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# COARSE WARE'S STRATIGRAPHIC EVOLUTION IN THE WESTERN ATLANTIC SHORE OF HISPANIA (475-575 AD): THE CASE OF ALMOÍNHAS, LOURES, LISBON (475-500 AD)

*Questo lavoro segue gli studi e gli sviluppi più recenti riguardanti la stratigrafia del sito di Almoínhas, che conta oltre quaranta contesti tra il V e il VI secolo d.C. con una buona quantità di evidenze materiali e qualità statistica. Si tratta di uno studio rilevante per la ricerca sulle ceramiche grezze nella costa occidentale dell'Atlantico della* Hispania*, specialmente nel territorio collegato a Olisipo, dato che fino a poco tempo fa i dati stratigrafici disponibili sulle ceramiche grezze per la regione erano molto scarsi. Esso mira all'ampliamento delle conoscenze relative a queste produzioni ceramiche in un periodo cronologico di solito di analisi complessa.*
*I contesti qui presentati sono associati alle ultime fasi dell'occupazione del sito, in particolare le ultime evidenze abitative, con segni di accampamento, e la fase di abbandono dei due edifici principali che sicuramente sono crollati nella prima metà del VI secolo d.C.*

## 1. Introduction

Located in the Roman province of *Lusitania* (*fig.* 1), on the actual valley of the Loures river, near the Roman town of *Olisipo* and the road heading north to *Conimbriga* (*fig.* 2), in a region that was propitious to agricultural work, the site of Almoínhas has an occupation that nowadays is known to have spanned between the late 1st century or early 2nd century AD and the second quarter of the 6th century AD[1].

The site was firstly interventioned by the municipality of Loures in the years between 1995 and 2001, through the opening of various sectors (I-VI), in order to ascertain the potential of the site. It has been discovered a burial site, a portion of a waste dump and a portion of a building. After this moment the site remained untouched until 2006-2007 when, due to the construction of a commercial area and respective road accesses, new archaeological interventions took place.

[1] Quaresma 2018; Quaresma 2018-2019; Quaresma 2019; Quaresma 2020a; Quaresma 2021; Lopes 2022.


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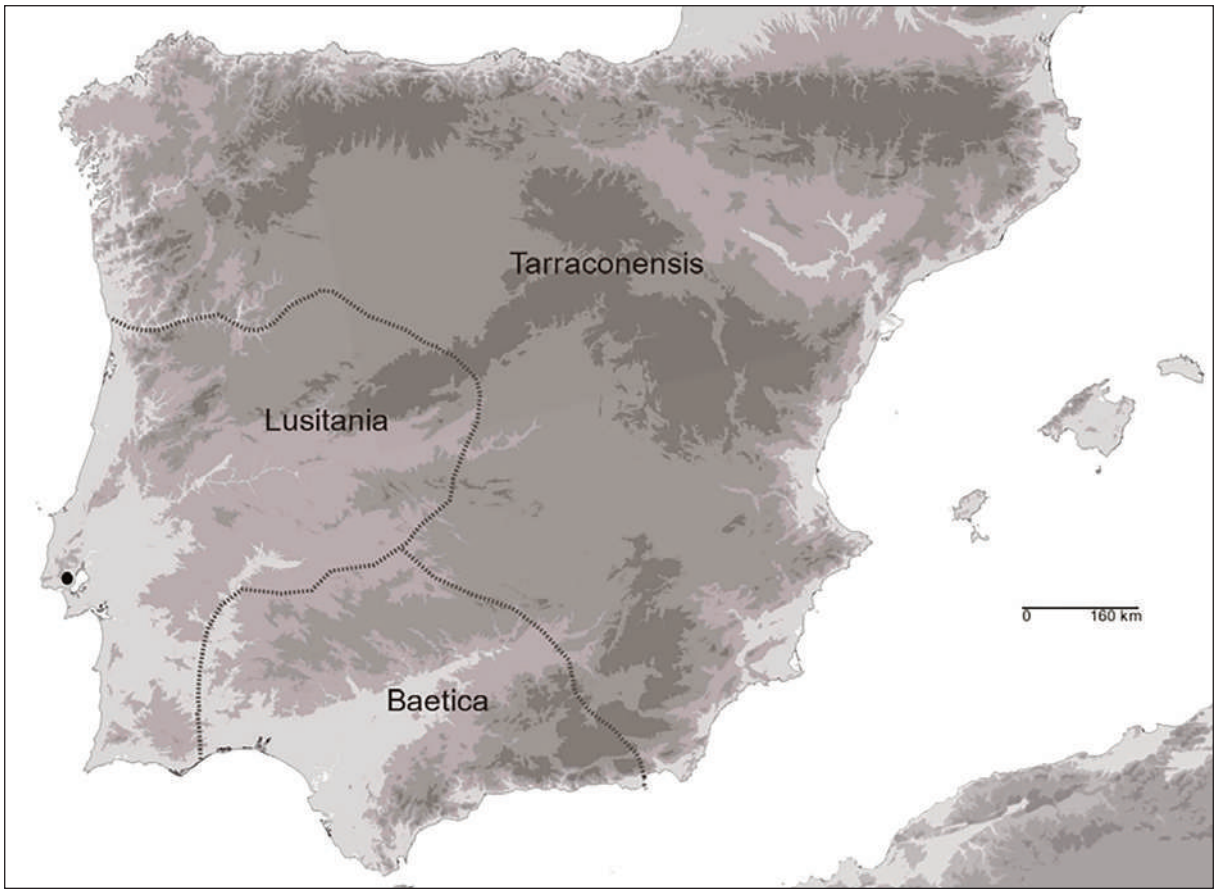



1. GENERAL LOCATION OF ALMOÍNHAS IN *HISPANIA* AND *LUSITANIA*'S PROVINCE (elaboration by Authors)

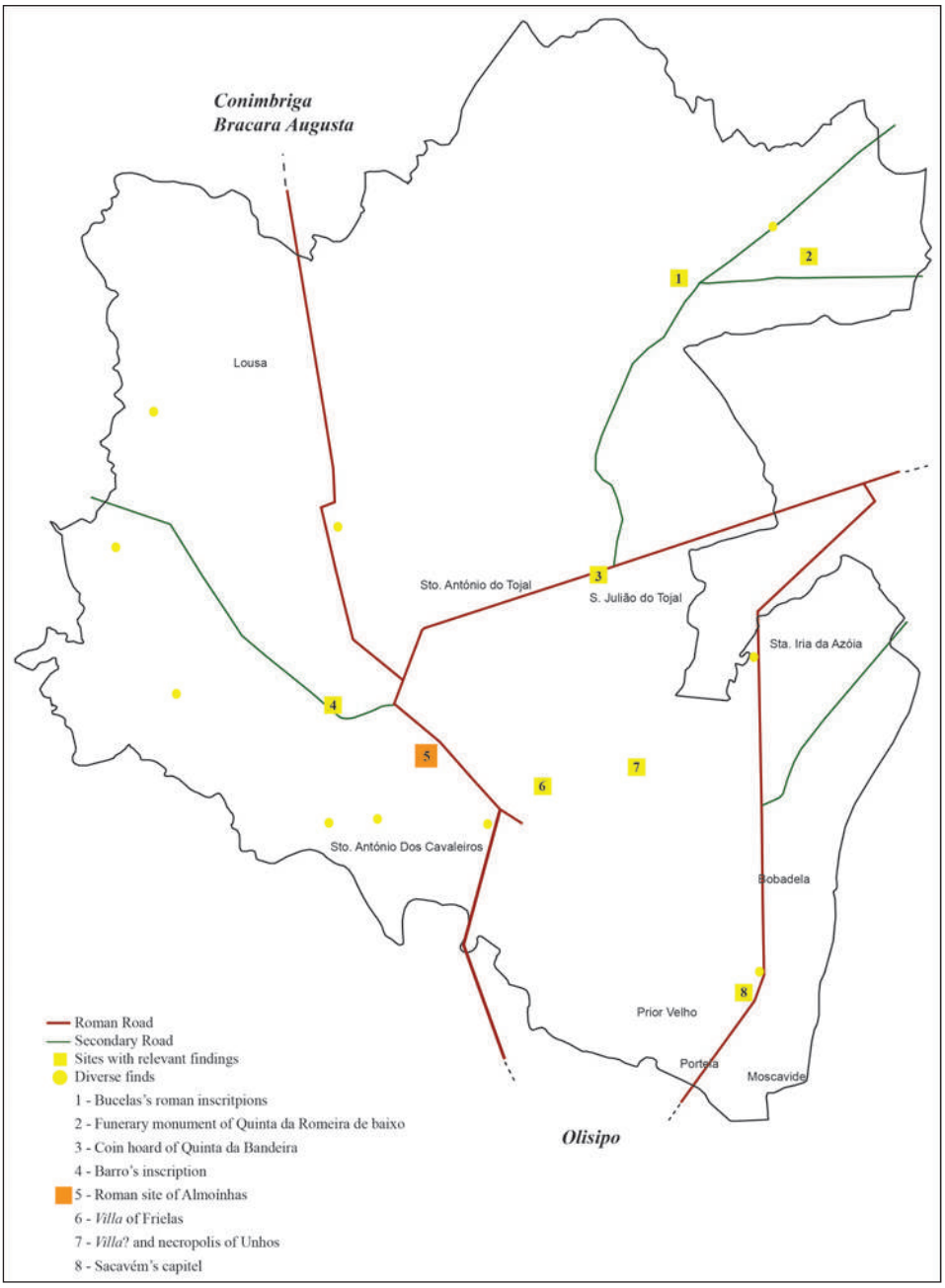
Firstly, the archaeological excavations have opened over thirty trenches to determine the archaeological potency of several parts of the affected area, being followed by excavations under a methodology of open area: different areas of excavation were named differently during the various phases of the intervention, firstly being called *sectores* and later *áreas*.

This new intervention, performed by the company ERA, produced the vastest amount of information regarding the site. Its data was summarily published in 2012[2]. Following this process, studies of fine ware assemblages from the site produced the first complete image of the chronological and comercial evolution of Almoínhas. Alongside the data related to fine wares and the study of the amphorae it was possible to re-analise the evolution of the structures of the site and develop the first proposes made in 2012 by Sandra Brazuna and Manuela Coelho. With regard to the nature of the site, the current discussion proposes a possible function of *vicus* due to its complexity instead of the status of *villa* initialy proposed by other researchers[3].

The foundation of the site occurs, at least, in the beginning of the 1st century AD with the construction of three ceramic kilns; a residential building (Área 1); two buildings probably associated to production or storage of goods, counting with at least one *horreum* (Área 3) and a funerary area that spans between the 2nd and 3rd centuries AD, this zone unfortunately being only partially known (*fig.* 3).

There are evidences that other structures existed in sector IV of the municipal interventions and in Área 4 of ERA's excavation.

[2] Brazuna, Coelho 2012.
[3] Oliveira 1998; Coelho 2007; Brazuna, Coelho 2012.

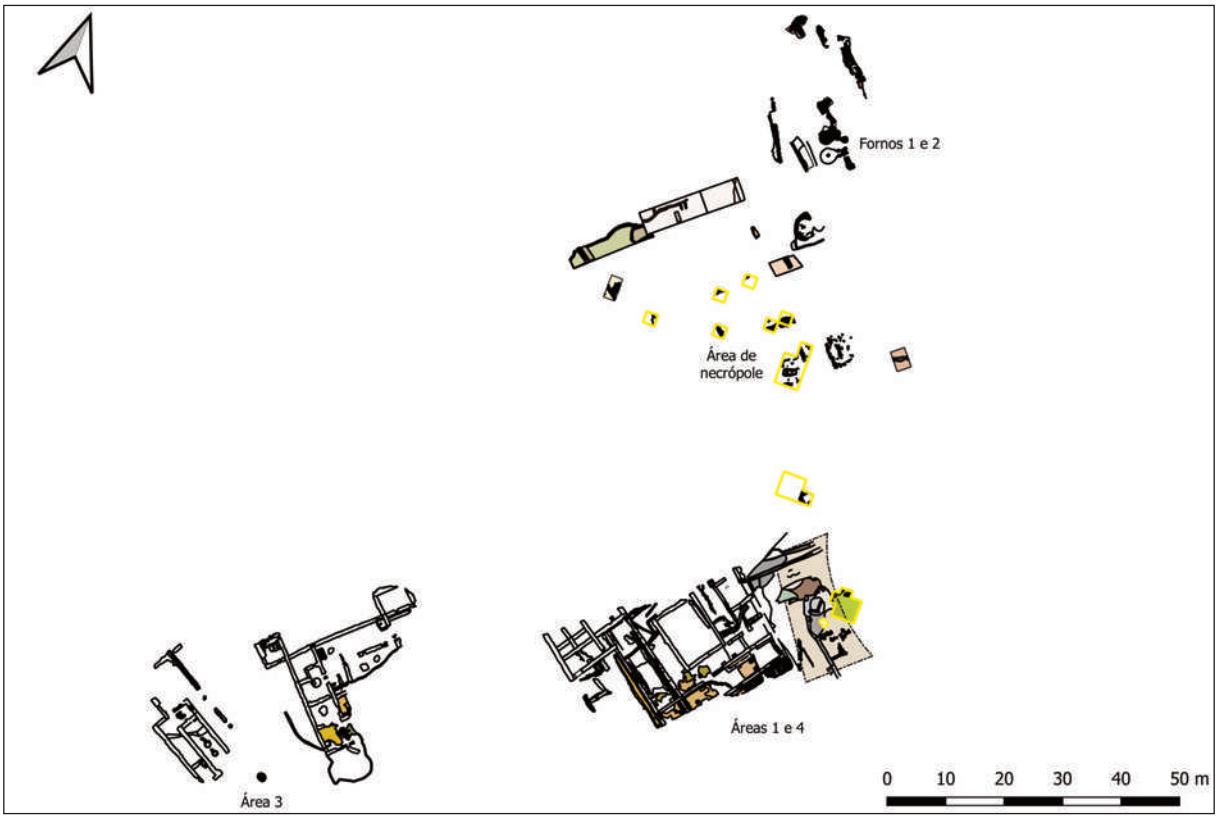



2. LOURES'S REGION WITH THE MOST RELEVANT ROMAN SITES AND A PROPOSAL FOR THE ROMAN ROADS (adapted from Silva 2012)

Nevertheless, due to the lack of excavated areas in the first case and poor preservation of evidence in the second one, it is not possible to ascertain the functionality of those spaces, neither their chronological evolution.

