Between Town and Monastery

Peasant economy in the first millennium AD

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1. Introduction

In his massive *Framing the Early Middle Ages*, Chris Wickham suggests that the transition from the Roman to the early medieval economic system freed the peasantry from a series of constrictions, such as tax enforcement, aristocratic power and land alienation. The fragmentation of the political structure and of the economic network grown thanks to the long political stability, alongside a reduction of marketing horizons, meant a return to a production system in which peasants had more control on their output and on their workload[1]. Wickham's model purposedly contrasts a more traditional perspective, which minimises the positive effects of production control and stresses the negative impact on life standards of the reduction of economic complexity occurred with the fall of the Empire[2]. In this traditional model, subsistence economy was not an aware decision of peasant communities, but rather an obligation of contingencies.

For how much historically laden this debate might sound like, it has a strong meaning also for contemporary economy. It is now more than forty years that the global agriculture model of the 'Green Revolution' is confronted with a 'peasant-friendly' model based on small-scale farming. The ideal supporting the Green Revolution is that a global-scale agriculture aiming at enhancing land productivity in the Third World would eventually reduce world hunger problems and lead peasants in poorer countries to higher standards of living. Conversely, 'peasant-friendly' organisations stress how agrarian production on a global scale, based on less biodiversity and stronger dependency on human input, is not leading peasants out of poverty and is creating an agriculture that is more easily affected by economic crises, pests and climatic change[3]. Clearly, despite historical peculiarities, both debates on contemporary and ancient agriculture show a different understanding of how large-scale markets influence peasants' lives and of the economic autonomy of peasantries.

This thesis contributes to this wider debate by analysing the transition from the Roman to the early medieval economy from a different theoretical angle. The transition from «villa to village»[4] has a long history of research. Still, this study focuses on two aspects that the current debate has not yet fully developed and that can enhance the comparability between ancient and contemporary agrarian systems. First, there is little understanding of how the impact of economic crisis changed depending on the level of peasant integration in the inter-regional economy. Second, it is still unclear whether the role of Central Places benefited or not of

1 Wickham 2005 pp. 535–550
2 Ward-Perkins 2005a pp. 87–121
3 Harwood 2012 pp. 115–164
4 Francovich, Hodges 2003

the disappearance of inter-regional markets. The case study presented in this work compares the influence of two different types of inter-regional social networks, one political and the other religious, before and after the fall of the Roman Empire with the aim of providing a useful ancient comparison for contemporary events.

1.1 Rural economy in the 1st millennium AD: slave, peasant and feudal modes of production

In the course of the 1st millennium AD, the agrarian organisation in the Italian peninsula took a variety of forms. From an economic point of view, agriculture has been traditionally described with three main modes of production – slave, peasant and wage labour. The modes of production can be envisaged as ideal models that approximate the way agrarian work was conducted in specific periods, helping scholars to approach economic change in a simplistic but manageable way[5]. Though they never existed in their 'pure' form, for the aims of this work it is useful to have clear how the agrarian history of the Italian peninsula of the 1st millennium AD has been approached traditionally. Clearly, the modes of production are the topic of a still ongoing debate. The outline below avoids delving into the details of each system, amply discussed in the referenced works, and prefers offering an overview of the main characteristics in order to ease a comparison.

The slave mode of production is, as clear from its name, an agrarian system based in major part on the coercive work imposed on slaves. Its predominance in Roman agriculture in the Italian peninsula spans from the late Republican until the Early Imperial period, roughly from the 2nd century BC until the 2nd century AD. Rome's acquisition of slaves advanced in great part through conquest and war. According to Keith Hopkins, war created a shortage of workers in the countryside (as farmers were occupied in fighting) which the aristocracies filled with the forced labour of the captives[6]. Accordingly, the scale of Roman expansionism in the late 3rd - early 2nd century lead to a large availability of slaves, which became a key component in peninsular agriculture[7]. From this point onward, the agrarian production in the Italian peninsula adapted to the availability of free labour. Large estate centres, dedicated either to intensive cultivation of wine and olives or to extensive wheat cultivation and woodland exploitation, substituted the early Republican farms focused on small-scale production[8]. This new mode of production revealed profitable only when the output exceeded local demand, therefore creating a surplus that could be directed to extra-regional trade. For example, it has been noted that the adoption of slave labour in vine cultivation needs to be connected to the appearance of a new scale of market exchange that increased the demand for good quality wine[9]. Thus, this profit-oriented farming practice created a clear break («alienation» to use a Marxist term) between the producer and its product as the output of slave labour was not directed to self-consumption, but was mainly seen as a good to be exchanged[10].

After the 2nd century AD, Rome's expansionism came to a stall, diminishing the availability of 'cheap' slave labour and pushing landowners in the Italian peninsula to slowly rely more on tenants (*coloni*). There is much discussion on their function and on their actual predominance in the late antique agrarian production system, but a clear distinction from the slave mode of production is evident[11]. In general, the social condition of *coloni* seems slightly improved from that of slaves, but still marked by a subordinate relationship with a *patronus*. This was not only the owner of the land they worked, but also the person collecting their tax revenues and to whom the *coloni* legally belonged[12]. The fiscal context is especially important to understand both the *colonus*' relation with land and owner, and its role in the wider late imperial economic context. Diocletian's fiscal reform, introduced at the end of the 3rd century, revolved around the introduction of a poll tax (*capitatio*) and a land tax (*iugatio*). *Coloni* did not pay these taxes directly to state officers, but gave their part to their

5 Wickham 2005 pp. 260–261
6 Hopkins 1978 pp. 102–106
7 Carandini 1981a p. 252; Sirago 1995 p. 258
8 Carandini 1981a pp. 252–253
9 Silver 2013 pp. 390–395
10 Hopkins 1978 pp. 107–108
11 Wickham 1984 p. 5
12 Rosafio 1997 pp. 247–250; Banaji 1997 pp. 262–263

landowners that then transmitted the amount to the state. This fiscal procedure forced tenants to monetise their product so that they could pay their lease in gold to the landowner[13]. Then, it is evident how the late antique agrarian system was more directed to small-scale markets, in which tenants could easily monetise, pushed by the necessity to keep up with the high levels of fiscal pressure[14]. Tenants did try to evade tax payments, especially by leaving their assigned land. In the course of the 4th century AD, a series of laws tied *coloni* to the land in order to secure a constant tax income. Such laws were especially useful to the landowners, which now gathered an unprecedented power over legally free tenants[15].

The final state of the colonate shows why scholars saw in the *colonus-patronus* relation a late antique anticipation of the feudal relation between *dominus* and his farmers[16]. If many still believe in a certain continuity between the two legal statuses, Chris Wickham suggested that the military and social unrest of the 7th and 8th century in the Italian peninsula marked a strong break and a period of unprecedented peasant's freedom. According to the British author, the fall of the Roman political and fiscal structure lead to a general weakness amongst aristocracies, which lost their coercive power on land workers. This power vacuum allowed peasants to have higher levels of economic independence, both for what concerns the organisation of their production and in the relation with the market networks, which at this point had extremely narrow horizons[17]. The model of the «peasant's mode of production» is openly indebted to Marshall Sahlin's conceptualisations on the original affluent society and on the organisation of domestic production[18]. In this model, the absence of aristocratic pressure would lead to the disappearance of any concern in the creation of large surpluses. This new perspective towards agriculture must have led to a widespread drop in land productivity as much as to a demographic contraction. Similarly, exchange would have been limited to gifts distributed between household to stabilize extra-familiar relationships, without any interest in having a surplus to be sold on the market[19].

From the 9th century onwards, the growing power of the aristocratic class put an end to the «golden age of peasantry» and leads to the creation of the 'feudal mode of production'[20]. In the feudal mode of production, the aristocracy was able to seize part of the peasants' surplus for its own necessities and to force peasants to provide free labour in his lands[21]. Contrarily to the 'slave mode of production', in the feudal agriculture, the production system was still in the hand of the peasants, however, this class lost the control of the exchange system , that was now a prerogative of the aristocratic class[22]. Moreover, compared to the early and late imperial agrarian societies, in the feudal system the role of the State was completely irrelevant and each part of the economic process was directed locally by different actors[23].

In this synthetic and schematic description of the evolution of agrarian systems throughout the 1st millennium AD, it is already noticeable that this narrative suggests the marketing horizons of peasantries contracted relentlessly. Even the expanding feudal market of the 10th century offered a much more limited demand than that available in the early imperial period. Accordingly, the imperial system was able to create both the political stability necessary for the maintenance of long-distance trade and the economic premises for a widespread participation of peasants in the imperial economy. The creation of a stable demand for non-local agrarian products eventually pushed peasants to reorganise their production around the necessities of this far-reaching market.

Yet, this reconstruction of agrarian history understates the importance of two elements. The first is that, even under the imperial hegemony, a constant participation to long-distance market was possible exclusively to those peasant communities fulfilling specific environmental and social requirements, such as a convenient geographical location and a risk-oriented landowning class. Therefore, it is likely that a considerable part of the rural population had only an intermittent involvement in this Mediterranean wide

13 Vera 1986 pp. 381–382
14 Capogrossi Colognesi 1986 pp. 334–336
15 Jones 1958
16 Vera 2012 pp. 109–110
17 Wickham 2005 pp. 827–829
18 Sahlins 1972 pp. 1–99
19 Wickham 2005 pp. 536–539
20 Hodges 2012; Wickham 2000a
21 Wickham 2000a
22 Wickham 2005; Wickham 2000a
23 Hodges 2012 pp. 11–12

exchange, and certainly not steady enough to modify substantially the agrarian production strategies. Rural communities of this kind were the economic periphery of the empire[24]. In these areas, the local economic context mediated and filtered the transformations occurring at the global scale, so that the imperial crisis affected economic peripheries indirectly, mainly by altering intra-regional economic balances. This does not necessarily mean that peripheries suffered less the economic downturn of the Early Middle Ages, but that certainly the effects took another form from those analysed in core economic regions.

The second element to be considered is that the current narrative on agrarian history tends to focus on rent and taxes as the only incentives to agrarian productivity. Such view downplays the importance of gathering surpluses for ceremonial obligations, created by peasant communities to satisfy the expenditures required by their social environment[25]. Ceremonial surpluses are culturally laden and political superstructures constitute only one of the many variables influencing them. It might be argued than in economic peripheries, the satisfaction of ceremonial requirements might have created a stronger stimulus to the local agrarian society than tax payments[26]. In a period such as the Early Middle Ages it is not far-fetched to suggests that the Church, rather than the State, was the main consumer and, thus, the greatest incentive for growth[27]. Moreover, the web of late antique and early medieval dioceses and rural churches offered a network in many cases as pervasive of that of Roman towns, possibly encouraging the production of agrarian surpluses[28].

24 a term that does not necessarily collide with geographical peripheries: McKenzie 1977 pp. 71–72

25 Wolf 1966 pp. 7–9
26 Silver 1995 pp. 18–23; Carver 2015 p. 18
27 Carver 2015 p. 2
28 Brogiolo, Chavarría Arnau 2008 p. 23

1.2 Central Places and rural economy: theoretical background and archaeological implications

An analysis of the role of Central Places within the local rural economy can provide an interesting outlook on the outlined issues. On the one hand, the relation of peasants with the main regional centre is a good proxy for the impact of global crisis on local economies. On the other, a comparison of the economic weight of a political - Roman - and a religious - Christian - centre throughout the 1st millennium AD can enlighten on the role of ceremonial and rent/tax stimuli for the creation of agrarian surpluses. Consequently, it is necessary to understand how the concept of Central Places developed in modern economic geography and what uses have been made of it in Roman and early medieval archaeology.

Central Place Theory was introduced in 1933 by Walter Christaller, but was only widely accepted in the 1960s-70s, after the mediation of the Anglo-Saxon and Scandinavian academic environments[29]. According to Christaller, a Central Place is a location where specific services are available. Not all the items, however, have the same importance or are necessary with similar frequencies. It follows that it exists a hierarchy of goods and that Central Places will be classified according to the type of services they provide. Higher order Central Places, providing the largest range of services, are the rarest, while low order Central Places tend to be more common and pervasive in their geographical dispersion[30]. Despite its commonest use is in the analysis of complex societies and urban systems, Central Place Theory can also explain the locational distribution of other types of society, even at the intra-site level[31]. Yet, the use of the concept of profit maximisation was considered inapplicable to peasant economies, and therefore Carol Smith's reappraisal, more attentive to class differentiation, was deemed more useful in such contexts[32]. According to Smith's model, while the level of commercialisation depends on the scarcity of an item, the spatial organisation of the system will depend on the extension of the market exchange and on the 'hierarchical formalisation' of the exchange system[33].

29 Christaller 1933; Blotevogel 1996 p. 9

30 Wagstaff 1986 pp. 119–120
31 Smith 1976a pp. 7–8; Clarke 1977 p. 24
32 Hodges 1988 p. 17
33 Smith 1976b pp. 313–314

In the Roman exchange network, there has been little argument on the economic predominance of the city[34]. Not only the *civitas* was differentiated from other types of nucleated settlements on a jurisdictional level[35], but also towns' demographic density diverged so starkly from the average that it necessarily created a constant demand for agrarian surplus from its hinterland. This relation of dependency with the surrounding rural communities has been at the centre of the debate on the economic role of the Roman town. Building on Max Weber's work, Moses Finley pointed out that town-country relation could be expressed as a range between the extortion of the agrarian surplus through taxes and rents (the 'parasitic' or 'consumer city') and the market exchange of foodstuff for urban manufactures (the 'symbiotic' or 'producer city')[36]. In accordance with its primitivist view of ancient economy, Finley assumed that the ancient city functioned mainly as a centre of consumption, in which urban manufactures were not aimed neither at creating a symmetrical exchange with the rural population nor constituted a large percentage of the internal richness[37]. Useless to say, since its inception, the 'consumer city' model has been criticised from several different angles and alternatives have been created[38]. Still, all the models created until this moment agree on the fact that the town was necessarily a net food importer and that the bulk of this food was gathered from the towns' catchments, meaning that the city always acted as a Central Place at least in the local rural economy.

If in the Roman landscape, the function of the city was clearly differentiated from that of secondary agglomerations or other minor centres, finding a unique correspondence of a Central Place for the post-Roman period is more problematic. On the one hand, the towns of the Italian peninsula not only suffered a crisis in terms of political relevance, but there is widespread evidence of a considerable demographic contraction[39]. On the other, agrarian and manufacturing activities, which in the Roman period were mainly concentrated in the town's hinterland, moved within the urban walls[40]. The diminishing urban population density as much as the 'ruralisation' of towns' material culture mined the local prominence of the city which consequently weakened the economic relation between town and country[41]. The crisis of the Roman town model did not lead to the 'end of civilisation', as sometimes claimed[42], but rather the beginning of a period of experimentations during which a variety of places, more or less explicitly and wittingly, tried to claim for themselves some of the urban functions.

In the last two decades, much effort has been spent to create a sound characterisation of post-Roman Central Places, in which the economic role of a human settlement could be determined from a set of archaeological hints. In an effort to solve this problem, Martínez and Tejerizo recently suggested that Central Places should be defined according to their historical and geographical context and, therefore, need to be recognised in the archaeological and historiographical evidence following a precise methodology. They believe that starting from three defining features (territorial control, social stratification and economic diversification) it is possible, not only to recognise Central Places in different eras and regions, but also to build fruitful comparisons[43]. The use of these three proxies in their Iberian case study allowed the identification of a wide range of different Central Places, such as emporia, hilltops, imperial palaces and towns with continued occupation. According to the authors, the weakening of the Roman political power lead local communities to adapt in various ways to the new global context, creating the multifarious landscape of the early medieval period[44]. Even though the Spanish authors do not include religious centres in their model, churches with venerated relics or monasteries with large territories could easily grow into unrivalled local economic hubs. Frans Theuws showed how the property of an inalienable possession (e.g. the relics of a martyr) could create the necessary

34 Brogiolo 2011 p. 147
35 Whittaker 1990 p. 114
36 Finley 1973 p. 125
37 Finley 1973 p. 139
38 For a list of the various alternative models see Whittaker 1990; Whittaker 1993
39 Martin, Spieser 1994 p. 735
40 Brogiolo 2011 p. 181
41 Balzaretti 1996 pp. 216–217; Brogiolo 2000 pp. 322–323; Martínez Jiménez, Tejerizo García 2015 p. 84
42 Ward-Perkins 2005a
43 Martínez Jiménez, Tejerizo García 2015 p. 85
44 Martínez Jiménez, Tejerizo García 2015 pp. 96–98

social disequilibrium to stimulate the development of other types of exchanges (commodities and gifts). More importantly, religious centres became the context in which aristocracies could show their magnificence to the population and in many cases such availability brought to the appearance of successful economic centres[45].

Amongst the early medieval experiments, monasteries appeared as one of the most successful Central Places, at least in terms of life span and subsequent evolution. Early medieval cloisters were in some cases the trigger for urbanisation (e.g.: St. Riquier and Ghent[46]; Fulda) or constituted an energetic unit of the early medieval urban environment (e.g.: San Salvatore in Brescia and Sant'Ambrogio in Milan[47]). According to Federico Marazzi, between the 8th and the 9th century AD, monasteries were the centre of an autonomous network of exchange that made use of hardly any urban structure[48]. In this model, monasteries exploited rationally their properties, with neighbouring land supplying agrarian products and distant possessions providing either special products not procurable in the proximity of the monastery or payments in gold. Connections with outer regions were maintained via 'landing-points', which were not urban[49]. These gateways to the 'secular' economy might have been the locations where the surplus produced in the monastic lands was marketed[50].

Therefore, driven by new social and cultural necessities, the economic framework of the early medieval peasantry differed greatly from the Roman one. Still, some locations showed the ability of appropriating of part of the agrarian surplus produced in their hinterlands for their own nourishment, thus acting as Central Places in their local contexts. As seen above, the economic relation between centre and hinterland can take a variety of forms and needs not to be based on an asymmetric balance. Landscape archaeology is potentially a great tool for investigating thoroughly the nature of local relations and uncovering patterns of economic dependence. Still, despite the methodological advances of the last decades of the 20th century, survey data has still contributed poorly to the debate, mainly replicating models of economic regression that do not fully investigate the role of Central Places in the development of peasant economies.

45 Theuws 2004
46 Lebecq 2000 p. 139
47 Balzaretti 2000 pp. 256–257
48 Marazzi 2004
49 Marazzi 2004 pp. 746–747
50 Lebecq 2000 p. 139

1.3 Conflicting scenarios and the potential of landscape archaeology

The inapplicability of Roman settlement models to the early medieval landscape and the poor understanding of early medieval ceramics are still the biggest hindrance to a thorough understanding of the post-Roman rural economy[51]. Besides, the local character of the patterns investigated archaeologically in the Italian peninsula shed doubts on the relevance of regional models on other areas than those for which they were thought[52]. However, the previous paragraph showed that there is a widespread acceptance of the usefulness of Central Place Theory as a framework to approach effectively the transformation of the rural economy in the course of the 1st millennium AD. It is undoubted that Central Places existed in the Roman as much as in the early medieval period, understanding their role in the local economy using the results of landscape archaeological projects can provide the necessary step beyond narratives of depopulation and crisis.

Paul Arthur and Helen Patterson already showed that using Central Places as an organising category can lead to a better synthesis of settlement patterns and to a more complex understanding of the evolution of early medieval rural economies[53]. The authors recognised 'four main trends of economic development' in which the complexity of the ceramic evidence and the presence of a functioning economic hub were analysed as correlated factors. First, towns with evidence of a substantial early medieval economic activity apparently had a stimulating effect on the economy of their hinterland, which in some part shared the urban material culture. Rome, Naples, Otranto and even Benevento, all substantial early medieval towns,

51 Patterson 2000
52 cfr. Patterson 2010 p. 151
53 Arthur, Patterson 1994

show not only evidence of long-distance trade, but also a good connection with their neighbouring rural settlements[54]. On the contrary, towns that did not maintain a solid link with the trade of non-agrarian products regressed to an almost complete self-sufficiency. The urban population in these centres turned to agriculture and economic complexity diminished visibly. Ceramics were produced within the household or by kilns with limited trade horizons and exchange was most likely limited to foodstuff[55]. Rural areas without a Roman town followed a similar trend. Cut off from inter-regional trade already in the 6th century, the population of these areas tended to focus on intra-regional exchange at least until the 7th century and settlements dedicated to subsistence strategies are common in the 8th century. In these areas, the 9th-10th century renaissance coincides with the appearance of village economies, in which a part of the population specialises in manufacturing activities[56]. Finally, there are areas that, despite lacking a Roman town, develop a Central Place in the Early Middle Ages. These are mainly monastic sites, which introduce a relatively large non-agrarian population in a rural context. The archaeological evidence from these monastic centres shows that they shared the same material culture of «successful towns». However, the rural population in their hinterland did not had access to the same wares and had to resort on household productions. The authors conclude that the function of these non-urban Central Places in the local rural economies differed markedly from that of successful towns[57].

