

www.otium.unipg.it



Analyzing African Red Slip wares in Sicily: a first overview from Cignana and Himera surveys

Fabrizio Ducati ^{1✉}

*University of Palermo, Italy - Centre Camille Jullian, Aix Marseille Univ,
CNRS, CCJ, Aix-en-Provence, France*

Claudio Capelli ^{2✉}

*University of Genoa, Italy - external collaborator to the Centre Camille Jullian,
Aix Marseille Univ, CNRS, CCJ, Aix-en-Provence, France*

Abstract: African Red Slip wares (ARS) are among the most common classes found in Sicily and a reliable chronological marker dated from the end of the 1st to the 7th century AD. We will here analyse data concerning the ARS wares collected during the Cignana and *Himera* surveys, carried out by the University of Palermo in northern and southern Sicily. The quantitative approach based on the Minimum Number of Vessels (MNV) allowed us to compare two different areas and therefore to detect differences and similarities in pottery distribution. The interdisciplinary (archaeological/archaeometric) approach helped us to improve the typological identifications of pottery and to identify with precision the origin of the imports. As a consequence, this research will help to enhance the understanding of the trade routes existing between different regions of Tunisia and Sicily during the centuries.

Keywords: African Red Slip wares, Africa, Sicily, Agrigento, Termini Imerese, archaeometry.

^{1✉} Dipartimento Culture e Società, Viale delle Scienze, Edificio 15, Palermo. CCJ: 5 rue du Château de l'Horloge, CS 90412,13097 Aix-en-Provence Cedex 2, France. Email: Fabrizio.ducati@unipa.it

^{2✉} DISTAV: Corso Europa, 26, 16132 Genova. CCJ: 5 rue du Château de l'Horloge, CS 90412,13097 Aix-en-Provence Cedex 2, France. Email: Claudio.capelli@edu.unige.it

The papers published in this volume were presented at the session n° 162 "Culture contacts in Western Mediterranean Sea during the Roman Age. Pottery as cultural marker between traffics and local productions" of the 25th Annual Meeting of the European Association of Archaeologists (EAA) - Beyond Paradigms (Bern 4-7 September 2019), organized under the scientific direction of Prof. Marco GiUMAN, Dr. Ciro Parodo and Dr. Gianna De Luca (University of Cagliari. Department of Humanities, Languages and Cultural Heritage. Cittadella dei Musei, Piazza Arsenale 1, 09124 Cagliari, Italy).

1. ANALYSING ARS AT A MICRO-REGIONAL SCALE¹

In 2004, E. Fentress highlighted some differences in the distribution of African Red Slip wares in different parts of Sicily². To explain this phenomenon two mechanisms, not necessarily excluding each other, were proposed: the potential role of cabotage between Africa and Sicily and the potential role of Rome as a warehouse between Africa and the western Mediterranean in the redistribution of ARS³.

Following her proposed interpretation, a recent interdisciplinary research (CASR project) studied the distribution of the African wares in Sicily at a micro-regional scale⁴. The ongoing characterization of Tunisian workshops (Fig. 1) allowed to improve the typological identifications as well as to spot with accuracy the source of most of the imports⁵. The results

¹ We are grateful to Aurelio Burgio and Michel Bonifay for their suggestions and to Angharad Ozols for the linguistic revision.

² FENTRESS *et alii* 2004.

³ For an updated summary of the main types and production areas see BONIFAY 2016, pp. 520-528, fig. 126 and BONIFAY *et alii* 2012.

⁴ MALFITANA, BONIFAY 2016.

⁵ CAPELLI *et alii* 2016.

led to recognize three main ceramic *facies* (Fig. 2) in Sicily, corresponding to the northern coast (A), the south-central coast (B) and the eastern coast (C).

In this paper we will discuss the ARS from the areas of Cignana and Himera (Fig. 3). The published data will be integrated with new data from the PhD thesis of one of us (F.D.) focused on the imports of African wares (amphorae, cooking wares, fine wares, common wares and lamps)⁶. Two different and cross-checked accounting systems were employed for processing the quantitative data: the Total Number of Fragments (TNF) as intended by R. Tomber⁷ and the Minimum Number of Vessels (MNV). This last was not achieved by complex mathematical operations or by applying coefficients of fragmentation⁸. It was obtained by relating the amount of diagnostic and non-diagnostic elements – rims, handles, bottoms, walls – referable to a specific type/production to its complete form. As result, we get a dataset about the supposed number of ARS in a specific area – also representable in histograms or summary tables – that can help us to perceive the possible fluctuations in imports during about seven centuries.

2. NEW DATA FROM THE CIGNANA SURVEY

Cignana is the name of a district 20 Km South-East of present-day Agrigento (Fig. 4). Between the 2nd and 3rd century AD, a luxurious villa with mosaics and small baths was built in place of an earlier rural settlement⁹. It represented the main site until Late Antiquity, restricted to

⁶ F. Ducati, *Aspetti tipo-cronologici e archeometrici delle ceramiche africane nel territorio di Cignana (Naro, AG, Sicilia)*, Ph.D. thesis in progress.

⁷ TOMBER 1993.

⁸ BONIFAY 2004, p. 445-446

⁹ FIORENTINI 1993-1994, pp. 728-729, RIZZO, ZAMBITO 2016.

the surveyed area¹⁰. The land around is strewn with small contemporary rural settlements where ARS is a common find (Figs. 5-7). The fine wares, mostly unpublished, provide significant information about the history of the sites and their trades with Africa¹¹.

The first imports from North Tunisia are dated to the Flavian period, but we still cannot localize with precision the workshops. The forms consist of an early variant of carinated bowl Hayes 8 and dishes Hayes 2-3A. Their fabric is finer than usual, so we can assume that a part of these vases (1% of ARS) belonged to the fine-A1 production¹². The number of tablewares grows during the 2nd century. In this period there is a large importation with A1 fabric (10,8 % of ARS), especially bowls Hayes 8A and 9A with rouletted decoration, dishes Hayes 3B-C with or without barbotine decoration, followed by rarer types (Hayes 5, 6 and 7). From the end of the 2nd to the 3rd century there is a progressive decrease in the number of individuals. The A2 production amounts to 7,2 % of ARS. The most common type is the carinated bowl Hayes 15, easily recognisable from the thick rim bevelled on the top. The Hayes 8B, a plain version of the aforementioned variant A, and the dish Hayes 27 are rarer. The classification of the remaining part of ARS A2 is problematic, considering the small size of the shards, which might instead belong to similar types (Hayes 14, 16, 17).

During the 3rd century, the progressive contraction of trades with northern Tunisia is not compensated by sufficient supplies from other regions. The A/D production is rare: we can only mention three

¹⁰ BURGIO 2013; BURGIO 2012.

¹¹ Considering only the certain identification of ARS: MNV 418 = 53% of African potteries collected (792 sherds from Africa, all classes included).

¹² CAPELLI *et alii* 2016, p. 299.

questionable examples belonging to the types Hayes 31¹³ and Hayes 32 or 33. The imports from central Tunisia are also similarly scarce, despite the intense production of Sidi Marzouk Tounsi in this period¹⁴. There is no trace of C1 fabric, especially jugs with stamped decoration and glossy orange-red slip. Here we list two small shards of dish Hayes 50A or A/B in ARS C2 or C3¹⁵, a rim of Hayes 53 in C3 and few other undetermined fragments, some of which bearing traces of appliqué motifs (a bearded man, a running animal). The vessels dating back to the 4th century are equally scarce. We can mention an isolated shard of Hayes 58A and part of a rectangular dish decorated with a lion, usually produced in C4. The same paucity affects the fine wares coming from other regions of Tunisia. The oldest types produced in ARS D (e.g. Hayes 58B¹⁶) are rare as well as the Hayes 59 and 61A from El Mahrine region (ARS D1¹⁷), in the low valley of Mejerda river (northern Tunisia)¹⁸.