Around the middle and second half of the 3rd century the residential building will suffer a large reformation, possibly related to significant problems that the building had related to runoff water, given that the main reformations are related to water management structures.

Possibly associated to these reformations is the deactivation of the building in Área 4 (contiguous to the residential building) and the creation of a waste dump that has several stratigraphic units that span through the 4th century of which we call the attention upon the discovery of two milestones, evidence that allows to establish a connection between the Roman site and the nearby road of *Olisipo-Bracara Augusta*.




3. OVERVIEW OF ALL THE ARCHAEOLOGICAL STRUCTURES CURRENTLY KNOWN AT THE SITE OF ALMOÍNHAS (from LOPES 2022)

## 2. THE LATE CONTEXTS OF ALMOÍNHAS (5-6TH CENTURIES AD)

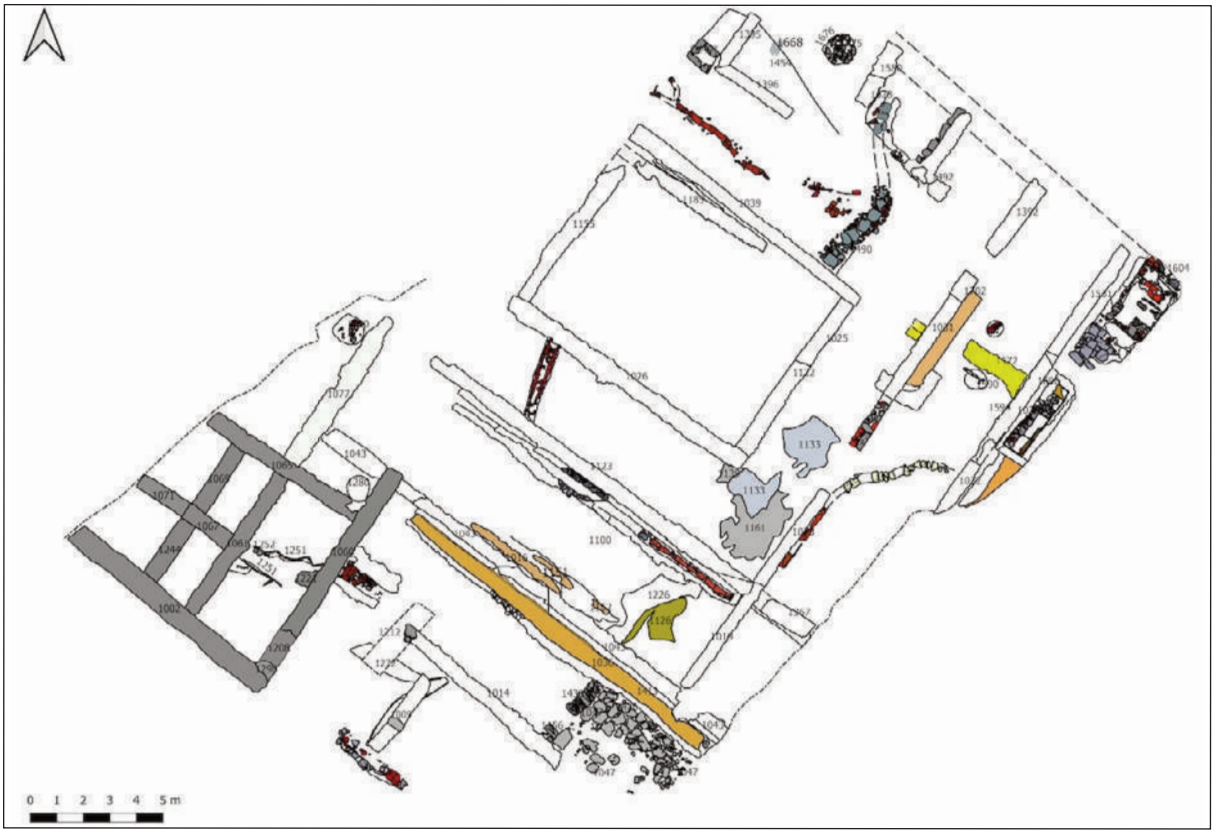
Regarding the stratigraphy of the 5th and 6th centuries at Almoínhas, it was possible to identify a total of 49 strata that we can date (with material evidence) between 400+ and 525+ AD, of which only 21 are from the habitational building of Área 1. Some other units, due to their stratigraphic relations, are possibly dated to these phases[4].

These units correspond, mostly, to a period of profound alterations in the organic of the building, namely with an occupation that alters most of the internal organization of the house, through squatting, namely trough the construction of several walls that block the previous hallways and compartmentalizes the peristyle area in various smaller spaces.

These changes can be divided in at least three moments. The first alterations (400+ AD; *fig.* 4) are not yet markedly a reoccupation of the space, given that the available archaeological evidence corresponds solely to one possible fireplace and the construction of a wall that divides a previous compartment, but does not preclude the regular use of the house.

By the beginning of the second quarter of the 5th century AD (phase from 425+) we have two moments of occupation that unfortunately are impossible to discern with more precision. Therefore, some of these changes might indeed have occurred between 425 and 500 AD, without a clear chronology. The first alteration of the phase from 425+ AD (*fig.* 5) corresponds to the construction of a tank within the central peristyle of the house. This structure will then be partially obliterated, in a second moment (*fig.* 6), for the implantation of the walls associated with the squatting actions that will deactivate the peristyle.

[4] See, footnote n. 1.




4. ALTERATIONS, IN YELLOW, OF THE RESIDENTIAL BUILDING IN THE PHASE OF 400+ AD (from Lopes 2022)

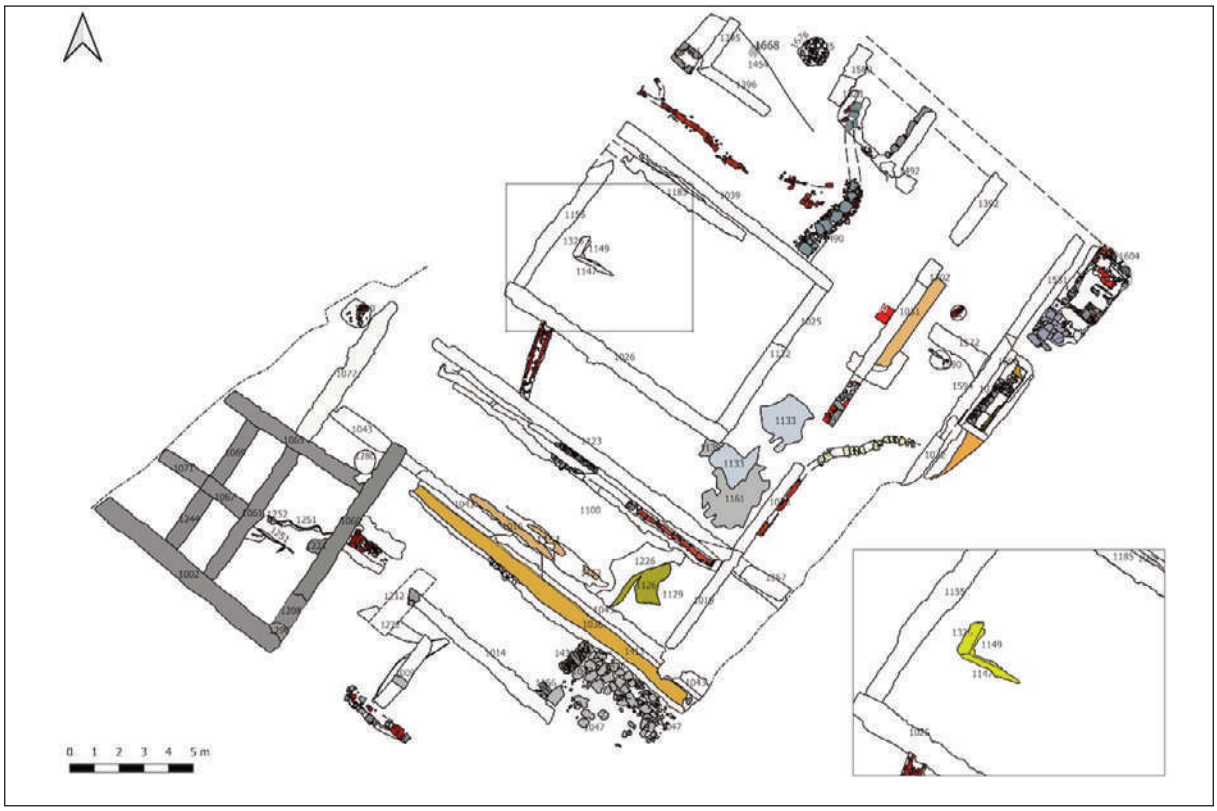
The stratigraphic units of the 6th century are not, mostly, associated to the usage of the space, but indeed with the various moments of collapse of the building. They reflect the possible first floor or the roof, being the units in analysis in this paper the roof collapse, related to units [1015] and [1018].

Regarding the remaining structures of the site, the reality for this period is scarce. It was possible to identify a continuity of occupation in both buildings (productive function?) of Área 3, with new evidences that suggest a shift for a habitational occupation through the occurrence of squatting. Unfortunately, the conservation status of this area of the site, closer to the surface and damaged by recent agricultural structures that were constructed above it, deeply affected the biggest part of the building and conditioned the analysis of the archaeological evidence.

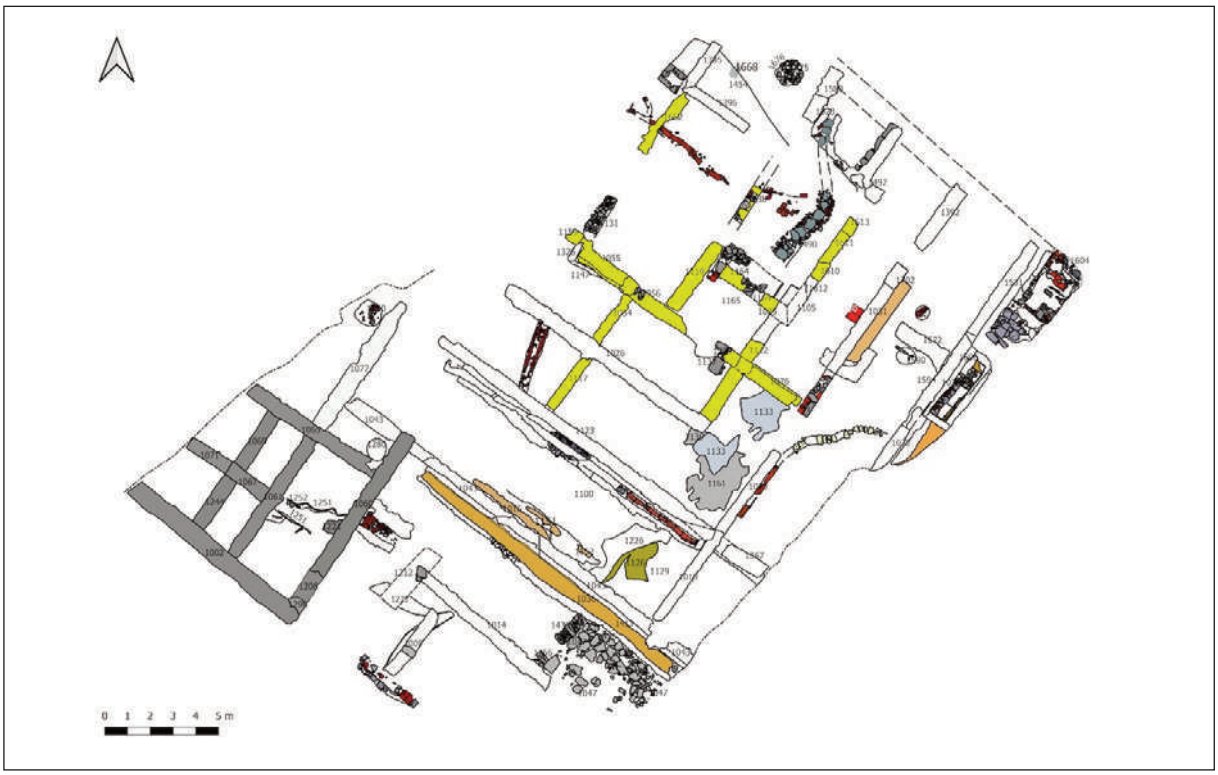
Despite this, it is possible to determine that somewhere in the 5th century part of the walls and roof of the structure of the biggest building collapsed and, albeit this, new walls were constructed in the centre of the building in a moment after 400 AD. It shows a new occupation of the site that is also concerned with the reducing of the previous area of the various compartments and the adaptation of the area into various independent units[5].