Arthur and Patterson's classification is admittedly preliminary[58] and recent archaeological data can be used to refine some of their suggestions or to open new perspectives. Amongst others, three themes require further consideration. First, unsuccessful cities and developing centres are often located within the same rural context, but relatively few is known on the effects of the replacement of a Central Place on the rural economy. Second, there is a necessity of expanding our knowledge on the economic integration of monastic centres within the existing rural context. Third, GIS analyses opened new avenues to study rural economic systems from survey archaeology data, integrating the information gathered from ceramic distributions with a better understanding of production systems and the exploitation of natural resources.

Possibly the best example of a landscape in which an unsuccessful town and a developing centre cohabit is the Sabina, some 60 km northeast of Rome. Two surveys interested the area, one in the plain of Rieti[59] and the other in the hinterland of Farfa[60]. Rieti was a Roman town that in the Early Middle Ages, despite being a bishopric and the seat of a *gastaldus*, does not show any evidence of dense occupation and still in the 10th century green areas are predominant within the urban walls[61]. The assemblage from urban excavations in Rieti revealed that already by the 6th century local productions composed the largest part of the material assemblage in the Sabine city, while any evidence of imports from Rome lacked[62]. Almost contemporaneously, from the 8th century onwards, the abbey of Farfa acquired an unprecedented level of religious and political power[63]. The little ceramic evidence from the excavations at the monastic centre confirm the historical evidence and show a stronger urban character than that of the Reatine assemblages. Not causally then, the connections with Rome are evident in Farfa already in the 9th century AD[64].

The history of these two nearby centres affects also the organisation of the surrounding rural population. The preliminary reports on the Rieti and Farfa survey assemblages showed meaningful aspects. First, rural settlements in the Farfa area received African imports in small quantities until the mid-6th century AD, while Reatine rural settlements were, as much as the urban centre, cut off from this long-distance trade. Second, in the 7th-8th century a good-quality coarse ware starts circulating in the whole region, reaching both Rieti, Farfa and their surrounding rural settlements without distinctions. Third, while in both areas site numbers decrease markedly in the early medieval period, rural settlements in the Reatine tend to reuse Roman

54 Arthur, Patterson 1994 pp. 412–420
55 Arthur, Patterson 1994 pp. 422–423
56 Arthur, Patterson 1994 pp. 423–431
57 Arthur, Patterson 1994 pp. 431–436
58 Arthur, Patterson 1994 p. 410
59 Coccia, Mattingly 1992; Coccia, Mattingly 1995
60 Moreland 1986; Moreland 1987; Moreland 2008
61 Saladino, Somma 2008 pp. 66–67; Lezzi 2018 p. 41
62 Alvino, Lezzi 2015 p. 490; Patterson, Roberts 1998 p. 422
63 McClendon 1987 pp. 5–7
64 Patterson 1992a p. 468

settlements while in Farfa a new pattern is appearing already in the 7th-8th century[65]. Such evidence a strong economic crisis of small towns in the Apennines in the 6th or 7th century AD, marked by the loss of inter-regional exchange ties. The prominence of the town in the local economy would suffer as well of this diminished inter-regional relevance, which would allow the appearance of alternative centres, such as monasteries, to challenge the urban socio-economic primacy, mimic urban functions and eventually substitute it as leading economic centre of a region.

The relation between Farfa and its hinterland indicates a strong link between monastic communities and the local economy, but its partial publication does not allow knowing the details of the monastery-land relation. Two other survey projects provided fundamental data on this regard. The first, the San Vincenzo Project, investigated the terra of San Vincenzo al Volturno in the early 1980s. The results, which will be outlined in detail later[66], showed a clear material divide between the monastic assemblage and the rural communities living in its hinterland, which suggested a differentiation between the monastic and local rural economic network[67]. The second project that included an early medieval monastery within an archaeological survey is the Nonantola Project, led by the University of Venice. Despite their focus on the early medieval period and a relatively good knowledge of early medieval ceramics, the project identified only two non-fortified settlements datable to the 7th-9th century[68]. However, these seem to have had a specific economic aim – the exploitation of forest resources – that integrate the agrarian economy of the settlement nucleated around the monastic centre[69]. Therefore, the monastery of Nonantola appears to integrate fully with the local economic environment, triggering a centralisation of the economic organisation and a rationalisation of the exploitation of the various resources available in its territory[70].

The case of Nonatola, then, shows a monastic community able to recognise the various qualities of its territory and to create an exploitative strategy that expressed the fullest potential of the landscape. Such reconstruction agrees with the claim that early medieval Benedictine monasteries were effective estate centres in which the *cura animarum* and agrarian production went hand in hand[71]. However, this could contrast with the evidence gathered at San Vincenzo al Volturno, which rather support Jones' idea of monks as «idle mouths»[72]. Early medieval ruling elites knew that supporting monastic communities would consolidate their power at the fringes of their states and such aristocratic protection would have easily provided the monks with the necessary to live[73]. This contrasting evidence recognises in monasteries functioning Central Places, but without clarifying their economic role in the local agrarian contexts[74]. In the identification of the source of monastic subsistence, survey data has not exhausted its potential. Tools and methodologies borrowed from modern landscape planning can retrieve essential information from the data gathered in decades of landscape archaeological projects. The application of geoinformatics to agrarian productivity has already proved its efficacy in classical archaeology[75] and its adoption in medieval archaeology started showing the first results[76]. Therefore, it is suggested that an integration between the analysis of agrarian production and ceramic distribution can lead to an in-depth understanding of the monastic role in the economy of a peripheral peasant community of Peninsular Italy. Contextualised in a *long-durée* perspective, such analysis will allow approaching the function of Central Places in stimulating local agrarian economies as much as will help gaining a better insight on peasants' response to economic crisis.

65 Coccia, Mattingly 1992 p. 253; Moreland 2008 p. 861 fig. 2; Patterson, Roberts 1998 pp. 432–434
66 Chap. 2 par. 5
67 Patterson 2001 p. 300
68 Librenti, Cianciosi 2011 p. 75
69 Librenti, Cianciosi 2011 pp. 91–94
70 Gelichi, Gabrielli, Librenti, et al. 2005 p. 226
71 Aquilano 1999 pp. 443–444
72 Jones 1964 p. 1046
73 Costambeys 2007
74 Brenk 2004 p. 5
75 Goodchild 2013; Fernández 2016
76 Arnoldus-Huyzendveld, Citter 2014; Muci 2016; De Lellis 2012

1.4 Introducing the case study, the research questions and the thesis' structure

Considered the state of the art, one of the aims of this thesis is providing the scientific community with new data on monastic agrarian organisation from archaeological landscape projects. However, to grasps the data's full potential it is necessary to contextualise the study in a chronological setting that includes the periods before the foundation of the monastery and in a geographical context that embraces seamlessly monastic and non-monastic land. The presence of a Roman town without an exceptional early medieval phase and not overlapping with the monastic centre is also desired, as it would allow drawing a comparison between Roman and early medieval Central Places. Besides, it is also necessary to analyse an economic periphery, thus an area, as it has been defined above, whose economic activity was not fully dependent on the good functioning of the imperial economy. This is crucial, because in such context the evolution of rural settlement patterns is not affected by external demand for a specific resource and relations between Central Places and peasant communities should appear in a clearer fashion.

The Upper Volturno Basin (UVB), a micro-region in the Southern Central Apennines, amply satisfies such conditions (*Fig. 2.1*). First, here are located the Roman colony of Isernia and the early medieval monastery of San Vincenzo al Volturno. Second, two archaeological surveys, the San Vincenzo Project and the Colonial Landscape project, covered a large tract of the territory. Third, there is a relatively good knowledge of the early medieval rural settlements in the area. Fourth, the region can be interpreted as dominated by a peripheral economy, because neither the historical sources nor the archaeological evidence give any indication of economic specialisation in the Roman period. Considered these premises, the UVB appears as an optimal case study to provide the necessary information on post-crisis economic development of peasant communities. The rural settlement pattern, the distribution of specific ceramic wares and the potential agrarian production will be used as proxies to trace the changes in economic strategies occurring during the 1st millennium AD. The influence of the urban and monastic centres in the creation, development, or hindrance of these changes will receive special attention in the analysis of the archaeological information.

The overarching theme of this thesis is the relation between global economic crises and peasant economic behaviour. Such broad issue has been organised in a series of more manageable sub-themes constituting the backbone of the following pages. First, it will be investigated the origin of new settlement pattern and whether economic change had more or less influence than social or religious factors, an issue especially important when trying to root the appearance of hilltop settlements in a broader perspective. Second, it will be compared the organisation of agrarian production with the 'global' economic situation, in order to gain a proxy of the impact of economic crisis on peasants' work load and on the organisation of production. Third, it will be investigated the circulation of goods before and after the disappearance of the Roman Mediterranean market, to gain more information on the effects of these game changing events on local distribution networks. Fourth, an in-depth look to the roles of Isernia and San Vincenzo al Volturno in different periods, will try to unravel the function of Central Places in the long-term and to highlight any disparity in the roles arising from the different nature of those centres.

The structure of the thesis will follow the order of these sub-themes. After framing the geographical and historical context of the UVB (chapter 2), the third chapter will deal with the data sources used in the thesis. Survey archaeology is known to have several flaws and comparing different projects might lead to unreliable results. A sound methodology has been developed to limit the incompatibilities between the projects and to enhance the adoption of their results in modern technologies. The fourth chapter uses the published evidence to offer a «potted history»[77] of the area, reconstructing a seamless ceramic sequence that helps identifying the relation of the material culture from this area with those of the neighbouring and better known regions of Campania, Lazio and Abruzzo. Chapter 5 deals directly with the second thematic: starting from the rural settlement pattern at different stages in time, it reconstructs land use throughout the 1st millennium AD. It will be seen that two major

77 Arthur, Patterson 1994

transitions affect the exploitation of the territory, but with different links to the global context. Chapter 6 moves from agrarian production to the distribution of ceramics in the UVB and, therefore, will provide sound data to analyse in detail the evolution of local networks of exchange. The results will highlight the extreme variability of patterns of exchange, even during the Roman period and will also give some indication of how the modes of exchange transformed in the course of the 1st millennium AD. Chapter 7 will synthesize the results of the previous chapters to offer a detailed look at the function of urban and monastic centre. Fundamental differences will be traced between the function of city and monastery, amongst which some can be attributed to the different nature of the two centres, but others are almost certainly derived from the new economic context of the Early Middle Ages. In the conclusions, the history of the UVB will be once again connected to the wider framework to which this work wants to contribute.

2. History and Geography of the Upper Volturno Basin

2.1 Geomorphology of the research area

The Upper Volturno Basin (UVB) designates the catchment area of the river Volturno upstream of the town of Venafro (*Fig. 2.1*). The area lies in the modern region of Molise, Southern Central Italy, ca. 140 km southeast of Rome and 90 km northeast of Naples and creates one of the largest breaks in the Apennines, dividing the Central from the Southern Apennines[1]. Accordingly, mountains constitute most of its boundaries. The chain of the Mainarde, running in N-S direction, draws the limits of the area towards west. The highest peaks of the area belong to this massif (Monte Mare, Monte Marrone, Monte la Meta), ranging between 2000 and 2300 metres above sea level. On the eastern side of the Mainarde finds its sources the Volturno itself, the longest river of Southern Italy. The course of the Volturno creates the main access to the region towards southwest, in the direction of Venafro and Campania. To the southeast, instead, the northern ridges of the Matese massif delimit the area. These mountains are comprised between 1000 and 1500 metres above sea level. The chain, composed by Monte Caruso (1128 m), Monte Alto (1208 m) and Colle di Mezzo (1426 m), draws the southernmost edge of the research area and from this last peak sprouts the Lorda stream, the main watercourse south of the Cavaliere. To the east, the mountain of La Montagnola (1421 m) and Monte Totila (1359 m) draw a strong boundary and divide the research area from the Trigno valley, to the north. From la Montagnola springs the Cavaliere stream, the longest of Volturno tributaries in the UVB. Towards the north, the mountains are not organised in a chain, thus leave several opportunities for crossings, though always at high altitudes. From Monte Pagano springs the Vandra stream, that runs in a N-S direction and divides the research area in two halves.

Surrounded by these mountain ranges, the Volturno and its tributaries created a fairly wide (ca. 61 km^2) alluvial valley at an altitude of around 300 metres above sea level. The pedological components of this plain are principally riverine debris: clays and sand in the lower areas and pebbles mixed with sand on the higher areas. Between the steep mountain ridges, and the alluvial plains, a system of inter-mountain plateaus

1 Brancaccio, Cinque, Di Crescenzo, et al. 1997 p. 321

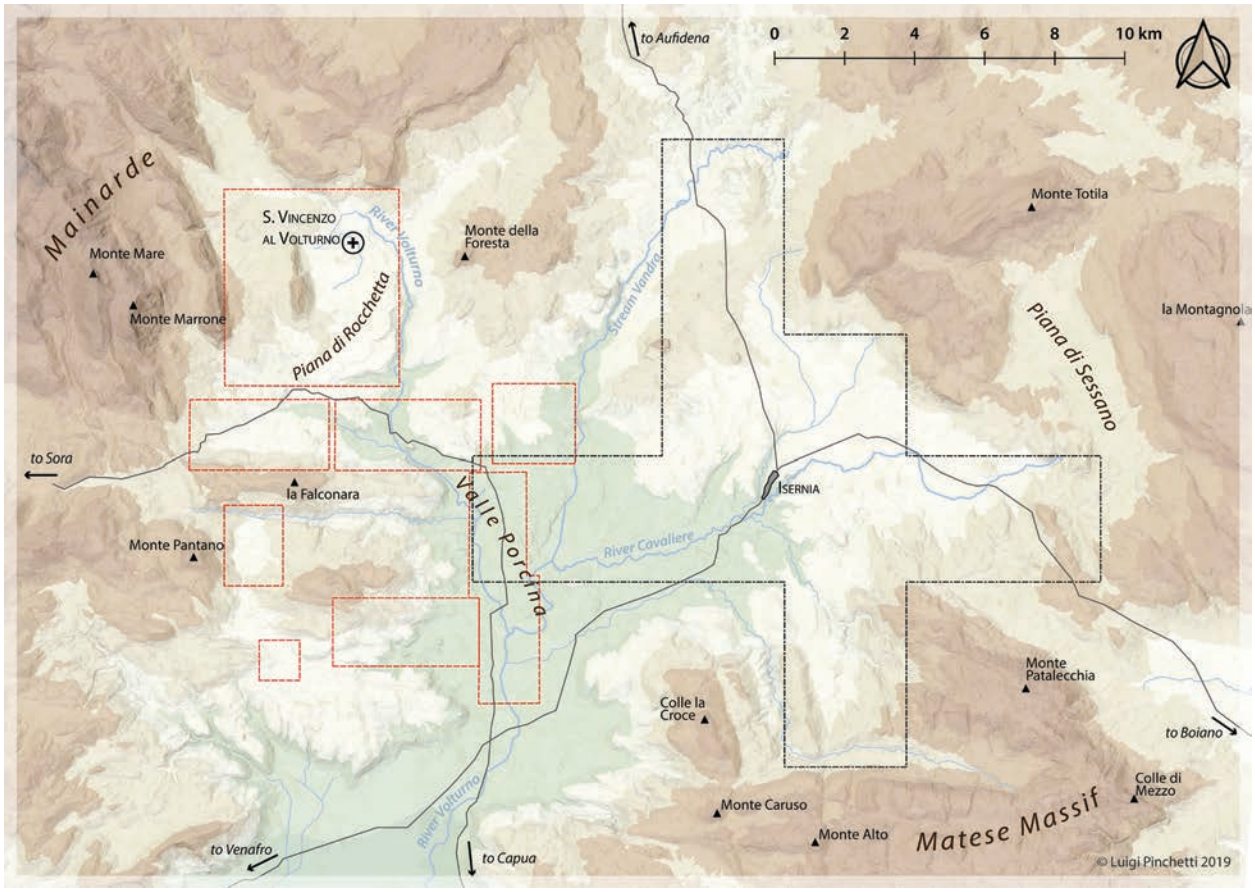


Fig. 2.1 The Upper Volturno Basin and the research areas of the SVP (red) and CLP (black).

(often called *piane*) is created by stream basins. The biggest can be found east of Isernia. A first one (6 km^2), created by the Rava and the Sordo streams, stretches from Isernia until Miranda. A second one (4,5 km^2), created by the Carpino river, develops between the modern villages of Carpinone and Pesche. A third one (4,5 km^2), just outside the surveyed area, is the Piano di Sessano. All these plains share a similar geological substratum, composed by clayish marls mixed with gravel and sand, created by the flooding of local streams during the last Glaciation[2].

To the west, the *piane* tend to cover much more restricted areas and to be characterised by a different geological nature. The two main alluvial basins are the Pantano below Mennella (1,3 km^2) and the Piana di Filignano (0,8 km^2) and they are composed by ground debris. The Rocchetta Plain is, instead, a fairly wider plain (3,1 km^2) and has a peculiar geological nature. This is a large travertine plateau, sometimes covered or alternated with thin layers of pebbles, geologically similar to the travertine outcrop of Isernia. Surrounded by the travertine plain, lays an area composed by marshy soils, from which the Volturno springs. These plateaus tend to be surrounded by smaller internal ridges arranged irregularly. These mountainous or hilly ridges often hinder the connections amongst the various sub-regions of the research area and allow the access to the plateaus only in few specific points.

2 Giraudi, Galadini, Galli 1999 p. 6

2.2 The communication network

Such geomorphological limitations have a strong influence on the street network, which tends to be extremely conservative. Even the major communication routes that give access the Upper Volturno Basin cannot avoid the strong limitations imposed by its mountainous boundaries. The geomorphological continuity between the Upper Volturno Basin and the Venafro plain is such that the

easiest extra-regional connection is with Northern Campania. Connections to other regions are possible exclusively through mountain passes. The lowest and easiest passes are located to the Southeast and to the North of Isernia. The pass of Guasto-Castelpetroso is located 10 kilometres Southeast of Isernia and connects the Volturno Basin with the Bojano plain. The pass of Rionero Sannitico, to the North, connects Isernia with Castel di Sangro and the Upper Sangro Valley.

The main routes across the region connect these opposite gateways. The main axis in the research area is the junction connecting Isernia to Venafro and the Via Latina, a Roman route running between Rome and Capua. This road is also reported in the section V of the *Tabula Peutingeriana*, which also mentions the presence of a *mansio*, labelled as *ad Rotas*. This settlement has not been found archaeologically, but its hypothetical position has been restricted to the valley below the village of Monteroduni, because of the presence of a *miliarium*[3] and the crossing between the Venafro-Isernia axis and a road leading to Capua[4]. It is plausible to suggest that a connection between Venafro and Isernia existed also during the Early Middle Ages, yet there is not enough data to propose any exact reconstruction of the ancient route. Isernia is also positioned along a N-S axis connecting the mountain pass of Rionero Sannitico with the pass of Castelpetroso. This route has been recognised as the *Via Minucia* cited by Strabo, Horace and Cicero[5] even though this nomenclature received some critiques[6]. The trail followed roughly the modern *tratturo Pescasseroli-Candela*, that links Abruzzo with the Tavoliere, passing through the plain of Bojano. Two *miliares* from Pettoranello[7], one from Carpinone[8] and a *mansio* excavated recently near Santa Maria del Molise[9] suggest the institutionalisation of this road in the Augustan period.

To these two main routes, a series of secondary paths must have existed. Amongst the most likely ancient ways, it is probable that a path that detached from the Venafro-Isernia road below Montaquila and went to the North, towards Alfedena, in Abruzzo. This road offers an important alternative to reach Abruzzo as it created a direct connection between the Sangro Valley and the Via Latina, bypassing Isernia[10]. Such deviation would have required less height difference as much as between 5 to 10 kilometres less travel distance to reach the destination. From this N-S axis, another route departed towards West in the proximity of the modern village of Colli a Volturno. Archaeological data is still lacking and thus the precise route followed is unknown, however the topographical evidence allows an estimation of the followed route. From Colli, the road proceeded along the south side of the Rio Chiaro, crossed the Mainarde almost at 900 metres of altitude and then descended towards the town of Atina[11]. In such way, this road connected the Upper Volturno Basin with the Ciociaria region, providing an alternative route to reach the Via Latina and Rome.

Sporadic remains of Roman (or pre-modern) bridges can be found in the region and sometimes give additional information on the road network. Remains of a monumental bridge over the Volturno river have been identified in the locality Campo la Fontana-Monteroduni. This infrastructure dates to the Roman period and belongs to a road connected to the main Venafro-Isernia axis and conducting towards Allifae and the innermost area of Campania. The presence of a late 8th century triconch hall (church?) next to one of the pillars of the bridge and a modification visible on the pillar suggests a continuation of its use in the Early Middle Ages[12]. Remains of a bridge over the river Sordo are located in Quadrella, just below the hill of Isernia. This bridge, built between the 1st BC and 1st AD, marked the beginning of the road towards the modern village of Colli al Volturno and the springs of the Volturno[13]. A third bridge of uncertain date is known to cross the river Carpino at the end of the Le Piane Basin[14]. The bridge crosses perpendicularly to the direction of the *tratturo* and nowadays connects with a small road that climbs over the mountains that divide Le Piane from the Piana di Sessano.