Around the end of the 4th century, there is a slight growth in the number of vessels, increasing in the following century. In the 5th century there was abundant importation of tableware from different regions. Dishes Hayes 67B and C and flanged bowls Hayes 91B come from El Mahrine region. The large plates Hayes 82 and the dishes Hayes 84 in ARS C5 (2,4% of ARS), decorated with bands of feather-rouletting, arrive from Sidi Marzouk Tounsi.

¹³ The same type is produced in A2 and A/D.

¹⁴ MACKENSEN 2019; MACKENSEN, SCHNEIDER 2006, pp. 174-177.

¹⁵ Fragments are small and the slip often washed out.

¹⁶ CAPELLI *et alii* 2016, p. 304.

¹⁷ CAPELLI *et alii* 2016, pp. 305-307.

¹⁸ MACKENSEN 1993; Ben Moussa 2007, pp. 78-108.

Around the middle of the century the number of fine wares reaches its peak. The workshops located in north-eastern Tunisia export a huge number of fine wares, especially from Sidi Khalifa/*Pheradi Majius*¹⁹. Its handicrafts, with highly standardised shapes and easily recognizable fabrics (ARS C/D²⁰), constitutes the 7,9 % of ARS. The dish Hayes 61B3 and its later variants are the most common types, followed by Hayes 87A/88 and local variants of flanged bowls (Hayes 91 or 92) and dishes (Hayes 103). Other workshops localized in the north of the Gulf of Hammamet export the C variant of Hayes 61²¹. At the same time, Nabeul exports types Fulford 27 and Hayes 50B.61, produced in poor quality fabric (ARS F²²) representing the 2,4% of ARS.

Other vases, with less standardized shapes and fabrics, come from unknown workshops. They have been classified as “ARS other” and represent approximately the 42,8 % of fine wares. Just to name a few, we can remember other examples of Hayes 61 (A/B, B2, B3) not produced in Sidi Khalifa, or the Hayes 81A, a common bowl in Cignana with rouletted outer walls.

In the first half of the 6th century there were fewer supplies of tableware. It cannot be excluded that some large dishes continue to arrive from central Tunisia at the beginning of the century (Hayes 89 or 90A?). Sidi Khalifa confirms itself as one of the most active workshops, exporting a substantial part of the Hayes 88. From the area of El Mahrine arrive some large bowls Hayes 93. Apart from these, we find a fair number of ARS D2 (5,5% of ARS).

¹⁹ BEN MOUSSA 2007, pp. 109-215.

²⁰ HASENZAGL, CAPELLI 2019.

²¹ CAPELLI *et alii* 2016, p. 312.

²² CAPELLI *et alii* 2016, pp. 318-319.

Bowls Hayes 99, rarer Hayes 91C and 97, with a thick and glossy orange slip, come from Oudhna. Whereas, there are fewer large dishes Hayes 104 and 103 produced in the unidentified Atelier X. However, it is worth mentioning the bottom fragment (probably Hayes 104B) decorated in Hayes's style E(ii), typical of the aforementioned workshop. Furthermore, we find some Hayes 87B and C produced with a granular and brownish fabric (CASR groups 11-12) similar to the Reynolds ware 1²³. We can also remember some shards of dishes Hayes 87B/109, Hayes 104C, and Sidi Jdidi 8, probably produced in Sidi Khalifa.

The later forms of ARS imported in Cignana (1,9 % of ARS) are dated between the end of 6th to the second half of 7th century (?). These include bowls Hayes 91D, dishes Hayes 105A and B and 109A with thick walls²⁴. We don't have any trace of the last two types of ARS – variants B and C of Hayes 109 – .

3. A REVISION OF DATA FROM THE HIMERA SURVEYS

The *Himera* surveys studied the hinterland of the Chalcidian *polis* of *Himera* and the subsequent city of *Thermae Himeraeae* (the present-day Termini Imerese), in the centre of the northern coast of Sicily²⁵. The surveyed area is bigger than Cignana²⁶ (Fig. 4), stretching from the San Leonardo River²⁷ (West) to the Roccella stream (Est)²⁸, to the modern village

²³ CAPELLI *et alii* 2016, p. 314; REYNOLDS 1987, p. 15.

²⁴ REYNOLDS 2011, p. 106, fig. 5, nn. 62-63.

²⁵ ALLIATA *et alii* 1988; BELVEDERE *et alii* 2002.

²⁶ BURGIO 2018, pp. 23-25.

²⁷ LAURO 2009.

²⁸ CUCCO 1995.

of Resuttano (South)²⁹. The data, although mostly published³⁰, was recently reviewed, selected and analysed according to a quantitative and integrative approach³¹. Here, we will present an update of the main assemblages, accompanied by a new graphic documentation (Figg. 8-9).

As in Cignana, ARS already circulates in the Flavian period and it does not show any significant difference until the 3rd century. Some shards of Hayes 2-3A and Hayes 8A are in A1 fine fabric (1%). ARS A1 is more abundant (12,7% of ARS) and shows the typical repertoire (Hayes 3B-C, Hayes 6, 8A and 9A); ARS A2 stands at 8,7%. The most common types are Hayes 15 and 27, followed by Hayes 9B and 16. Again, there are several ambiguities between similar forms.

The ARS A/D is also uncommon: only a sherd of Hayes 32 and Hayes 27/31 was found. On the other hand, ARS C shows a different trend than in Cignana. The 5th century imports (C5) are virtually absent (only a questionable shard) and the majority appertain to C2 (4,3%). The dish Hayes 50 is quite common. This trend continues in the first half of the 4th century when tablewares arrive from other parts of Tunisia. The Hayes 58B in ARS D, so rare in Cignana, is quite common as well as the ARS D1 (5,4%). The Hayes 59 and 61A, with their pinkish slip, are more common than other types produced in El Mahrine region, such as Hayes 67 and 91B.

During the 5th century, there is a moderate increase in the number of vases. Tablewares from Sidi Khalifa arrive in lesser quantity than in Cignana. The Hayes 61B3 – and B3 late variant – confirms itself as a popular

²⁹ BURGIO 2002.

³⁰ BURGIO 2014.

³¹ Considering only the certain identification of ARS, MNV 276 = 56% of selected potteries (496 shards from Africa, all classes included).

form in Sicily. However, there is a greater homogeneity of types composing ARS C/D (5,4%). Apart from the Hayes 61, we find a shard of bowl Hayes 86, n. 1 and a few shards of the later Hayes 88. There is no clear evidence for Nabeul production or dishes Hayes 61C.

As in Cignana, most of the vases produced in this period have been classified within the generic group “ARS D other” (37%). This could testify the multitude of workshops producing and exporting fine wares in this period. The Hayes 61 (A, A/B4, B1 and B2), not classified in any of the previous groups, are quite common, as well as the Hayes 67. There is a slight increase in the number of Hayes 62/64, 73, 76 and 80A, here replacing type 81A. We can also remember some shards of Hayes 87A and B, but the fabric varies from CASR groups 11-12.

