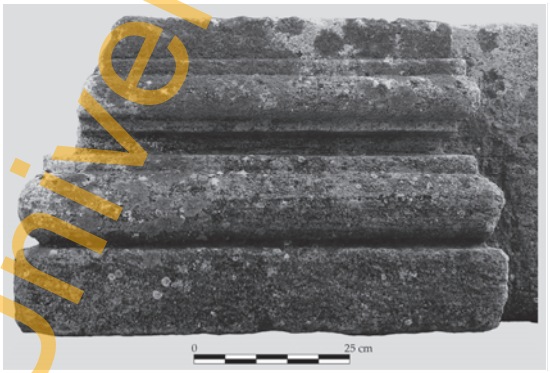
Sal 1.13



Sal 1.14



Sal 1.15



Sal 1.16

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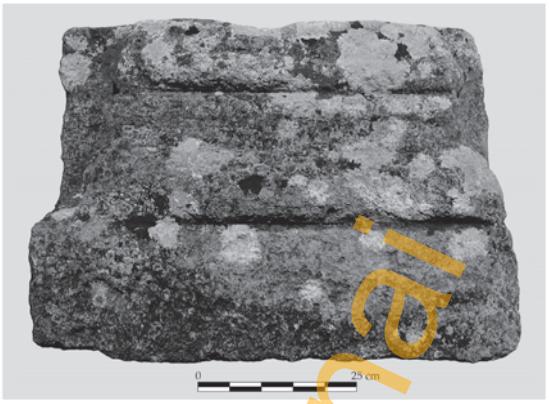
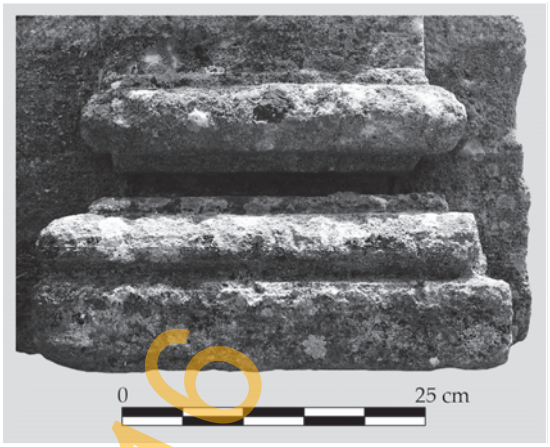
Sala: Attic bases with plinth (**Sal 1.9-10**); Attic bases with plinth, joined to the shaft (**Sal 1.11-16**)



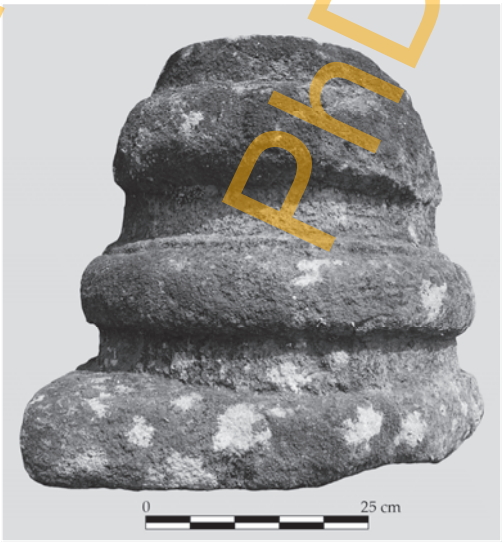
Sal 1.17



Sal 1.18

Sal 1.19

Sal 1.20



Sal 1.21

Sal 1.22

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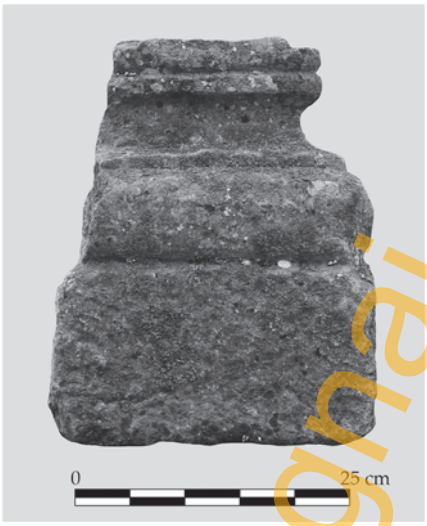
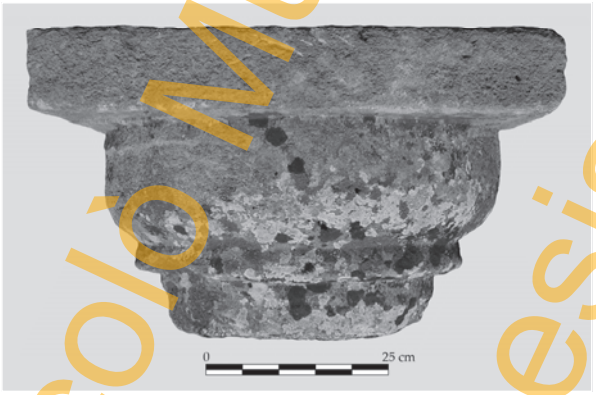
Sala: Attic bases with plinth, joined to the shaft (**Sal 1.17-22**)

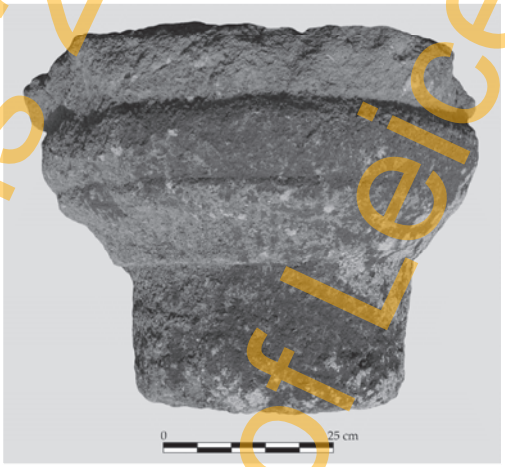


Sal 1.23

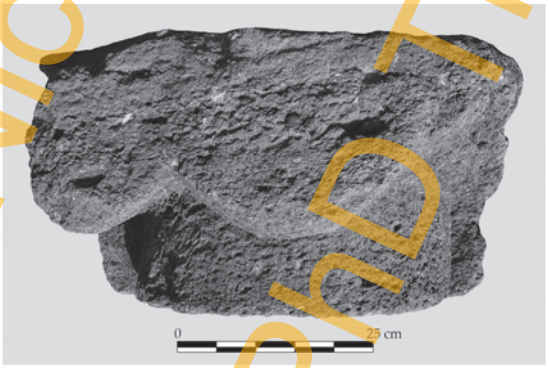
Sal 1.24

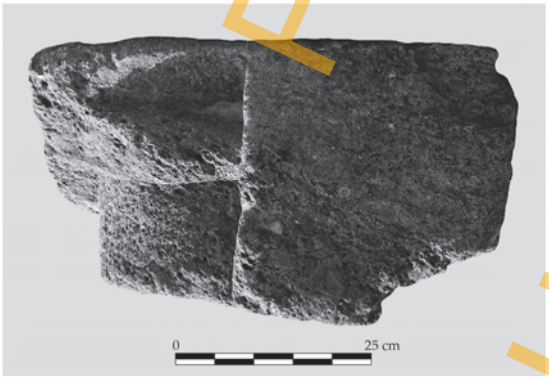


Sal 2.1



Sal 2.2





Sal 2.3 (frontal and lateral side)

Sal 2.4

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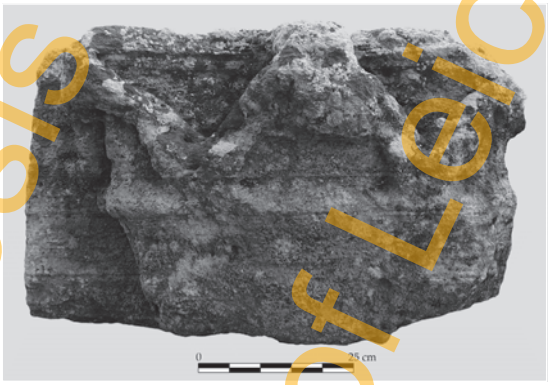
Sala: Square Attic base with plinth (**Sal 1.23**); Attic base without plinth (**Sal 1.24**); Tuscan capitals (**Sal 2.1-2**); Ionic capital (**Sal 2.3**); Corinthian capital with smooth leaves (**Sal 2.4**)

Sal 2.5

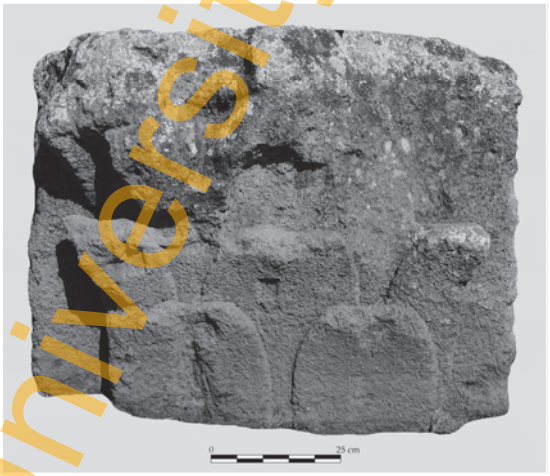
Sal 2.6

Sal 2.7



Sal 2.8

Sal 2.9



Sal 2.10

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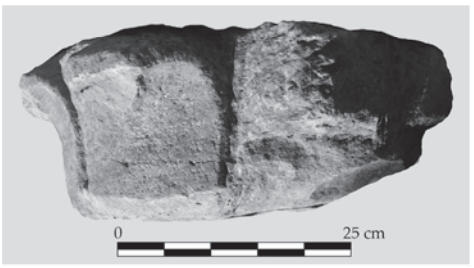
Sala: Corinthian capitals with smooth leaves (**Sal 2.5-10**)