3 *CIL,* IX 5977
4 Fratianni, Ceccarelli 2017 p. 206
5 Patterson 2006
6 De Benedittis 2010 p. 41
7 *AE* 1975, 362-363
8 *CIL,* IX 5979
9 Fratianni, Ceccarelli 2017 p. 209
10 Patterson 2006
11 Baker, Francis, Hayes, et al. 2006 p. 30; De Benedittis 2010 pp. 59–61
12 Hodges, Gibson, Hanasz 1990
13 Terzani, Matteini Chiari 1998 pp. 21–26
14 Sardella, Giuliani 2017 pp. 15–16

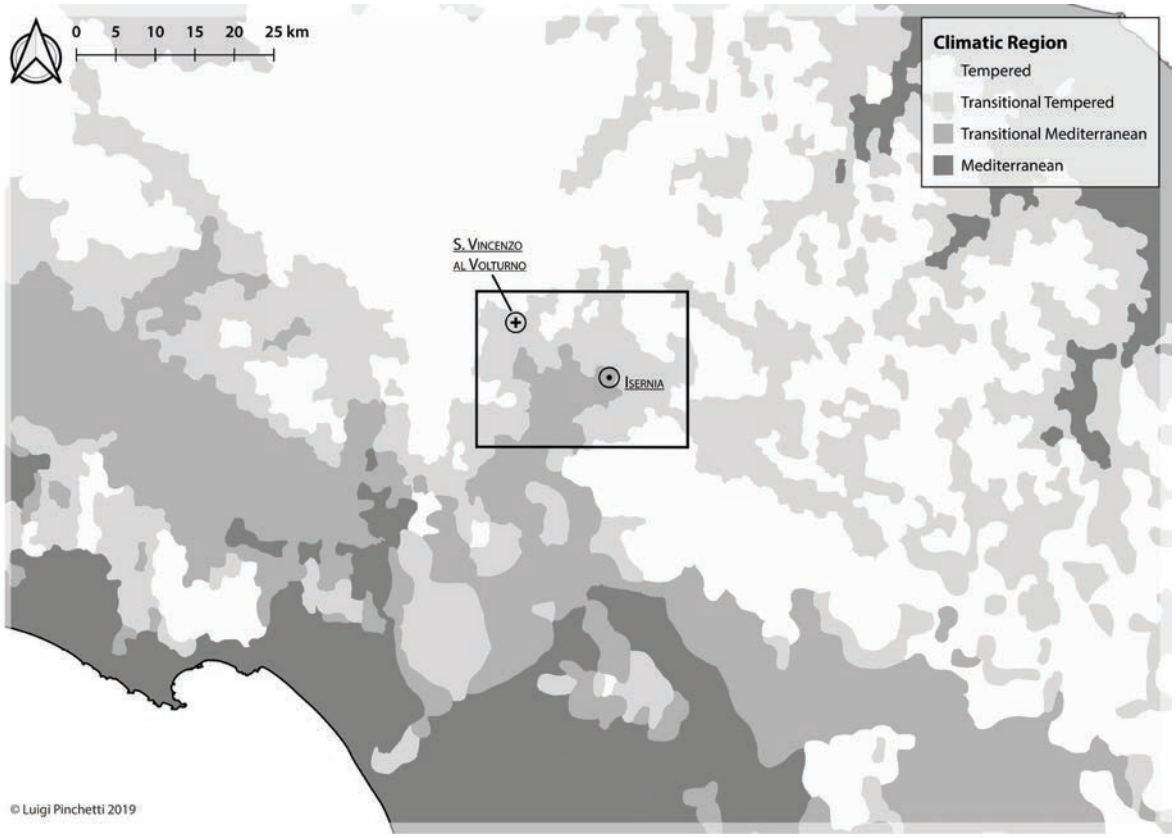


Fig. 2.2 Climatic regions of Southern Italy and the research area.

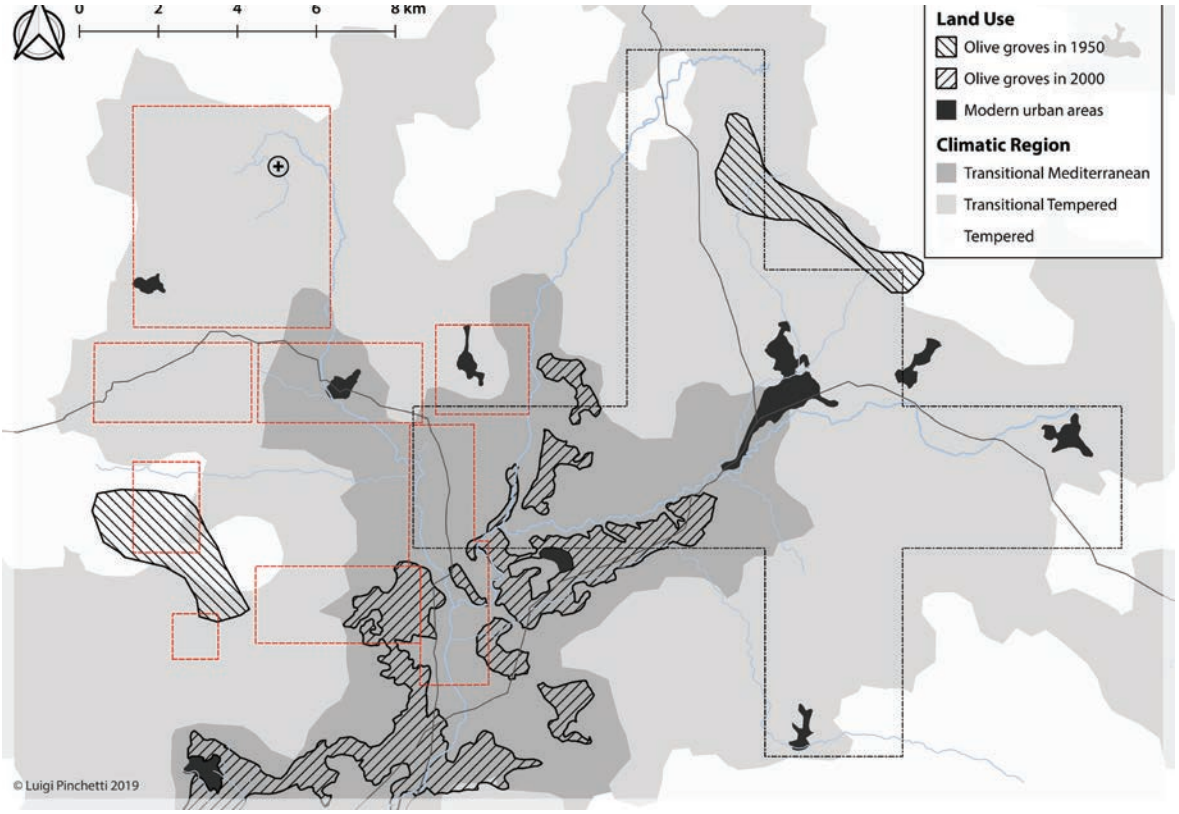


Fig. 2.3 Climatic regions and olive growth in the Upper Volturno Basin.

2.3 The climate and the modern demographic situation

It has been once pointed out that San Vincenzo al Volturno is located at the boundary between two climatic, and zones[15]. A brief look at the map of the climatic regions of Italy shows how the whole Upper Volturno Basin is a transitional region between the tempered climate of the Southern Central Apennines and the Mediterranean climate of the coast (*Fig. 2.2*). This intermediate position creates a strong variability of environments within the research area. The warmest places are to be found in the alluvial plain extending from Isernia towards Venafro, which is directly connected with the Mediterranean climate of Campania. As mentioned, this sub-region is predominantly flat and is nowadays exploited intensively for agricultural purposes. The rest of the research area is dominated by a transitional-tempered climate. This has on average cooler temperatures than its Mediterranean counterpart, mainly because of the higher altitudes. According to Peter Hayes, in this climate the growth of olive trees would be impossible, or at least severely limited[16]. The overlap between the climatic map and the CORINE Land Cover map shows (*Fig. 2.3*) that presently olive cultivation occurs more intensively in the lowlands. This is opposition with the evidence from the 1950s, that shows that olive orchards could also be found in the transitional-tempered climate, possibly at a less intensive scale. Thus, it cannot be excluded *a priori* that in the past olive trees were not grown at higher altitudes.

In general, the research area has a demographic density that is four times smaller than the Italian average (56 inhabitants/km^2 when the national average is 206 inhabitants/km^2) and also an extremely low level of urbanization[17]. Isernia is the provincial capital and the only settlement in the research area counting slightly more than 20.000 inhabitants. All the other settlements have less than 2.500 inhabitants[18] and are suffering a strong demographic decline whose roots can be traced back to the unification of Italy[19]. The demographic decline, along with the change in economic practices, had and is still having a strong impact on the landscape: agricultural fields and pastures are being abandoned, leaving open more areas for forested areas especially on reliefs and hillside ecosystems[20]. This landscape transformation has direct implications for survey archaeology, that sees growingly reduced its effectiveness and the areas that can be explored through classic fieldwork methods.

15 Hayes 1993
16 Hayes 1993
17 Acosta, Carranza, Giancola 2005 p. 327
18 Source: ISTAT http://www.tuttitalia.it/molise/provincia-di-isernia/91-comuni/popolazione/ [29/11/2019]
19 Pesaresi 2014
20 Acosta, Carranza, Giancola 2005 pp. 329–330

2.4 A brief history of *Aesernia* and San Vincenzo al Volturno.

The human occupation of the Upper Volturno has one of the longest histories in Italy and traces of prehistoric activity have been retrieved in various locations: Isernia-La Pineta[21]; Monteroduni-Guado San Nicola[22]; Rocchetta al Volturno-Grotto Reali[23]. Archaeological evidence for the Bronze Age and the Early Iron Age is still scant, despite this period is known having led to a considerable demographic growth in the neighbouring regions[24]. The late Bronze Age settlement in Monteroduni-loc. Paradiso, showed Aegean influence in the local material culture, possibly passed by through the coastal population of Campania[25]. In historical times, the region was occupied by the Samnites, an indefinite group of Oscan-speaking tribes living between the mountains of modern Abruzzo, Molise and central Campania[26]. Their settlement pattern was complex and stratified. On the one hand, there is evidence of a high number of small rural farmsteads and villages, suggesting an extremely dispersed population. These rural settlements likely grouped around Central Places that

21 Peretto 1991
22 Peretto, Arzarello, Jean-Jacques Bahain, *et al.* 2015
23 Peretto 2012
24 Baker, Francis, Hayes, et al. 2006 p. 27; Terzani 1991
25 Cazzella, Ruggini, Recchia, *et al.* 2005
26 Oakley 1995

could take the form of a sanctuary or a hillfort[27]. A good number of hillforts is known to have dotted the Upper Volturno Basin[28], while evidence of cult places in the region is still lacking.

In the second half of the 4th century BC the Romans conducted three wars against the Samnites, eventually occupying the UVB[29]. After these wars, in 263 B.C., the Romans founded the colony of *Aesernia* (the modern town of Isernia), transforming an already existing Samnite settlement[30]. Though parting with the Romans during the Social War (91-87 BC), Isernia was soon occupied by the *socii* and later suffered great destructions as Sulla reconquered the town[31]. After the Social War, the town was given the honour of *municipium*, which entailed stronger civic and military rights, but was also meant as a sort of civic re-foundation after the war[32]. In this period, the city was enlisted in the towns of Samnium under the Augustan reforms[33]. It is around this period (1st century BC – 1st century AD) that Aesernia consolidated its function as local economic centre and reached the apex of its economic and political status. To this period are dated the vast majority of monuments and inscriptions preserved in the city, documenting the vitality of the city and its far-reaching political bonds[34]. A base of a statue mentions a member of the Augustan family, the niece of Augustus Sex. Appuleius, as the city's patron[35]. The undertaking of several building endeavours (new streets, the *macellum* with a *porticus* and a *chalcidicum*) are roughly datable to the same age[36].

As urban excavations have found difficulties in being published thoroughly, the ancient topography of the town is not known in its details. The main urban monument was the temple located underneath the modern Cathedral. Measuring 32x21 metres, the temple had a high podium, Corinthian style columns and with its facade oriented to the south[37]. Doubts arise on the exact location of the Forum, initially thought to be underneath the modern city square (Piazza Andrea d'Isernia). After finding a second temple to the Northwest of the main one[38], a more plausible position for the Forum is to the south of the modern Cathedral, which would have then been in front of the main urban temple[39]. More recently, it has been also suggested that the Forum was in fact located in the southern part of the city, in the proximity of the ex-convent of S. Maria delle Monache[40], but, in either cases, the archaeological evidence is poor.

It has been already mentioned how the city was strategically positioned at the crossroad of two trans-regional communication routes. On a local level, the concentration of economic and political power in Isernia must have led to some considerable novelties. The travertine outcrop on which the colony was established, located at much lower altitudes than the Samnite hilltop settlements, allowed an easy access to the alluvial valley created by the river Cavaliere, west of the city, as much as to the travertine plains located to the north of the urban centre. The centuriation appears during the Roman period and in some instances is still visible in the modern field division. The analysis of aerial pictures allowed the recognition of a system of regular boundaries in the Valle Porcina and along the Cavaliere river that have been dated to subsequent periods after the foundation of the colony of Aesernia[41].

In 346 AD, a strong earthquake hit the area and left great destructions in many cities between Campania and Molise. The necessity of a more flexible and slender administrative structure in support of the post-earthquake reconstruction brought to the formation of the new province of *Samnium*, which included most of the areas which suffered of the hardest effects of the earthquake[42]. In Isernia, the epigraphic evidence witnesses the direct involvement of the *rectores provinciae* in the restorations. An inscription[43] dated between 352 and 357 AD, the *rector Samnii* Fabius Maximus reconstructed the *moenium publicorum*.

27 Stek 2009 p. 38
28 Oakley 1995 pp. 18–28
29 Di Niro 1991 p. 101
30 Terzani, Matteini Chiari 1998 p. 13
31 Uytterhoeven 1999 p. 241
32 Diebner 1979 p. 24
33 Catalano, Paone, Terzani 2001
34 Diebner 1979 pp. 27–35
35 Diebner 1979 pp. 141–143 Is 28, abb. 28a
36 Diebner 1979 p. 30
37 Fratianni, Ceccarelli 2017 pp. 215–217
38 Ciliberto, Molle, Ricci 2012
39 Uytterhoeven 1999; Catalano, Paone, Terzani 2001
40 Pagano 2004
41 Chouquer, Clavel-Lévêque, Favory, et al. 1987 p. 141–144 Venafrum II-III and Aesernia II
42 Soricelli 2009 p. 245
43 *CIL,* IX 2639

Debated is the chronology of the restoration of the *macellum*[44], carried out by will of the *rector provinciae Autonius Iustinianus* and with the economic support of *Castricius vir primarius* and his son Silverius[45].

Meanwhile, between the end of the 4th century and the 5th century, the Christianization of the area was completed. It is unclear when exactly the main urban temple was transformed into a church, as the stratigraphy was poorly preserved. It seems plausible that the temple was not restored after the earthquake of 346 AD and, after the 5th century the big platform was deemed useful to install the main urban church, without necessarily implying a continuity of use between the two phases. In initial outline, the basilica maintained a southwards entrance, and it is hypothesized the presence of a baptistery and a cemetery[46].

In the Upper Volturno Basin several churches have been recognised archaeologically, sometimes investigated through excavations, but seldom published satisfactorily. A late antique church, with baptistery and an extended funerary area, is recorded to have been found in the Le Socce-Monteroduni area[47]. According to the numismatic evidence, two bronze coins of Justinian, the church is dated to the first half of the 6th century, with possible use until the 7th century. Another late antique building, interpreted as a church, has been excavated in Macchia d'Isernia, along the road that connects Isernia and Venafro[48]. The apse-hall covered a Roman thermal building and geophysical prospections show that the excavations interested only the Southeastern corner of a wide quadrangular building, maybe a *statio* or a large estate centre. The room hosted three late antique burials, with no material but two bronze coins, a bronze fibula and a bronze belt element. More solid is the interpretation of the late antique apse-buildings found underneath the early medieval monastery at San Vincenzo al Volturno (*Fig. 2.4*). Both halls were orientated on an E-W direction and were complemented by a multi-storey structure to the West. The South Church was 17 metres long and ca. 7 metres wide. The absence of an altar area and the presence of more than 50 burials confirmed that this

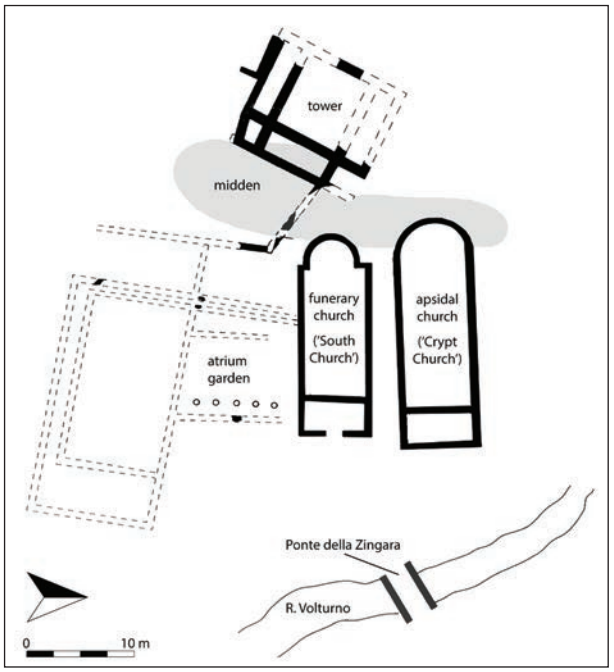


Fig. 2.4 Late antique settlement in San Vincenzo al Volturno (after Gilkes, Moran and Tremlett 2006)

was most likely a funerary church[49]. Directly to north of this building lied a second apse-hall (the so-called Crypt Church) of which only the plan dates to Late Antiquity[50]. Different hypotheses can be raised on the function of these halls[51]. 5th century villa architecture is known to use similar apse-modules and the parallel with the villa of San Giovanni di Ruoti is striking. Nonetheless, the monumentality of the structure, the high number of 6th century coins, the funerary use of the South Church and the close parallel found in the recently excavated complex of San Giusto are strong hints for the religious use of these structures[52] and even suggest it to be the see of a rural bishopric[53]. Also the presence of low value coins has similarities with other Southern Italian contexts (S. Giusto, Egnazia, Herdonia), which might indicate the occurrence of nundinae at San Vincenzo al Volturno in the 5th-6th century[54].

As other Italian regions, the beginning of the Early Middle Ages in the Upper Volturno Basin possibly meant a period of demographic and economic

44 *CIL,* IX 2638
45 Iasiello 2007 p. 126
46 Ebanista 2007 p. 249
47 Raddi 2003 pp. 1585–1586
48 Pannacci, Pagano, Raddi 2005
49 Hodges, Mithen 1993
50 Hodges, Mitchell 1993
51 Hodges 1995a pp. 128–129
52 Barnish 1995
53 Bowes 2006 pp. 298–302
54 Volpe, Turchiano, Romano 2013

stagnation. Feeble archaeological and archaeological hints can be used in support of a continuity of use of the defensible position of Isernia throughout the Lombard period, but it remains controversial specifying the scale of this occurrence. A note of Paulus Diaconus gives a first hint for resilience[55]. According to the Lombard historian, in 667 AD the Duke of Benevento Romuald IV allowed a «Bulgarian» tribe to settle in the deserted regions[56] extending between Isernia, Bojano and Sepino[57]. To fit this new situation in the government of its territory, Romuald nominated the chief of this tribe, Alzecone, *gastaldus* of the region. Thus, it seems that Isernia is still a populated centre in control of a deserted territory. Archaeological evidence of human presence have been found in the excavations of Santa Maria delle Monache, on the southwestern end of the city. The church is mentioned in a document of the 8th century preserved in the *Chronicon Vulturnense*. Materials and structures dated to the 7th-8th century and a fresco, tentatively dated to the Carolingian period, show that this part of the city was still used by a local community throughout the early medieval period[58].

In respect of the rural landscape, it remains to be demonstrated whether it was as desert as labelled by Paulus Diaconus. Archaeological evidence is still limited to few investigations carried out sporadically in the region. A widely accepted scenario sees a break in the classical settlement pattern during the 7th century and the consequent nucleation toward hilltop locations[59]. Archaeological evidence sustaining this thesis is not yet fully published. Between 1998 and 2000, the University of Rome-La Sapienza excavated two trenches in the medieval castle of Mennella, unearthing a small chapel and sporadic material that pre-dated the late medieval castle. The material has been attributed to the 7th century and with the possible activity of a bone workshop (7th – 8th century), but any stratigraphic information is lacking[60]. A similar chronological framework was initially attributed to the settlement excavated in Vaccherecia, which was interpreted as an early medieval mid-slope settlement[61]. However, the excavators recently revisited the chronology and post-dated the occupation of the site to the 9th or 10th century[62]. Archaeological investigations interested other hilltop locations, Colle Castellano[63] and Colle Sant'Angelo[64], but also these did not show any evidence of occupation before the 9th century.