As previously mentioned, Sidi Khalifa still exports fine wares during the first half of the 6th century. In this period, the amount of ARS D2 is slightly lower than Cignana (3,3%). It includes some bowls Hayes 99 and 91C from Oudhna and a questionable shard of Hayes 103. The large plates are rare. However, we mention a fragment of a floor (probably Hayes 103 or 104?) decorated with concentric circles with dot fringes typical of the mid-5th century Hayes’s style A(iii)³² – an early variant? – and a rim shard of Hayes 90B, considered as a northern version of the variant A³³.

The late ARS is extremely rare: we can only mention three fragments belonging to types Hayes 99C, 105 and 108.

4. CONCLUSIVE REMARKS

³² HAYES 1972, fig. 40, n. 37.

³³ CAPELLI *et alii* 2016, p. 317.

This brief overview of ARS from two different, almost opposing, areas of Sicily, allowed us to detect some changes in the pattern of African fine wares supply from the 1st to the 7th century AD. The comparative analysis confirms the specific features of these areas (Tab. 1, Tab. 2), as proposed by the CASR project³⁴. Moreover, it allows us to question the socio-economic reasons that could explain the local evolution of the settlements.

From the end of the 1st to the 2nd century, the Sicilian countryside was supplied by a continuous and uniform distribution of fine wares from northern Tunisia, however this picture seems to change during the 3rd century. The region of *Himera* receives a constant supply of fine vessels from central Tunisia, which balances the lower number of imports from the north of Tunisia until the 4th century. From this moment, there is a renewed supply from the northern workshops.

On the contrary, we have little data from the Cignana survey from the same period, a paucity which affects also the other ceramic classes. How to interpret this lack of data, that seems to be confirmed by the excavations at Cignana³⁵? Can we imagine people abandoning the countryside and being concentrated in the urban area of *Agrigentum*, or did they leave no trace of a prosperous period? Could the subsequent intense phase be hiding the previous ones?

During the 5th century, there is an important influx of potteries from Cape Bon and the north of the Gulf of Hammamet³⁶, also confirmed by the amphoric evidence. In this case, a widespread distribution through the cabotage is likely, as only two days of navigation separate the southern

³⁴ BONIFAY, MALFITANA 2016, pp. 409-410.

³⁵ A review of ARS is in progress.

³⁶ BONIFAY, MALFITANA 2016, p. 406.

coast of Sicily from Cape Bon, with the island of Pantelleria as a halfway stopover³⁷. Perhaps ARS was commercialized at a small scale for its value, through a sort of peddling trade³⁸ that could explain the emerging of several new coastal settlements³⁹.

The peak of the imports recorded during the second half of the century would provide further proof that the Vandals' raids in Sicily, between 440 and 475, did not stop the intense exchanges between the island and Africa⁴⁰. At the same time, the large concentrations of ARS found in a few large sites reveal a process of regrouping of the rural people, which appears to be a specific feature in this part of Sicily.

The situation is slightly different in the hinterland of *Himera*. There is an increasing number of ARS finds during the 5th century as well as the amphorae from Cape Bon, but it is not as intense as in Cignana. Surprisingly, we do not observe the same monopoly of Sidi Khalifa on the Sicilian market. Pottery comes from both north-east Tunisia and the region of Carthage, as the excavations at Termini confirmed⁴¹.

During the first half of the 6th century, the trend of ARS imports is similar in the two areas, without any chance of detecting differences between the Vandal period and the Byzantine conquest of Africa⁴². An overall drop in ARS finds after mid-century is a common phenomenon, even if it appears to be faster in the north of Sicily than in the south. The rare 7th-century

³⁷ The strategic position of the island explains the wide spread of Pantellerian cooking wares in southern Sicily.

³⁸ BONIFAY 2017, pp. 340-341, 344.

³⁹ E.g. Verdura and Carabollace. See PARELLO *et alii* 2016; CAMINNECI, FRANCO 2016.

⁴⁰ FENTRESS *et alii* 2004, p. 157 ; REYNOLDS 2016, p. 131.

⁴¹ BELVEDERE *et alii* 1993, pp. 255-258; BELVEDERE, BURGIO 2016.

⁴² REYNOLDS 2016, p. 137.

shards from the *Himera* survey were found in a few large sites not far from the coastline⁴³, and it is hard to establish precisely when do the imports end.

The decrease of ARS finds is slower in Cignana. A fair number of dishes is still present between the second half of the 6th and the beginning of 7th century. The imports probably collapsed during the second half of the 7th century, as suggested by the amphoric evidence⁴⁴.

It is difficult to draw the evolution of trades between Africa and Sicily from the second half of 7th century onwards. Surely, there was a decline in the contacts, but the lack of data may be caused by limited knowledge of the chronological markers for this period. At Cignana we found some shards (common wares) that resemble the flanged bowls produced in Africa during the late Byzantine period⁴⁵, but it is difficult to say if these vases were imported or locally produced. The same problem affects other flanged bowls, with a calcareous matrix and a degraded brownish slip. They resemble a late production of Nabul known as «post-ARS», dated between the end 7th and, maybe, the beginning 8th century⁴⁶. In our case, the preliminary characterization of the fabrics excludes the provenance from Tunisia, pointing another unknown region of the Mediterranean (Algeria? Sicily?) as a possible source.

⁴³ E.g. the villa of Terre Bianche. See BELVEDERE 2018, p. 133.

⁴⁴ DUCATI forthc.

⁴⁵ BONIFAY 2004, pp. 258-260.

⁴⁶ BONIFAY 2019, p. 299.

BIBLIOGRAPHY:

ALLIATA *et alii* 1988: V. Alliata, O. Belvedere, A. Cantoni, G. Cusimano, P. Marescalchi, S. Vassallo, *Himera III. 1: prospezione archeologica nel territorio*, Roma 1988.

BELVEDERE 2018: O. Belvedere, *Massa Fundorum. È possibile rintracciarla sul terreno?* in BELVEDERE, BERGEMANN 2018, pp. 129-140.

BELVEDERE *et alii* 1993: O. Belvedere, A. Burgio, R. Macaluso, M.S. Rizzo, *Termini Imerese: ricerche di topografia e di archeologia urbana*, Palermo 1993.

BELVEDERE *et alii* 2002: O. Belvedere, a. Bertini, G. Boschian, A. Burgio, A. Contino, R.M. Cucco, D. Lauro, *Himera III. 2: Prospezione archeologica nel territorio*, 2, Roma 2002.

BELVEDERE, BERGEMANN 2018: O. Belvedere, J. Bergemann (eds.), *La Sicilia Romana: Città e Territorio tra monumentalizzazione ed economia, crisi e sviluppo*, Palermo 2018.

BELVEDERE, BURGIO 2016: O. Belvedere, A. Burgio, *Termini Imerese (PA) [sito 88]*, in MALFITANA, BONIFAY 2016, pp. 223-233.

BEN MOUSSA 2007: M. Ben Moussa, *La production de sigillées africaines. Recherches d'histoire et d'archéologie en Tunisie septentrionale et centrale*, Barcelloa 2007.

BONIFAY 2004: M. Bonifay, *Etudes sur la céramique romaine tardive d'Afrique*, Oxford 2004.

BONIFAY 2016: M. Bonifay, *Annexe 1. Éléments de typologie des céramiques de l'Afrique romaine*, in MALFITANA, BONIFAY 2016, pp. 507-573.