This reality will also be noted in the smaller building from the middle of the century (450/460 AD), when the previous reality is deeply altered with the expansion of the building area and the construction of various structures for habitational use, such as a fireplace and two tanks[6].

[5] Lopes 2022, pp. 73-74.
[6] Lopes 2022, pp. 75-76.




5. FIRST PHASE FROM 425+ AD WITH THE CONSTRUCTION OF A TANK WITHIN THE PERISTYLE (from Lopes 2022)




6. SECOND PHASE FROM 425+ AD WITH THE SQUATTING ACTIONS AND DEFINITIVE DEACTIVATION OF THE PERISTYLE (from Lopes 2022)

There is also another structure of dubious nature that might also be related to the disposal of liquid wastes, with a pierced bottom of *dolium* being used as a drainer[7].

The beginning and the second quarter of the 6th century (phases of 500+ and 525+ AD) also showcases the continuity of the collapse and occupation of the biggest building of Área 3, this time through the construction of pavements and fireplaces with materials removed from the collapse of the walls.

These pavements occupy only partially the compartments of the building and have left much of the collapse untouched alongside them. There seems to occur a concern, to occupy the necessary space for inhabiting, without restoring any other structures and even destroying some of them. It is the case of the phase of 500+ AD, when one of the walls was partially demolished for the opening of a canal, in order to conduct water into the exterior of the building[8].

Overall, the occupation of the site is diminishing over the 6th century, taking into account that by this moment:

- the smallest of the buildings from Área 3 had been abandoned;
- the squatting in the biggest building is reduced to only part of the structure;
- in the habitational building of Área 1, the constructed evidences cease in the first quarter of the 5th century;
- and only the construction materials testify a continuity of occupation, although it is not certain whether it was constant through time or episodic.

The stratigraphic relations of the matrix (*fig.* 7) seem to imply that the occupation of Área 1, much like the biggest building of Área 3, became increasingly fragmented within the building. It has possibly adapted the occupation to the progressive collapse of the roof and walls, abandoning those areas filled with debris.

In what concerns the material evidence (fine ware, amphorae and glasses), it must be pointed out the seemingly elevated residualities (between 40% and 50% in the 5th century units and between 50% and 60% in the 6th century AD)[9].

## 3. Chronology of units [1015] and [1018]

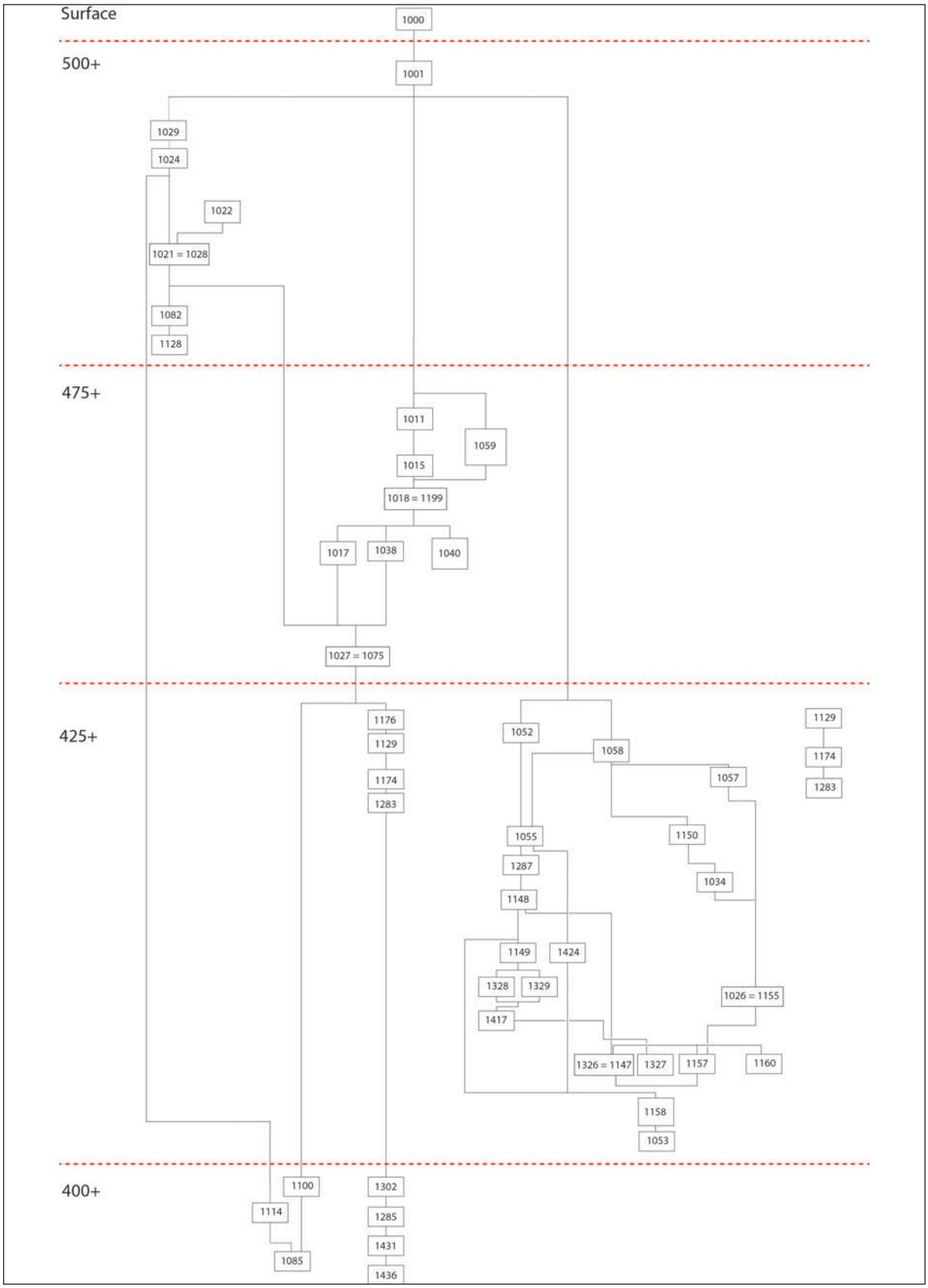
Regarding the chronology proposed for the strata [1015] and [1018], theoretically equivalent since both belong to the same nature of context (roof collapse) and provided common materials between them, the dating is not directly provided by the Samian ware, glass and amphorae of this deposits.

Almost the entirety of this *spolia* is residual and the few cohesive materials with long commercial life contribute little for the narrowing of a contextual chronology (glass Isings 116 and amphorae Almagro 51C and Almagro 51A-B).

It must be added that in what regards *terra sigillata* the residuality is of almost 100%: at level [1015] only the African D1 type Hayes 61A/B-2/3 (*fig.* 8) might be contemporary; at unit [1018] solely the Late Phocean seems to be contemporary, although no clear type was identified (*fig.* 9).

At Área 1, it was possible to determine, from the stratigraphic relation of overlap between the roof collapse [1018] and the context [1027], a *terminus post quem* of at least 475+ AD, given the presence in the level [1027] of a vessel of Late Phocean type Hayes 3E whose crono-typology is now pointed to have started in the late 5th century AD[10], instead of the previous proposal of John Hayes[11] for the beginning of the 6th century AD.

[7] Coelho 2007.
[8] Lopes 2022, p. 77.
[9] Lopes 2022, pp. 252-261.
[10] Reynolds 2011, p. 208.




7. SUMMARIZED STRATIGRAPHIC MATRIX OF THE 5TH AND 6TH CENTURY UNITS OF ÁREA 1 FROM ALMOÍNHAS (elaboration by Authors)

| Typology | Origin | Type | Sub-type | Sherds | MNV | MNV by origin | % | % total |
|---|---|---|---|---|---|---|---|---|
| Terra Sigillata | South Gaulish | Drag. 18r | - | 1 | 1 | 1 | 14,29% | 1,37% |
| | | Undetermined | - | 1 | - | | | |
| | Hispanic, La Rioja | Undetermined | - | 1 | 1 | 1 | 14,29% | 1,37% |
| | Hispanic, Andújar | Undetermined | - | 1 | 1 | 1 | 14,29% | 1,37% |
| | African A | Undetermined | - | 2 | 1 | 1 | 14,29% | 1,37% |
| | African C | Hayes 48A | - | 1 | 1 | 1 | 14,29% | 1,37% |
| | African D1 | Hayes 61A/B | - | 1 | 1 | 2 | 28,57% | 2,74% |
| | | Hayes 61A/B-2/3 | - | 1 | 1 | | | |
| | Total | | | 9 | 7 | 7 | 100,00% | 9,59% |
| Lamp | Local/Regional | Undetermined | - | 1 | 1 | 1 | 100,00% | 1,37% |
| | Total | | | 1 | 1 | 1 | 100,00% | 1,37% |
| Glass | Olive green | Isings 116/ campanula-shaped bowl | - | 1 | 1 | 2 | 66,67% | 2,74% |
| | | Flagon | - | 1 | 1 | | | |
| | | Undetermined | - | 5 | - | | | |
| | Opaque green | Undetermined | - | 1 | 1 | 1 | 33,33% | 1,37% |
| | Total | | | 8 | 3 | 3 | 100,00% | 4,11% |
| Amphora | *Lusitania, Tagus*/Sado | Almagro 50/51C | - | 1 | - | 13 | 86,67% | 17,81% |
| | | Almagro 51C | - | 9 | 5 | | | |
| | | Late Almagro 51C | - | 2 | 2 | | | |
| | | Lusitana 3 | - | 2 | 2 | | | |
| | | Dressel 14 | - | 1 | 1 | | | |
| | | Lusitana 9 | - | 2 | 2 | | | |
| | | Lusitana 9? | - | 1 | - | | | |
| | | Almagro 51A-B | - | 1 | 1 | | | |
| | | Undetermined | - | 167 | - | | | |
| | *Baetica, Guadalquivir* | Haltern 70 | - | 1 | 1 | 2 | 13,33% | 2,74% |
| | | Dressel 20 | - | 1 | 1 | | | |
| | | Undetermined | - | 2 | - | | | |
| | Total | | | 190 | 15 | 15 | 100,00% | 20,55% |
| **Typology** | **Origin** | **Type** | **Sub-type** | **Sherds** | **MNV** | **MNV by origin** | **%** | **% total** |
| Coarse ware | Local coarse ware | Casserole | Small bent rim (-15mm) | 1 | 1 | 3 | 6,38% | 4,11% |
| | | | Medium bent rim (+15mm) | 1 | 1 | | | |
| | | | Large bent rim (+19mm) | 1 | 1 | | | |
| | | Basin | Oblique flap rim | 1 | 1 | 3 | 6,38% | 4,11% |
| | | | Horizontal flap rim | 1 | 1 | | | |
| | | | - | 1 | 1 | | | |
| | | | Und. | 3 | - | | | |
| | | Mortar | - | 2 | 2 | 2 | 4,26% | 2,74% |
| | | Mortar or bowl | - | 1 | 1 | 1 | 2,13% | 1,37% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Dolium | Gland rim | 3 | 3 | 3 | 6,38% | 4,11% |
| | | | - | 1 | - | | | |
| | | Imitation of terra sigillata | Style Ai-ii | 1 | 1 | 2 | 4,26% | 2,74% |
| | | | Style Aii | 1 | 1 | | | |
| | | Flagon | - | 2 | 1 | 1 | 2,13% | 1,37% |
| | | Closed form (Flagon or Jug?) | - | 1 | - | 0 | 0,00% | 0,00% |
| | | Olla | S shaped rim with flat top | 4 | 4 | 4 | 8,51% | 5,48% |
| | | Jar | S shaped rim | 7 | 7 | 10 | 21,28% | 13,70% |
| | | | Globular | 3 | 3 | | | |
| | | Open plate | - | 8 | 8 | 8 | 17,02% | 10,96% |
| | | Cup | - | 1 | 1 | 1 | 2,13% | 1,37% |
| | | Lid | Simple rim | 2 | 2 | 4 | 8,51% | 5,48% |
| | | | Simple rim with flap | 2 | 2 | | | |
| | | Undetermined | - | 488 | - | - | 0,00% | 0,00% |
| | Local coarse ware - kaolinitic fabric | Flagon | - | 1 | 1 | 1 | 2,13% | 1,37% |
| | | Undetermined | - | 7 | - | | | |
| | Local coarse ware - fine quartzitic fabric | Flagon | - | 3 | 2 | 2 | 4,26% | 2,74% |
| | | Undetermined | - | 8 | - | | | |
| | *Baetica*, Guadalquivir | Undetermined | - | 2 | 1 | 1 | 2,13% | 1,37% |
| | Grey ware | Open plate | Introverted rim | 1 | 1 | 1 | 2,13% | 1,37% |
| | Total | | | 558 | 47 | 47 | 100,00% | 64,38% |
| TOTAL | | | | 766 | 73 | 73 | 100,00% | 100% |

8. ALMOÍNHAS: TOTAL QUANTIFICATIONS OF S.U. [1015] (elaboration byAuthors)

Besides this, units [1018] and [1015] are overlapped by unit [1001] whose dating, through the presence of Late Phocean type Hayes 3F, is already pointed to 500+ AD. It seems therefore to validate the proposal of the last quarter of the 5th century AD for these two strata.