Nonetheless, it is in this gloomy period that the monastery of San Vincenzo al Volturno was founded. The *Chronicon* reports that in 702-3 AD[65] the three Beneventan brothers Paldo, Taso and Tato, under the counsel of the abbot of Farfa, established a new monastery *super ripam Vulturni fluminis*[66]. Due to the position of the monastery, at the border between the Duchy of Benevento and that of Spoleto, the Dukes of Benevento have been interested from an early stage in strengthening their influence on the monastery, supporting the monastic community with land donations. With the conquest of the Northern Lombard Kingdom by the Carolingians, San Vincenzo maintained its peripheral position between the Frankish kingdom and the Beneventan Duchy. It is exactly in this period, between the end of the 8th until the mid-9th century, that San Vincenzo reaches its highest political importance. This flourishing period is suddenly interrupted in 881, when the monastic settlement is sacked by the Arabs and forced the community to find refuge in Capua[67].

During the course of the 10th century, the conflicts within the ruling élite of Benevento lead to a loss of control of the central government and a proportional growth of the power for local aristocracies. For this reason, the 10th century marks a switch in the political activity of both Isernia and San Vincenzo. As the monks came back from Capua in 914-16, the abbots took advantage of the new geopolitical situation and

55 Paul. *hist. 5*, 29
56 «*spatiosa ad habitandum loca, quae ad illud tempus deserta erant*»
57 Rotili 2010a p. 36
58 Iasiello 2007; Pagano 2004; Catalano, Paone, Terzani 2001
59 Pani Ermini 2004 p. 274
60 Raddi 2003 pp. 1587–1588; Pani Ermini 2004 pp. 270–273
61 Hodges, Wickham, Nowakowski, *et al.* 1984
62 Hodges 2006a
63 Hodges, Clark, Coccia, et al. 2006 p. 220
64 Francis, Hodges 2006
65 The actual foundation of the monastery might have occurred some years before, because in 702 Paldo was consecrated abbot and the monastery already existed for some years, cfr. Wickham 1995 p. 138.
66 *CV* vol. I, p. 111
67 Wickham 1995 pp. 140–147

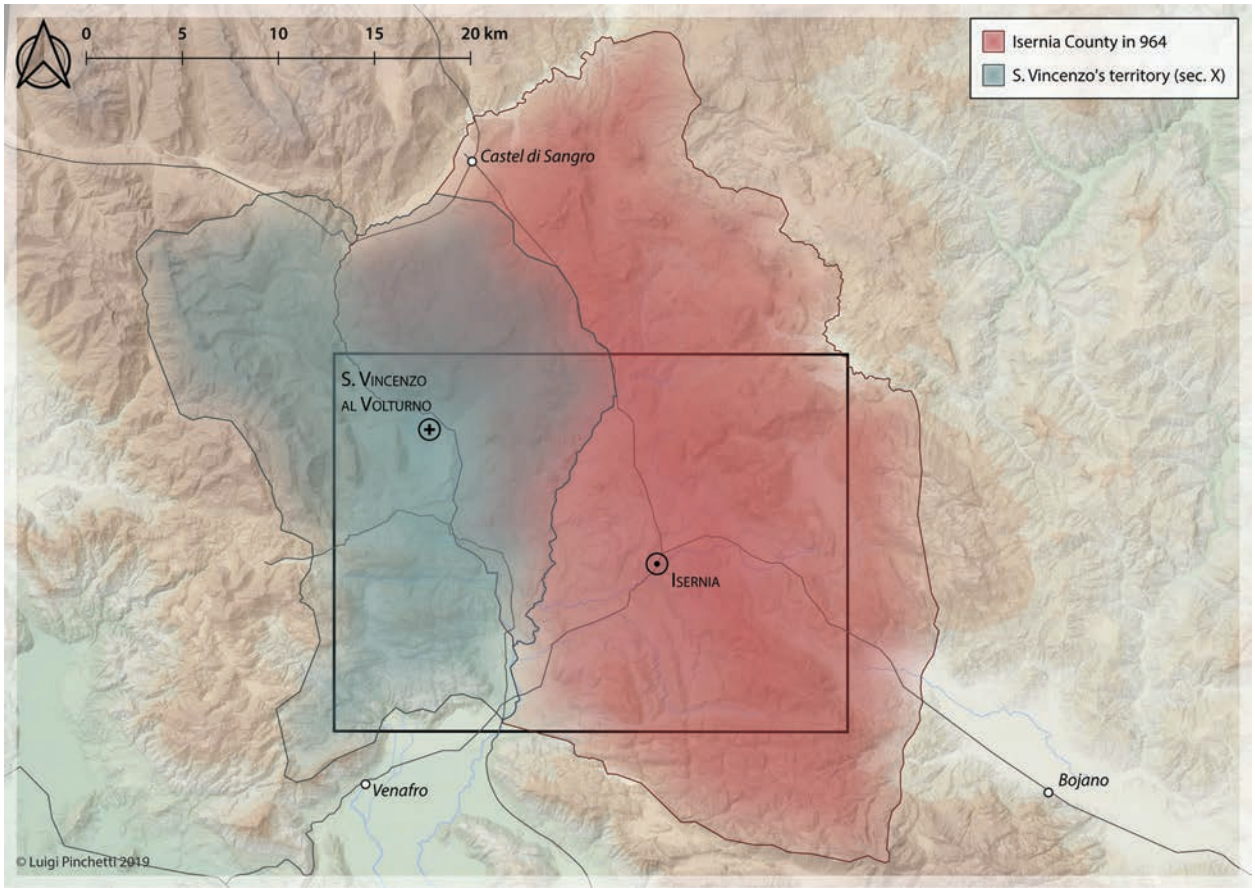


Fig. 2.5 The boundaries of San Vincenzo's territory and of Isernia's county.

started a powerful reorganisation of their properties[68]. Several documents dated to the 10th century show the abbots making agreements with locals and immigrants to cultivate the land of monastic property[69]. These documents are mainly *a livello* contracts which would suggest that the abbots were adopting a long-term strategy to systematically exploit the resources of the monastic hinterland[70]. At the end of the same century, Isernia make perceptible its growing autonomy from the central government of Benevento. In 964, Pandolfus I of Capua and Landolfus III of Benevento promote their cousin Landolfus the Greek to the title of count of the *civitatem Aeserniensem cum totam pertinentia sua*[71]. In the document, the boundaries of the *comitatus* find thorough indication and extend from the mountains of Castelpetroso to the East to the River Volturno to the West (*Fig. 2.5*). The establishment of the county possibly institutionalized an already existing situation and meant the almost complete autonomy of the authorities of Isernia in the exercise of power over the *castellis et vicis* and everything else existing within the mentioned boundaries.

The growing interest in the control of their respective hinterland created some frictions between the two centres of power. First tensions appeared in the mid-10th century. When the abbot Paulus demanded to recognise the monastic authority over the fortifications built by the monastery, Landolfus answers in 967 by granting the abbot with the right of building castles and towers within the *terra*[72]. In this brief documentary relation becomes clear a divergence of views: on the one hand, the monks' request took for granted the right of building fortifications; on the other, Landolfus's spontaneous concession stressed the urban authority also over the monastic *terra*. Such different perspectives had immediate effects on the relations amongst the two political agents. Few years after Landolfus's permit, the monastery begins a castle-building program focused in the contested territory

68 Marazzi, Serris 1997 p. 230
69 *CV* 108, 109, 111, 112, 142, 164, 166 and 167
70 Wickham 1995 p. 151
71 Ughello 1720
72 *CV* 124

located between the Volturno and the Vandra[73]. Urging to attest his political authority, Landolfus occupies them soon after their foundation. Only an imperial intervention in 981[74] solves the situation by forcing Landolfus to give back to the monastery the three castles of *Colle Sancti Angeli*, *Vadum Porcinum* and *Vantra*[75].

The monastery's fortune in the interregional chessboard had a direct influence on the architecture and on the material culture of the monastic settlement. In fact, the excavations on the western bank of the Volturno revealed a continuous sequence of architectural modifications that relate strictly to the history of the community. The first monastic phase dates to the 8th century (phase 3a) and consists of two simple single-nave churches that overlaid on the late Roman churches. Shortly later (phase 3b), to the apse of the South Church was added a simple rock-cut *ambulacrum*, easing the access to a venerated burial[76]. It is at the end of the 8th century, possibly in concomitance with the donations of the Franks, that the first monumental building program is visible. To this phase pertains a fundamental restoration of the two church buildings with better materials and with a more complex *ambulacrum*[77]. Furthermore, the first typically monastic structures are dated to this phase: south of the South Church were positioned a garden (*claustrum*), the refectory with the monastic kitchens and a room possibly for guests[78]. To the same period are dated the workshops excavated a few hundred metres to the south, underneath the atrium of the 9th century major church. These consisted of a number of simply constructed pisé rooms aligned on a E-W axis[79]. To the 9th century (Phase 4 and 5), so at the moment of maximum political weight of the monastery, is dated the vastest building activity till then occurred at the monastery. A bigger refectory with a tiled floor, a small 'palace' for distinguished guests just across the Ponte della Zingara and a new dormitory below the Colle della Torre were built over the 8th century structures. All the rooms were richly decorated by frescoes and, most notably, a huge new basilica was built to the South of the old monastery[80]. Along these monumental restructurings, also the manufacturing activity was transformed: the late 8th-early 9th century workshops were reshaped and enlarged with new rooms and the massive presence of discarded objects indicates an almost industrial production of luxury and common objects[81].

In Isernia a renewed intensity of the building activity is associated with the geopolitical changes of the 10th century. The transformations happening at Santa Maria delle Monache can be used as a benchmark of the city's renewal. Excavations by the regional archaeological superintendence revealed some poorly built walls that might relate to a small Lombard chapel of the 8th century[82]. Both the size and building technique of this unpretentious church remind the Phase 3a structures in San Vincenzo, even though a better knowledge of the material would conveniently give further supporting evidence to this hypothesis. It is at the end of the 9th century, slightly later than in San Vincenzo and in chronological connection with the promotion of Isernia to county capital, that Santa Maria delle Monache is transformed into a monumental structure. The commitment of the town's political class in supporting the restoration is evident in two epigraphs. These remind that the construction of the bell-tower was requested by the son of the *comes* and occurred when Landolfus the Greek was still alive, while the church was completed after Landolfus's death and with the support of the new comes[83]. The reconstruction of the Cathedral of Isernia can be dated to roughly the same period or slightly before, the 9th-10th century. A grave, excavated in the apse-wall of the late antique church, surely post-date the disuse of this earlier building and it is in phase with the use of the early medieval church, providing a fixed *terminus ante quem*. The radiocarbon dating of the human remains preserved in this elite burial revealed that these belonged to a man of 30-40 years old which lived between the end of the 8th and the 10th century[84]. Unfortunately, there is limited knowledge of the plan

73 e.g. *CV* 111
74 *CV* 152
75 Marazzi, Serris 1997
76 Hodges, Mitchell 1995; Hodges 1995b
77 Hodges, Mithen 1993; Hodges, Mitchell 1993
78 Hodges, Leppard, Mitchell 2012 p. 147 fig. 1
79 Hodges, Leppard, Mitchell 2012 p. 148 fig. 2
80 Mitchell 2003 p. 1101; Hodges 2012 p. 75–76
81 Mitchell, Hodges, Leppard, et al. 2011 pp. 111–113
82 Pagano 2004
83 Valente 1982
84 Pani Ermini 2004 p. 269

of the early medieval Cathedral, apart from the fact that it certainly changed orientation and had its façade toward the modern piazza Andrea d'Isernia[85].

The loss of most of the documents on the later history of the monastery, after the compilation of the *Chronicon*, does not allow a precise reconstruction of how the conflicting relation between town and monastery continued[86]. It is likely that in the 11th San Vincenzo brought onwards its program to strengthen its political authority in the *terra*. In the meanwhile, the attacks to the monastic properties from the aristocracy of Isernia continued. The most famous and dramatic incursion suffered by the community was lead by the Borelli family in 1036-37, which eventually forced the abbot to move the monastery on the other side of the river[87]. The growing concern for intra-regional conflicts brought to a restriction of the political and economic horizons of the monastic community, eventually downgrading the monastery from a Central Place of international relevance to a peripheral cult place.

85 Ebanista 2007 p. 249
86 Marazzi, Serris 1997
87 Christie, Hodges 2016

2.5 The San Vincenzo Project

In 1980, when the San Vincenzo Project began, the knowledge on the archaeology of the research area was extremely limited. The regional archaeological superintendence mainly focused its efforts on the prehistoric site of Isernia-La Pineta or on the urban monuments of Isernia and Venafro, while it showed little interest in the uplands, where monumental sites were unknown or not preserved[88]. The monumental history of the monastery of San Vincenzo itself was hardly known. The standing church was mainly reconstructed in the 1950s and, apart from the arcades in front of the modern church, the buildings still housing the monks and the crypt of abbot Epiphanius, little else could be dated to the pre-modern era[89]. The project was designed with two principal aims. First, it wanted to understand the monumental context of the Crypt of Epiphanius and fully express its archaeological potential. Second, the project wanted to frame the history of the monastery, known from the 11th century chronicle *Chronicon Vulturnense*, in the settlement and demographic history of the Upper Volturno Valley. A long-lasting plan of archaeological excavations addressed the first goal, while the second goal was tackled through a systematic field survey project along the Volturno upstream of Roccaravindola (IS)[90].

The field survey, directed by Peter Hayes, focused on 5 different units (*Fig. 2.1, red areas*). The first campaign in September 1980[91] focused on the Rocchetta Plain (Area 1) and on a N-S transect in the Val Porcina (Area 2). A second survey campaign was carried out in September 1981, during which were surveyed the transect between Fornelli and Cerasuolo (Area 3), the surroundings of Colle Castellano (Area 4) and the plains of Mennella and Filignano (Area 5)[92]. Not each area was fully surveyed, due to differences in the land use of all the areas: the intensively cultivated Rocchetta Plain and Pantano Basin have a coverage of 90-100%, while in the poorly exploited Area 3 only selected areas were picked for fieldwalking[93]. Both campaigns were carried out with two teams of 3-4 experienced surveyors. The members of each team walked over ploughed fields at a distance that varied between 15 and 30 metres depending on the terrain. Three categories ("scatters", "near-sites" and "sites") were adopted to define the features encountered and represented various densities of archaeological material. The boundaries between each class was intentionally subjective and to be defined case by case on field. The extents of each topographical feature were recorded on field on a 1:25000 IGM map, scaled photographically to 1:10000 for a better resolution. Normally, all the material was collected, however, in the presence of considerable quantities of archaeological material, a selection of diagnostic fragments was carried out to ease the post-processing work[94].

The results of this survey have been published only

88 Hodges 2006b pp. 1–2
89 Hodges 1993
90 Hodges 2006b p. 10
91 Hodges 1981 pp. 489–491
92 Hodges 1982a pp. 308–309
93 Baker, Francis, Hayes, *et al.* 2006 pp. 29–31
94 Baker, Francis, Hayes, *et al.* 2006 pp. 15–16

fairly recently[95]. Unfortunately, the authors were not allowed to access the material before the publication and this affected the final output. No drawing of the collected material is available and the description is exclusively relative to material classes, rather than on shapes, which would have been more helpful to distinguish different types of coarse wares. Overall, the results of the fieldwalking seasons showed a rather poor landscape. The number of fine ware fragments, when compared to the total number of sites, is quite small and decreases constantly from the Republican until the late antique period. Amongst the ARS fragments collected, almost the totality dated to the 2nd-3rd century AD and only site 133 had one fragment of Hayes 91B, datable to the 5th century[96]. No early medieval site was identified through fieldwalking and this was consistent with the results from previous surveys and with the information gathered from the *Chronicon*, which seemed to indicate the nucleation of the rural population in hilltop locations somewhere in the Early Middle Ages[97]. For this reason, during the field survey campaigns, specific hilltop settlements were selected for intensive research through test-pitting. In 1981-82 test-pits and trenches were excavated in the site of Vaccherecia, near the modern village of Rocchetta Nuova. While the stratigraphy was extremely difficult to interpret, the presence of 6th-7th century sherds, especially in trench III, suggested an early medieval occupation[98]. Later, this chronology was reviewed and postponed[99], leaving unchanged the prevailing feeling of a widespread early medieval poorness.

95 Baker, Francis, Hayes, *et al.* 2006
96 Baker, Francis, Hayes, et al. 2006 p. 31
97 Hodges 2006b p. 10; Hodges, Wickham, Nowakowski, et al. 1984 p. 150
98 Hodges, Wickham, Nowakowski, et al. 1984 p. 188
99 Hodges 2006a

2.6 The Colonial Landscape Project.

The Colonial Landscape Project (CLP) was a five-year (2011-2016) survey project of the University of Leiden and directed by Tesse Stek. The survey was part of a larger research project (the Landscapes of Early Roman Colonisation project, or LERC) which compares different areas of Central-Southern Italy before and after their inclusion in the Roman state with the aim of reaching a fuller understanding of the socio-cultural effects of Roman colonisation[100]. In particular, the CLP survey was interested in shedding a light on the «workings of Roman colonization in previously non-urbanized areas»[101].

The CLP was organised in two research-phases. The first (2011-13) focused on gathering knowledge on the settlement history of the territory of Isernia using extensive survey methods. The research area had four transects departing from the city of Isernia towards the four cardinal directions in a way that allowed filling the archaeological *terra incognita* that existed between the San Vincenzo and the Biferno Valley archaeological projects (*Fig. 2.1, black area*)[102]. As in the case of the San Vincenzo's transects, the modern land-use affected the amount of land accessible to fieldwalking, which normally ranged between the 10% and the 20% of the research area[103]. The proximity to earlier survey projects, forced the Dutch team to design an archaeological approach that combined comparability with previous work and methodological modernity. For such reason, the CLP preferred a systematic survey method that prioritized extension to intensity. Experienced surveyors led teams of 3 to 5 persons. Each surveyor was placed at 10 metres from each other and surveyed a 2-metres-wide transect, resulting in a 20% coverage. Due to the absence of 'background noise', materials were collected only in the presence of 'sites', defined by a threshold of 5 sherds/m^2 or by a «surprisingly high ratio of single-period ceramics». The teams were equipped with tablets with installed a GIS software, on which sites and topographic units could be mapped directly on 1:5000 CTR maps and high-resolution aerial photographs[104]. The second phase of the project (2014-15) focused on intensive intra-site analyses[105]. As in the San Vincenzo Project, some sites could not be approached through systematic

100 Stek 2017 p. 136; Stek, Pelgrom, Casarotto, et al. 2016
101 Stek, Modrall, Kalkers, et al. 2015 p. 233
102 Stek, Modrall, Kalkers, et al. 2015 p. 234
103 Stek, Modrall, Kalkers, et al. 2015 pp. 258, 262, 264, 271
104 Stek, Modrall, Kalkers, et al. 2015 pp. 255–257
105 García Sánchez 2017

fieldwalking activity, either because of lack of agricultural activities or because of urban expansion[106]. To overcome the issue, the Dutch team adopted a twofold method: on the one hand, there was a strong implementation of new technologies as geophysical prospections and remote sensing; on the other hand, it intensified its material collection through point-sampling[107]. The point-sampling strategy was developed for extensive surveys in Sardinia[108] but, in the case of the CLP, it explicitly recalled the San Vincenzo's shovel test-pits[109]. The method has been adapted to the necessities of the project and revealed especially useful to refine the chronologies of specific sites[110] and to have further insights on the functional differentiation within each site[111].

The final publication is not yet available, but a preliminary report on the first phase of the project has been published recently. As of 2013, 99 sites were identified, most of which with evidence of Roman occupation. These settlements were not evenly distributed in the research area. A denser settlement pattern has been noted in the fertile region of the Cavaliere plain, near the Volturno, whereas the other areas have far lower settlement densities. In the northern 'leg' it has been noted a tendency in clustering in profitable areas, quite similarly to what Hodges noted for late antique sites in the Volturno valley[112]. A thorough discussion on later and post-Roman sites is lacking. Some sites have been marked as medieval without further chronological definition; however their number is extremely low, especially when compared with the nearby San Vincenzo project. Such outcome is to be considered absolutely preliminary and reflecting more the main interests of the project in pre- and early-Roman phases, and therefore the more effort expended in analysing the 3rd-2nd century BC settlement patterns[113].