BONIFAY 2017: M. Bonifay, *The Distribution of African Pottery under the Roman Empire. Evidence versus Interpretation*, in A. Wilson, A. Bowman (eds.), *Trade Commerce and the State in the Roman World*, Oxford 2017, pp. 327-351.

BONIFAY 2019: M. Bonifay, *Marqueurs céramiques de l'Afrique byzantine tardive*, in R. Bockmann, A. Leone, P. von Rummel, Wiesbaden (eds), *Africa*

– *Ifriqiya. Continuity and change in North Africa from the Byzantine to the early Islamic age*, Papers of a Conference held in Rome (Museo Nazionale Romano – Terme di Diocleziano, 28 February – 2 March 2013), Harrassowitz Verlag, 2019, pp. 295-313.

BONIFAY *et alii* 2012 : M. Bonifay, C. Capelli, C. Brun, *Pour une approche intégrée archéologique, pétrographique et géochimique des sigillées africaines*, in M. Cavalieri, É. De Waele, L. Meulemans (eds.), *Industria Apium. L'archéologie : une démarche singulière, des pratiques multiples*, Louvain 2012, pp. 41-62.

BONIFAY, MALFITANA 2016 : M. Bonifay, D. Malfitana, *L'apport de la documentation sicilienne à l'étude du commerce de l'Afrique romaine*, in MALFITANA, BONIFAY 2016, pp. 403-439.

BURGIO 2002: A. Burgio, *Resuttano (IGM 260 III SO)*, Firenze 2002.

BURGIO 2012: A. Burgio, *Il progetto "Cignana" (Naro-Palma di Montechiaro, Sicilia centro-meridionale). Prospezione archeologica intorno alla villa romana di Cignana. Primi dati sulle dinamiche del popolamento antico*, in J. Bergemann (ed.), *Griechen in Übersee und der historische Raum*, Leidorf 2012, pp. 127-139.

BURGIO 2013: A. Burgio, *Dinamiche insediative nel comprensorio di Cignana. Continuità e discontinuità tra l'età imperiale e l'età bizantina*, in *Sicilia Antiqua* X, 2013, pp. 31-54.

BURGIO 2014: A. Burgio, *Thermae Himeraeae (Sicilia) e il suo hinterland: dalla documentazione ceramica alle dinamiche del popolamento in età imperiale*, in *ReiCretActa* 43, 2014, pp. 509-517.

BURGIO 2018: A. Burgio, *La prospezione archeologica in Sicilia. Esame comparativo tra i territori di Alesa e di Thermae Himeraeae in età romana*, in BELVEDERE, BERGEMANN 2018, pp. 15-30.

CAMINNECI, FRANCO 2016: V. Caminneci, C. Franco, *Sciacca (AG), Carabollace [sito 74]*, in MALFITANA, BONIFAY 2016, pp. 176-183.

CAPELLI *et alii* 2016: C. Capelli, M. Bonifay, C. Franco, C. Huguet, V. Leitch, T. Mukai, *Étude archéologique et archéométrique intégrée*, in MALFITANA, BONIFAY 2016, pp. 273-351.

CUCCO 1995: R.M. Cucco, *Due insediamenti di età romana nel territorio ad Est del fiume Imera*, Kokalos XLI, 1995, pp. 139-182.

DUCATI in press: F. Ducati, *Fluttuazioni commerciali tra nord Africa e Sicilia meridionale: il VI e il VII secolo d.C.*, in *Mare Internum. Archeologia e culture del Mediterraneo*, in press.

FENTRESS *et alii* 2004: E. Fentress, S. Fontana, R.B. Hitchner, P. Perkins, *Accounting for ARS: Fineware and Sites in Sicily and Africa*, in S. Alcock, J.F. Clurry (eds.), *Side by Side Survey: comparative regional studies in the Mediterranean world*, Oxford 2004, pp. 147-162.

FIorentini 1993-1994: G. Fiorentini, *Attività di indagini archeologiche della Soprintendenza Beni Culturali e Ambientali di Agrigento*, in Kokalos XXXIX-XL, II.1, 1993-1994, pp. 717-733.

HASENZAGL, CAPELLI 2019: C. Hasenzagl, C. Capelli, *Petrographic characterisation of Late Roman African Pottery from J.W. Salomonson's surveys: the workshop of Sidi Khalifa*, in *AntAfr* 55, 2019, pp. 229-336.

HAYES 1972: J.W. Hayes, *Late Roman Pottery*, London 1972.

LAURO 2009: D. Lauro, *Sambuchi (IGM 259 IV SE)*, Firenze 2009.

MACKENSEN 1993: M. Mackensen, *Die spätantiken Sigillata- und Lampentöpfereien von El Mahrine (Nordtunesien). Studien zur nordafrikanischen Feinkeramik des 4. bis 7. Jahrhunderts*, München 1993.

MACKENSEN 2019: M. Mackensen, *Relief- und stempelverzierte nordafrikanische Sigillata des späten 2. bis 6. Jahrhunderts. Römisches Tafelgeschirr der Sammlung K. Wilhelm*, Wiesbaden 2019.

MACKENSEN, SCHNEIDER 2006: M. Mackensen, G. Schneider, *Production centres of African Red Slip ware (2nd-3rd c.) in northern and central Tunisia*:

archaeological provenance and reference groups based on chemical analysis, in *JRA* 19, 2006, pp. 163-190.

MALFITANA, BONIFAY 2016: D. Malfitana, M. Bonifay (eds.), *La ceramica africana nella Sicilia romana / La Céramique Africaine dans la Sicile Romaine*, I-II, Catania 2016.

PARELLO *et alii* 2016: M.C. Parello, A. Amico, F. D'Angelo, *Sciacca (AG), Verdura [sito 73]*, in MALFITANA, BONIFAY 2016, pp. 167-175.

REYNOLDS 1987: P. Reynolds, *El yacimiento tardorromano de Lucentum (Benalua-Alicante): las cerámicas finas*, Alicante 1987.

REYNOLDS 2011: P. Reynolds, *A 7th century pottery deposit from Byzantine Carthago Spartaria (Cartagena, Spain)*, in M.A. Cau Ontiveros, P. Reynolds, M. Bonifay (eds.), *Late Roman Fine Wares: Solving Problems of Typology and Chronology. A Review of the Evidence, Debate and New Contexts*, Oxford 2011, pp. 99-127.

REYNOLDS 2016: P. Reynolds, *From Vandal Africa to Arab Ifriqīya: tracing ceramic and economic trends through the 5th to the 11th centuries*, in S. Stevens, J. Conant (eds.), *North Africa under Byzantium and Islam*, Washington D.C. 2016, pp. 120-171.

RIZZO, ZAMBITO 2016: M.S. Rizzo, L. Zambito, *Naro (AG), Cignana [sito 67]*, in MALFITANA, BONIFAY 2016, pp. 160-166.

TOMBER 1993: R.S. Tomber, *Quantitative approaches to the investigation of long-distance exchange*, in *JRA*, 6, 1993, pp. 142-166.