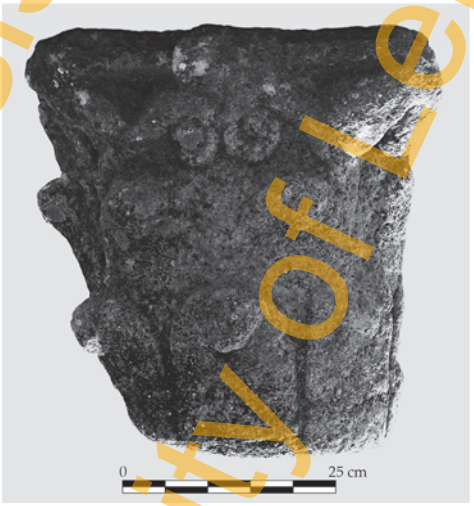
Sal 2.11



Sal 2.12

Sal 2.13

Sal 2.14



Sal 2.15

Sal 2.16

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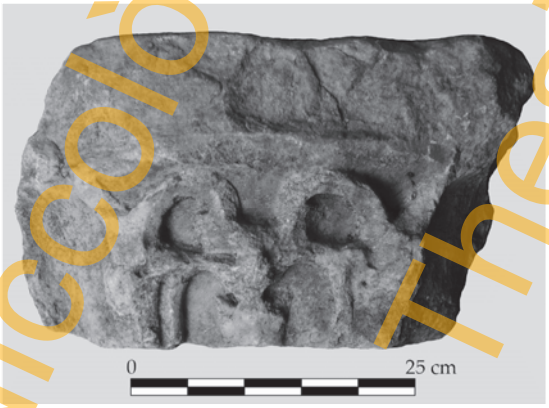
Sala: Corinthian capitals with smooth leaves (**Sal 2.11-16**)

Sal 2.17

Sal 2.18



Sal 2.19

Sal 2.20

Sal 2.21

Sal 2.22

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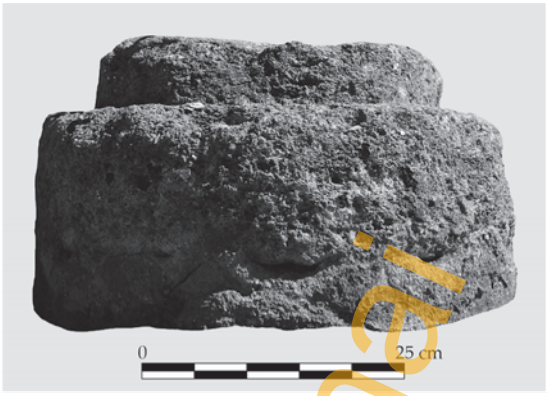
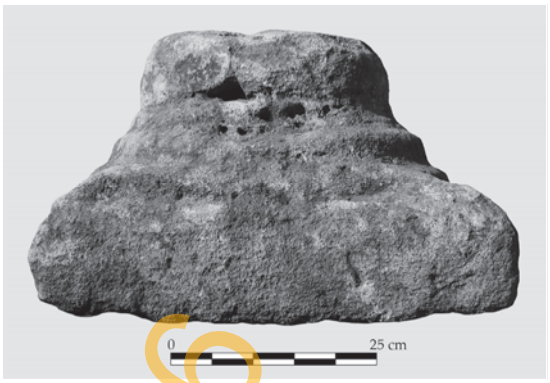
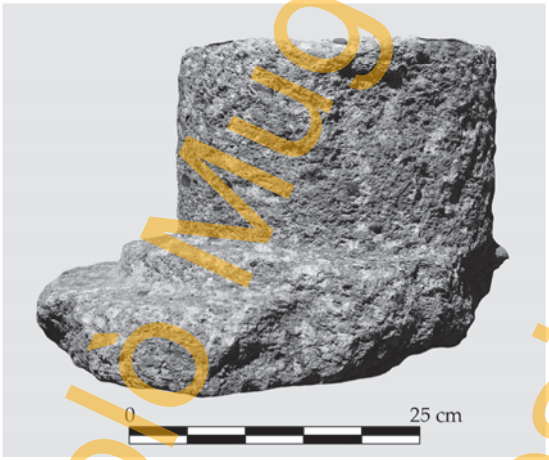
Sala: Corinthian capital with "*acanthus mollis*" (**Sal 2.17**); Asiatic Corinthian capitals (**Sal 2.18-20**); composite capital with fine-toothed acanthus (**Sal 2.21**); pseudo-lotus capital (**Sal 2.22**)



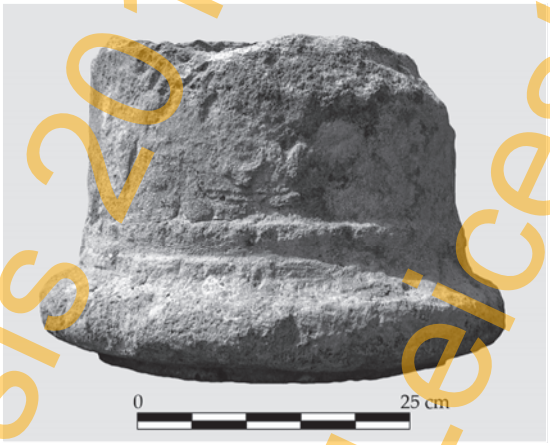
Lix 1.1



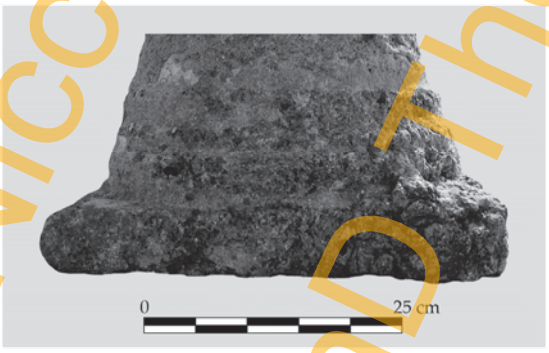
Lix 1.2



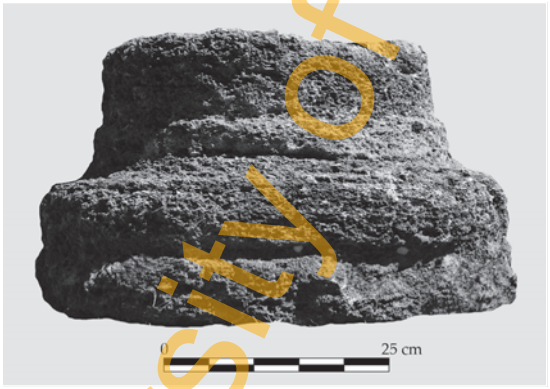
Lix 1.3



Lix 1.4



Lix 1.5



Lix 1.6

Lix 1.7

Lix 1.8

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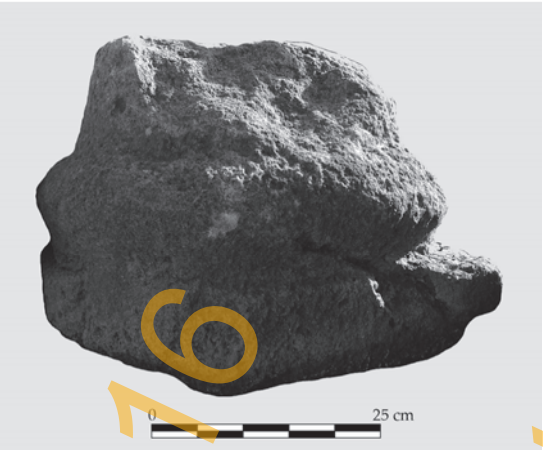
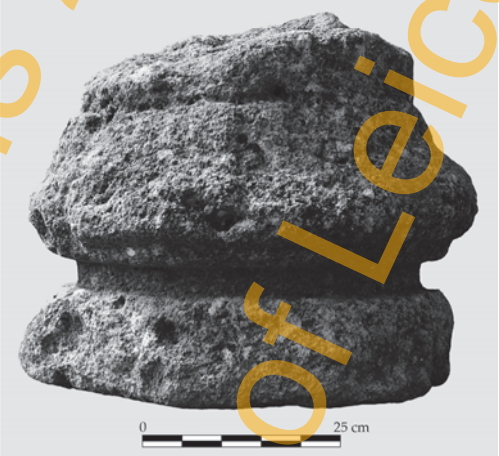
Lixus: Cilindrical drum base (**Lix 1.1**); disc bases (**Lix 1.2-3**); single-torus bases (**Lix 1.4-8**)

Lix 1.9

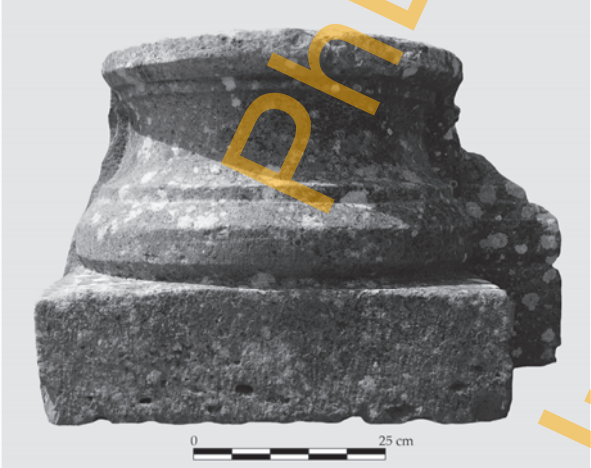


Lix 1.10

Lix 1.11



Lix 1.13



Lix 1.12

Lix 1.14

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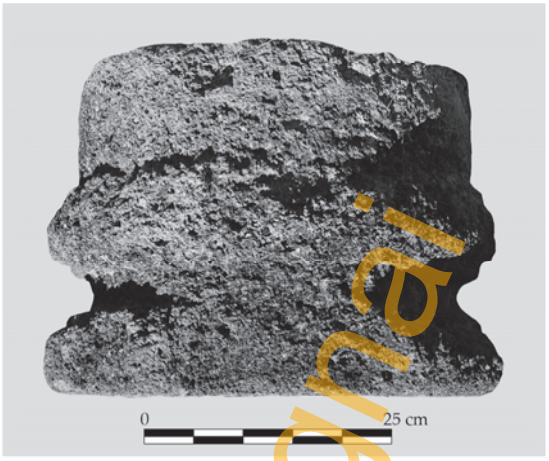
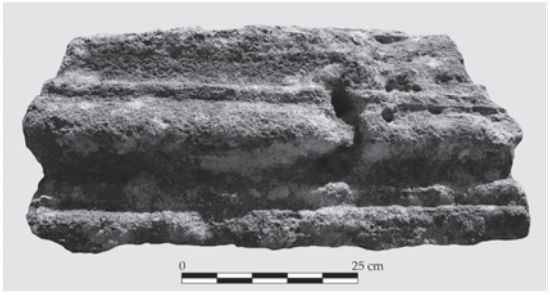
Lixus: Single-torus bases (**Lix 1.9-10**); Attic bases with plinth (**Lix 1.11-12**); Attic bases without plinth (**Lix 1.13-14**)