106 García Sánchez, Pelgrom, Stek 2017 pp. 40–41
107 García Sánchez 2017 pp. 155–156
108 Van de Velde 2001
109 García Sánchez 2017 p. 156
110 Stek 2017 pp. 140–142
111 García Sánchez 2017 p. 156
112 Stek, Modrall, Kalkers, et al. 2015 pp. 273–276
113 e.g.: Casarotto, Pelgrom, Stek 2016

3. Surveying the post-Roman countryside: issues, methods, potential

Archaeological survey projects offer an advantaged outlook on ancient rural economies, allowing to follow changes in the long term and to understand the relation between human societies and the landscape. Nonetheless, the study of the agrarian strategies adopted in the second half of the 1st millennium AD remains an ambitious target, as the understanding of late antique and early medieval settlement patterns is often challenging[1]. A long list of difficulties, ranging from a limited knowledge of ceramic seriations to the ephemeral nature of settlement remains adding to a high regional variability and consequent problems in inter-regional comparability, hindered the acceptance of survey as a useful tool to approach the 'Dark Ages'[2]. However, a similar reticence in acknowledging the reliability of survey data existed in classical archaeology[3] and has been surmounted only after a long period of theoretical and methodological debates and the implementation of new technologies such as GIS[4]. Nowadays, new theoretical, methodological and technological advancements offer powerful tools to overcome the traditional complications implicit in early medieval survey data and to get ahead a simple narrative of demographic decline.

This chapter offers a critical analysis of the survey data gathered in the two projects forming the primary source of information for this research, with sound approaches to limit the biases intrinsic to the collection methods and in the comparison of different projects. It will explain why reaching an ultimate map of the late antique and early medieval settlements of the UVB is a misleading aim, but it will also explore the real meaning of the information gathered by the SVP and the CLP up to this date. The digitisation of the original data, a thorough re-analysis of the ceramic material and a re-survey of specific areas of the UVB helps drawing a more reliable comparison between the two projects as much as offering a clearer picture of the demographic history of the UVB in the 1st millennium AD. The results will show that focusing exclusively on settlement numbers simplifies a complex archaeological dynamic holding a great demographic significance.

1 Christie 2006 pp. 412–428
2 Corsi 2016 p. 337
3 Greene 1986 pp. 9–10, 98–99
4 Alcock 2000

3.1 Survey data for post-Roman periods: issues and methods.

Archaeological survey is a group of strategies using the archaeological material on the soil surface «to obtain a representation of the subsurface evidence that is as accurate as possible with regard to the nature, extent, distribution and chronology»[5]. Specifically, fieldwalking consists in the collection of all the archaeological material lying on the soil surface by systematically scouting agricultural fields[6]. In the early days of survey archaeology, the fact that this research approach allowed replicating data collection virtually for an infinite number of times gave a more scientific halo to survey than to excavation[7]. However, methodological studies soon revealed the high number of variables that needed to be accounted to read survey scatters[8]. This wide range of variations originates from the necessity to adapt to different research questions and landscapes, and is a symptom of survey's flexibility and ability to cope with very different backgrounds[9]. In addition to these methodological faults, the post-Roman landscape raises its own peculiar issues. However, medieval landscape archaeology has hardly been an autonomous field of study and mostly benefitted of the side effects of novelties introduced in classical archaeology. The following pages offer some thoughts on a possible approach that explicates the full potential of early medieval survey data.

3.1.1 Issues: from ceramic seriations to ephemeral sites

Studying the long-term changes in the landscape of the Italian peninsula requires compensating for «differential visibility», the variation in periods' traceability in surface assemblages[10]. What in most cases affects the visibility of the late antique and early medieval phases in fieldwalking data are the partiality of ceramic sequences, the nature of early medieval settlements, and a low comparability between different projects[11]. Each of these issues influenced the course of the studies and triggered specific answers.

Probably the best-known and most discussed problem is the unreliability of some ceramic markers[12]. In the early days of surveys in Central and Southern Italy, attention focused on Red Painted Ware, identified by Whitehouse as pertinent to the early medieval period for the southern part of the Italian peninsula[13]. Both the South Etruria Survey and the Biferno Valley Survey relied on this ceramic class to identify the early medieval phase in their projects[14]. However, since the second half of the 1980s, it has been recognised that Red Painted Ware had a rather restricted circulation, limiting its usefulness in the study of rural contexts[15]. Studying early medieval coarse wares also revealed problematic. The low amounts of medieval sherds, contrasting markedly with the bulky presence of classical remains, was due both to the use of non-ceramic vessels, as much as to lower resistance to post-depositional processes[16].

Nevertheless, as new excavation projects were being carried out, it became clearer that wheel-thrown ceramics were available also between the 5th to the 10th century AD. For example, the materials unearthed at the Crypta Balbi in Rome[17] and at Carminiello ai Mannesi in Naples[18] indicated a continuous presence of a class of artisans specialised in pottery production. Later, the excavations at the rural site of San Donato, in the hinterland of the monastery of Farfa, revealed a range of wheel-thrown vessels dated to the 7th century, demonstrating that well-crafted ceramics were available also in rural contexts, though only in a restricted range of shapes and decorations[19]. Crucially, the discoveries at San Donato allowed a revision of the chronologies of many sites found around the

5 Shennan 1980 p. 31
6 Carver 2009 p. 69
7 Terrenato 2004 p. 36
8 the biases listed in Mattingly 2000 might overwhelm a naïf reader
9 Millett 2000 p. 92
10 Pettegrew 2007
11 a thorough discussion on the issue can be found in Patterson 2000
12 cfr. Chapter 4
13 Whitehouse 1966
14 Potter 1975; Cann, Lloyd 1984
15 Wickham 1988a p. 417
16 Schofield 1989 demonstrated that a medieval site with roughly 150-300 excavated sherds, would offer only one or two sherds to a field survey with 20% surface coverage
17 Manacorda, Paroli, Molinari, *et al.* 1986
18 Arthur 1994a
19 Moreland, Pluciennik, Richardson, *et al.* 1993 pp. 206–209

monastery of Farfa, changing radically the perspective on the early medieval demographic context of the Sabina Tiberina[20], and revealed the negative impact of an imperfect ceramic knowledge on the interpretation of survey data. In fact, despite being just 50 kilometres away from the papal town, the ceramic imprint of Farfa and its hinterland was markedly different from Rome's well known assemblages[21].

Not only ceramic assemblages, but also sites' location and typology had a negative impact on the visibility of the early medieval period in survey projects. As the number of excavated post-roman sites rises, it becomes clearer that post-Roman settlements tend to be located in areas, as forested hilltops or modern villages, that traditional survey methodologies are unable to investigate[22]. The SVP showed the bias of fieldwalking by implementing an alternative research method to investigate forested hilltops. While fieldwalking retrieved no trace of early medieval settlements, the integration of historical sources and shovel testing revealed fourteen new medieval sites of which at least four with early medieval phases, thus leading to a considerably new perception of the landscape's history[23]. It is also worth considering that the richest early medieval assemblages have been recovered in pits that, even when located in agricultural fields, would not be disturbed by ploughing activities. In San Donato, for example, the 7th century assemblage was retrieved in a deep pit located next to a hut[24]. At Poggibonsi, the earliest phases of late-6th-7th century are characterised by *Grubenhäuser*, post-built structures with floors lying 40-50 cm lower than the ancient road level[25], and similar structures have also been discovered in Salento[26], witnessing the use of this structures well beyond the areas occupied by the Lombards.

A third problem for late antique and early medieval archaeology, apparently affecting Italy more than other European regions, is the impossibility of drawing strict cross-regional comparisons[27]. The roots of this diversity lie, on the one hand, in the dissimilar historical backgrounds of these regions, on the other hand, in the complexity of the natural landscape. During the 5th century AD, the economic ties connecting the mountainous inland areas of the Apennines with the Mediterranean weakened, while the Tyrrhenian coast received mostly imports from Africa and Apulia strengthened its links with the Eastern Mediterranean. After the Greek-Gothic war (534-553 AD) and the Lombard invasion (568), the history of the Italian peninsula lost its political cohesion and the fragmentation of the economic networks became irreversible[28]. Some models have been proposed based on the archaeological research carried out in various regions, but the validity of these syntheses outside the boundaries of their research areas needs demonstrations[29]. Even the diversity of the research techniques increases the obstacles to thorough comparisons. It has been rightly stated that, in medieval landscape archaeology, only a minority of researchers adopt survey as main methodology, while the majority still focuses on the use of written sources and excavations[30].

3.1.2 Comparative analysis of different survey: a short guide

As mentioned earlier, the different approaches to archaeological landscape studies create an impediment to straightforward regional comparisons. Survey methodologies tend to be far from homogeneous, producing different outputs and, thus, biasing the end result[31]. The issue is well known to the academic public and there is a growing attention on the topic in recent years. Indeed, as survey data keeps on being accumulated and new tools enhance the capabilities of dealing with 'big data', it grows the interest in proposing inter-regional syntheses of survey outputs[32]. Methodologically, there is a consensus on the fact that there cannot be only one technique to integrate survey

20 Moreland 2008
21 Gilkes, King, French 1999; Patterson, Rovelli 2004
22 Patterson 2000 pp. 113–114
23 Baker, Francis, Hayes, et al. 2006 pp. 40–43
24 Moreland, Pluciennik, Richardson, et al. 1993 pp. 200–201
25 Valenti 2004 p. 22
26 Arthur 1999; Imperiale 2009
27 Brogiolo, Chavarría Arnau 2005 p. 151
28 Wickham 2005 p. 34–35
29 Wickham 1999
30 Corsi 2016 p. 337
31 Davis 2004
32 Attema 2017

data, because comparisons should be fine-tuned to the context and requirements of each research. Yet, it is agreed that a most necessary first step is re-analysing the original documentation and material of the analysed project, a process also known as 'source criticism'[33]. Such preliminary study allows a much stronger precision and a firmer handling of the data.

An example of the necessity and profitability of going back to raw data has been the Tiber Valley Project[34], the first major attempt of comparative analysis of survey data in the Italian peninsula. The research started from the awareness that, after 40 years of fieldwork, the South Etruria Survey and its spin-offs produced an incredible amount of data, while no overarching synthesis was available. Besides, with the new archaeological knowledge gathered from the various excavations carried out in the area, the project aimed at a finer reconstruction of the economic and demographic history of the Tiber Valley through the comparative use of survey data and a new focus on urban-rural relations[35]. Already in the 1980s, it was clear that the South Etruria Survey data held great potential for new computerised analyses. However, it is only in the 1990s that a full digitisation of the dataset was obtained through a systematisation of the original database and the inclusion of the geographic information in a GIS platform[36]. Most importantly, the digitisation of the original data was carried out alongside a long-lasting project of reassessment of the archaeological data, through the combination of a restudy of the material assemblages[37] and the resurvey of targeted locations[38].

The Tiber Valley Project dealt with the exceptional case of surveys carried out within the same conceptual framework. More often however, the projects to be integrated have different chronological, methodological and theoretical backgrounds. In 2004, an edited volume collected a series of contributions with the aim of showing the value of comparing survey datasets and «to consider solutions to some of the practical obstacles» of comparative analyses[39]. Amongst others, Michael Given[40] is extremely pessimistic on the possibility of comparing survey results (sherd densities), because a series of obstacles (dissemination, visibility, chronology, intensity and geomorphology) limit the possibility of calibrating the results from different projects. According to the author, comparisons are possible only amongst projects that took in consideration the effects of these biases on the interpretation of the archaeological data. Similarly, Attema and van Leusen[41] stress that before a comparison can be drawn, some common ground must exists amongst the considered projects.

Few years later, Rob Witcher[42] investigated the possibility of bringing together the results of projects with very different aims and methods as the Biferno Valley Survey (BVS) and the *Forma Italiae* (FI). The case study was facilitated by the 'presence-only' approach adopted in both projects and by an overlap of the research areas. Before running the comparison, the author delves into an in-depth analysis of the two projects' aims, methods and publications and tries to even out the differences, for example, by systemising the descriptive records of the FI. Unsurprisingly, the results show that the two projects had quite different outcomes: the FI recorded 128 site, while the BVS only 79 and only the 20% of the sites were found in both projects. Besides, it was noted a tendency of the FI researchers to split the archaeological record in smaller sites compared to the BVS, a trend likely stemming from a different perception and definition of an archaeological "site". These results highlight once again how survey is strictly dependent on the surveyors' judgement and aiming for a 'definitive' map of the archaeological finds in the landscape is not a profitable attitude. Nonetheless, Witcher's analysis showed that it is possible to measure the effects of different approaches on the archaeological evidence and limit the impact of these biases in regional syntheses.

Since then, other critical approaches to the issue of comparability are lacking and the most complete and ambitious example remains the Tiber Valley Project. The analysed examples suggest that comparative analyses of surveys are possible even though there

33 Witcher 2008 p. 8; Alcock 1993 pp. 49–53
34 Patterson 2004a
35 Patterson, Millett 1998; Patterson, di Gennaro, Di Giuseppe, *et al.* 2000
36 Harrison, Rajala, Stoddart, *et al.* 2004
37 Patterson, di Gennaro, Di Giuseppe, *et al.* 2004
38 di Gennaro, Cerasuolo, Colonna, *et al.* 2002
39 Alcock, Cherry 2004 p. 6
40 Given 2004
41 Attema, van Leusen 2004
42 Witcher 2008

	SVP	CLP
Dissemination	Completed, but no material published and unclear maps.	*Ad interim* report, but direct access to material.
Visibility	No mention	1 to 5 classification.
Chronology	Mostly based on ceramic classes.	Based on ceramic shapes.
Intensity	1 person every 15-30 metres; 1 revisit; shovel test pits or trenches in some sites.	1 person every 10 metres; some revisits; point-sampling in some sites.
Geomorphology	Mountains, hills, plains	Mountains, hills, plains.

Tab. 3.1 Comparisons of the methodologies of the SVP and CLP surveys.

are some limits inherent to the fact of using legacy data. First, comparisons needs to be restrained to the site level, because this unit of study allows a nimbler analysis of large datasets[43]. Besides, Witcher's analysis warns against the uncritical integration amongst site-level surveys, as surveyors judgements on what is (not) a site are mostly subjective and could lead to different outcomes. Finally, a full understanding of the collection strategies and of the interpretative frameworks, a re-analysis of the raw data and, when possible, a targeted re-survey are the ground-stones of a successful comparison.

43 Terrenato 2004 p. 43

3.2 New frameworks from survey comparisons

Having seen the most common biases of survey data and the obstacles to data integration, it is now clear that a comparison between the SVP and the CLP cannot be made by merely pulling together the results of the two surveys. The following pages will investigate the specific issues encountered in the comparison of the two projects and which actions have been undertaken to offer a reliable integration of the two datasets.

As observed above, survey methodology is the first bias in survey outcomes and comparisons. Conveniently, the strategy of the CLP was specifically designed in order to maximise its comparability with previous surveys, especially in the first phase of the project[44]. The adoption of extensive methods and of site recognition simplifies the comparability of the CLP results with those of the SVP. Besides, the CLP research area overlaps with the SVP in the Valle Porcina, allowing an assessment of site identification. Given's list of biases helps identifying the factors in which the incongruences amongst the two projects are stronger and where more adjustments are necessary. *Table 1* provides a schematic outline of the differences and similarities to be found between the projects and shows that, despite the efforts of the Dutch team, the 30 years separating the two projects left an inevitable mark on the methodological approach. By using the raw data, this study aims at an elastic management of the data-integration process that avoids the reduction of the data to the «lowest common attribute»[45], but rather maximises the output to the 'highest common factor'.

If the CLP raw data was available, digitised and processed by the CLP team, the SVP raw data resulted almost completely unknown, as the editors' impossibility to access the material at the time of the final publication led to crucial gaps in the output[46]. For example, the provided maps only showed sites as dots on a white background and the sites assemblages were not published, but only mentions of some ceramic typologies were provided in a table[47]. For this reason, it was decided to concentrate the efforts in a 'modernization' of the SVP data, aiming at filling the

44 Stek, Modrall, Kalkers, et al. 2015 p. 234; cfr. chap. 2 par. 6

45 Witcher 2008 p. 9

46 Baker, Francis, Hayes, et al. 2006 p. 16

47 Baker, Francis, Hayes, et al. 2006 pp. 17–25, tab. 2.1

knowledge gap amongst the two projects. The process was organised in three consecutive steps:

1. Acquirement and digitisation of the original field maps of the SVP;
2. Reanalysis of the pottery assemblage with refinement of the chronological definitions;
3. A re-survey in specific micro-areas to clarify the chronology of some sites and increase the amount of material available in the San Vincenzo area.

3.2.1 Digitising the survey data

As noted above, the published maps indicate sites as dots on a mostly white background, which made their digitization difficult and imprecise and lacked any information on the extension (shape and size) of the scatter. However, on the field, the teams were equipped with IGM 1:25000 maps and there they drawn the extent of each encountered scatter[48]. Richard Hodges provided a copy of the field-maps, from which all the site-extents (also those of chronologies not directly related to my thesis) could be digitised and categorised following three classes used in the publication (scatter, near-site, site), indicating three subjective levels of pottery density. As a background check, the area of the polygons was compared with the size provided in the 2006 publication.

This simple procedure allowed performing an analysis similar to that carried out by Witcher in the Biferno Valley. In fact, in the overlap area of Valle Porcina it was possible to evaluate what the two projects found and how they described it. Within this 1x3 km rectangle, the SVP identified 11 sites, 1 near-site and 3 scatters. The CLP also identified 11 sites, but only five overlapped with those of the other project and two lied within an SVP scatter (*Fig. 3.1*). It is worth mentioning the case of S094 and A114. The two scatters are located at the sides of a country road and the material collected by both the project is mostly Samnite with some traces of continuity in the early Roman period. They probably belong to the same site with the road cutting through them, but the projects eventually identified only one part each, most likely for differences in visibility. On a more general level, as the fieldwalking methodology was reasonably similar and

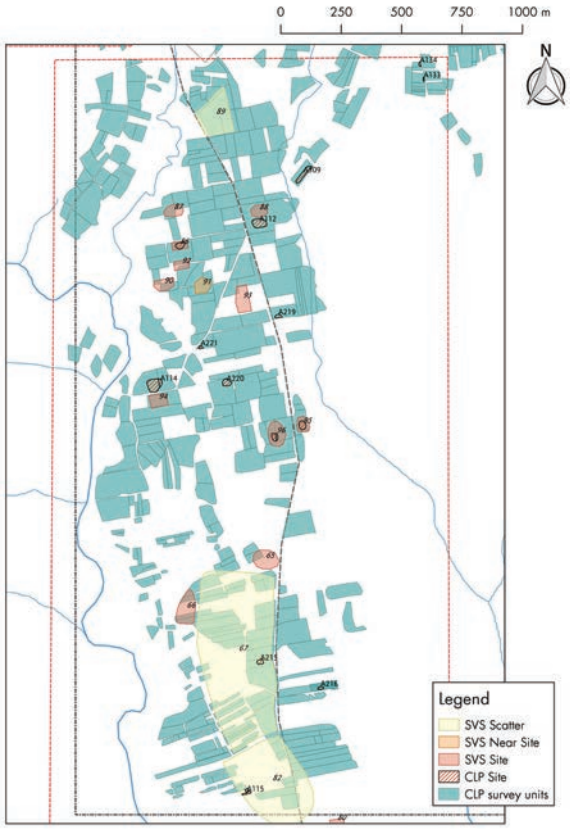


Fig. 3.1 Results of SVP and CLP in the Valle Porcina

the rate of sites found the same, it is probable that the different results are mostly due to changes in visibility. This is further supported by the fact that in three cases (S065, S090 and S093) SVP sites are located in areas not surveyed by the CLP and in two other instances (S066 and S087) the CLP re-surveyed only parts of the sites. Also, the two big off-site areas recorded in the SVP are not present in the CLP documentation, where instead two small sites are identified. A second important difference exists: the site boundaries drawn in the CLP tend to be smaller. Such divergence might be a product of several factors. Modern technologies allowed a more accurate documentation, thirty years of agricultural activities surely eroded the archaeological material and there is a chance that the CLP adopted a stricter definition of site than the British team. It is however necessary to emphasise the unpredictability of this variance: the scatters of S095 (A217) and S096 (A218) shrank visibly, while S086 (A113) and S088 (A112) have quite comparable areas with the scatters found in the CLP.

Overall, the analysis of the Valle Porcina gives a first positive impression of the quality of the SVP data.

48 Baker, Francis, Hayes, et al. 2006 p. 15

Even though discrepancies exist, these can be attributed to variance in ground visibility[49]. The similar quantity of sites encountered in the two projects indicate a comparable rate of success, helped by the absence of disturbing «background noise» throughout the landscape[50] and the consequent adoption of a similar conceptualisation of site. It is a bit more problematic to mitigate the differences in the extension of the sites, which tend to be slightly larger in the SVP, but the factors influencing this difference are so variegate that a general rule is impossible to be applied and each case should be evaluated individually.

3.2.2 Reviewing the ceramic evidence

The second step of survey comparison consisted in the analysis of the ceramics collected in both project. While the late and post-Roman material collected during the CLP was analysed in collaboration with the Dutch team[51], the SVP material was never published and required a full reanalysis. As for the Tiber Valley Project[52], the aims of restudying the ceramic material were a refinement of the available chronologies and compare the ceramics of the two projects against a singular classification. This section will focus on showing what knowledge added the restudy of the SVP data, while an in-depth discussion of the pottery from both projects will be provided in the next chapter.