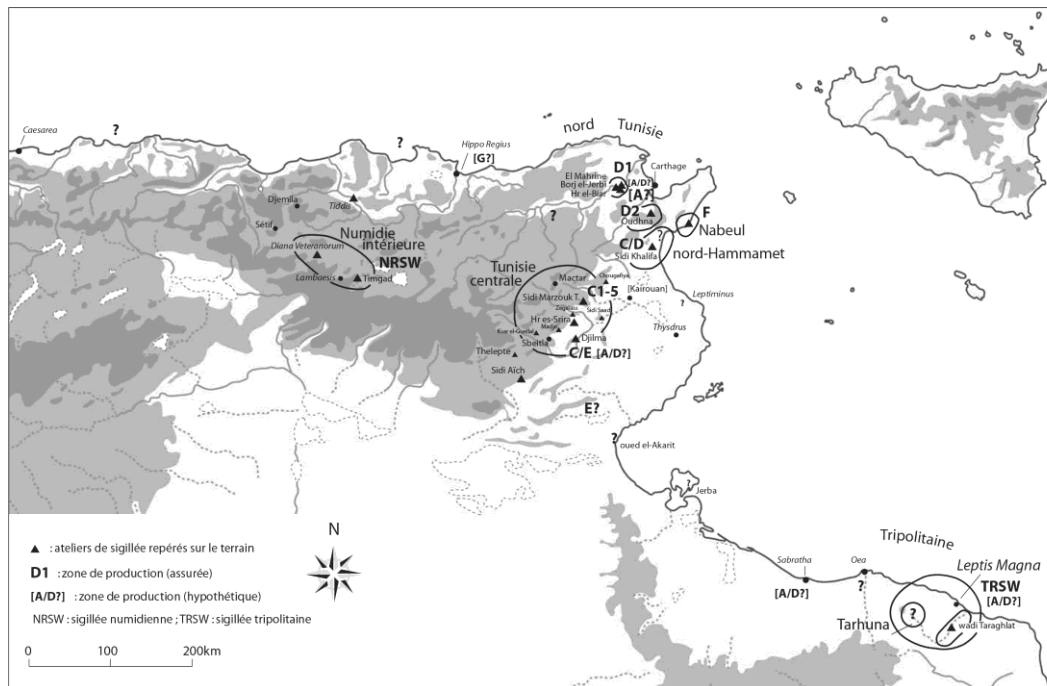


Fig. 1. ARS workshops and productive areas (from BONIFAY 2016, fig. 127).

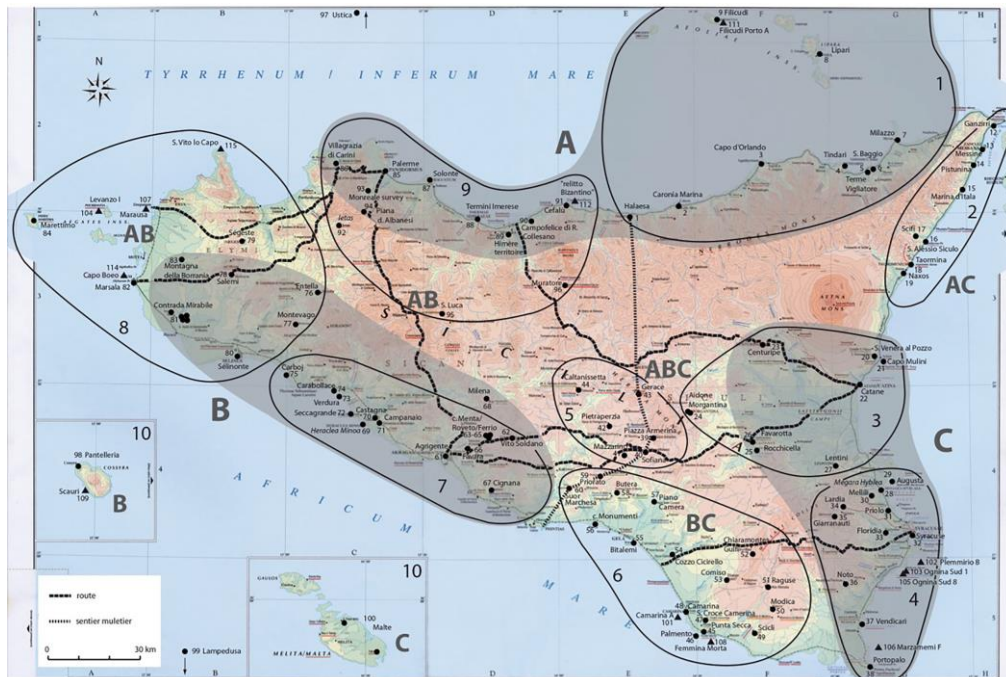


Fig. 2. Distribution of the ceramic facies (from BONIFAY, MALFITANA 2016, p. 408).



Fig. 3. Location of Cignana and Himera surveyed areas (by F. Ducati and C. Capelli).



Fig. 4. A focus on Cignana (A) and *Himera* (B) surveyed areas (by F. Ducati and C. Capelli).