The proposal of this chronology is also reinforced, as it will be demonstrated through the results of this paper, by the comparison of coarse ware from these contexts with earlier and later contexts known in the near Roman town of *Olisipo* (presently Lisboa). The data of Almoínhas are a mirror of the transition period between the remains of the Roman habits of the 4th-5th centuries AD and the Late Antique lifestyle of the 6th century AD and onwards.

The phase of 475+ AD, previously unknown in this part of the site[12], seems to correspond to the moment of collapse of most of the roofs of the habitational area. A human occupation has possibly occurred after this phase, although possibly less intense, until the beginning of the 6th century AD.

This proposal seems to be reinforced by the presence, once again, of a fragment of Late Phocean type Hayes 3F at level [1128][13], context that corresponds to the collapse of the remaining roofs of the building.

[11] Hayes 1972.
[12] See, footnote 1.
[13] Lopes 2022, p. 384.

| Typology | Origin | Type | Sub-type | Sherds | MNV | MNV by origin | % | % of the global |
|---|---|---|---|---|---|---|---|---|
| Terra Sigillata | South Gaulish | Drag. 18 | - | 1 | 1 | 1 | 1,85% | 0,17% |
| | | Undetermined | - | 1 | - | | | |
| | Hispanic, La Rioja | Hisp. 20? | - | 1 | 1 | 1 | 1,85% | 0,17% |
| | African A | Hayes 14 | - | 3 | 1 | 35 | 64,81% | 5,89% |
| | | Hayes 14A | - | 6 | 6 | | | |
| | | Hayes 14B | - | 6 | 6 | | | |
| | | Hayes 14C | - | 5 | 5 | | | |
| | | Hayes 15 | - | 4 | 4 | | | |
| | | Hayes 15, early variant | - | 3 | 3 | | | |
| | | Hayes 16 | - | 5 | 5 | | | |
| | | Hayes 6 | - | 4 | 3 | | | |
| | | Hayes 9B | - | 1 | 1 | | | |
| | | Hayes 27 | - | 1 | 1 | | | |
| | | Undetermined | - | 72 | - | | | |
| | African A/D | Hayes 31 | - | 1 | 1 | 1 | 1,85% | 0,17% |
| | African C | Hayes 44 | - | 2 | 2 | 9 | 16,67% | 1,52% |
| | | Hayes 45 | - | 1 | 1 | | | |
| | | Hayes 45B | - | 1 | 1 | | | |
| | | Hayes 50A | - | 6 | 5 | | | |
| | | Undetermined | - | 29 | - | | | |
| | African D1 | Hayes 58B | - | 2 | 2 | 5 | 9,26% | 0,84% |
| | | Hayes 59 | - | 1 | 1 | | | |
| | | Hayes 61A | - | 1 | 1 | | | |
| | | Hayes 70/71 | - | 1 | 1 | | | |
| | | Undetermined | - | 22 | - | | | |
| | African D2 | Style Aii | - | 1 | 1 | 1 | 1,85% | 0,17% |
| | Late Phocean | Hayes 2? | - | 2 | 1 | 1 | 1,85% | 0,17% |
| | | Undetermined | - | 3 | - | | | |
| | Total | | | 186 | 54 | 54 | 100,00% | 9,09% |
| African cooking ware | Slip African Sigillata A | Hayes 181 | - | 1 | 1 | 3 | 7,50% | 0,51% |
| | | Hayes 181D | - | 2 | 2 | | | |
| | | Undetermined | - | 4 | - | | | |
| | Orlo annerito | Hayes 195 | - | 3 | 3 | 28 | 70,00% | 4,71% |
| | | Hayes 196A | - | 10 | 10 | | | |
| | | Hayes 196B | - | 1 | 1 | | | |
| | | Hayes 197 | - | 5 | 2 | | | |
| | | Hayes 181B | - | 1 | 1 | | | |
| | | Hayes 181C | - | 1 | 1 | | | |
| | | Hayes 195 A | - | 1 | 1 | | | |
| | | Hayes 195 C | - | 3 | 3 | | | |
| | | Ostia I, 261 | - | 1 | 1 | | | |
| | | Hayes 23 | - | 2 | 1 | | | |
| | | Hayes 23B | - | 4 | 4 | | | |
| | Without finishing | Hayes 181 | | 1 | 1 | 9 | 22,50% | 1,52% |
| | | Hayes 195 | | 7 | 7 | | | |
| | | Hayes 185 | | 1 | 1 | | | |
| | Undetermined | Undetermined | - | 19 | - | - | 0,00% | 0,00% |
| | Total | | | 67 | 40 | 40 | 100,00% | 6,73% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lamps | Africa, Zeugitania | Atlante VIII A1c/A2b | - | 1 | 1 | 1 | 20,00% | 0,17% |
| | Hispania, fabric 1c | Undetermined | - | 1 | 1 | 1 | 20,00% | 0,17% |
| | *Baetica* | Undetermined | - | 1 | 1 | 1 | 20,00% | 0,03% |
| | Local/ Regional | Dressel 30? | - | 1 | 1 | 2 | 40,00% | 0,34% |
| | | Disc | - | 1 | 1 | | | |
| | | Undetermined | - | 10 | - | | | |
| | Total | | | 15 | 5 | 5 | 100,00% | 0,71% |
| Glass | Opaque blue | Isings 97? | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | Ice blue | Primatic bottle | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Primatic bottle ? | - | 2 | - | | | |
| | Colourless | Ar. 98 | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 18 | | | | |
| | Opaque colourless | Window | - | 2 | 1 | 1 | 11,11% | 0,17% |
| | Green | Isings 50 | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 1 | - | | | |
| | Light green | Flagon | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 4 | | | | |
| | Olive green | Isings 116/ campanula-shaped bowl | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | Dark olive green | Isings 116/ campanula-shaped bowl | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 1 | - | | | |
| | Dark green | Isings 50 | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | Total | | | 36 | 9 | 9 | 100,00% | 1,52% |
| Amphora | Lusitania, Tagus/Sado | Almagro 50 | - | 5 | 4 | 34 | 87,18% | 5,72% |
| | | Almagro 51C | - | 32 | 18 | | | |
| | | Late Almagro 51C | - | 1 | 1 | | | |
| | | Lusitana 3 | - | 13 | 6 | | | |
| | | Dressel 14 | - | 3 | 3 | | | |
| | | Keay LXXVIII/Sado 1 | - | 1 | 1 | | | |
| | | Almagro 51A-B | - | 3 | 1 | | | |
| | | Undetermined | - | 250 | - | | | |
| | Baetica, Guadalquivir | Dressel 20 | - | 2 | 2 | 3 | 7,69% | 0,51% |
| | | Dressel 20 (third century AD) | - | 1 | 1 | | | |
| | | Undetermined | - | 6 | - | | | |
| | Coastal Baetica | Almagro 51A-B | - | 1 | 1 | 1 | 2,56% | 0,17% |
| | | Undetermined | - | 7 | - | | | |
| | Narbonensis | Gauloise 4 | - | 1 | 1 | 1 | 2,56% | 0,17% |
| | Baetica or Tarraconensis | Undetermined | - | 1 | - | - | 0,00% | 0,00% |
| | Total | | | 327 | 39 | 39 | 100,00% | 6,57% |
| African cooking ware imitations | L/R - fabric 1 | Hayes 196A | - | 1 | 1 | 20 | 100,00% | 3,37% |
| | L/R - fabric 2 | Hayes 196A | - | 10 | 10 | | | |
| | L/R - fabric 3 | Fulford 20.6 | - | 6 | 6 | | | |
| | L/R - fabric 4 | Fulford 20.1 | - | 1 | 1 | | | |
| | - | Inspired in Hayes 197 | - | 2 | 2 | | | |
| | Total | | | 20 | 20 | 20 | 100,00% | 3,37% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Lamps | Africa, Zeugitania | Atlante VIII A1c/A2b | - | 1 | 1 | 1 | 20,00% | 0,17% |
| | Hispania, fabric 1c | Undetermined | - | 1 | 1 | 1 | 20,00% | 0,17% |
| | *Baetica* | Undetermined | - | 1 | 1 | 1 | 20,00% | 0,03% |
| | Local/ Regional | Dressel 30? | - | 1 | 1 | 2 | 40,00% | 0,34% |
| | | Disc | - | 1 | 1 | | | |
| | | Undetermined | - | 10 | - | | | |
| | Total | | | 15 | 5 | 5 | 100,00% | 0,71% |
| Glass | Opaque blue | Isings 97? | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | Ice blue | Primatic bottle | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Primatic bottle ? | - | 2 | - | | | |
| | Colourless | Ar. 98 | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 18 | | | | |
| | Opaque colourless | Window | - | 2 | 1 | 1 | 11,11% | 0,17% |
| | Green | Isings 50 | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 1 | - | | | |
| | Light green | Flagon | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 4 | | | | |
| | Olive green | Isings 116/ campanula-shaped bowl | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | Dark olive green | Isings 116/ campanula-shaped bowl | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | | Undetermined | - | 1 | - | | | |
| | Dark green | Isings 50 | - | 1 | 1 | 1 | 11,11% | 0,17% |
| | Total | | | 36 | 9 | 9 | 100,00% | 1,52% |
| Amphora | Lusitania, Tagus/Sado | Almagro 50 | - | 5 | 4 | 34 | 87,18% | 5,72% |
| | | Almagro 51C | - | 32 | 18 | | | |
| | | Late Almagro 51C | - | 1 | 1 | | | |
| | | Lusitana 3 | - | 13 | 6 | | | |
| | | Dressel 14 | - | 3 | 3 | | | |
| | | Keay LXXVIII/Sado 1 | - | 1 | 1 | | | |
| | | Almagro 51A-B | - | 3 | 1 | | | |
| | | Undetermined | - | 250 | - | | | |
| | Baetica, Guadalquivir | Dressel 20 | - | 2 | 2 | 3 | 7,69% | 0,51% |
| | | Dressel 20 (third century AD) | - | 1 | 1 | | | |
| | | Undetermined | - | 6 | - | | | |
| | Coastal Baetica | Almagro 51A-B | - | 1 | 1 | 1 | 2,56% | 0,17% |
| | | Undetermined | - | 7 | - | | | |
| | Narbonensis | Gauloise 4 | - | 1 | 1 | 1 | 2,56% | 0,17% |
| | Baetica or Tarraconensis | Undetermined | - | 1 | - | - | 0,00% | 0,00% |
| | Total | | | 327 | 39 | 39 | 100,00% | 6,57% |
| African cooking ware imitations | L/R - fabric 1 | Hayes 196A | - | 1 | 1 | 20 | 100,00% | 3,37% |
| | L/R - fabric 2 | Hayes 196A | - | 10 | 10 | | | |
| | L/R - fabric 3 | Fulford 20.6 | - | 6 | 6 | | | |
| | L/R - fabric 4 | Fulford 20.1 | - | 1 | 1 | | | |
| | - | Inspired in Hayes 197 | - | 2 | 2 | | | |
| | Total | | | 20 | 20 | 20 | 100,00% | 3,37% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Jar/Olla | S shaped rim | 2 | 2 | 10 | 2,34% | 1,68% |
| | | | Externaly thickened rounded rim | 3 | 3 | | | |
| | | | Simple rim | 1 | 1 | | | |
| | | | Plane rim | 1 | 1 | | | |
| | | | Slightly thickened verticalized rim | 1 | 1 | | | |
| | | | - | 3 | 2 | | | |
| | | Small jar | - | 60 | 16 | 16 | 3,75% | 2,69% |
| | | Small jar? | - | 1 | 1 | 1 | 0,23% | 0,17% |
| | | Plate | Extroverted rim | 1 | 1 | 2 | 0,47% | 0,34% |
| | | | Oblique rim | 1 | 1 | | | |
| | | Open plate | Plane rim | 3 | 3 | 72 | 16,86% | 12,12% |
| | | | Verticalized rim | 6 | 6 | | | |
| | | | Thickened rim with flat top | 1 | 1 | | | |
| | | | Beveled rim | 5 | 5 | | | |
| | | | Concave extroverted rim | 1 | 1 | | | |
| | | | Introverted rim | 24 | 24 | | | |
| | | | Introverted long rim | 1 | 1 | | | |
| | | | Simple rim | 27 | 27 | | | |
| | | | Thickened simple rim | 4 | 4 | | | |
| | | Cup | Flap rim | 4 | 4 | 5 | 1,17% | 0,84% |
| | | | Drooping lip rim | 1 | 1 | | | |
| | | Lid | Simple rim | 16 | 16 | 17 | 3,98% | 2,86% |
| | | | Imitation of Hayes 196? | 1 | 1 | | | |
| | | Bowl | Internaly beveled rim | 2 | 2 | 21 | 4,92% | 3,54% |
| | | | Internaly thickened rim | 3 | 3 | | | |
| | | | Slightly verticalized externaly thickened rim | 2 | 2 | | | |
| | | | Slightly externaly thickened rim | 6 | 6 | | | |
| | | | Simple rim | 8 | 8 | | | |
| | | Undetermined | - | 5292 | - | - | 0,00% | 0,00% |
| | *Baetica* | Undetermined | - | 1 | 1 | 1 | 0,23% | 0,17% |
| | Local coarse ware - kaolinitic fabric | Jug | Bifid rim | 1 | 1 | 1 | 0,23% | 0,17% |
| | | Jar? | Vertical rim | 1 | 1 | 2 | 0,47% | 0,34% |
| | | | - | 1 | 1 | | | |
| | | Small jar | - | 16 | 2 | 2 | 0,47% | 0,34% |
| | | Bowl | Oblique rim | 1 | 1 | 1 | 0,23% | 0,17% |
| | | Undetermined | - | 49 | 3 | 3 | 0,70% | 0,51% |
| | Grey ware | Casserole | Large bent rim (+19mm) | 1 | 1 | 1 | 0,23% | 0,17% |
| | | Jar | Thickened rim | 1 | 1 | 2 | 0,47% | 0,34% |
| | | | - | 1 | 1 | | | |
| | | Undetermined | - | 4 | - | - | 0,00% | 0,00% |
| | Total | | | 5879 | 427 | 427 | 100,00% | 71,89% |
| TOTAL | | | | 6530 | 594 | 594 | 100,00% | 100% |