The material was stored in the depots of the archaeological museum in the municipality of Castel San Vincenzo. Seven boxes of material were found, in which was preserved the material of 103 out of ca. 200 sites (ca. 55%)[53]. This amount was of course not the best, but it was anyhow enough to carry on with the analysis. The restudy was carried out in March 2017 and comprised the reopening of each site bag, providing a description of its content and a short description of diagnostic fragments. Each diagnostic fragment considered relevant for the study was weighted, photographed and drawn. Unfortunately, only a sample for each site assemblage was preserved. It is known that the surveyors carried out a selection of the material already on field, but it is unclear whether a subsequent selection occurred in the lab or in the storerooms. The partiality of the assemblage prohibited any statistical analysis or any calibration of the ceramic data[54]. Most importantly, it is also possible that some meaningful fragments have been lost in the discard process, distorting the chronological framework of some sites.

Despite these unfavourable conditions, the re-analysis revealed fundamental additional information. In total 194 fragments from 30 sites were selected for an in-depth re-study. The SVP identified 15 mid-Roman (2nd-3rd century), 9 late Roman (4th to 6th century) and 2 early medieval (7th-9th century) sites. The SVP identified in 8 sites the presence of ARS fragments, the main indicator for mid and late Roman occupation phases. In the re-study, ARS was recorded in four new sites (S001, S109, S126 and S193) and in two scatters associated with already known late Roman sites (S147 and S157). Furthermore, with the help of coarse wares, sites chronologies could also be controlled and refined. The late Roman period was divided in two different phases LR1 (4th and 5th AD) and LR2 (6th and 7th AD). As expected, by accounting also the coarse wares, the number of recognised late antique sites rose. 16 sites, with 2 other possible sites, could be safely attributed to the mid-Roman period, 13 certain and 7 possible sites were dated to the LR1 period, 4 certain and 9 possible sites were dated to the LR2 phase. More importantly, 5 sites revealed to have had early medieval phases and 2 are likely to have been frequented between the 7th and the 9th century. Besides chronological refinements, the ceramic analysis shed some interesting lights on other aspects of the archaeological assemblage. First, the presence of 9 sites with material datable to the LR2 period (and in some cases of Hayes 99 fragments) seems to indicate some demographic continuity until the 7th century, thus after the Greek-Gothic wars. Second, it appears that the early medieval pottery found in San Vincenzo was indeed circulating in the Volturno Valley. In the site of Valle Porcina (S090) it has been found a fragment of a basin that is extremely similar to a vessel found in late 8th–early 9th century

49 Lloyd, Barker 1981 p. 291

50 Stek, Modrall, Kalkers, et al. 2015 p. 256

51 A catalogue of the late antique and early medieval material cannot be offered in this work, because the CLP project is not published yet. It is planned to provide it in a future article co-authored with dr. Tesse D. Stek.

52 Patterson 2000 p. 116

53 cfr. Appendix II

54 in origin it was planned a calibration following the method of Pettegrew 2007

layers in the monastery[55]. Pots found in 9th century layers at San Vincenzo have been found also in the hilltop site of Le Mura-Mennella. Finally, even though present in the cities of Venafro[56] and in Isernia[57], RPW in this region of Italy was exclusively an early medieval phenomenon, and not even sites with the latest ARS shapes show the co-presence of this regional fine ware.

These results become even more interesting when confronted with the CLP data. The more systematic collection methods resulted in higher amounts of pottery and of fine ware fragments. The CLP collected 119 ARS fragments against the 29 found in the SVP. In the CLP assemblage there seems to be a timid growth of sites in the 4th and 5th century, from 13(+4 possible) to 16(+9 possible), a trend that contrast with the SVP evidence, but finds parallels in other areas of the Italian peninsula[58]. Also the 6th and 7th century, do not really show a drastic drop in site number (11 probable and 10 possible sites) and several large settlements (A203, A204, A205, A246) are seamlessly occupied from the Roman period until the late-6th early-7th century AD. Also interesting is the appearance of some sites in the later Roman period that seem to have an early medieval phase (A121, A232, A305), even though traces are always difficult to discern in surface assemblages. Alongside these low-lying sites, two hilltop sites have been also discovered (A109; A138) of which one (A109) has clearly a Roman phase too. Overall, the CLP material shows several points of connection (continuity of large settlements, drop in ARS fragments in the 6th and 7th century) with the SVP datasets, but also some important divergences (higher number of LR2 sites, more continuity into the early medieval period) that necessitate further analysis.

3.2.3 Resurveying the SVP

The divergences were so evident that it was decided to carry on a re-survey of specific locations, aiming at collecting new material from sites with unclear chronologies and at understanding whether the differences noted in the ceramic assemblage represented real ancient trends or were created artificially by the projects' different methodologies. For this reason, a complete resurvey of the SVP research area was deemed unnecessary. Rather, areas with high research potential were selected to solve the mentioned issues. A special consideration was reserved to sites labelled as "late antique" and "early medieval" in the SVP and by local traditions. Three factors were used to select the re-survey areas:

1. Late antique sites with unidentified ARS fragments;
2. Non-surveyed hilltops with potential for early medieval settlements;
3. Doubtful chronologies from published data.

Accordingly, a series of locations were identified as suitable for research (*Fig. 3.2*). In order to have access both to agrarian fields and uncultivated and forested plots, two different strategies were adopted: systematic fieldwalking and point-sampling. Fieldwalking was carried out in a team of three to four people. Each surveyor carried a hand-held GPS (built-in smartphone) with the smartphone application *Archeotracker*[59]. This application, conveniently modified for the necessities of the project, allowed recording the walked transects and the position of each find. Finds were categorised on field between four types of ceramics (CW, BG, ITS and ARS), building material (BT) and flints (STO). Point-sampling was instead carried out in uncultivated land plots or in forested areas. Here, the topographic units were squares of 50x50m in which five points of 2 metres of diameter were cleared from soil cover. This strategy, already used in the CLP project, was known to be extremely effective to locate sites not accessible through fieldwalking and has been a successful tool for the identification of early medieval sites. The re-surveyed plots can be grouped in four sub-regions, each with its own aims.

In the intensely cultivated Rocchetta Plain (*Fig. 3.2*, Area 1), fieldwalking activity aimed principally at checking the SVP data, considered that the high plain was researched in 1980[60] and aerial pictures show that land use did not change dramatically in the last 30 years. Most of the locations were ploughed and plain, so with high visibility and easy to walk on a straight line and suitable to train unexperienced students. The results were good. In particular, the site S008 was

55 Appendix III, S090 n. 10; Patterson 2001 p. 260 fig. 2.2
56 Genito 1998
57 Terzani 2004 p. 173
58 Volpe 2005 pp. 300–301
59 Poirier 2018
60 Hodges 1981

found again and the material, both Prehistoric and Roman, was directly comparable with that found in the 1980s. Besides fieldwalking, point-sampling was carried out in Case San Lorenzo. According to Chris Wickham and Richard Hodges, the monastic sources mention an 8th century *conduma* (a farm depending on the monastery) in this small terrace few hundred metres south of the monastery. The SVP invested a lot of effort in this area and survey was conducted in different conditions of the ground, yet it revealed fruitless. The new strategy adopted in 2017 was a combination of fieldwalking and point-sampling. Point-sampling was more intensive where fieldwalking collected more material, but this intensive collection strategy did not bare the hoped results. The several ceramic fragments retrieved confirmed the human occupation on the terrace, yet most ceramics were non-diagnostic bricks and coarse wares impossible to set in any specific chronological framework (*Fig. 3.3*). Finally, the area below Vaccherecia, considered important because of the presence of a long lasting Roman settlement pre-dating the hilltop settlement, was not accessible to the team and therefore not surveyed.

South of the Rocchetta Plain, along the road to Latium (*Fig. 3.2*, Area 2) some locations were also deemed interesting for further study. Two possibly late antique sites (S100 and S177-8) were located here and an early medieval church was supposed to have been existed near the modern hotel Falconara, in which an epigraph mentioning this structure still existed in the 1980s[61]. These sites were especially interesting because, their attribution to the late antique period seemed to clash with the narrative of a retreat to ecological niches, being the area not especially fertile. Beside these sites, a third terrace, along the same route and with topographically similar conditions to that of S100 and S177-8, was analysed to have also negative evidence in support of the reliability of the SVP. The SVP material of S100 was not preserved in the storage rooms and, in the publication, there was no mention of any late antique fine ware, despite its attributed chronology. Besides, S100 was recorded as a low-density scatter just below Colle della Forca, even though elements that indicated a substantial settlement (a *fistula* and a stone funerary element) have been found in the area in

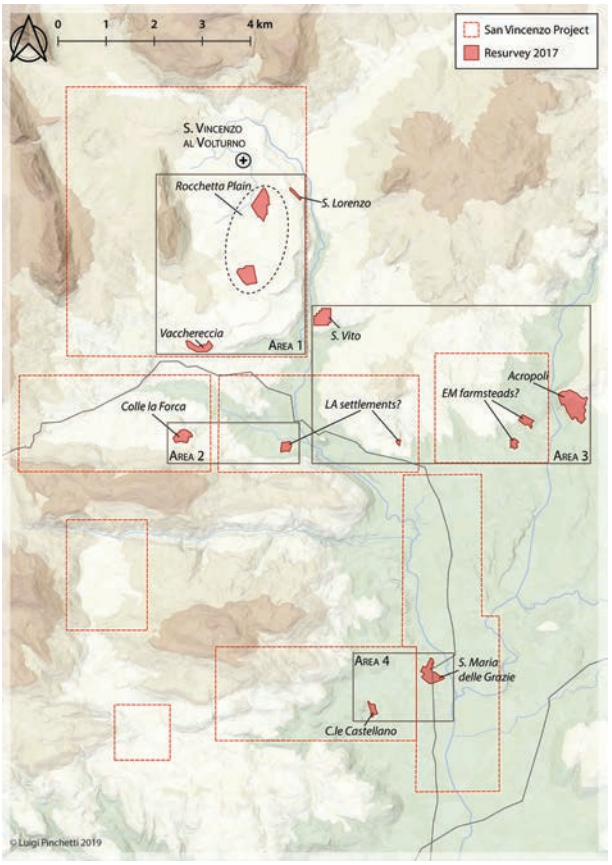


Fig. 3.2 Areas resurveyed in 2017

later research[62]. From these elements, it was considered possible that an early medieval site could lie on the nearby hilltop below the forest cover, following a pattern already observed in many sites of the UVB. As for Case San Lorenzo, fieldwalking and point-sampling were used in combination. Fieldwalking manage to locate a small concentration of building material and ceramics that could generally date to the Roman period (*Fig. 3.4*). The scatter was somewhat smaller than the polygon drawn by the SVP team and located at a further distance from the Colle della Forca. Here, point-sampling did not recover any sherd. This confirms that a small Roman site was present along the road that lead to Latium, but its chronology and function remain unclear. The absence of hilltop occupation supports the hypothesis that in this peripheral and non-fertile part of the research area there was no continuity of occupation in the medieval period, also reinforced by the absence of any nearby late medieval settlement. Contrarily to S100, the interest in S177-8 sparked from the presence of an

61 Baker, Francis, Hayes, et al. 2006 p. 45

62 Capozzi, Marino 2017

shape attributed to the 7th-8th century in the Crypta Balbi[69]and to the 9th century in Santa Cornelia[70]. This is interesting, as it suggests that the low-lying site was still frequented in the early medieval period. Some burned oven tiles hint at ceramic production at this site, yet no other archaeological indicator was identified. Also point-sampling on the top of the Acropoli of Colle la Ginestra brought to the recovery of massive quantities of archaeological materials. Ceramic evidence points at a continuous occupation of the hilltop from the late-8th until the 13th century (*Fig. 3.7*). Furthermore, it has been possible to identify an area of glass and metal production (metal and glass debris) and a storage area (dolia rims). Further archaeological work could enlighten on the chronology of these infrastructures. Contrarily to the wide amount of data from La Ginestra, the point-sampling in San Vito was extremely poor of material. The fieldwork focused on this location because the SVP reported here an early medieval church that could not be identified. The reading of the 1954 *Volo Base* aerial pictures showed a wall circuit around a central structure, which was thought to be the medieval church or a super-imposing post-medieval farm, as for the case of S. Maria degli Angeli mentioned above. The little material collected here was mainly modern or at most sub-recent, even though two fragments of a large *dolium*, found on the white road leading to the farm, indicate that the area was settled in the Roman period.

Summing up, the outcomes of the re-survey were all together positive. The extraordinarily dry summer of 2017[71] meant that ploughing was often delayed, with negative influence on the rates of sites retrieval. Still, fundamental new information on the settlement history has been provided. In areas with good ground visibility. the overlap between the results of the new survey and those of the British project was extremely high, in line with the comparison drew in the Valle Porcina. Interestingly, the novel systematic collection of archaeological material did not increase significantly the amount of diagnostic fragments in the assemblage, a fact that suggests a low circulation of fine wares, and especially ARS, in the UVB. In general, the evidence of wear on the material collected in 2017 is not greater than on the material collected in the 1980s. All these elements, on the one hand, give

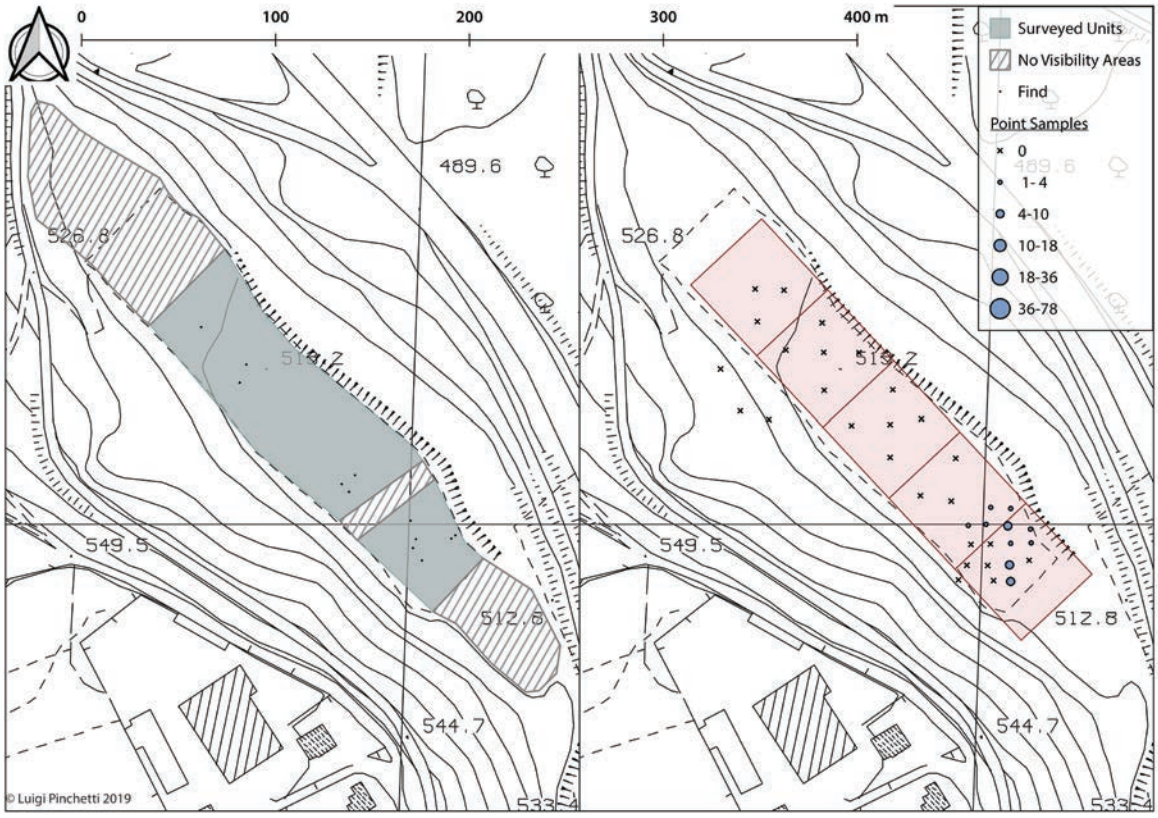


Fig. 3.3 Results in Case San Lorenzo.

69 Ricci 1998 pp. 34–36

70 Patterson 1992c

71 Magno *et al.* 2018 pp. 1-2

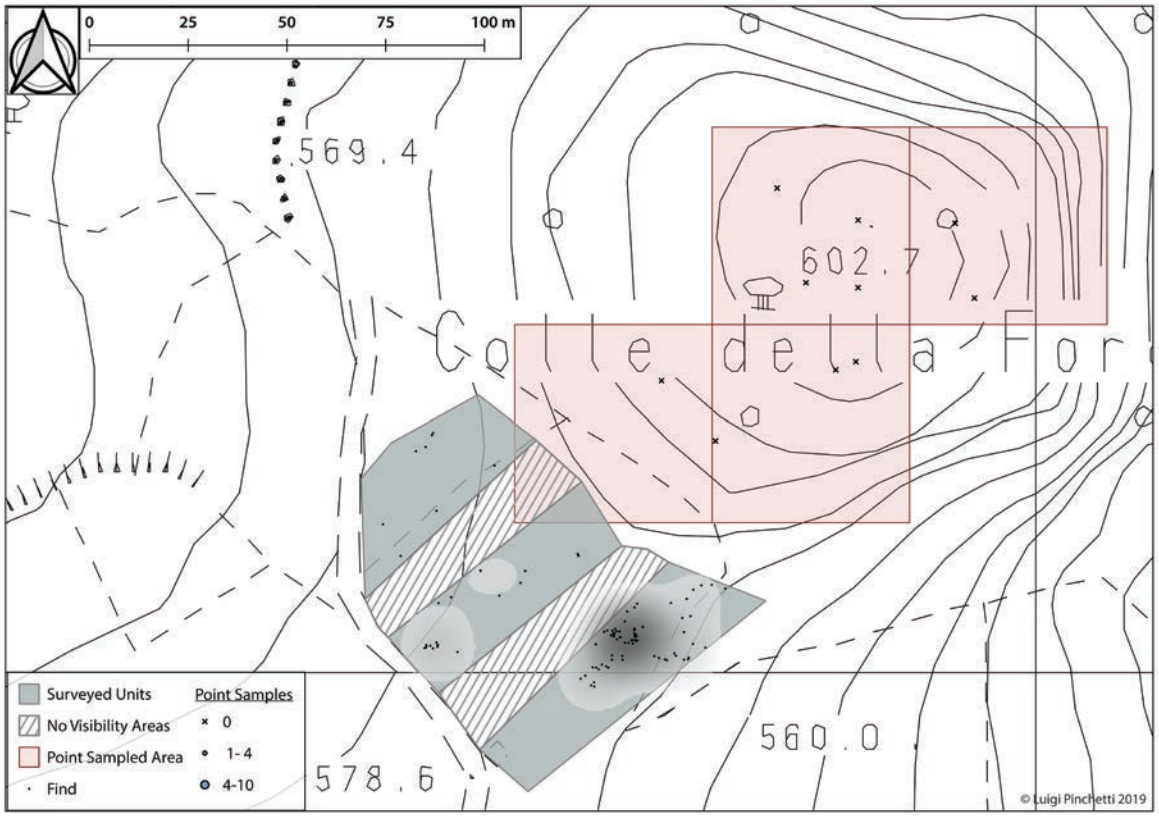


Fig. 3.4 Results on Colle della Forca.