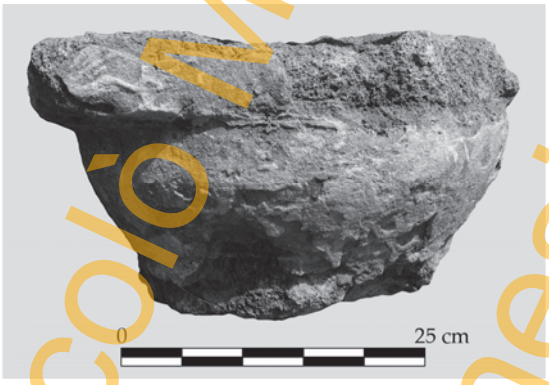


Lix 1.15

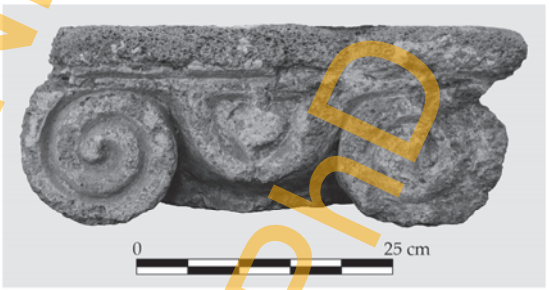


Lix 1.16

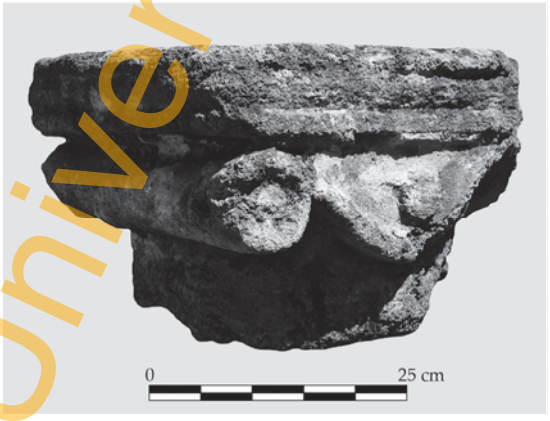
Lix 2.2



Lix 2.1



Lix 2.3 (frontal and lateral side)



Lix 2.4 (frontal and lateral side)

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Lixus: Attic base without plinth (**Lix 1.15**); square Attic base without plinth (**Lix 1.16**); Tuscan capitals (**Lix 2.1-2**); Ionic capitals (**Lix 2.3-4**)

PLANS

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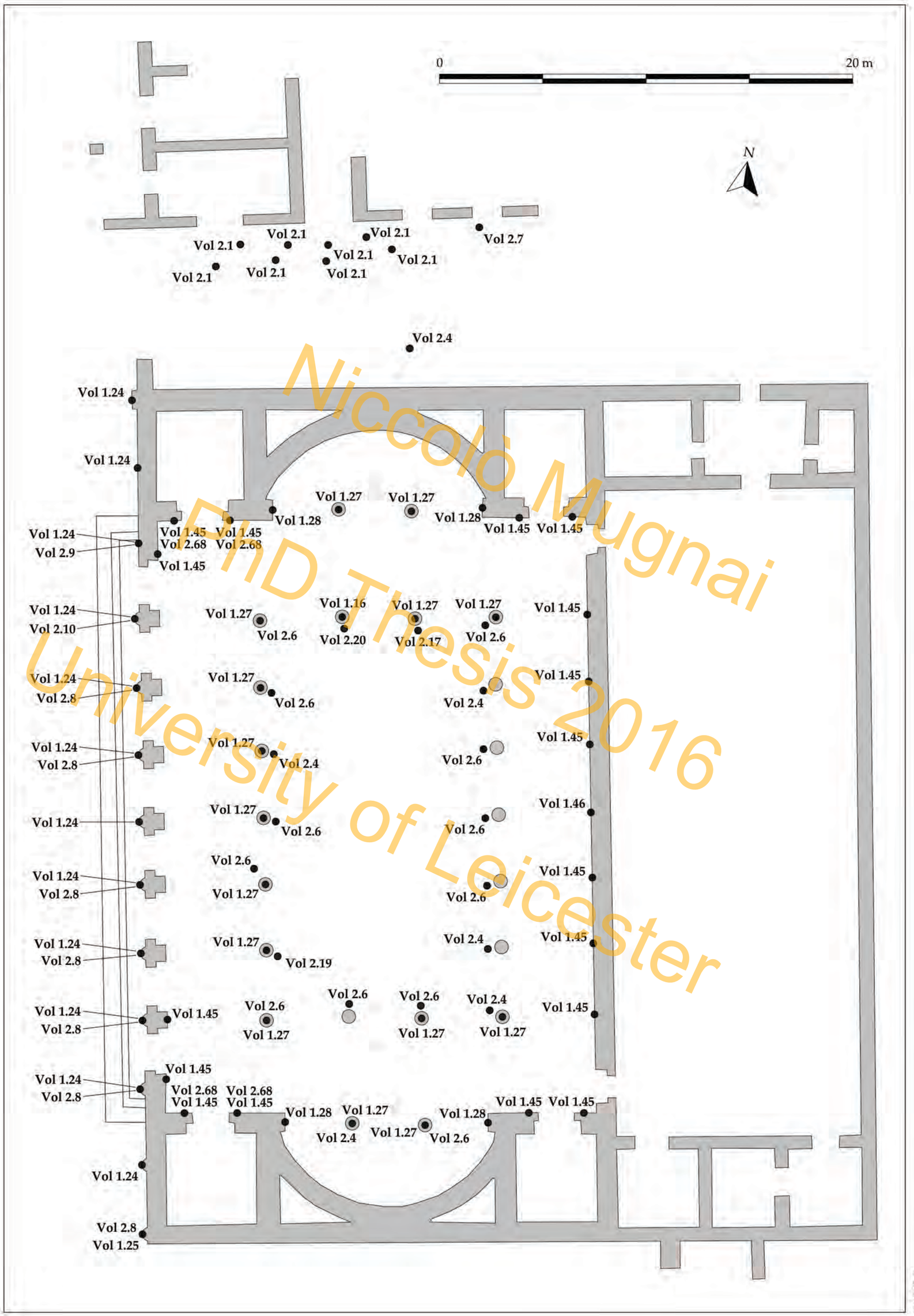
Volubilis: South-west district and south-east gate of the city walls



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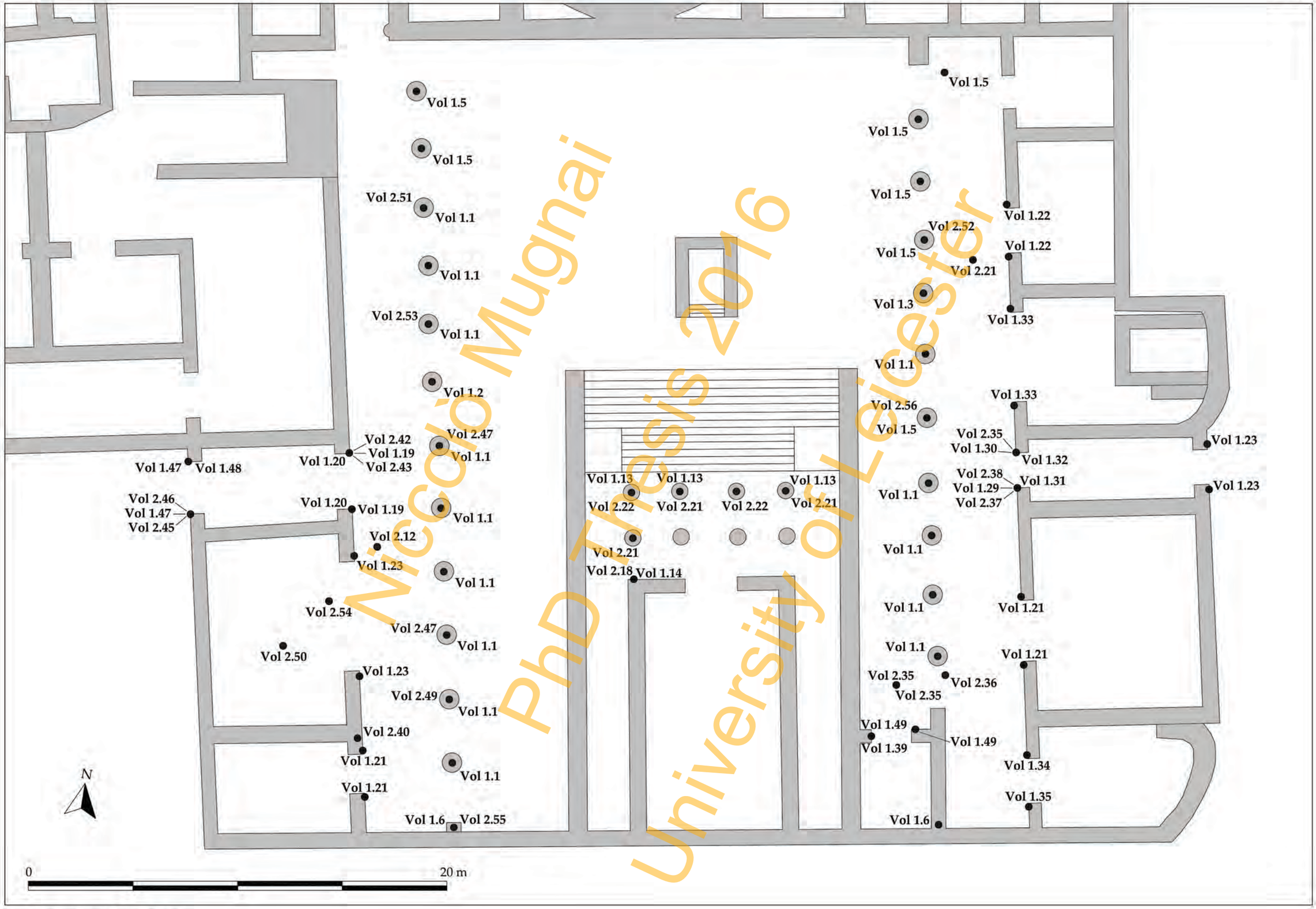
PLAN 2