9. ALMOÍNHAS: TOTAL QUANTIFICATIONS OF S.U. [1018] (elaboration by Authors)

This unit have not any physical relation to the unit [1018], although both are overlaid by the last phase of the site (possibly affected in some high degree by the agricultural practices in recent times) related to context [1001].

Once again, two individuals of late Phocean type Hayes 3F and a fragment of Late Hispanic type Palol 4 were collected[14].

[14] Lopes 2022, pp. 362-363.

Their crono-typology, although pointed to end around 500 AD, might have achieve the beginning of the 6th century in Almoínhas[15].

At last, in what concerns the validity of the analysed data, the intrusibility percentages are seemingly reliable ([1018] - 0,17%; [1015] - 0%). Furthermore, the sole intrusive sherd from unit [1018] might be originated from the surface layer [1001], not compromising, at our eyes, the integrity of the context.

## 4. The coarse ware of units [1015] and [1018]

Regarding the ceramic assemblage, the sample is constituted (including fine wares and amphorae) by a total of 766 fragments and 73 MNV in unit [1015] and 6530 fragments and 594 MNV in [1018]. The coarse ware, taking only into account the MNV values, totalizes 64% of unit [1015] and 72% of unit [1018].

Concerning the origin of the coarse ware, we have identified two major groups, composed by local/regional productions and imported productions from *Baetica*, although these are almost insignificant in the overall collection of coarse ware. Within the local/regional productions, besides a largely majority group (little to middle depurated quartzitic and micaceous fabrics), three other groups were identified: grey ware; kaolinitic fabric, maybe associable to the production known from Quinta do Rouxinol[16]; fine quatzitic fabric.

Within these fabrics we have identified (*fig.* 10), a total of 21 different types (plus two uncertain) that we divided in sub-types accordingly to the morphological characteristics. Due to the preservation conditions of the fragments, it consists solely of differences within the morphology of the rims.

The most represented type is undoubtedly the casserole (92 MNV), dividable in two major morphological sub-types: bent rim and vertical rim. Regarding the bent rim, which consists of a plane or diagonal rim bent to the exterior, separated or not from the body (*figg.* 11 and 14, nn. 9-10, 54-59), we opted for dividing this category into three subtypes, accordingly to the width of the rim: small (below 15mm); medium (15-19 mm); and large (above 19 mm).

The vertical rim (53 MNV) has a tendency for a vertical orientation, with an internal groove for the possible fitting of a lid.

The next most represented type is the open plate (81 MNV), characterized by a rim diameter larger than the body diameter. Its rims can be divided into the following sub-types: simple rim (*figg.* 11-15, nn. 7-8, 28, 46, 48); thickened simple rim; plane rim (n. 52); thickened rim and plane top (n. 51); verticalized rim (nn. 47,49, 50); bevelled rim; concave extroverted rim; introverted rim and introverted long rim.

Regarding the jar type (81 MNV), the sub-types detected are: simple rim (n. 87); S-shaped rim (nn. 20-23, 82-83, 85-86); small flap rim (n. 84); bifid S-shaped rim; thickened rim; thickened rim with flat top; extroverted rim; extroverted triangular rim; triangular rim; oblique rim and globular (n. 16).

It must be added to this type two other size modules: big jar with S-shaped rim (1 MNV; *fig.* 12, n. 36) and small jar (18 MNV; *fig.* 15, n. 88).

The next most represented type is the basin (50 MNV). This type is characterised by a large flap of the rim and a probable elliptic body, divisible into the following sub-types: concave flap rim; thickened and slightly curved flap rim; externally thickened flap rim; internally and externally thickened flap rim (n. 44); horizontal flap rim (n. 6); thickened horizontal rim (n. 43); oblique flap rim (nn. 37-42); oblique thickened flap rim and triangular rim with horizontal handle.

[15] Paz Peralta 2008.
[16] Raposo *et al.* 2018.

| Origin | Type | MNV |
|---|---|---|
| Local coarse ware | Casserole | 92 |
| | Open plate | 81 |
| | Jar | 81 |
| | Basin | 50 |
| | Olla | 34 |
| | Bowl | 22 |
| | Flagon | 21 |
| | Lid | 21 |
| | Small Jar | 18 |
| | Olla/Jar | 10 |
| | Dolium | 10 |
| | Pan | 7 |
| | Cup | 6 |
| | Imitation of terra sigillata | 4 |
| | Jar? | 3 |
| | Plate | 2 |
| | Mortar | 2 |
| | Jug | 1 |
| | Pitcher | 1 |
| | Big jar | 1 |
| | Small Jar ? | 1 |
| | Mortar or bowl | 1 |
| Total | | 469 |

10. ALMOÍNHAS: TOTAL MNV OF LOCAL COARSE WARE BY TYPE AT THE UNITS [1015] AND [1018] OF ALMOÍNHAS (elaboration by Authors)

*Ollae* (34 MNV), a closed form with globular shape, whose rim has a smaller diameter than the body, can be divided into eight different sub-types: angled rim (nn. 77, 80); S-shaped rim (n. 18); S-shaped rim with plane top (n. 19); slightly thickened rim (nº 78); thickened rim with flat top; extroverted rim with flat top; oblique rim (n. 79); and verticalized rim.

Another form with a fairly representation is the bowl (22 MNV), dividable into six sub-types: simple rim (nn. 68-69); slightly verticalized wall and externally thickened rim (n. 70); bevelled rim (n. 71); internally thickened rim; slightly externally thickened rim; and oblique rim.

Regarding the flagons (21 MNV; *fig.* 11, nn. 14-15), this type has not substantial morphological differences, consisting in a closed form, destined to contain liquids, that has a fairly simple rim, usually with a diameter slightly larger than that of the neck.

Within the fine quartzitic fabric the transition from the neck to the shoulder seems to be made by a pronounced angle.

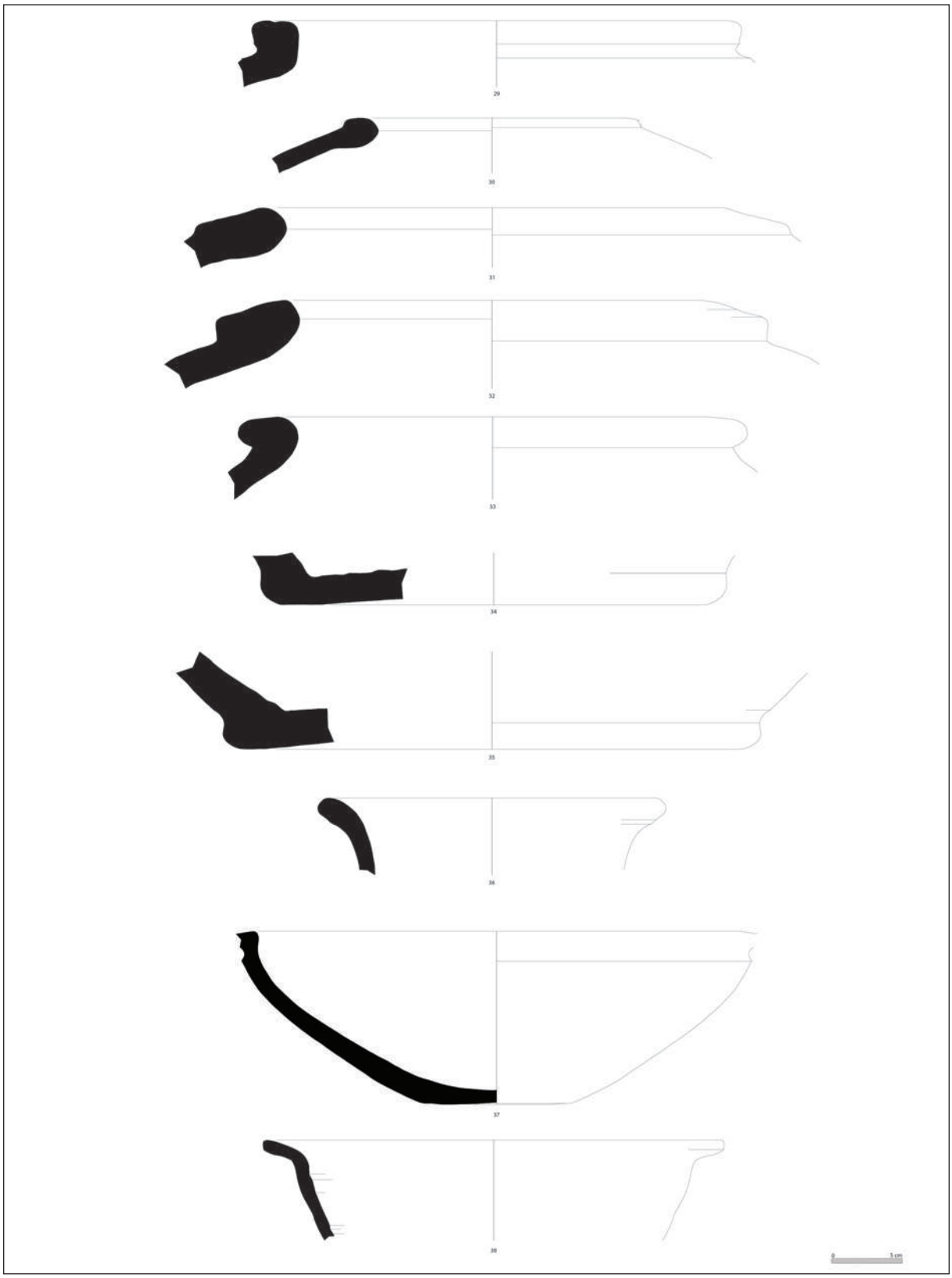
Concerning the lids (21 MNV), the formal variation is not significant, but they can be divided within the following sub-types: simple rim (nn. 13, 25, 62-64); simple rim with a flap (nn. 24, 26); and a possible imitation of the type Hayes 196 (n. 65) from African cooking ware.

A small group, due to the inexistence of marks related to the use of fire and morphological characteristics, was not possible do determine whether it concerns *ollae* or jars. As such, it was inserted in the type olla/jar (10 MNV: *fig.* 15, nn. 75-76), applying the same sub-types created for the respective individual types: S-shaped rim; externally thickened rounded rim; simple rim; plane top rim; and slightly thickened verticalized rim.