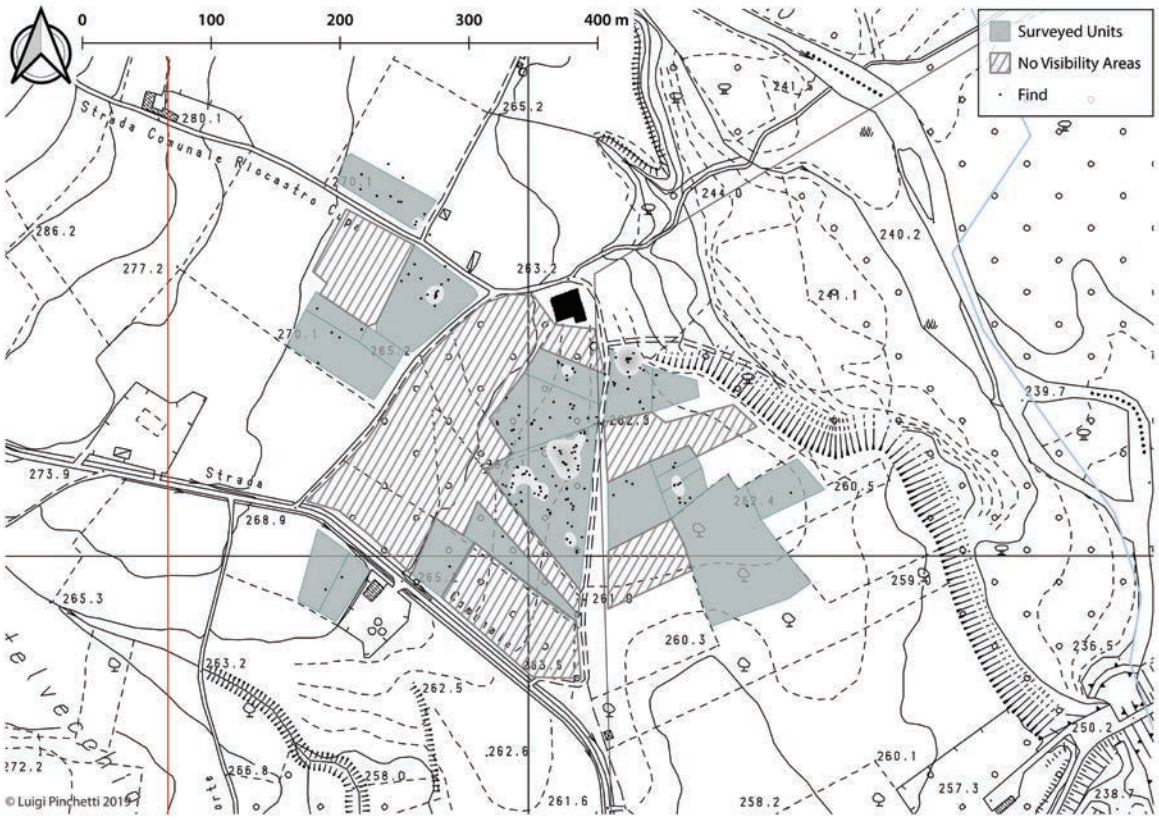


Fig. 3.5 Results around S.ta Maria degli Angeli.

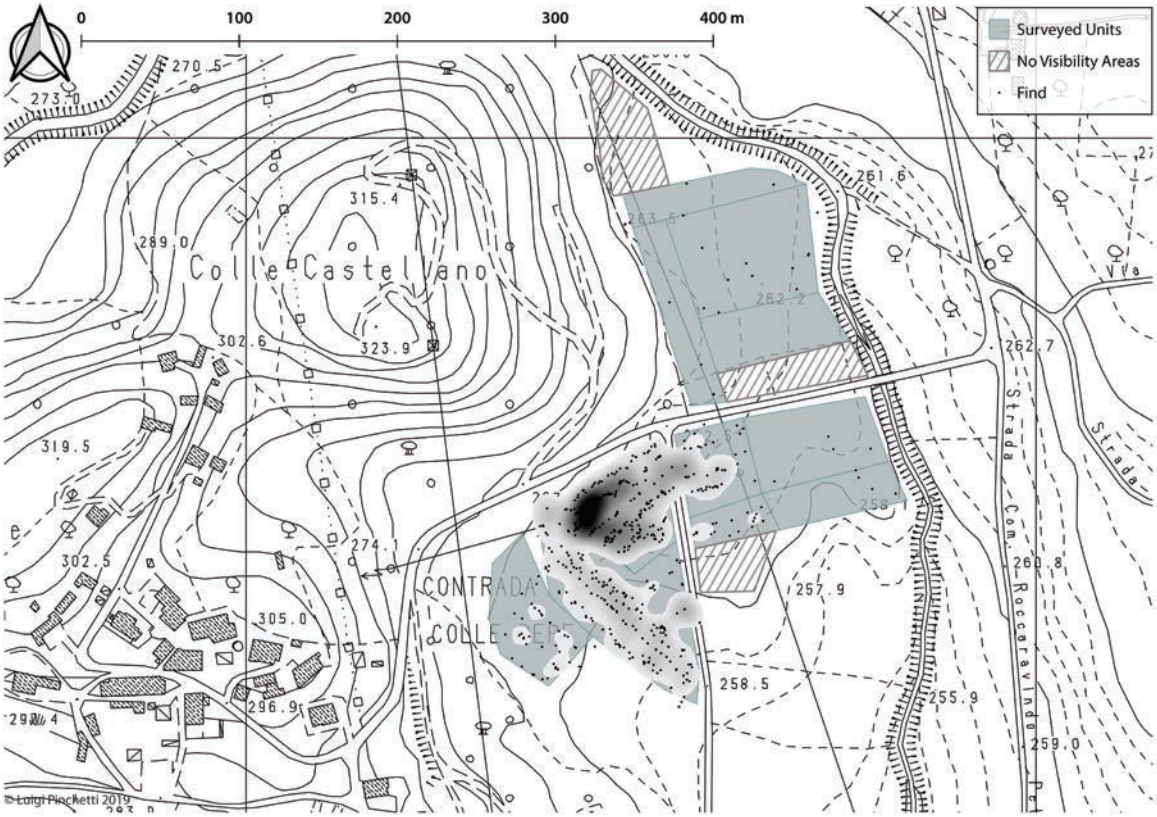


Fig. 3.6 Results below Colle Castellano.

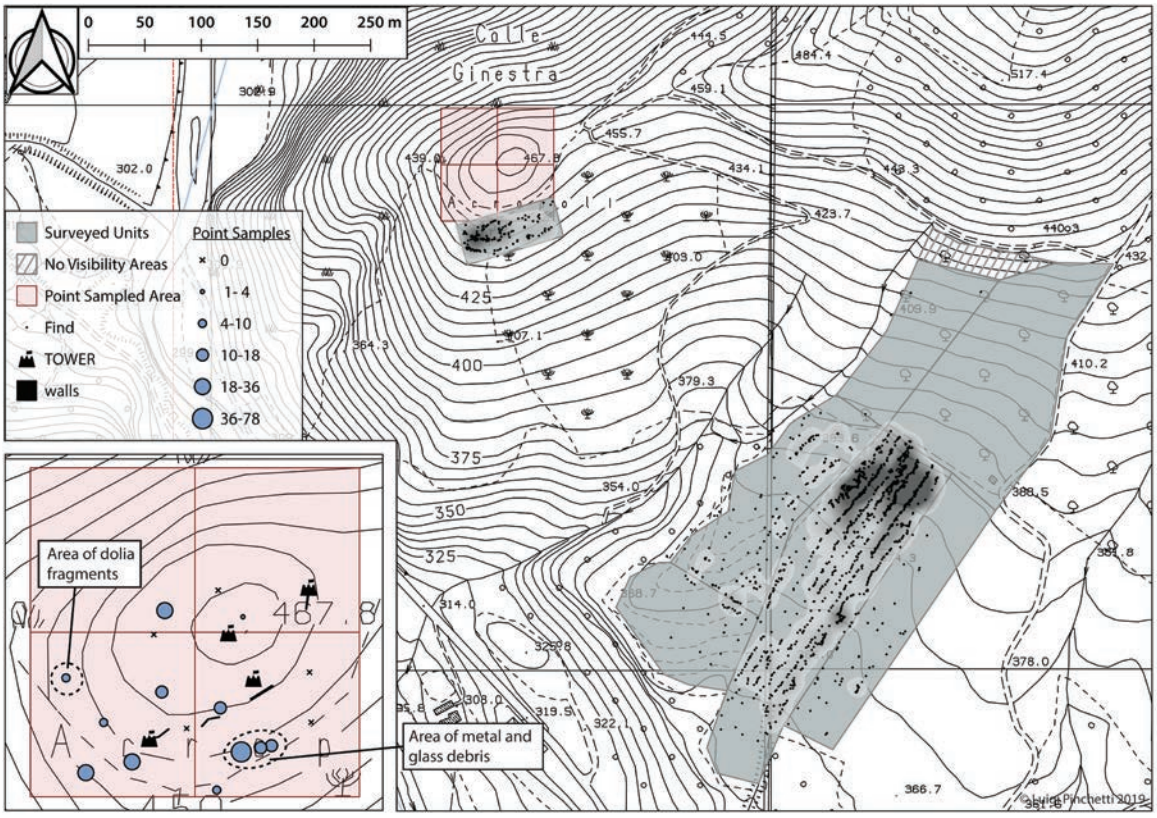


Fig. 3.7 Results on the hilltop and on the fields below Colle la Ginestra.

reasons to trust in the reliability of SVP results and, on the other, suggests that a comparison of British and Dutch surveys is viable. Finally, the new fieldwork season brought a fuller understanding on the history of hilltop settlements. The discovery of a new early medieval site (Acropoli-La Ginestra) with interesting signs of continuity with a low-lying Roman site provides a seamless picture of a rural community in the course of the 1st millennium AD and would deserve a thorough archaeological investigation. Moreover, the absence of human occupation on two hilltops (Colle della Forca; San Vito) provides a negative comparison to those hilltops with early medieval settlements. A first consideration would lead to conclude that the list provided in the *Chronicon Vulturnense* is complete, but it is necessary to ask what attracted nucleation in some hilltops rather than others.

3.3 Reconstructing the settlement dynamics in the post-Roman Upper Volturno Basin

This long process of 'source criticism' constituted a necessary premise to a reliable integration of the results of the SVP and CLP and now can be outlined a first analysis of the development of the settlement pattern in the Upper Volturno Basin throughout the 1st millennium AD. The graph (*Fig. 3.8*) presented in this page is the most direct outcome of this preliminary work and it already calls the attention on some points of discussion. For a more complete interpretation of these numbers, the spatial distribution of sites will be kept in special consideration.

In the mid-Roman phase (MR; 2nd-3rd cen. AD), the sites are located along the major communication routes and in fertile valley floors, a common pattern for most of Roman Italy. The number of active sites halved in the transition from EROM to MR period, but this might reflect more archaeological uncertainties rather than past demographic fluctuations. In fact, the SVP data contains an extremely high number of uncertain EROM sites, that are those disappearing in the MR period. Thus, if one considers only probable sites, the drop is much less dramatic. Overall, it can be appreciated a slight preference to cluster in the proximity of Isernia, but other nuclei appear in the area of Castelvecchio and in the Rocchetta Plain. Interestingly, despite an intense early imperial human occupation, the Valle Porcina is almost completely abandoned after this period, with only one large site in Piana dell'Olmo (S066). Here, the effects of archaeological biases are minimal, as both projects surveyed the area intensively and both could not retrieve ceramics dating to the 2nd-3rd century. A working hypothesis is that the local rural population nucleated in S066 creating a small *vicus*, as also indicated by a small excavation at the site[72]. This nucleation is replicated in the Pantano Basin and in the Rocchetta Plain, where in both cases the numerous early Roman farmsteads leave room to one bigger settlement (respectively S133 and S004). The evidence offers, for the 2nd-3rd century, a growingly dichotomised countryside, in which peripheral areas were undergoing profound socio-economic changes, while the urban surroundings were characterised by stronger stability.

This dichotomy disappears in the transition to the LR1 phase (4th-5th century AD), which is characterised by continuity throughout the research area. On a quantitative level, the evidence from the UVB shows that demographic decline was not an issue of this period and, on the contrary, a timid expansion is observable with new sites appearing in unsettled areas (A116, A125 and A208 in the East, S117 and S193 in the West). If a change has to be noted, it is a trend towards a uniform distribution of the settlements throughout the research area, with a far less noticeable preference for the valleys of the Cavaliere and the Volturno and the intensification of human presence in the mountain basins. Worth mentioning is the considerable presence of LR1 material from the Pantano Basins, which is only comparable with early Roman times and at this time constitutes the only settlement cluster West of the Volturno river.

The 6th and early-7th century AD (LR2) is a period of crucial changes in the Italian peninsula: the Greek-Gothic wars and the formation of the Duchy of Benevento revolutionise the geopolitical context of

72 www.fastionline.org/excavation/micro_view.php?fst_cd=AIAC_266&curcol=main_column [29/11/2019]

ARS fragment that was not mentioned in the 2006 publication. Unfortunately, the plot was unploughed in 2017 and, due to the low visibility, the site could not be traced back.

The southern edge of the Valle Porcina (*Fig. 3.2*, Area 4) was investigated exclusively through fieldwalking, as this area is intensively cultivated. In this area are located two loci of particular interest: Santa Maria degli Angeli and Colle Castellano. The first is a still-standing post-medieval building that, according to the British team, superimposed on a church of possible early medieval date and connected with a Roman settlement[63]. The possible presence of a church, the valley floor position and the proximity to a ford over the river Volturno, are all factors that made this settlement worth an in-depth investigation aiming at clarifying its chronological and topographical organisation. The second focus in the area has been the early medieval settlement of Colle Castellano. Considerable attention was funnelled towards this hilltop settlement during the SVP[64], but the reanalysis of the material from the site below the hill of Colle Castellano (S157) revealed some fragments of a greyish-fabric coarse ware reminding of finds at Mennella, San Vincenzo and Colle Castellano itself. The resurvey wanted to establish whether a low-lying settlement was connected to the hilltop of Colle Castellano, or whether the fragments at S157 were washed down debris coming from the hill slopes. Eventually, the new survey next to Santa Maria degli Angeli did not recover any site, though the archaeological debris was present in higher densities than usual (*Fig. 3.5*), suggesting the presence of ancient occupation in the area. The survey in the fields below Colle Castellano had contrasting results (*Fig. 3.6*). While the scatter S159 was found and its boundaries overlapped quite well with the 1980s indications, a flood of the early 1990s covered S157 and S158 with pebbles, making it impossible to trace them back. However, the fields just south of S157-S158 revealed a high density of pottery with material comparable to that collected by the British project. Interestingly, in S159 was also found a fragment of Forum Ware. This is a 9th -11th century ware produced in Rome and Naples, which has never been found in the CLP, but has been found in excavations at Colle Castellano and other sites in the

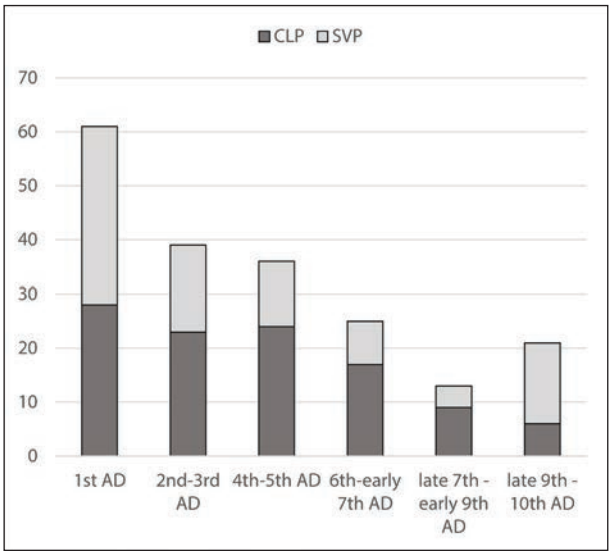


Fig. 3.8 Settlement quantities per period

SVP[65]. The small size and its worn nature indicate that the fragment washed down from the uphill settlement.

The last area to be surveyed was the hilly region between the rivers Volturno and Vandra (*Fig. 3.2*, Area 3). This region had several reasons to be relevant for this research. First, it was the area contended between the monastery and the count of Isernia in the 10th century[66]. Secondly, the monastic sources mention in 972 at least three sites located in the area[67]. Thirdly, the SVP pinpointed a possible early medieval farmstead by fieldwalking (S114) and, just across the Vandra, the CLP team gave notice of a large late antique settlement (A148), which lied just below the medieval fortification of Acropoli-La Ginestra[68]. Therefore, fieldwalking was used to investigate the two sides of the river Vandra in the locations where previous fieldwork identified interesting material, while point-sampling was used to investigate the hilltops of Colle La Ginestra and San Vito, both mentioned as possible early medieval sites in previous studies. S114 could not be identified through fieldwalking, on the contrary A148 was retrieved again. This latter settlement revealed to have a large size with material ranging from the Samnite period (black gloss ceramic) until the latest phase of Late Antiquity (ARS and local imitations). Interestingly, alongside ARS fragments, was also found a concave base with finger grooves, a

63 Marazzi, Serris 1997 p. 228
64 Hodges, Clark, Coccia, et al. 2006 p. 187
65 Patterson 1992b pp. 489–491
66 Marazzi 2012
67 Baker *et al.* 2006 p. 41 table 2.4
68 Di Rocco 2009

Southern Italy. In this fast-changing environment, the long-term look offered in survey archaeology might not be the most suitable tool to discern the many differences that must have existed between the landscape of the early 6th and early 7th century. The deeper ceramic knowledge gained in the last 30 years allowed identifying 15 probable and 20 possible LR2 sites, thus offering a much more animated landscape than the one sketched in the proceedings of the SVP[73]. In this 're-populated' landscape, it is interesting to notice that two settlement patterns are co-existing. Around the urban centre, sites tend to be at an average distance of 1-1,5 km; beyond this peri-urban cluster, settlements are sparsely distributed in ecologically favourable niches, both in the eastern (A148, A205) and western (S009, S133, S193) part of the research area. Another remarkable feature of this transitional period is the first hints of human presence on hilltop locations (A138 and S140) in the late 6th century. The evidence is scarce and is mostly based on few ceramic sherds (in the case of A138-La Romana) or fragmentary archaeological reports[74], but it is unmistakably there. There are not enough elements to draw conclusions on what lead to the slow re-settling of hilltops (Samnite hill-forts were abandoned ca. 800 years earlier), yet it does not seem far-fetched to link it with the instability that characterised the 6th century AD.

If survey assemblages do not rightfully represent the convolutions of the 6th century, the EM1 period is hardly visible at all in the archaeological record and even the few excavated sites in the region found little evidence of late-7th and 8th century human activity. At the light of the little collected information it seems plausible that the EM1 settlement pattern mixed Roman and Medieval elements where valley and hilltop sites coexisted. In A305, a 9th century farmstead, one fragment of basins finds parallels in 8th century shapes from Naples[75]. Similar farmsteads might have been present in the Valle Porcina and along the Vandra river. In this area, many sites showed the presence of sporadic fragments that could be tentatively dated to the EM1 period. One basin from S090-*Vadu Porcinum* finds strict comparison with a basin with outward triangular rim found at San Vincenzo al Volturno and dated to the late 8th century[76]. In the Carpino basin, locality Pantaniello, a necropolis excavated in the 1970s which revealed a brooch adorned by animal protomes, typical of the 7th-8th century[77]. The necropolis indicates a continuity of use of low-lying areas, but it is unclear whether the users of this cemetery lived in the Basin or in the hills surrounding it. The 8th century saw also a growth of human presence on hilltops. In the east, the site A148-La Ginestra revealed a fragment of RPW jar that dates back to the late-8th or early 9th century AD[78]. The excavations in Le Mura-Mennella (S140) unearthed materials that are probably connected to funerary contexts of the 7th-8th century[79]. This material was close to the traces of a large hut[80], similar to the structures found at Montella, in Campania[81]. This pattern of co-existing closed and open settlements relates well with the scenario suggested by Wickham of a period, between the late 7th and the 9th century, in which free peasants and tenants co-existed[82] and it might be that these occupied different types of settlements.

The definitive transition of the majority of the rural population in nucleated hilltop settlements dates to the 10th century. Most of the hilltops investigated archaeologically bear traces of human presence at least from this period, even though architectural remains have been normally destroyed by later phases[83]. Moreover, the documents preserved in the *Chronicon Vulturnense* witness the existence of nucleated hilltop settlements by the time the leases were drawn up. This evidence resembles the archaeological information collected in the various hilltop fortifications of Tuscany[84] and Campania[85]. In all these settlements, the post-Carolingian period marks a period of thorough transformations with the construction of large stone or timber structures substituting previous post-built huts,

73 Baker *et al*. 2006; Bowes 2006. This process reminds closely the Farfa Project, in which the reanalysis of the pottery assemblage also conducted to a similar 'repopulation' of the landscape: cfr. Moreland 2008.
74 Raddi 2003 p. 1587
75 Carsana 2009 p. 143 fig. 4.21
76 Appendix III, S090 n. 10; Patterson 2004b p. 260 fig. 2.2
77 Pani Ermini 2004 p. 267
78 Appendix IV, A148b U4003, POI03 n.01.
79 Pani Ermini 2004 p. 271
80 Raddi 2003 p. 1586
81 Rotili, Pratillo 2010 p. 167; Rotili 2010b p. 155
82 Wickham 1984 pp. 30–31
83 Di Rocco 2009
84 Valenti 2004 pp. 47–59
85 Rotili, Pratillo 2010

a process that will eventually lead to the creation of the late medieval castles. The success of this settlement type is of course enhanced by the fact that only hilltop with late medieval structures have been excavated. Nonetheless, evidence of some open farmsteads is appearing also in the archaeological record of the 10th century. The most notable example of early medieval open settlement is located only few hundred metres West of Isernia, in A305. This site, already occupied in the Roman period, saw stable occupation until the 10th century, as demonstrated by the large amounts of RPW retrieved through fieldwalking. Even though in smaller quantities, early medieval ceramics have also been collected in A109, A227 and A232. Despite these sites being all located in the CLP research area, similar farmsteads were likely present also on the right bank of the Volturno, as testified by the *Chronicon*. The *conduma* (farmstead) of *casa Laurenti*, is a classic example of open rural settlements in the 10th century. Similarly, the nucleation of six families within the *castello* of Vaccherecia (*CV* 165), indicates that the rural population lived in scattered farmsteads until that moment. Previously, the impossibility of finding any archaeological trace of a dispersed rural population was attributed to their non-participation to the circulation of monastic ceramics[86]. The new survey and the comparison with the CLP showed that some rural settlements were receiving high-quality pottery (e.g. S090, A305) and, thus, that in this case the intensity of the material collection distorted our perception of the medieval landscape.