Volubilis: Piazza of the *capitolium*

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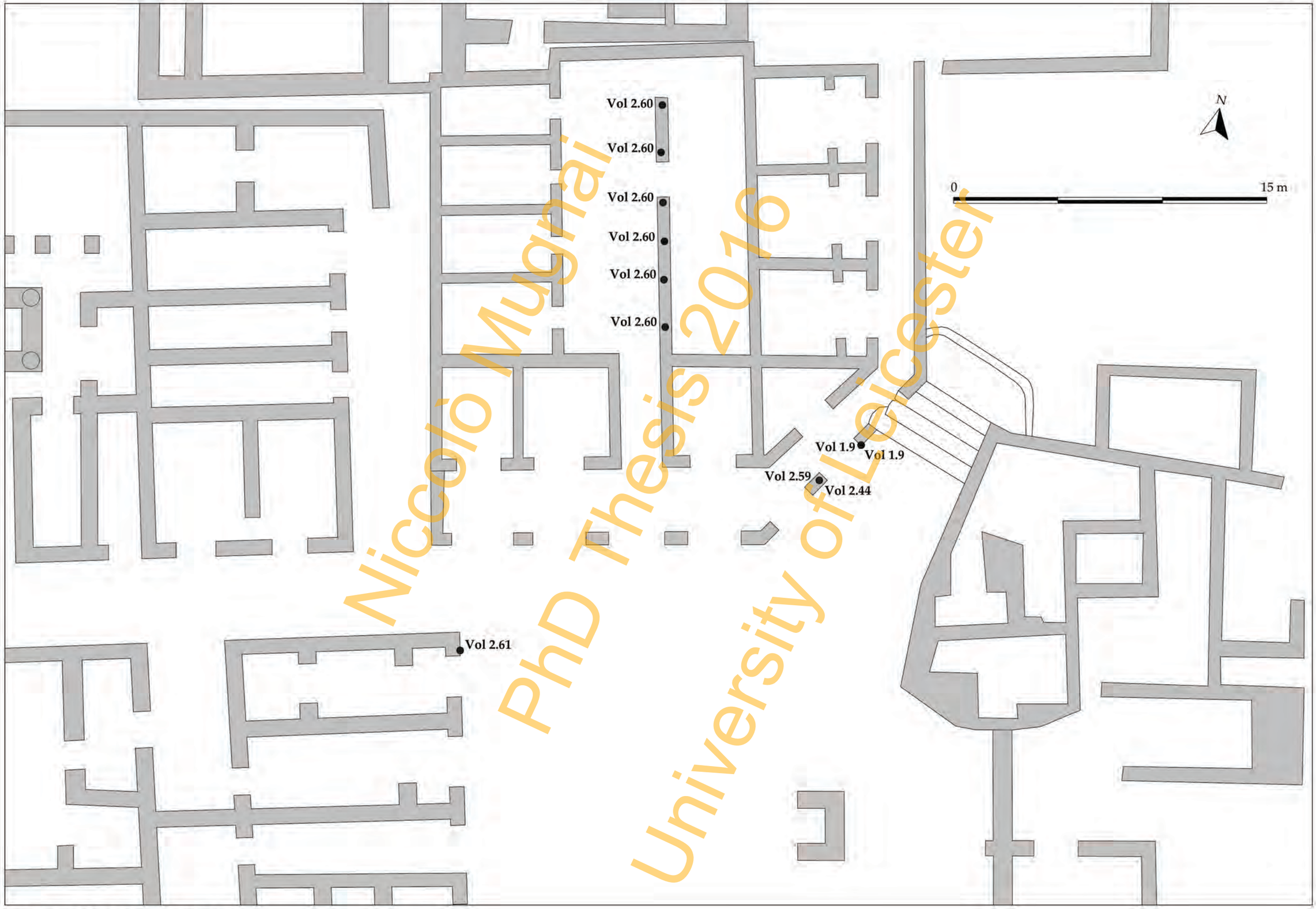

Volubilis: "*Macellum*" and nearby buildings

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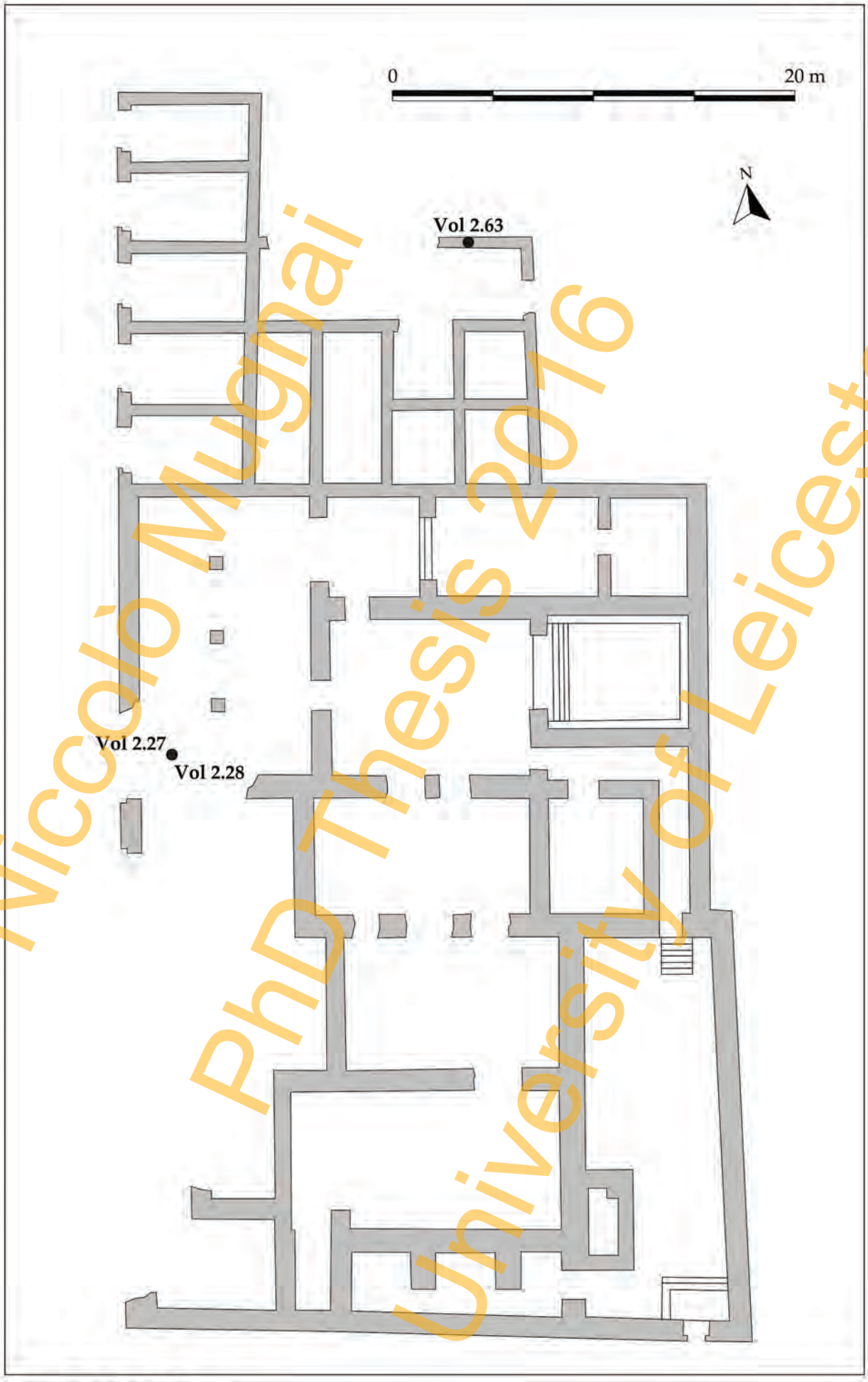

Volubilis: Baths of Gallienus

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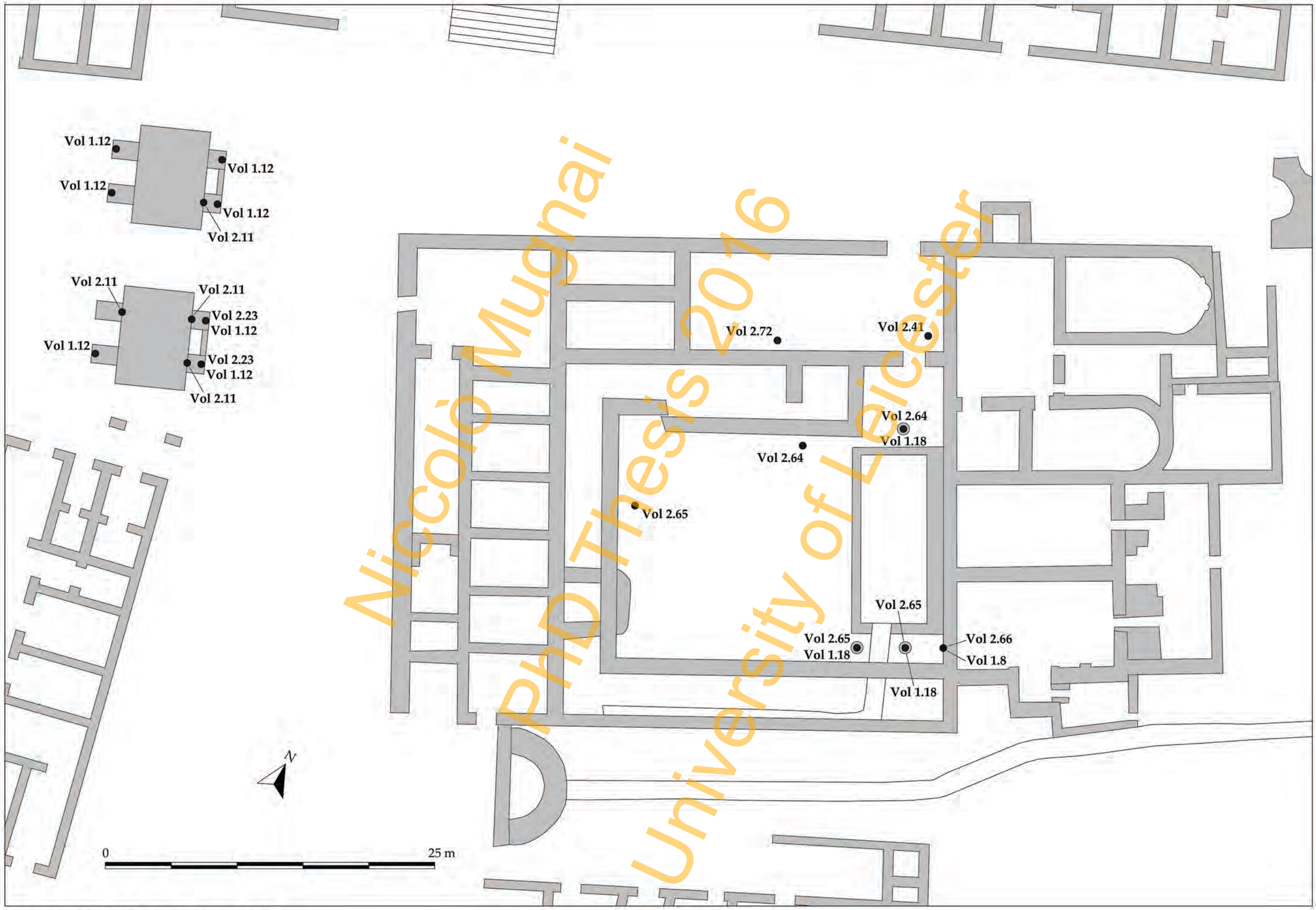