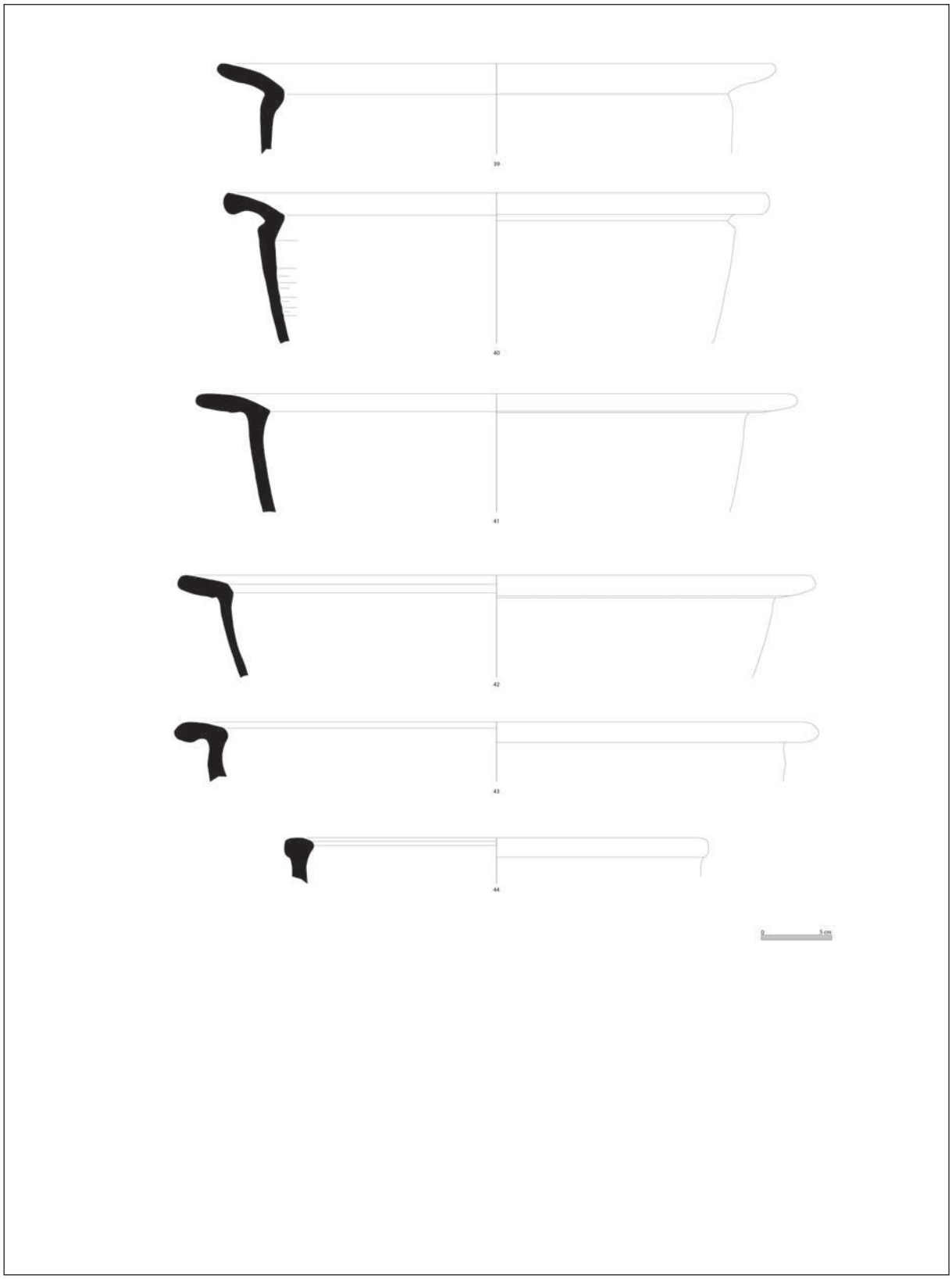
For the classification of the different dolia (10 MNV) we followed the proposal recently made by one of the authors[17], determining these sub-types: glans shaped rim (nn. 3-4, 31-32); simple rim with plane top (n. 29); thickened rim (n. 30); and triangular rim (n. 33).

[17] QUARESMA *et al.* forthcoming.

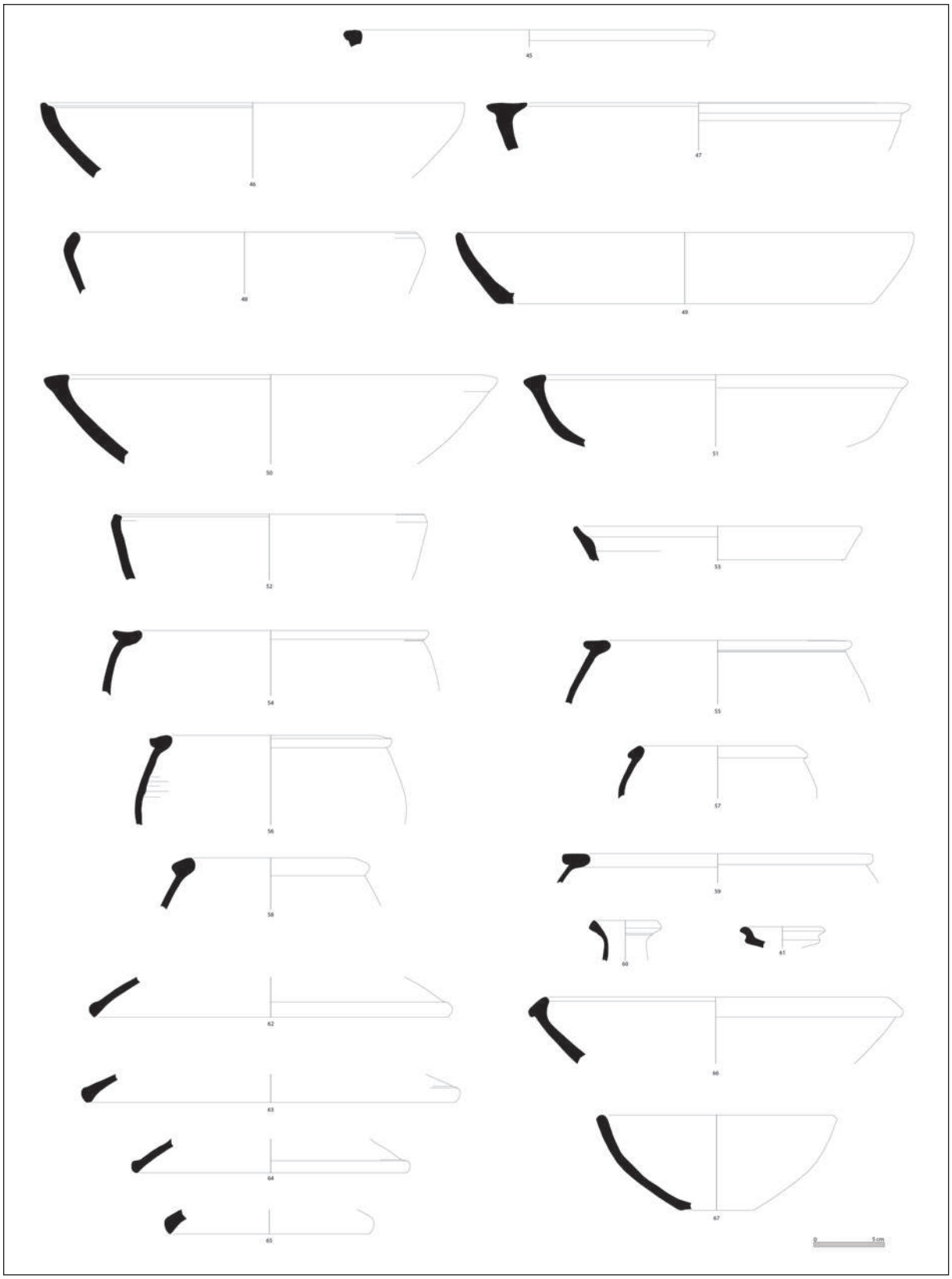
11. ALMOÍNHAS: TERRA SIGILLATA, AMPHORA AND COARSE WARE FROM S.U. [1015] (drawings by Authors)



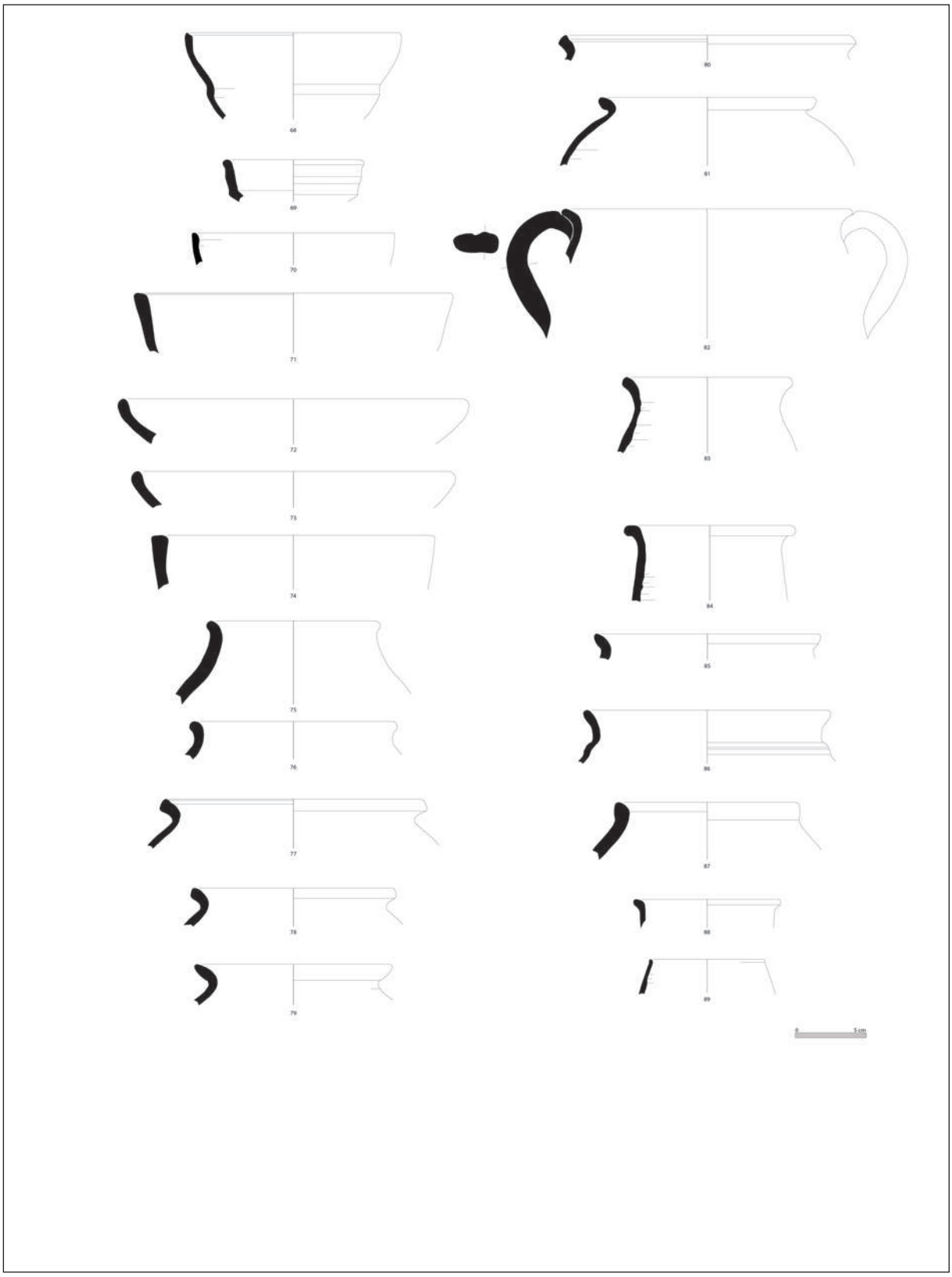
12. ALMOÍNHAS: COARSE WARE FROM S.U. [1018] (drawings by Authors)



13. ALMOÍNHAS: COARSE WARE FROM S.U. [1018] (drawings by Authors)



14. ALMOÍNHAS: COARSE WARE FROM S.U. [1018] (drawings by Authors)



15. ALMOÍNHAS: COARSE WARE FROM S.U. [1018] (drawings by Authors)

Pans (7 MNV) had not any necessity of being divided into sub-types due to their reduced amount and lack of formal diversity.

They are characterised as an open form, with simple rim and walls that vary between verticalized and extroverted ones (*fig.* 15, n. 72-74). Although no bottom was entirely preserved, the small fragments of the transition from the wall into the bottom suggest that it might have had a tendentially flat bottom.

Cups (6 MNV) are a form associated to the consumption of liquids and, at Almoínhas, we have not any preserved wall that allows us to estimate the body morphology. Nevertheless, within the rims we can distinguish two sub-types: flap rim, which might be almost horizontal or slightly extroverted; and a drooping lip rim, whose shape is related to some shapes of *terra sigillata,* such as Drag. 36 or Hayes 3.