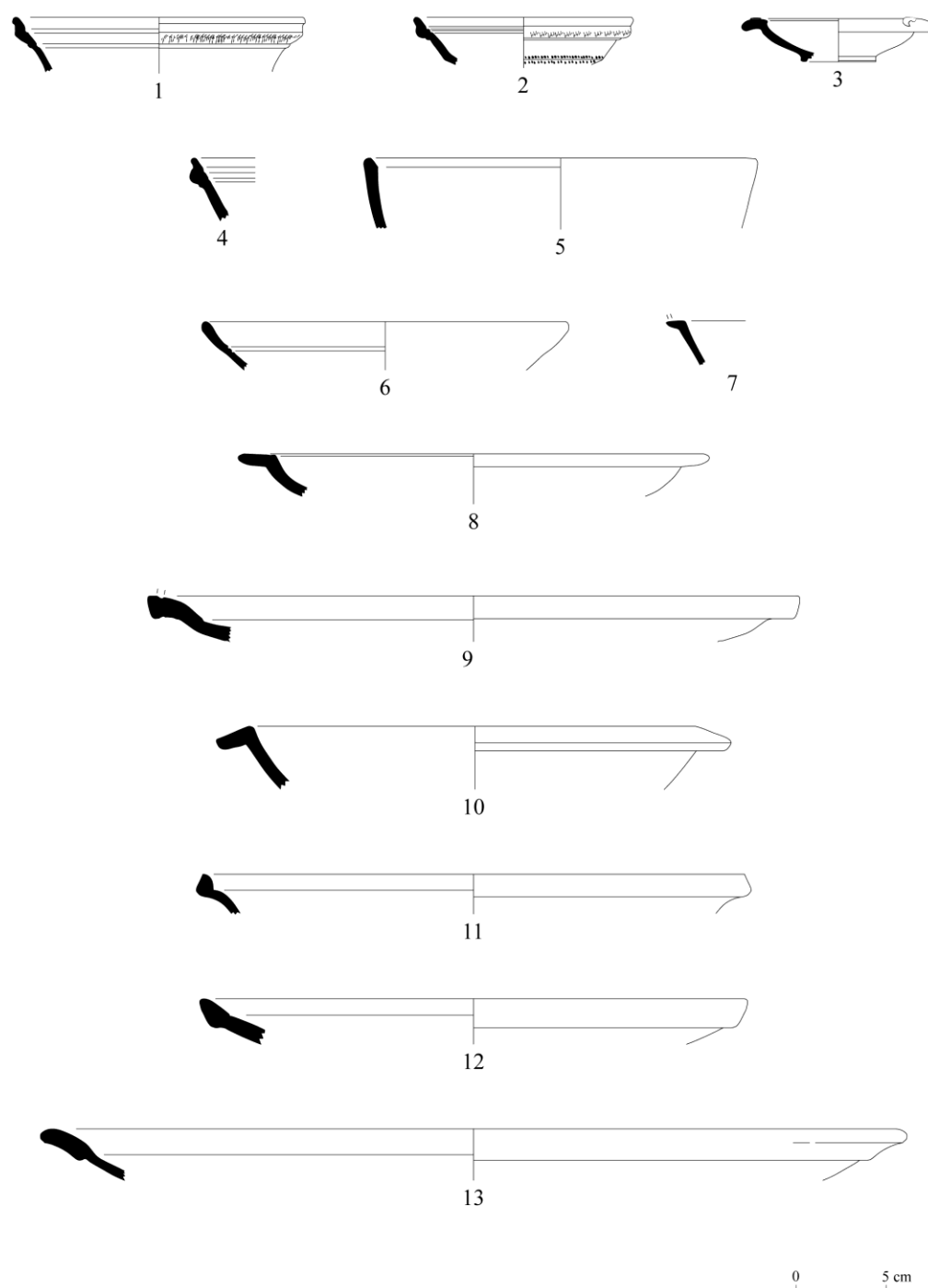


Fig. 5. ARS from Cignana survey, common types. A1 fine: Hayes 8A (n. 1); A1: Hayes 8A (n. 2), Hayes 3B (n. 3); A2: Hayes 8B (n. 4), Hayes 15 (n. 5); C3: Hayes 53 (n. 6); C or C/E?: Hayes 58A (n. 7); D1: Hayes 59 (n. 8), Hayes 67B (n. 9), Hayes 93 (n. 10); C/D: Hayes 61B3 (n. 11), Hayes 87A/88 (n. 12), Hayes 88 (n. 13); (by F. Ducati).

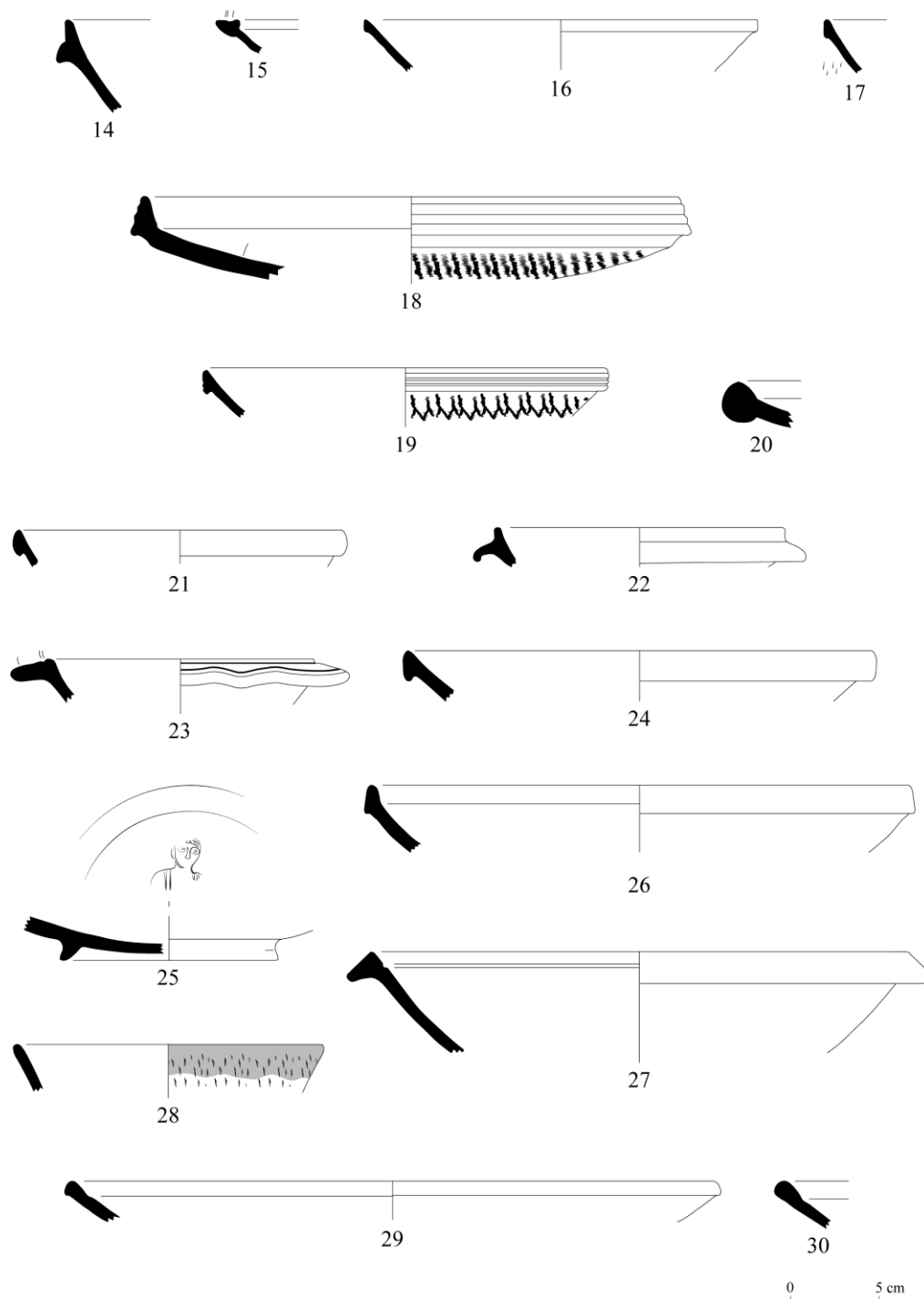


Fig. 6. ARS from Cignana survey, common types. C/D: Hayes 91 Sidi Khalifa variant (n. 14), Sidi Jdidi 8 (n. 15); F: Hayes 50B.61 (n. 16), Fulford 27 (n. 17); C5: Hayes 82 (n. 18), Hayes 84 (n. 19), Hayes 90 (n. 20); D2: Hayes 99A (n. 21), Hayes 91C (n. 22), Hayes 97 (n. 23), Hayes 103 (n. 24), Hayes 104B (n. 25); D other: Hayes 61B2 (n. 26), Hayes 61C (n. 27), Hayes 81A (n. 28); CASR groups 11-12: Hayes 87B/109 (nn. 29-30); (by F. Ducati).