Volubilis: Arch of Caracalla and "thermes du nord"

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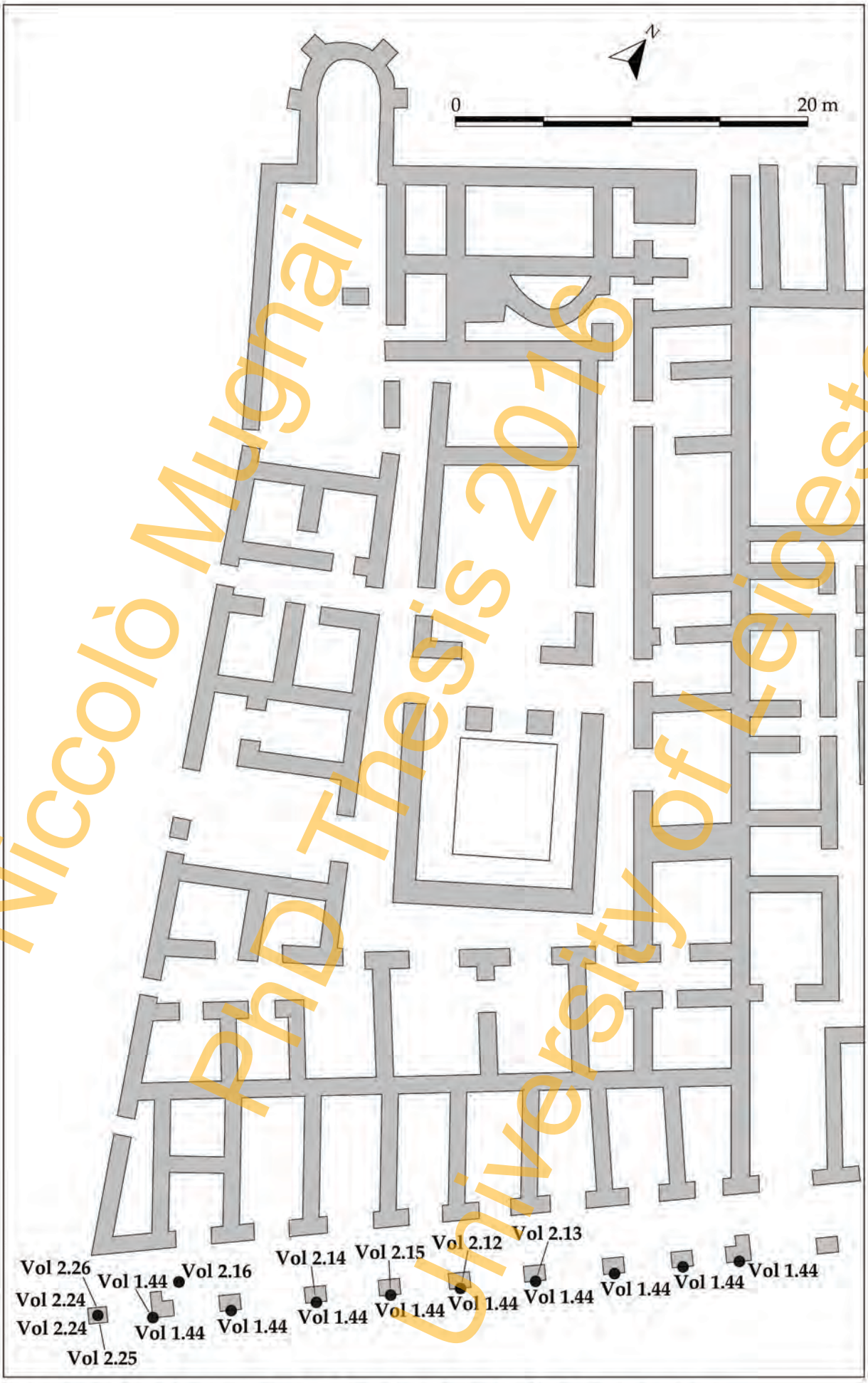

Volubilis: "Maison aux travaux d'Hercule", with *porticus* along the *decumanus maximus*

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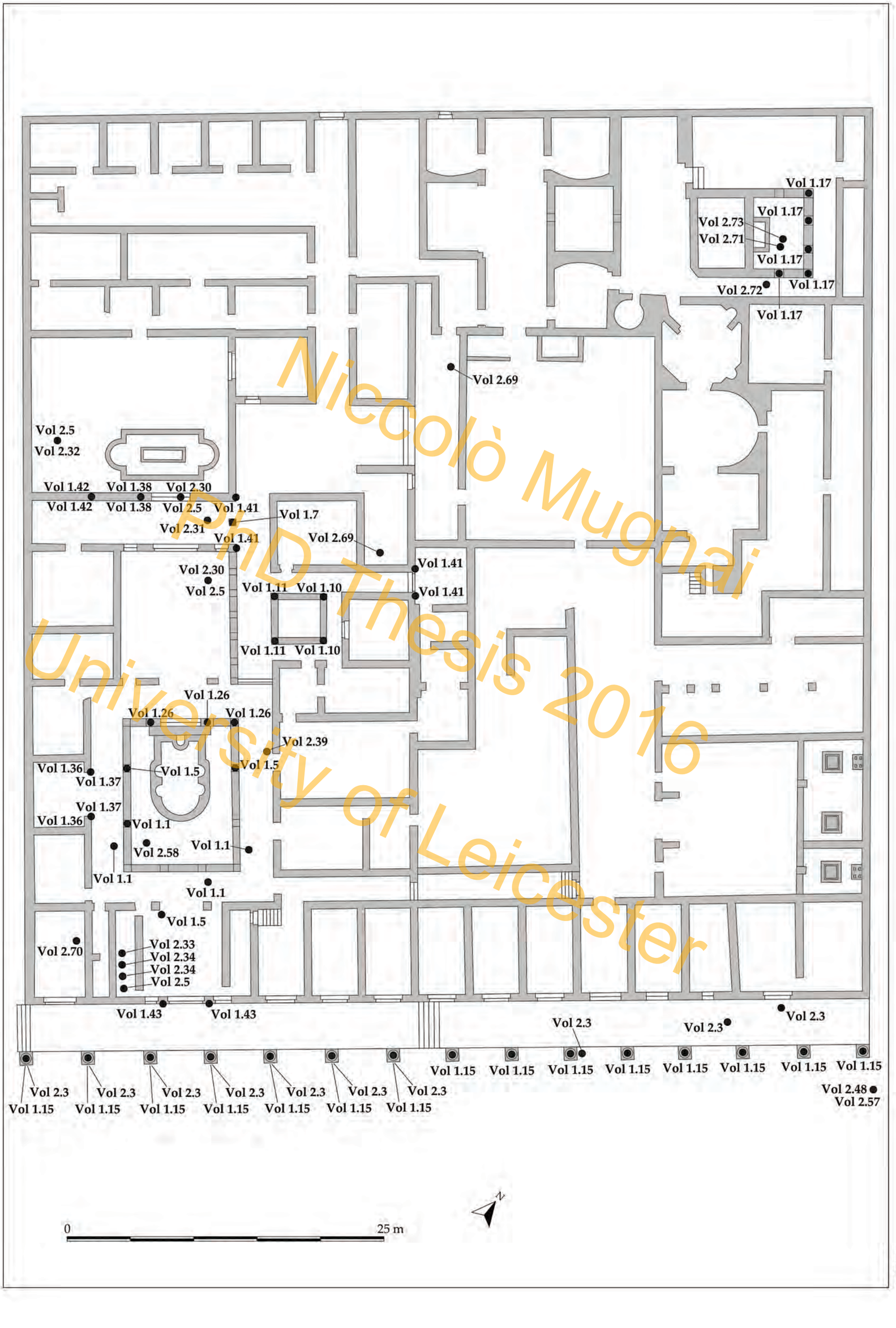