In what concerns the coarse ware imitation of terra sigillata forms or decorations (4 MNV), we have identified imitations of South-Gaulish/Hispanic sigillata type Drag. 27 (n. 68); African sigillata type Hayes 27 = Lamboglia 9a; and decoration styles Ai-ii and Aii[18]. This evidence seems to continue the tendencies of imitations of African cooking ware already known from other contexts of Almoínhas[19].

Although the dominance of the open plates, it was possible to determine the existence of another plate type (2 MNV) with two sub-types: extroverted rim and oblique rim.

Unfortunately, the preservation conditions of the fragments do not allow for a more complex analysis.

With a scanty presence in the assemblage (1 MNV each), there is a jug with bifid rim; a pitcher; and a rim that, unfortunately, was not possible to distinguish whether it is a mortar or a bowl.

On a global overview of the assemblage, we can distinguish three main functional groups: table ware (33,7%); cooking ware (53,5%) and storage ware (12,8%).

The first group comprehends open plates, bowls, flagons, imitations of *terra sigillata* and jugs; the second group is composed by the assemblage associated to the processing of food (sometimes these coarse wares might also have accumulated a table ware function), namely casseroles, *ollae*, jars, lids, pans and mortars; the third and last group is a more complex one, but mostly related to dolia and basins.

Analysing the assemblage, it is clearly noticeable that in the last quarter of the 5$^{th}$ century AD there is an apparent maintenance of a Roman tradition in the cooking habits, with a marked predominance of the casserole over the *olla*. If a portion of the fragments we classified as jar/olla could be *ollae*, the numbers of the relation casserole-*olla* will go to around the proportions 2:1; and, if a portion of those fragments classified as jars/sub-type S-shaped rim could be portions of *ollae* without burning marks, this proportion might be very close to a balance of 1:1.

Bearing the residuality levels of the fine wares in mind (46% for [1015] and 83% for [1018]) and proposing to mirror these results on the coarse ware assemblage, the unit [1015], although having a smaller group of evidence, has a much lower level of residuality than [1018], which makes it more reliable. Considering the proposal of a relation of 1:1 for the casserole-*olla*, the unit [1015] perfectly mirrors this relation, even suggesting that the olla might be slightly dominant over the casserole (4 MNV to 3 MNV).

With regard to a possible maintenance of a "traditional" Roman diet, we can add the presence of pans. Although they are not dominant in the analysed group, this type might have a similar situation as *ollae* and jars with S-shaped rim: a portion of the vessels classified as open plates might indeed be pans without fire marks.

[18] Hayes 1972.
[19] Quaresma 2018-2019; Quaresma 2020a.

This possibility is interesting considering that, like the case of jars and *ollae*, the number of open plates is substantially higher than the total of pans (with fire marks) and therefore their presence might, hypothetically, be even higher than the presented MNV.

Considering the stratigraphic data, the reality for the real dimension of the presence of pan in the last quarter of the 5th century AD in Almoínhas becomes more complicated, as pans have only been identified in the unit [1018], for they are completely absent at the unit [1015]. This situation makes the above-presented interpretation slightly less reliable, given the aforementioned high residuality at this unit. If we consider that a portion of the open plates might also have accumulated a functionality of pans, their amount can be higher.

Although in a small quantity, mortars are another ceramic type associable to Roman cooking habits, such as sauces. Its presence at Almoínhas in this phase does not seem to be surprising, although the small expression of its MNV is quite interesting. The data collected in the context of Escadinhas de São Crispim (*Olisipo*) for the period of 500-525 AD shows a probable continuity of the use of this type until that phase[20]. Nevertheless, when considering the data from Almoínhas, it becomes tempting to hypothesise a beginning of the decline of the wide usage of this type somewhere at the end of the 5th century.

### *4.1. Catalogue*

1 - Inv. 609, S.U. [1015], African terra sigillata D1 type Hayes 61A/B;
2 - Inv. 611, S.U. [1015], Lusitanian amphora type Almagro 51C;
3 - Inv. 556, S.U. [1015], dolium with glans shaped rim;
4 - Inv. 557, S.U. [1015], dolium with glans shaped rim;
6 - Inv. 570, S.U. [1015], basin with horizontal flap rim;
7 - Inv. 585, S.U. [1015], open plate;
8 - Inv. 582, S.U. [1015], open plate;
9 - Inv. 554, S.U. [1015], casserole of medium bent rim;
10 - Inv. 553, inventory RO.26368, S.U. [1015], casserole of large bent rim;
11 - Inv. 589, S.U. [1015], plate (?);
12 - Inv. 552, S.U. [1015], cup;
13 - Inv. 550, S.U. [1015], lid with simple rim;
14 - Inv. 602, S.U. [1015], flagon, fine quartzitic fabric;
15 - Inv. 604, S.U. [1015], flagon, fine quartzitic fabric;
16 - Inv. 546, S.U. [1015], globular jar;
17 - Inv. 568, S.U. [1015], cup/mortar;
18 - Inv. 563, S.U. [1015], olla with S-shaped rim;
19 - Inv. 561, S.U. [1015], olla with S-shaped rim and plane top;
20 - Inv. 575, S.U. [1015], jar with S-shaped rim;
21 - Inv. 579, S.U. [1015], jar with S-shaped rim;
22 - Inv. 577, S.U. [1015], jar with S-shaped rim;
23 - Inv. 580, S.U. [1015], jar with S-shaped rim;
24 - Inv. 544, S.U. [1015], lid with simple rim and flap;
25 - Inv. 551, S.U. [1015], lid with simple rim;
26 - Inv. 543, S.U. [1015], lid with simple rim and flap;
27 - Inv. 566, inventory RO.22271, S.U. [1015], mortar;
28 - Inv. 587, S.U. [1015], open plate;
29 - Inv. 523, S.U. [1018], dolium with simple rim and plane top;
30 - Inv. 524, S.U. [1018], dolium with thickened rim;

[20] Quaresma 2020b.

31 - Inv. 527, S.U. [1018], dolium with glans shaped rim;
32 - Inv. 529, S.U. [1018], dolium with glans shaped rim;
33 - Inv. 525, S.U. [1018], dolium with triangular rim;
34 - Inv. 532, inventory RO. 23577, S.U. [1018], dolium bottom;
35 - Inv. 531, S.U. [1018], dolium;
36 - Inv. 326, S.U. [1018], big jar with S-shaped rim;
37 - Inv. 325, S.U. [1018], basin with oblique, flap rim;
38 - Inv. 289, S.U. [1018], basin with oblique, flap rim;
39 - Inv. 303, S.U. [1018], basin with oblique, flap rim;
40 - Inv. 309, S.U. [1018], basin with oblique, flap rim;
41 - Inv. 298, S.U. [1018], basin with oblique, flap rim;
42 - Inv. 295, S.U. [1018], basin with oblique, flap rim;
43 - Inv. 304, S.U. [1018], basin with horizontal thickened flap rim;
44 - Inv. 280, S.U. [1018], basin with internally and externally thickened flap rim;
45 - Inv. 491, S.U. [1018], undetermined rim, decorated kaolinitic fabric;
46 - Inv. 145, S.U. [1018], open plate;
47 - Inv. 139, S.U. [1018], open plate with vertical rim and plane top;
48 - Inv. 121, S.U. [1018], open plate;
49 - Inv. 13, RO. 24643, S.U. [1018], open plate with vertical rim;
50 - Inv. 138, S.U. [1018], open plate with vertical rim and plane top;
51 - Inv. 140, S.U. [1018], open plate with thickened rim and plane top;
52 - Inv. 716, S.U. [1018], open plate with plane top;
53 - Inv. 81, S.U. [1018], casserole (?);
54 - Inv. 399, S.U. [1018], casserole with large bent rim;
55 - Inv. 30, S.U. [1018], casserole with medium bent rim;
56 - Inv. 57, S.U. [1018], casserole with medium bent rim;
57 - Inv. 29, S.U. [1018], casserole with small bent rim;
58 - Inv. 400, inventory RO. 23981, [1018], casserole with bent rim, reduced firing;
59 - Inv. 377, S.U. [1018], casserole with bent rim, grey ware;
60 - Inv. 270, S.U. [1018], flagon/jug;
61 - Inv. 489, S.U. [1018], jug, kaolinitic fabric;
62 - Inv. 180, S.U. [1018], lid with simple rim;
63 - Inv. 182, S.U. [1018], lid with simple rim;
64 - Inv. 181, S.U. [1018], lid with simple rim;
65 - Inv. 718, S.U. [1018], lid (imitation of Hayes 196?) ;
66 - Inv. 402, S.U. [1018], cup with drooping lip rim;
67 - Inv. 256, S.U. [1018], bowl with simple rim;
68 - Inv. 534, S.U. [1018], imitation of *terra sigillata* Drag. 27;
69 - Inv. 241, S.U. [1018], bowl with simple rim;
70 - Inv. 249, S.U. [1018], bowl with vertical rim;
71 - Inv. 260, S.U. [1018], bowl with bevelled rim;
72 - Inv. 382, S.U. [1018], pan;
73 - Inv. 388, S.U. [1018], pan;
74 - Inv. 719, S.U. [1018], pan;
75 - Inv. 476, S.U. [1018], olla/jar;
76 - Inv. 474, S.U. [1018], olla/jar;
77 - Inv. 167, S.U. [1018], olla with angled rim;
78 - Inv. 151, S.U. [1018], olla with slightly thickened rim;
79 - Inv. 483, S.U. [1018], olla with oblique rim;

80 - Inv. 166, S.U. [1018], olla with angled rim;
81 - Inv. 149, S.U. [1018], olla with S-shaped rim;
82 - Inv. 233, S.U. [1018], jar with S-shaped rim and handle;
83 - Inv. 337, S.U. [1018], jar with S-shaped rim;
84 - Inv. 215, S.U. [1018], jar with small flap rim;
85 - Inv. 485, S.U. [1018], jar with S-shaped rim, grey ware;
86 - Inv. 379, S.U. [1018], jar with S-shaped rim, grey ware;
87 - Inv. 475, S.U. [1018], jar with simple rim, reduced firing;
88 - Inv. 493, S.U. [1018], small jar, kaolinitic fabric;
89 - Inv. 717, S.U. [1018], small jar (?).

## 5. The consumption of ollae and casseroles during the Late Antiquity in Lusitania

*Ollae* and casseroles are good indicators, although not absolute, of the evolution of eating habits between the Late Roman world and the Late Antique one of Suebi and especially Visigoth influence. The latent relationship between *ollae* and the consumption of boiled cow meat and between casseroles and the consumption of stewed sheep-and-goat meat was highlighted by Paul Arthur almost twenty years ago.

This paradigm made it possible to conceptualise a geographical framework in which the Late Antique Mediterranean, a more Romanised area, was slowly moving away from the continental northern areas and the Atlantic areas, where the break with Romanisation would be more accelerated. This would be visible in the eating habits[21].

*Figure* 16 reveals some of the known stratigraphic evolution in the Lusitanian space between ca. 300 and 575+ AD, i.e., between the Late Roman occupation (ending in 411 AD) and the Visigothic occupation of the south of the former Lusitania province.

Across the Late Roman stratigraphies we can observe a variability between the percentage values of the two functional forms.

*Ollae* clearly dominate at São Cucufate (southern hinterland of Lusitania) and Povos (lower Tagus, near Lisbon), but are only slightly above the casseroles at Setúbal (lower Sado). These data from Setúbal (sector of Rua Francisco Augusto Flamengo) bring the lower Sado closer to the lower Tagus, since in front of Lisbon, in Quinta do Rouxinol, and in the peninsula of Lisbon, at Quinta da Bolacha, we also observe a slight domain of the *ollae* over the casseroles.

It is, however, still premature to speak of a greater resilience of Latin food habits in these two coastal areas of great urban, industrial and port activity (lower Tagus and lower Sado). To this end, it would be useful if, for example, the 400-450 AD contexts of Tróia (officina 1) had a better distinction between *ollae* and jars. Should the huge weight of these two types, in the face of the casseroles in this context, be due essentially to jars, then Tróia would be another indicator of a better balance between *ollae* and casseroles in these more coastal and urban regions.

However, the evidence from Povos, in the Lisbon peninsula, where *ollae* are largely preponderant, draw our attention to possible great variability in the gastronomic evolution of the late Roman populations.

And we must bear in mind the difficulty that ceramologists often have in distinguishing *ollae* from jars and even certain casseroles from *ollae*. Moreover, we must not forget that tall jars could have a dual function, serving both for cooking and stewing food.

This is even more urgent when we look at the data from Almoínhas, the central object of this article (*fig.* 10). This phase from 475-500 AD reveals a clear dominance of the casseroles. Such a dominance could at most be a mistake if hypothetically it turned out that a large part of the jars was *ollae*.