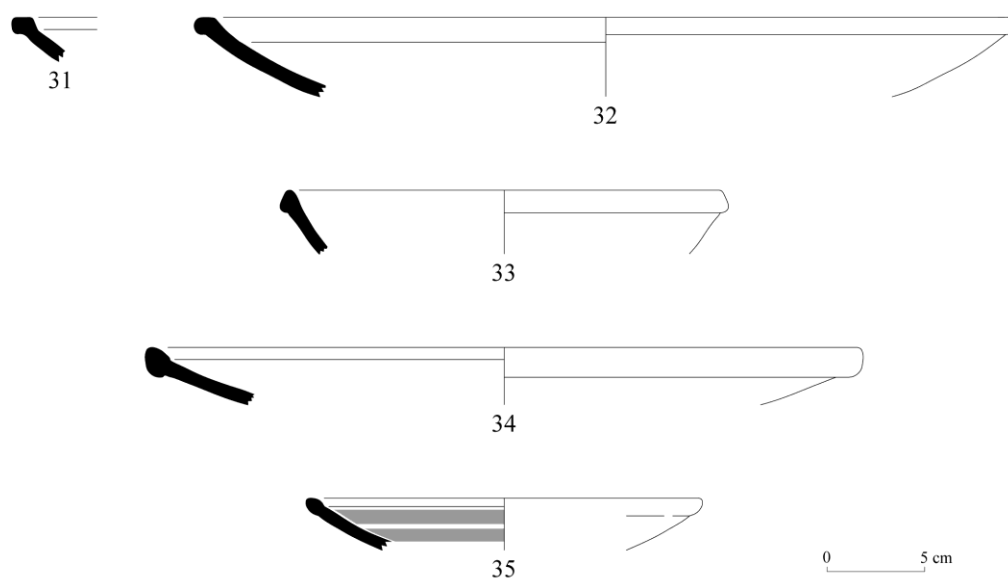


Fig. 7. ARS from Cignana survey, common types. CASR groups 11-12: Hayes 87C (n. 31), Hayes 87C variant (n. 32); D late: Hayes 99C (n. 33), Hayes 105 (n. 34), Hayes 109A (n. 35); (by F. Ducati).

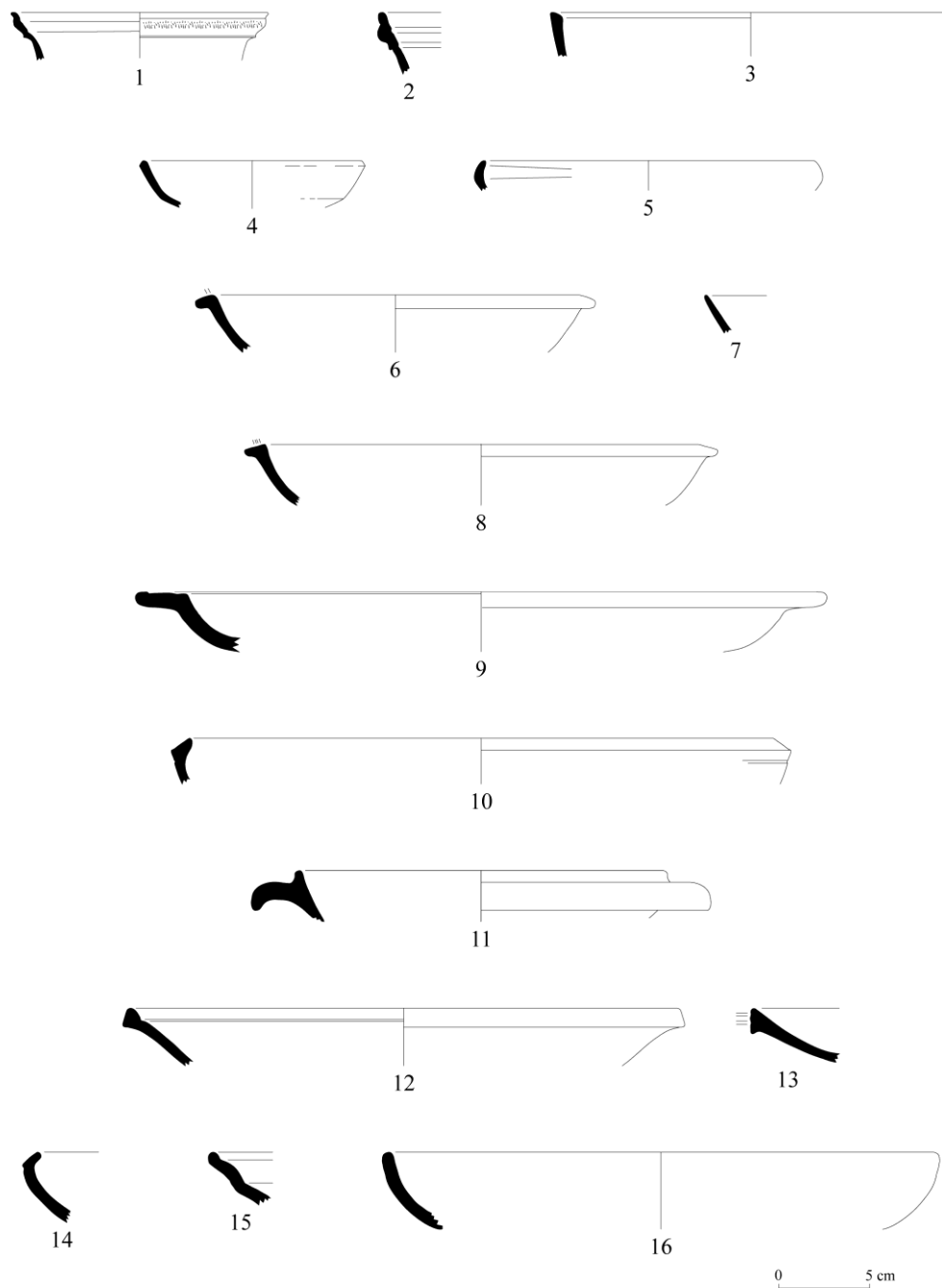


Fig. 8 ARS from *Himera* survey, common types. A1 fine: Hayes 8A (nn. 1-2); A2: Hayes 15 (n. 3), Hayes 16 (n. 4), Hayes 27 (n. 5); A/D: Hayes 32 (n. 6); C2: Hayes 50A (n. 7); D other: Hayes 58B (n. 8); D1: Hayes 59 (n. 9), Hayes 61A (n. 10), Hayes 91B (n. 11); C/D: Hayes 61B3 late variant (n. 12), Hayes 86, n. 1 (n. 13); D other: Hayes 61 A/B4 (n. 14), Hayes 67 early variant (n. 15); Hayes 62/64 (n. 16); (by F. Ducati).