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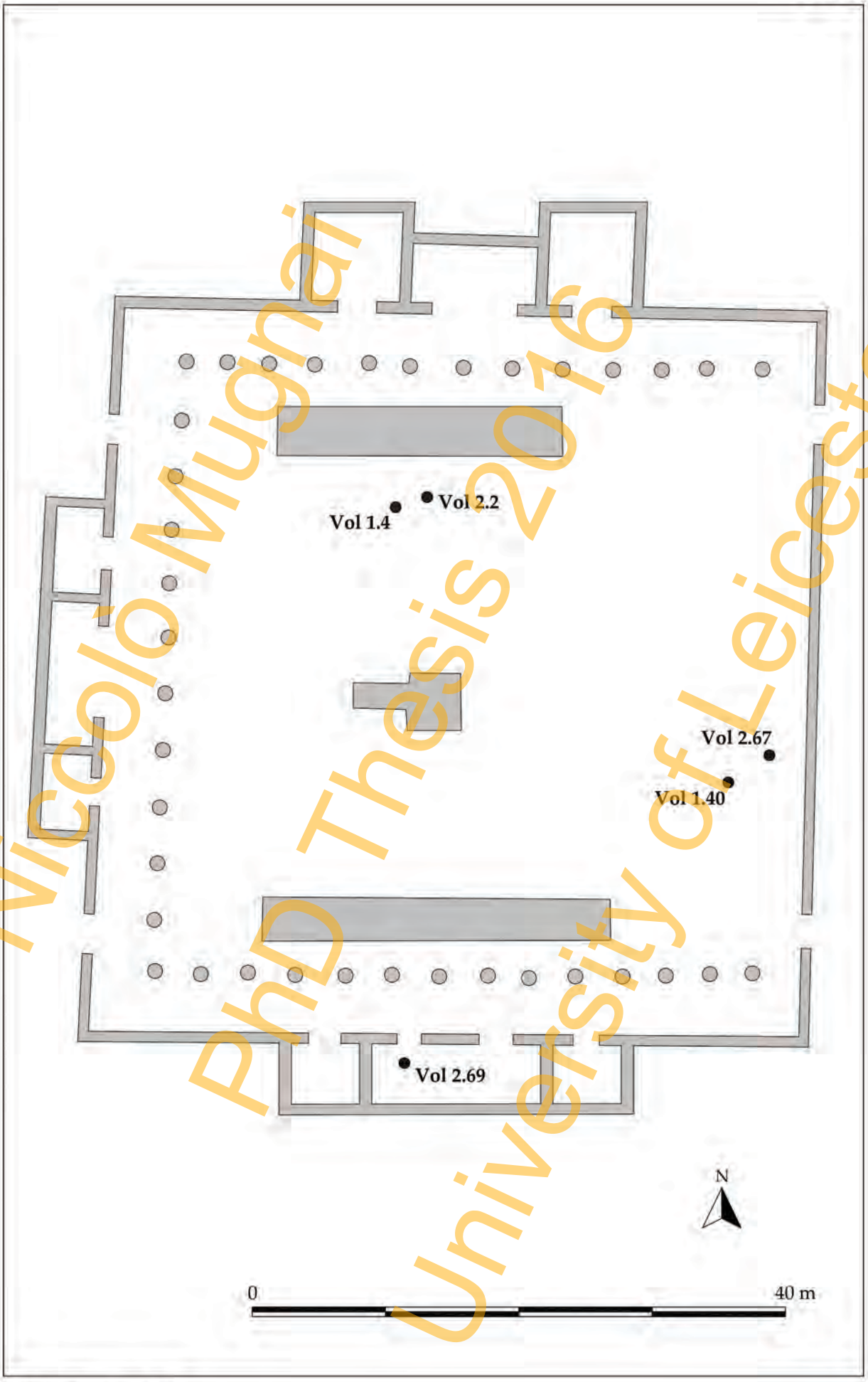
PLAN 8



Volubilis: "Temple B"

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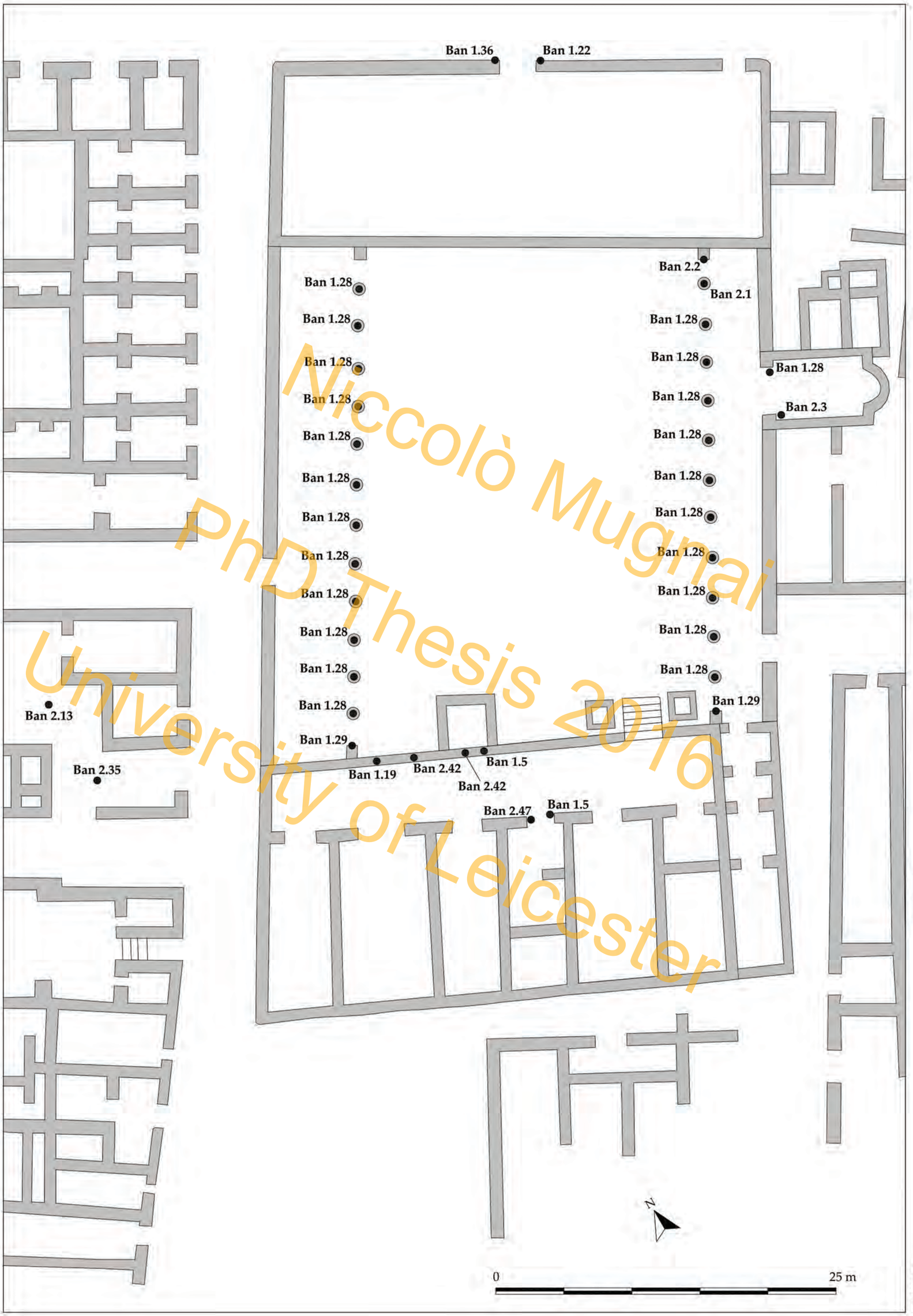
Ban 1.36
Ban 1.22
Ban 2.2
Ban 2.1
Ban 1.28
Ban 1.28
Ban 1.28

Banasa: "*Macellum*", "maison aux quatre piliers", and "maison de Fonteius"

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Banasa: "Thermes du nord", "maison au génie de l'abondance", "maison M2", "maison M3", "maison M4", and "maison M5"

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Banasa: North-east district

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Banasa: "Maison à la mosaïque de Vénus" and "thermes aux fresques"

Banasa: "maison du diplôme de Domitien" and "maison à l'aureus de Juba II"

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Banasa: "Thermes sud", "bâtiment à pilastres", and productive installations

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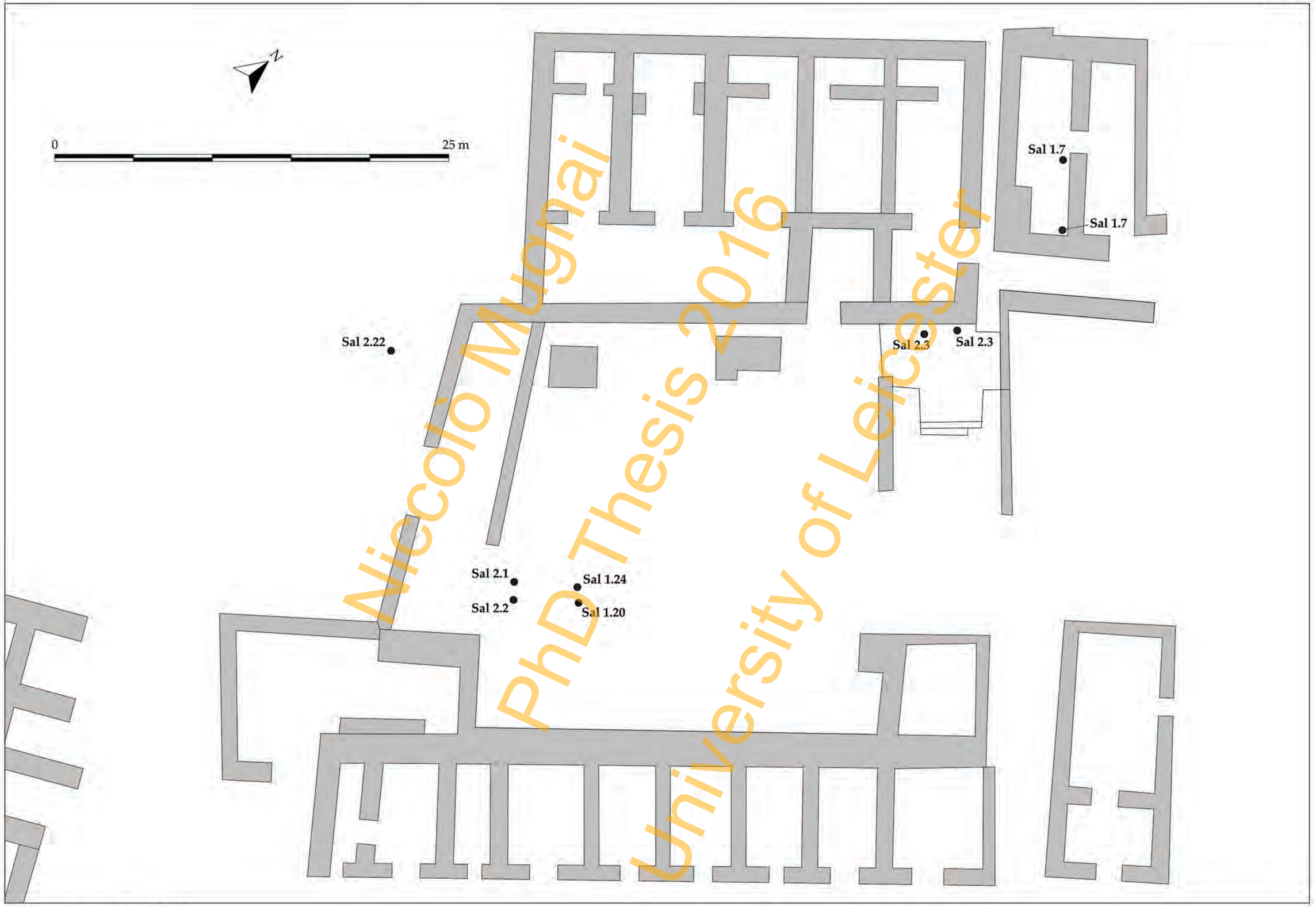