[21] Arthur 2007.

| | São Cucufate | Setúbal - Rua Francisco Augusto Flamengo (locus C / ca. 10, 12, 14) | Povos | Quinta do Rouxinol | Quinta da Bolacha | Tróia - *Officina* 1 | Lisboa - São Crispim | Lisboa - São Crispim | Lisboa - Palácio dos Condes de Penafiel's ditch |
|---|---|---|---|---|---|---|---|---|---|
| **Stratigraphical phase** | **350-450 AD** | **300/350-400+ AD** | **3rd-5th ca.AD** | **300-425+ AD** | **270-525 AD** | **400-450 AD** | **500-525 AD** | **525-550 AD** | **550-575+ AD** |
| **Casserole** | 11,1 | 14,1 | 13,6 | 19,2 | 11,1 | 5,8 | 17,3 | 4 | 4,3 |
| **Olla** | 40,7 | 18,2 | 32,1 | 22,9 | 12,6 | 23 (olla+jar) | 16 | 4 | 58,6 |

16. STRATIGRAPHIC EVOLUTION OF *OLLAE* AND CASSEROLES ACROSS THE SOUTHERN LUSITANIA, BETWEEN 300 AND 575 AD (based on Santos2018; Quaresma 2020b; Quaresma, Silva 2022)

If this was true, a hypothetical balance between *ollae* and casseroles would bring Almoínhas closer to the Late Roman phase of Quinta do Rouxinol and to the values of Lisbon between 500 and 550 AD.

The high value of casseroles in the AD 475-500 phase of Almoínhas is quite surprising. On the one hand, because it is not observable in the Lusitanian Late Roman stratigraphies; on the other hand, because, as in the Late Roman phase of Quinta do Rouxinol, Quinta da Bolacha and Setúbal, we again find situations of balance between *ollae* and jars, as in Lisbon, between 500 and 550 AD.

Exactly the Lisbon peninsula, and namely the town of Lisbon, shows a clear evolution in the Visigothic period, namely between 500 and 575+ AD, the only chronologies with stratigraphic phases published so far. Thus, the sectors of São Crispim and Palácio dos Condes de Penafiel reveal a balance between *ollae* and casseroles between 500 and 550 AD (heir to several Late Roman situations, as mentioned, but apparently not verified in the 475-500 AD phase of Almoínhas!). This balance disappears in 550-575+ AD, when the *ollae* become clearly dominant and the casseroles clearly scarce.

This cultural break around the central decades of the 6th century seems to be observable in a Mediterranean framework, namely in the Italic region, where the morpho-functional evolution of coarse ware (namely the relationship between *ollae* and casseroles) has been extensively analysed by Andrew Donnelly[22].

Thus, in the context of *Schola Praeconum II* (Rome), between 500 and 530 AD, which we can characterise as an elitist and conservative context of Roman gastronomy, the author identifies casseroles, high and low, deep dishes and mixed morphologies as deep dishes/casseroles, but no *ollae*.

At this stage, there is also the extraordinarily high use of the deep dish (= frying pan). This framework indicates the rejection of emerging practices which tended towards the use of boiled meat and the resilience of Latin-style gastronomy.

At the rural site of Monte Barro (Milan), between 500 and 550 AD, the situation is clearly different. This site related to the Gothic aristocracy reveals a majority of vessels consisting of *ollae* and lids, with a shortage of bowls and jars. Moreover, the distinction between a more Roman and a more barbarised Italia is visible in a number of data[23]:

- in the context of *Schola Praeconum I*, dated to AD 430-440, although there are *ollae* (unlike in AD 500-530 at the same sector), low casseroles dominate;

[22] Donnelly 2016.
[23] See, previous footnote.

- in a dump of the villa of Lugnano (Tiber valley), dated to ca. 450 AD, there are high and low casseroles, *ollae*, and pan/low casserole;
- at San Giovanni (100 km east of Naples), in the 400-550 AD phase, the *ollae* are unique;
- at Cosa, in the FC deposit (Forum Cistern) and in phase VII, datable to 500+ AD, there are many *ollae* and low casseroles and some high pots.

## 6. The evolution of oxidising and reduced firing during the Late Antiquity in Lusitania

In the last two decades, the ceramological works of Alfonso Vigil-Escalera Guirado on the coarse ware of Madrid region, in central Iberia, have opened very interesting work tracks concerning the technological analysis of Late Antique coarse ware and its chronostratigraphic evolution[24]. According to the studies of this author, in this region, the Visigothic world (discussing now only the question up to the third quarter of the 6th century AD, since there are no later stratigraphic contexts in the present-day Portuguese area) shows an interesting technological evolution, between 450 and 575 AD. In this region it is evident that, after a hegemony of the fast wheel which lasted until the end of the 5th century, the 6th century would experience a gradual and constant acceleration of the slow wheel technique, with the appearance of hand-made ceramics, evident or fully confirmed, only in ca. 550 AD. Thus, as can be seen in *figure* 17, in the Madrid area, the stratigraphic evolution of the fast wheel / slow wheel relationship is as follows.

| | 450-475 AD | 475-500 AD | 500-525 AD | 525-550 AD | 550-575+ AD |
|---|---|---|---|---|---|
| **Fast wheel** | 99 | 97 | 85 | 50 | 25 |
| **Slow wheel** | 1 | 3 | 15 | 50 | 75 |
| **Hand-made** | | | | | "Beginning" |

17. MADRID REGION - STRATIGRAPHIC EVOLUTION OF MODELLING TECHNIQUES (PERCENTAGE) (from Vigil-Escalera Guirado 2007; Vigil-Escalera Guirado 2003)

In recent years, one of the signatories of this article has developed a series of studies in Lisbon to verify the statistical evolution of modelling techniques, but also of firing techniques. The ultimate goal was to gradually create statistical patterns for coarse ware that would allow the dating of Late Antique contexts that do not have fine ceramics. The evolution of the relationship between fast wheel / slow wheel / hand-made ceramics revealed a similarity between Madrid and Lisbon throughout the 6th century, with the slow wheel progressing from AD 500-550, becoming hegemonic in AD 525-550. It is very probable that, both in Madrid and Lisbon, a part of the slow wheel vessels could already be hand-made ceramics, over 500-550 AD. However, also in Lisbon, it seems evident that hand-made coarse ware was only consolidated from AD 550 onwards (*fig.* 18).

| | Lisboa - São Crispim | Lisboa - São Crispim | Lisboa - Palácio dos Condes de Penafiel's ditch |
|---|---|---|---|
| | **500-525 AD** | **525-550 AD** | **550-575+ AD** |
| Fast wheel | 66,3 | 0 | 11 |
| Slow wheel | 32,7 | 100 | 74,8 |
| Hand-made | 1 | 0 | 14,2 |

18. LISBON - STRATIGRAPHIC EVOLUTION OF MODELLING TECHNIQUES (PERCENTAGE) (from Quaresma 2020; Quaresma, Silva 2022)

[24] Vigil-Escalera Guirado 2003; Vigil-Escalera Guirado 2007.

As regards the evolution of firing techniques, the progression of reduced firing seems to be slower than that of the slow wheel modelling. Thus, along the stratigraphies from 500-575 AD, the oxidizing firing loses its hegemony, but remains the main firing technique (*fig.* 19).

| | Lisboa - São Crispim | Lisboa - São Crispim | Lisboa - Palácio dos Condes de Penafiel's ditch |
|---|---|---|---|
| | 500-525 AD | 525-550 AD | 550-575+ AD |
| Oxidising | 95 | 93,9 | 86,5 |
| Reduced | 5 | 6,1 | 13,5 |

19. LISBON - STRATIGRAPHIC EVOLUTION OF FIRING TECHNIQUES (PERCENTAGE) (from Quaresma 2020; Quaresma, Silva 2022)

This technological rupture experienced in the Lusitanian area finds parallels south of Lisbon.

The contexts of the destruction of the courtyard of the officina 1 from Tróia[25], dated to 400-450 AD were the object of study for their coarse ware. Within fourteen archaeometric groups:

- groups 9 and 14 refer to coarse ware imported from Pantelleria and *Baetica*;
- groups 4 and 5 refer to local/regional pottery, in B (reduced) mode and fast wheel;
- groups 1-3, 6-8 and 10-13 refer to local/regional pottery, in A (oxidizing) mode and fast wheel.

The study revealed the following percentages of firing (to which 0.8% of Pantelleria and *Baetica* must be added):

- mode B (groups 4 and 5) - 28.5%;
- mode A (groups 1-3, 6-8 and 10-13) - 70.7%.

It should be noted, however, that groups 4 and 5 (reduced firing) fall into the category of grey ware.

If we consider this classification, the coarse ware would have been totally made in A (oxidizing) mode.

In this phase from Tróia, the modelling is also exclusively produced in fast wheel (Groups 1-3, 6-8 and 10-13)[26].

The present Portuguese territory has no stratigraphies from the central and late 5th century, with quantified coarse ware technology. Other studies relate to the 6th century AD.

In Mirobriga, the occupation phase of *taberna 1* was dated by the technological percentage of coarse ware to 500-525 AD. In this context, 20% of reduced, reduced-oxidising and slow wheel ceramics are observed.

The same methodology was applied to *taberna 2*.

The 500-525 AD phase has a fast wheel / slow wheel / hand-made ceramics ratio of 70% / 29.1% / 0.9%; and an oxidizing / reduced ratio of 72.5% / 27.5%.

The 525+ AD phase has a fast wheel/ slow wheel / hand-made ceramics ratio of 55.6% / 44.2% / 0.2%; and an oxidising / reduced ratio of 62.2 % / 37.8%[27].

In Setúbal, at Travessa Manuel Galo sector, nos. 4-4B, phase V, dated to 525-550 AD, has 54% of reduced, reduced-oxidising and oxidising-reduced firing[28]; while in Lagos, at Rua Silva Lopes sector, the abandonment of its cetariae, datable to ca.500 /525 AD, presents a set of slow wheel / hand-made ceramics and a majority of oxidising firing[29].

[25] Santos 2018.
[26] Santos 2018.
[27] Quaresma *et al.* 2020; Quaresma 2022.
[28] Silva, Coelho-Soares 2014.
[29] Ramos *et al.* 2007.

The S.U.s [1018] and [1015] from Almoínhas indicate that we are in a chronological period around the last quarter of the 5th century, with an almost exclusive predominance of the fast wheel and absence of hand-made ceramics (*fig.* 20).

The same almost exclusivity is visible in the oxidizing firing (*fig.* 21). With this study of Almoínhas, both from the chrono-stratigraphic point of view, and from the point of view of the fine ware and the technology (modelling and firing) of the coarse ware, Lusitania has presently a statistical framework referring to AD 475-500, clearly one generation, i.e. a quarter of a century, older than the AD 500-525 context of Lisbon/São Crispim, abovementioned.

| Modelling | Sherds | % |
|---|---|---|
| Fast wheel | 5876 | 99.95 |
| Slow wheel | 2 | 0.03 |
| Slow wheel? | 1 | 0.02 |
| **Total** | **5879** | **100.00** |

20. ALMOÍNHAS/475-500 AD: QUANTIFICATION OF MODELLING TECHNIQUES (elaboration by Authors)

| Firing | Sherds | % |
|---|---|---|
| Ox | 5735 | 97.55 |
| Red- x | 102 | 1.73 |
| Ox-Red-Ox | 1 | 0.02 |
| Ox-Red-Ox | 3 | 0.05 |
| Red | 37 | 0.63 |
| Red? | 1 | 0.02 |
| **Total** | **5879** | **100.00** |

21. ALMOÍNHAS/475-500 AD: QUANTIFICATION OF FIRING TECHNIQUES (elaboration by Authors)

## 7. Final remarks

Almoínhas is, undoubtedly, an archaeological site of great importance for the study of the Roman occupation of the ager of Olisipo/Lisbon, given the significant preserved structures and the vast number of materials collected from all the interventions.

The two contexts analysed in this paper provided the first stratigraphic data for the evolution of the coarse ware in Lisbon's territory, possibly around 475-500 AD. They possibly show that the rupture it the Roman culinary habits has begun later, over the first half of the 6th century, as demonstrated by the two aforementioned contexts of Lisbon-sector of São Crispim from 500-525 and 525-550 AD[30].

The morphological data shows a clear dominance of the casseroles over the *ollae*. Nevertheless, several jars may perhaps be classed as *ollae*, which would allow to think on an equivalence of casseroles and *ollae*, around 475-500 AD, as it happens at 500-550 AD[31]. The end (or strong diminishing) of casseroles seems to occur around 550 AD, as shown by the context Lisbon-Palácio dos Condes de Penafiel, dated to 550-575+ AD[32].

Furthermore, comparing once again those four phases from Almoínhas (475-500) and Olisipo (500-525, 525-550 and 550-575), at 475-500 AD, it is also observable an absolute dominance of the fast wheel and oxidizing firing. If the oxidising firings seem to remain important over the 6th century, the slow wheel started increasing from 500-525 onwards and the handmade ware seems to crystallize around 550 AD[33].

[30] Quaresma 2020b.
[31] See, previous footnote.
[32] Quaresma, da Silva 2022.
[33] Quaresma 2020b; Quaresma, da Silva 2022.

Finally, future research in Lusitania must try to find and quantify other contexts prior and later to 475-550/575 AD, in order to better understand the technological evolution of coarse ware during the 5th and the 6th centuries AD.

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