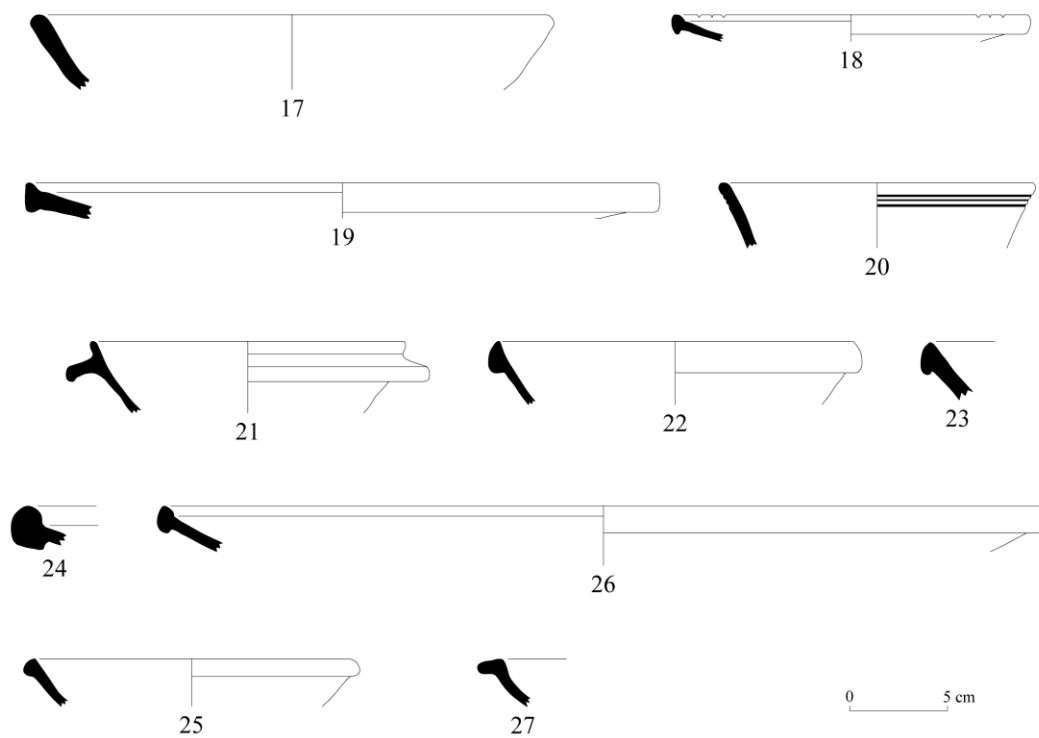
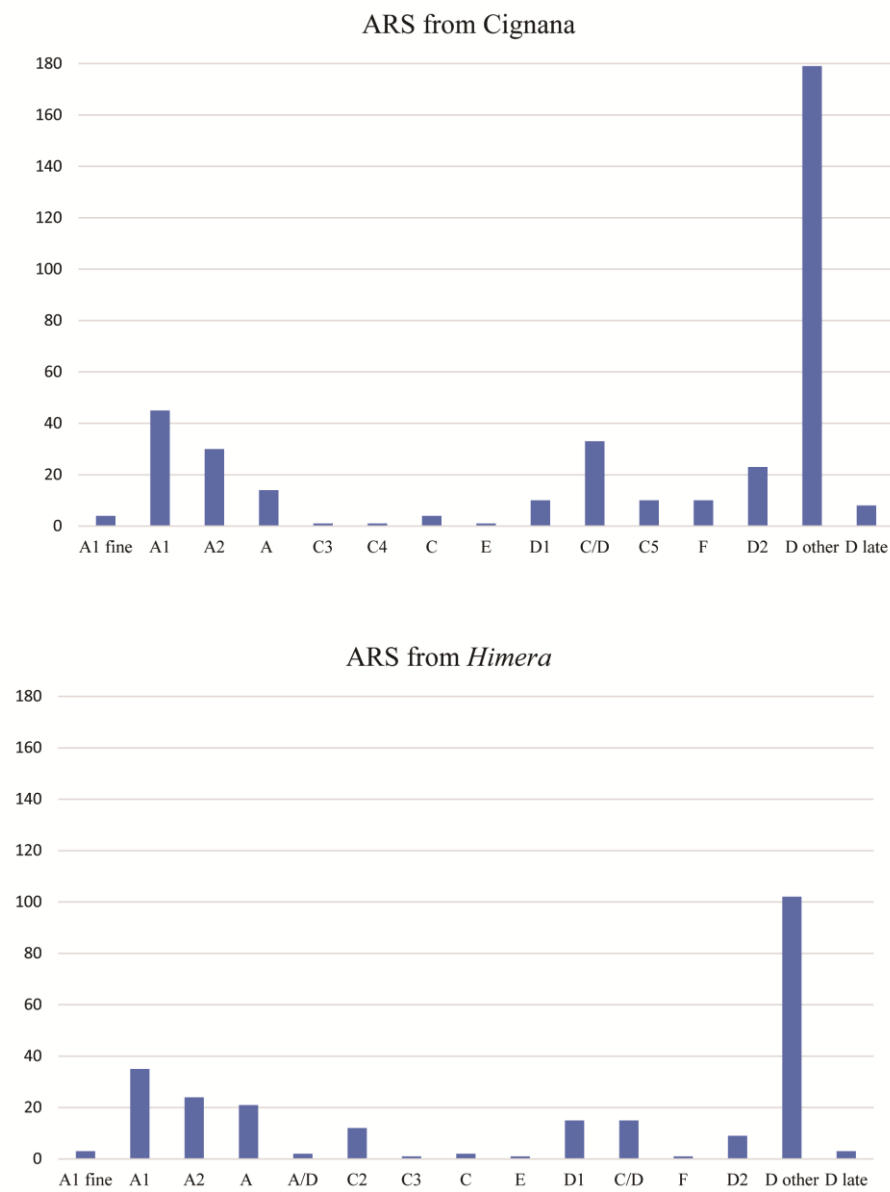


Fig. 9 ARS from *Himera* survey, common types. D other: Hayes 64 (n. 17), Hayes 73A (n. 18), Hayes 76 (n. 19), Hayes 80A (n. 20); D2: Hayes 91C (n. 21), Hayes 99A (n. 22), Hayes 103 (n. 23); D other (?): Hayes 90B (n. 24); D late: Hayes 99C (n. 25), Hayes 105 (n. 26), Hayes 108 (n. 27); (by F. Ducati).



Tab. 1 Histograms representing the MNV (only sure identification) for each ARS production collected during the Cignana and *Himera* surveys. ARS C2 (absent in Cignana), C5 (absent in *Himera*), F, C/D, D2 and D late show the major differences between the two regions. (by F. Ducati, C. Capelli)

ARS	productions	Cignana surveys		Himera surveys	
		MNV	%	MNV	%
A	A1 fine	4	1%	3	1,1%
	A1 fine?	3	0,7%	1	0,4%
	A1	45	10,8%	35	12,7%
	A1?	2	0,5%	2	0,7%
	A2	30	7,2%	24	8,7%
	A2?	4	1%	7	2,5%
	A	14	3,3%	21	7,6%
TOT ARS A		MNV: 102 = 24% of ARS		MNV: 93 = 34 % of ARS	
A/D	A/D	0	-	2	0,7%
	A/D?	3	0,7%	0	-
TOT ARS A/D		MNV: 3 = 1% of ARS		MNV: 2 = 1% of ARS	
C	C1	0	-	0	-
	C1?	0	-	0	-
	C2	0	-	12	4,3%
	C2?	1	0,2%	2	0,7%
	C3	1	0,2%	1	0,4%
	C3?	0	-	0	-
	C2 or C3?	2	0,5%	1	0,4%
	C4	1	0,2%	0	-
	C4?	0	-	0	-
	C5	10	2,4%	0	-
	C5?	1	0,2%	1	0,4%
	C	4	1%	2	0,7%
TOT ARS C		MNV: 20 = 5% of ARS		MNV: 19 = 7 % of ARS	
D	D1	10	2,4%	15	5,4%
	D1?	4	1%	8	2,9%
	D2	23	5,5%	9	3,3%
	D2?	3	0,7%	1	0,4%
	C/D	33	7,9%	15	5,4%
	C/D?	16	3,8%	5	1,8%
	D late	8	1,9%	3	1,1%
	D late?	4	1%	1	0,4%
	D other	179	42,8%	102	37%
TOT ARS D		MNV: 280 = 67% of ARS		MNV: 159 = 58 % of ARS	
E	E	1	0,2%	1	0,4%
	E?	1	0,2%	0	-
TOT ARS E		MNV: 2*		MNV: 1*	
F	F	10	2,4%	1	0,4%
	F?	1	0,2%	1	0,4%
TOT ARS F		MNV: 11 = 3% of ARS		MNV: 2 = 1% of ARS	

Tab. 2 Accounting ARS from the Cignana and Termini Imerese surveys (by F. Ducati, C. Capelli).