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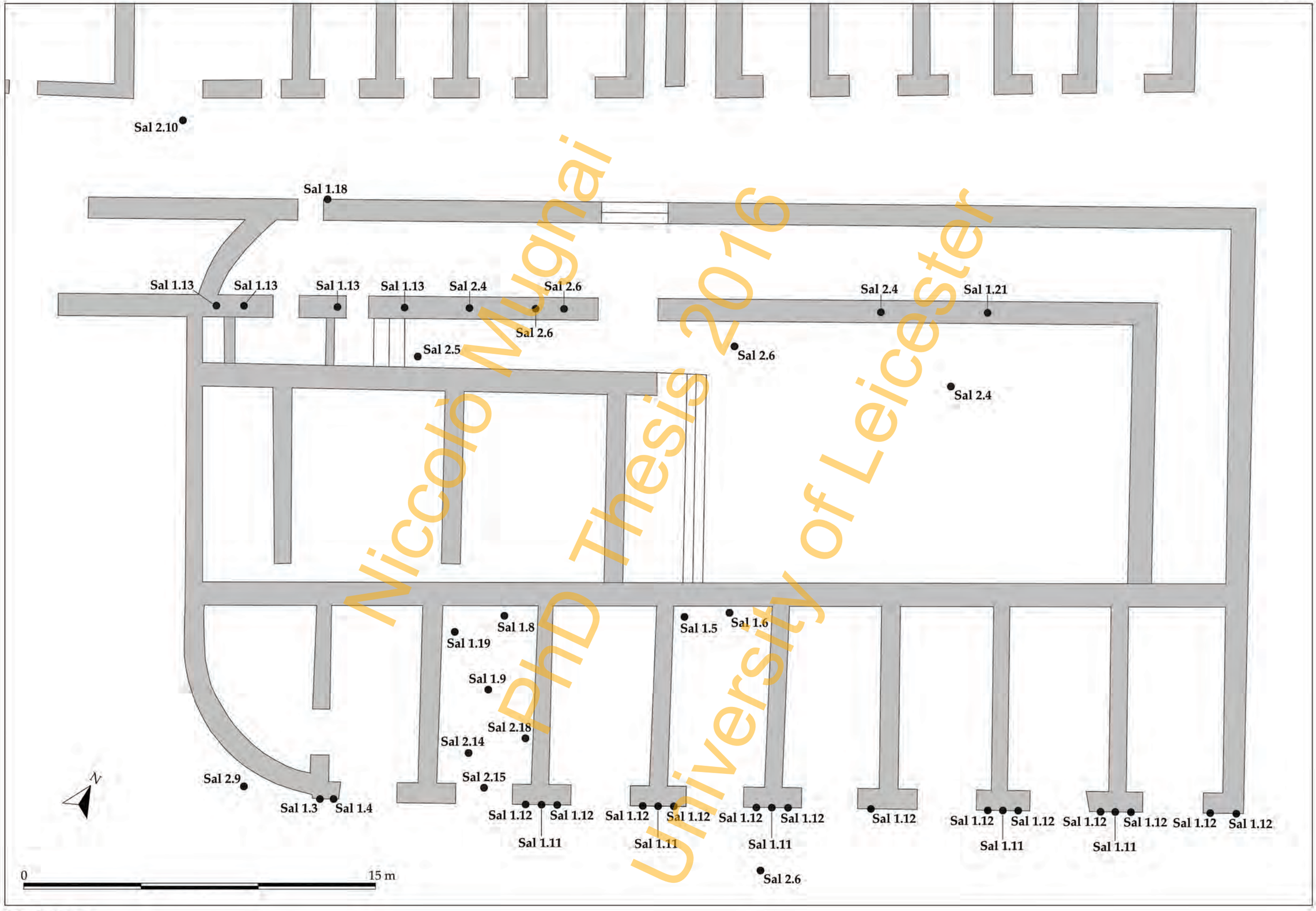
Sala: Forum area and "temple A"



Sala: *Capitolium*

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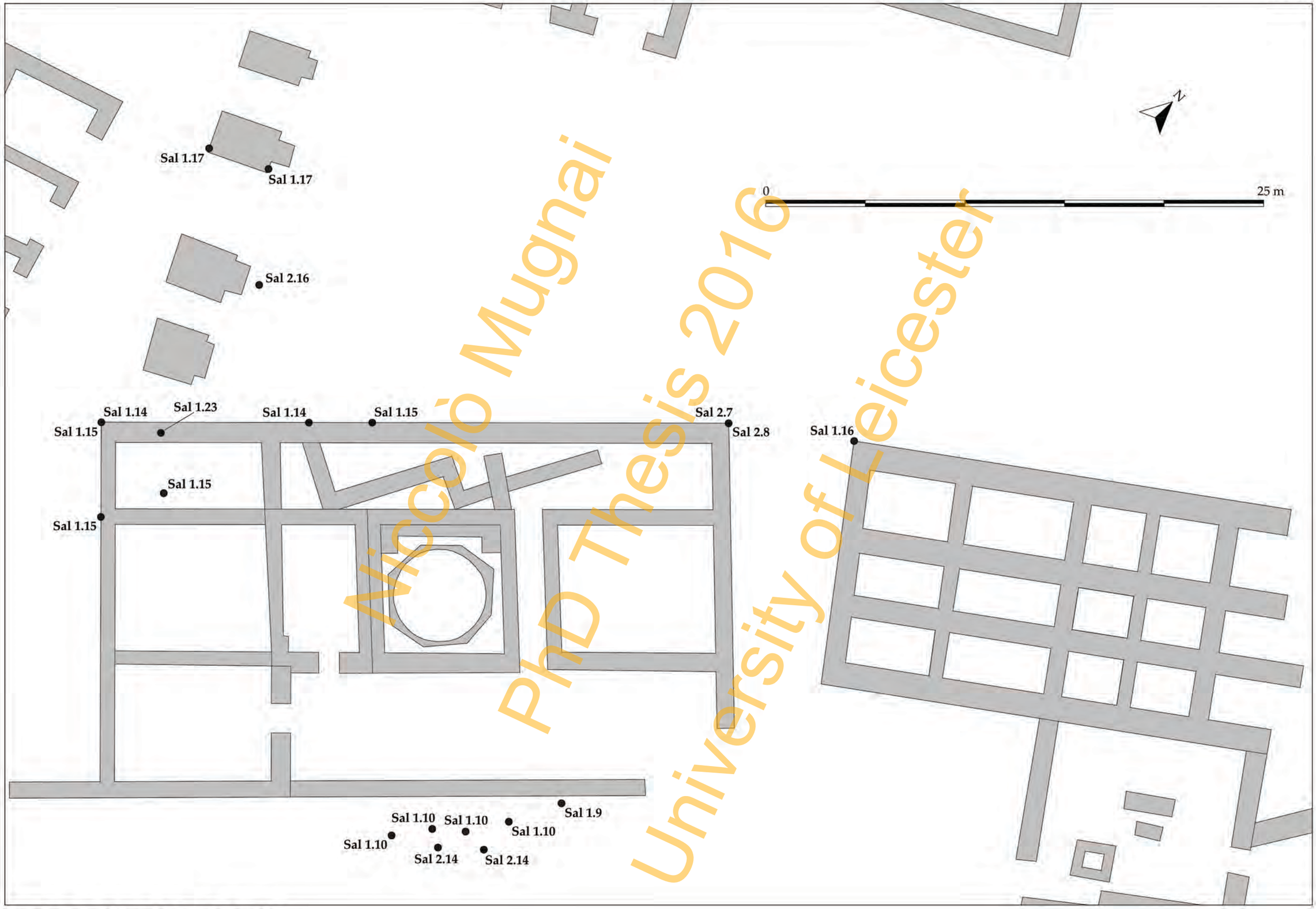

Sala: Arch, "basilica/*curia Ulpia*", and "building D"

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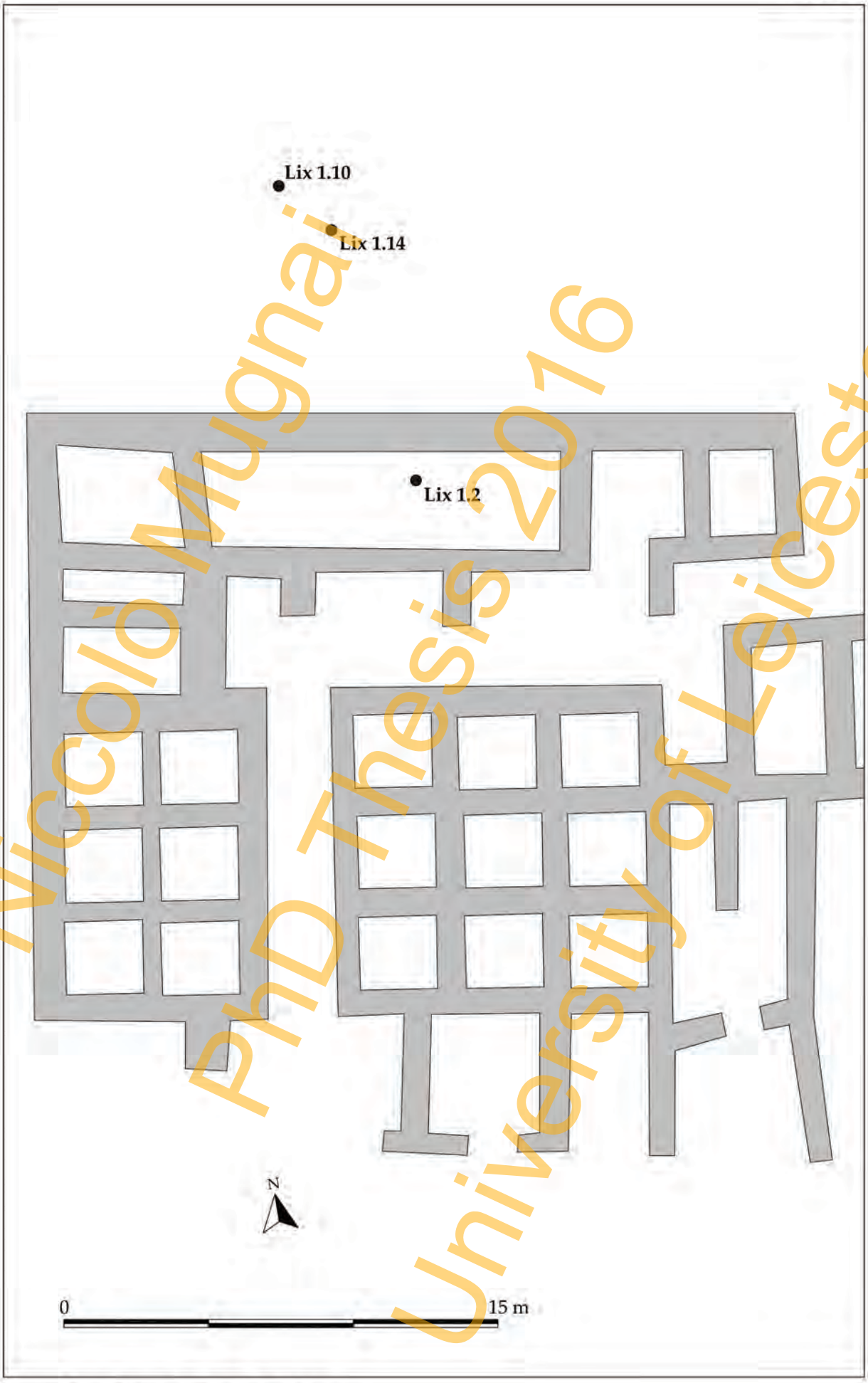
Lixus: "Quartier des temples"



Lixus: *Garum* factories (installation no. 1)

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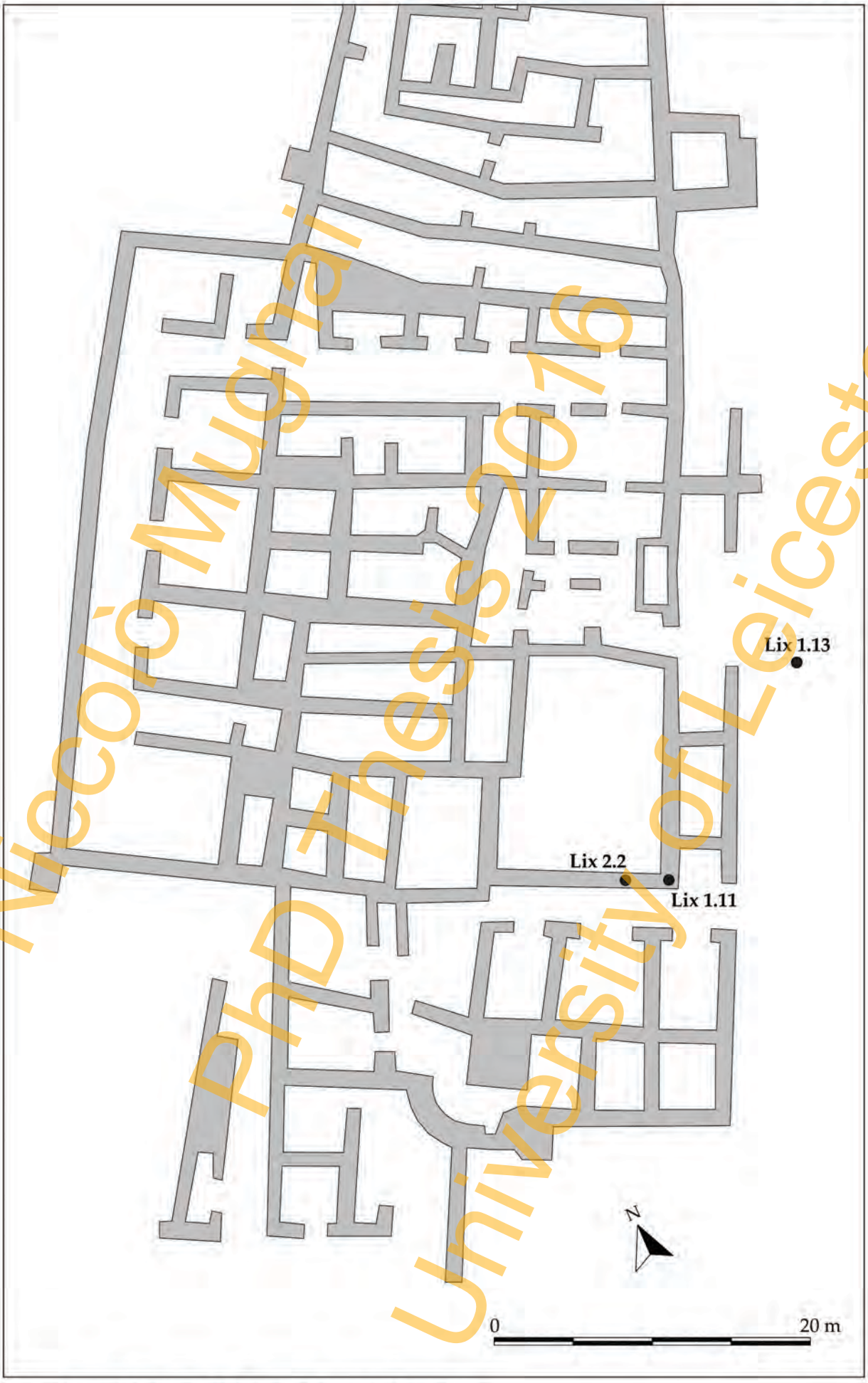

Lixus: *Domus* of Mars and Rhea, with annexed structures

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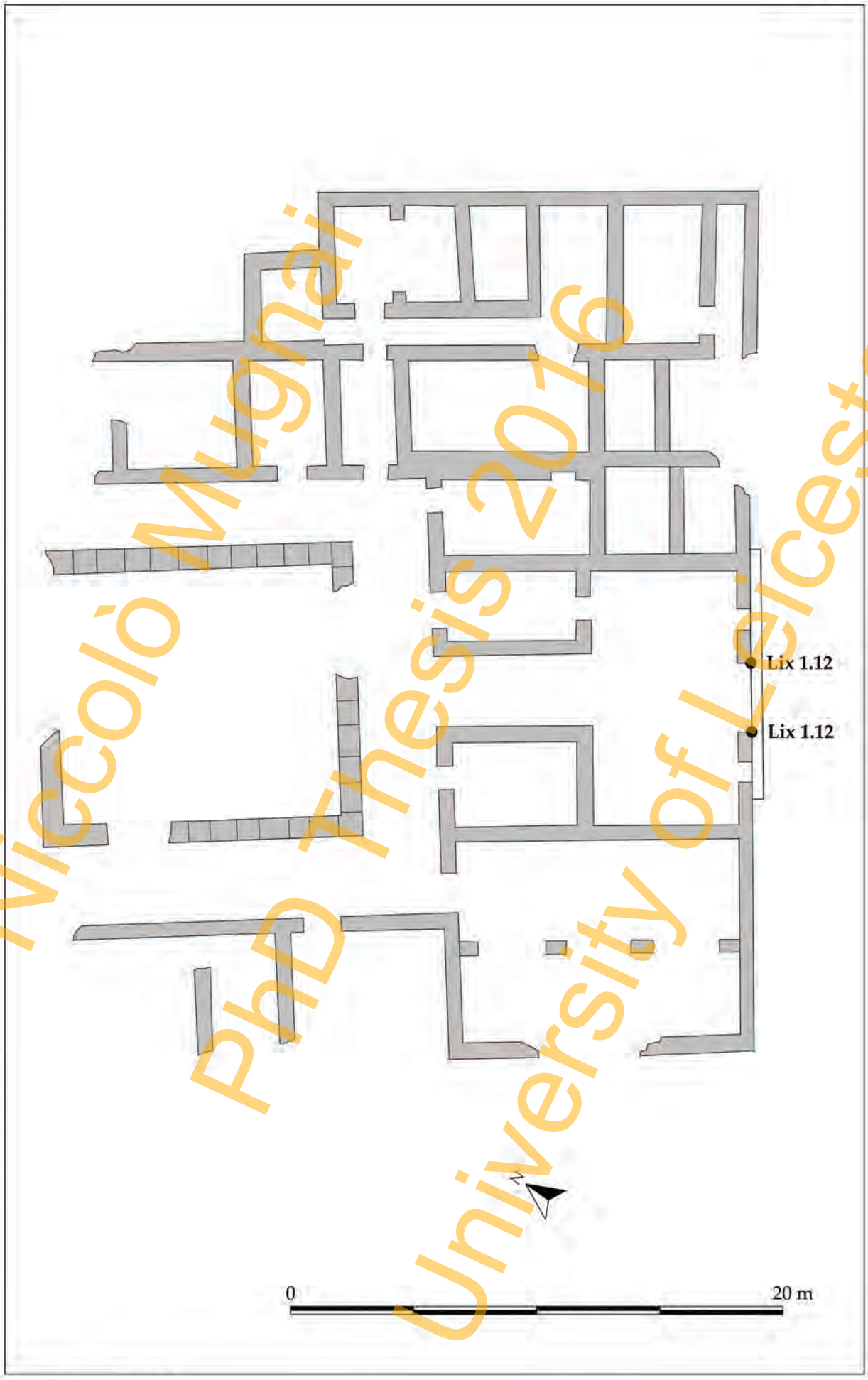

Lixus: *Domus* of Helios

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