Insights on the rural economy of the research area will be offered in the next sections, but the evidence gathered in this chapter offer a solid chronological substratum on which future analyses can reliably build upon. The acquisition of a more thorough archaeological background allowed clarifying some aspects of the regional history. For example, the continued presence of sites in the urban surroundings shows that the town remained an attractor of rural settlements throughout the 1st millennium AD, substantiating the hypothesis of a seamless urban occupation, already suggested by the written evidence. Moreover, the foundations of hilltop villages documented in the *Chronicon Vulturnense* has been framed within a larger trend, testified by the presence of 9th-10th century hilltop sites outside the *terra* of San Vincenzo (Acropoli and La Romana) and by hilltops that show evidence of occupation that could date back to the 7th century (Le Mura Mennella).

Most importantly, it has been seen that the demographic history of the UVB underwent two key transitions. The first defining moment occurs in the 6th century, when the dichotomy between a 'densely' settled peri-urban area and an almost deserted periphery is at its strongest. Such trend shows clearly how the weakening of intra-regional exchange, a topic that will receive more attention in Chapter 6, determined a change in the demographic spread over the territory. In fact, if throughout the Roman period, Isernia was at the top of a regional exchange network, sustained by a web of secondary rural markets[87], from the 6th century secondary agglomerations were progressively left out of the late antique trade network, deeply affecting the range of urban influence. The effects of this decay have been twofold. On the one hand, part of the rural population nucleated around Isernia with the aim of minimising the transportation costs of rural products and increasing the possibilities of participating in the residual urban exchange, in continuity with the Roman economic system. On the other hand, farther rural communities were left out of the traditional exchange system, creating the necessity of finding new ways of meeting the subsistence necessities. This meant, in most of the cases a stronger reliance on self-sufficiency from peasants households and a growing autonomy of the remaining rural landlords, which eventually wore down their social and economic prestige. Meaningfully, it is in these less connected «niches» that took place the first experiments of hilltop occupation. While differences in research methodologies might have emphasised some characteristics of the settlement pattern, the intra-regional demographic difference is distinctly there and the following chapters will provide some hypotheses on its causes, as well as fuller understanding of its economic implications.

The second transition is, of course, the formation and consolidation of hilltop settlements in the 10th century. While farmsteads were still present in the mid-10th century, the importance acquired by hilltop sites in the second half of the Early Middle Ages is

86 Hodges 2006c, 310

87 De Ligt 1993

unambiguous. Several elements contributed to the reappearance of this settlement type during the Early Middle Ages, but socio-economic factors appear determinant for their final prevalence. In fact, it has been seen that the monastic support towards nucleated villages in the 10th century arrived at the end of a process started at least two centuries before. Evidence of human presence on hilltops dates back to the 7th century in Le Mura-Mennella and La Romana-A138, to the end of the 8th century in *Vadum Porcinum*-S090 and to the 9th century in Acropoli-LaGinestra and these are probably few known examples of a wider trend. Therefore, when the monastery starts dealing directly with the process of village creation/consolidation, the potential of this settlement type was well known. In fact, the land leases preserved in the *Chronicon Vulturnense* testify the strong link between the importance attributed to the nucleation of the rural population[88] and the monastic necessities for a more thorough rent collection[89]. Thus, one can look retrospectively at the preceding hilltops of the hilltops and speculate whether those were already centres of 'lay' rent collection, as suggested in the case of Santa Maria in Civita in the nearby Biferno Valley[90], maybe in an attempt of the aristocracy of enlarging the urban sphere of influence.

Finally, the careful re-analysis of legacy data described the demographic occupation of the UVB in the course of the 1st millennium AD. The settlement pattern indicates that no sudden break occurred, and that long-term processes framed the most meaningful transitions, determining a long period in which elements of the Roman countryside existed alongside typically medieval features[91]. An element of discussion concerns the agents that introduced these novelties. Both the archaeology and the written sources seem to indicate a direct involvement of institutions, first Isernia's aristocracy and at a later stage the monastery of San Vincenzo, in promoting a new settlement strategy at least from the 8th century onwards. Yet, the variety of settlement types noted in the EM1 period is in continuity with the experimentations occurring in the periphery of the late antique countryside, thus when aristocratic power was at its minimum, and rural communities could explore different farming strategies in relative autonomy. The following chapters will offer a series of approaches to explore how both scenarios fit the current archaeological evidence.

88 Wickham 1985a pp. 26–33
89 Wickham 1985a pp. 45–52
90 Hodges, Wickham 1995 p. 270; Bowes, Hodges 2002
91 Hodges 2012 p. 65

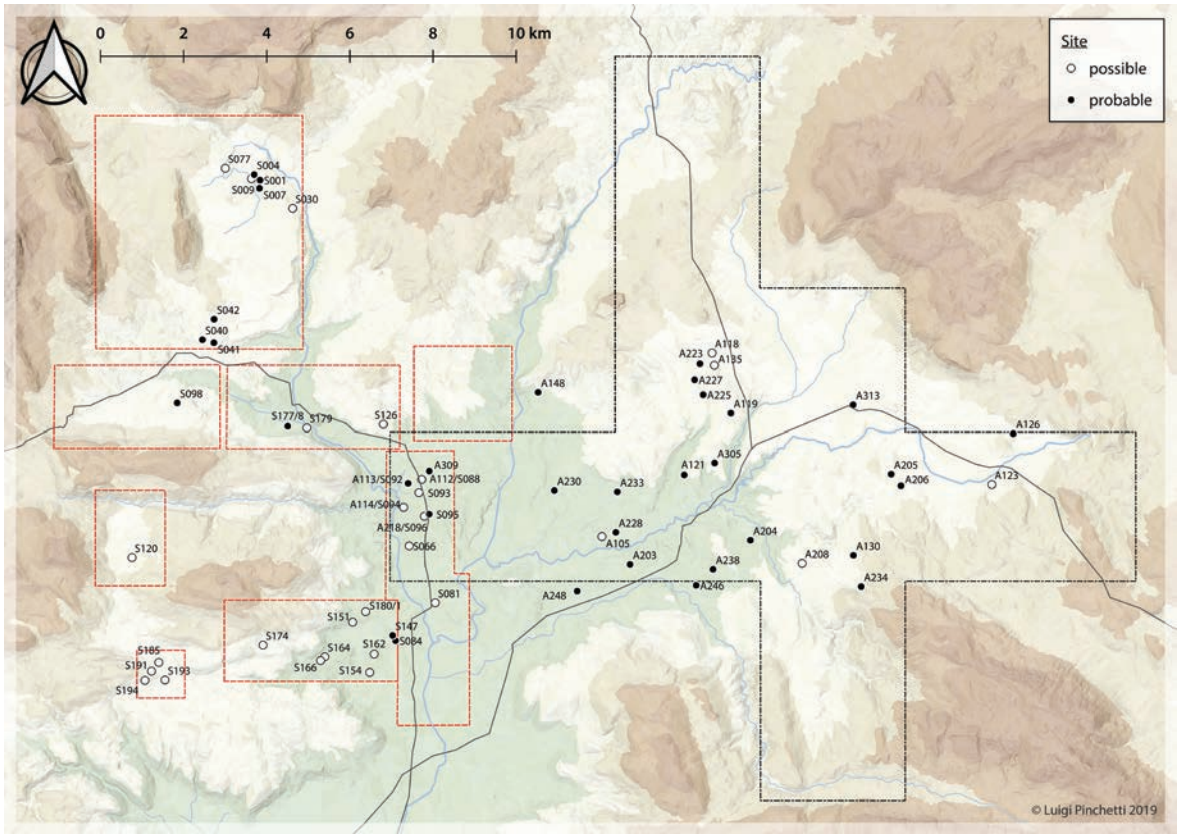


Fig. 3.9a EROM settlement pattern

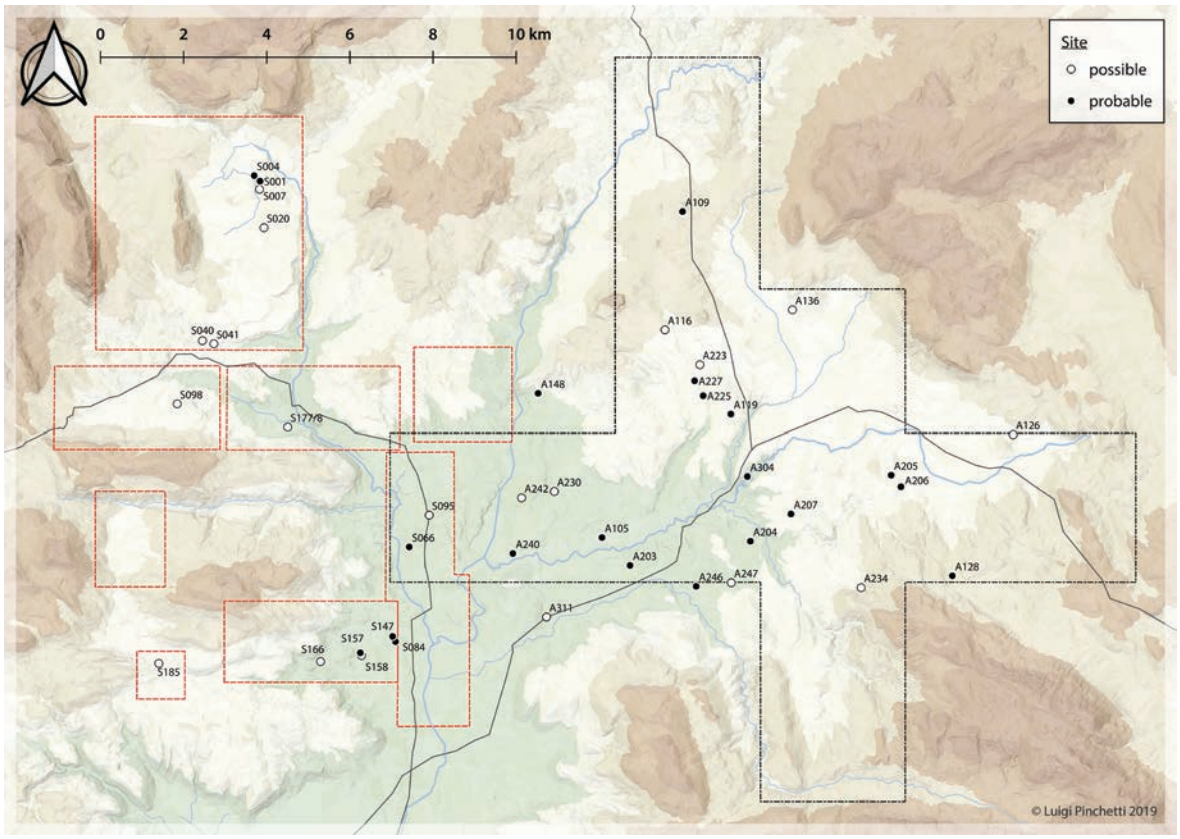


Fig. 3.9b MROM settlement pattern

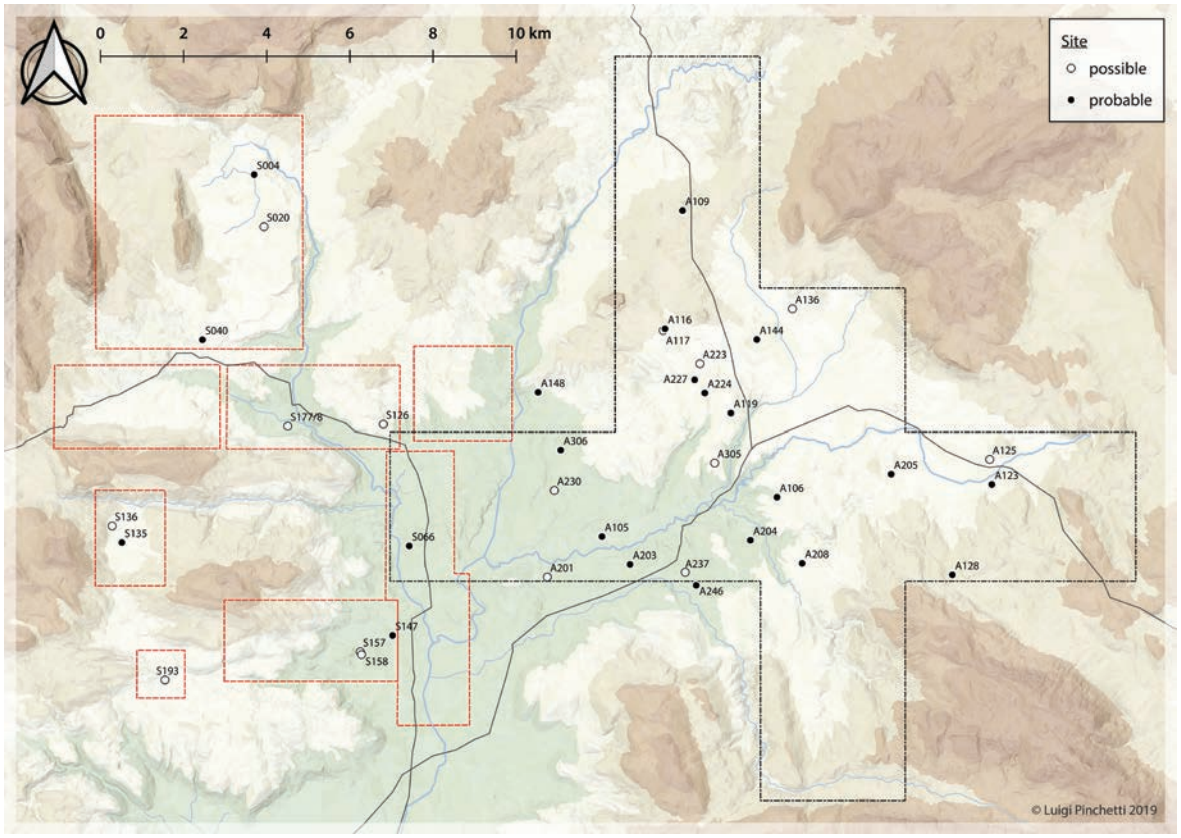


Fig. 3.9c LR1 settlement pattern

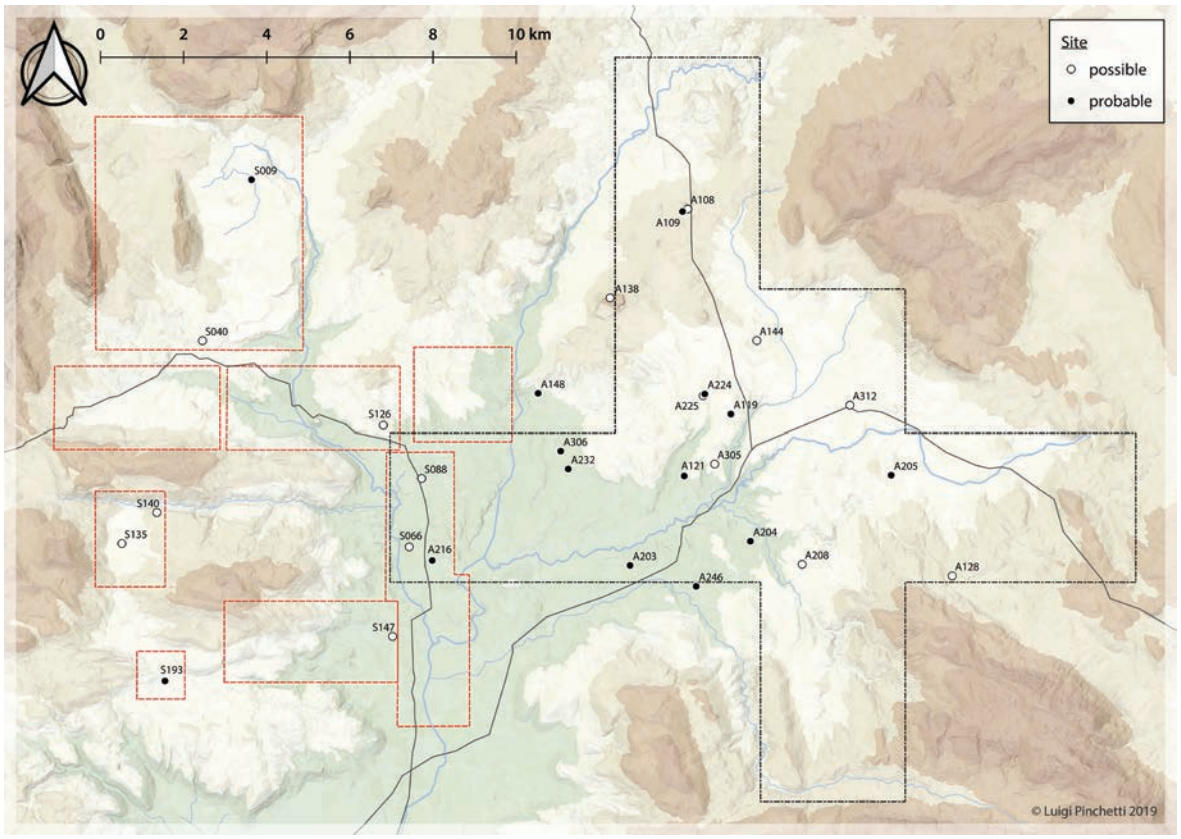


Fig. 3.9d LR2 settlement pattern

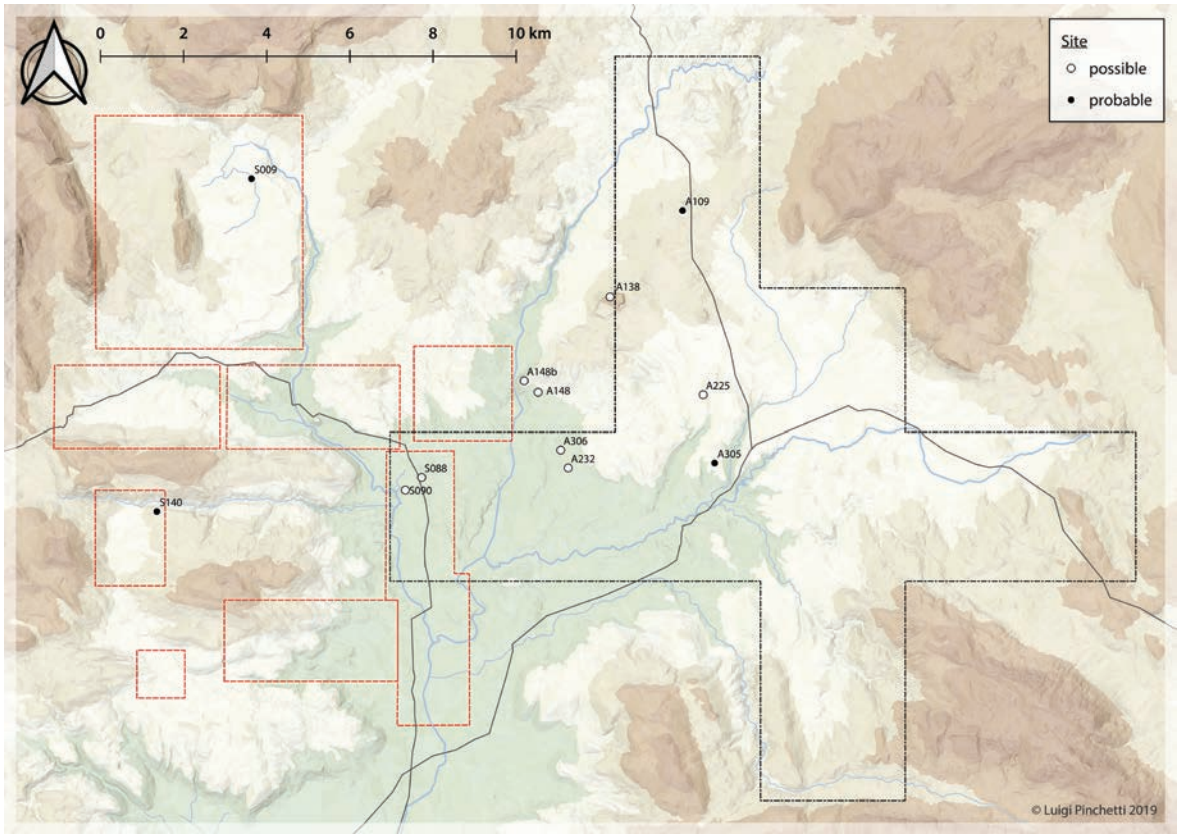


Fig. 3.9e EM1 settlement pattern

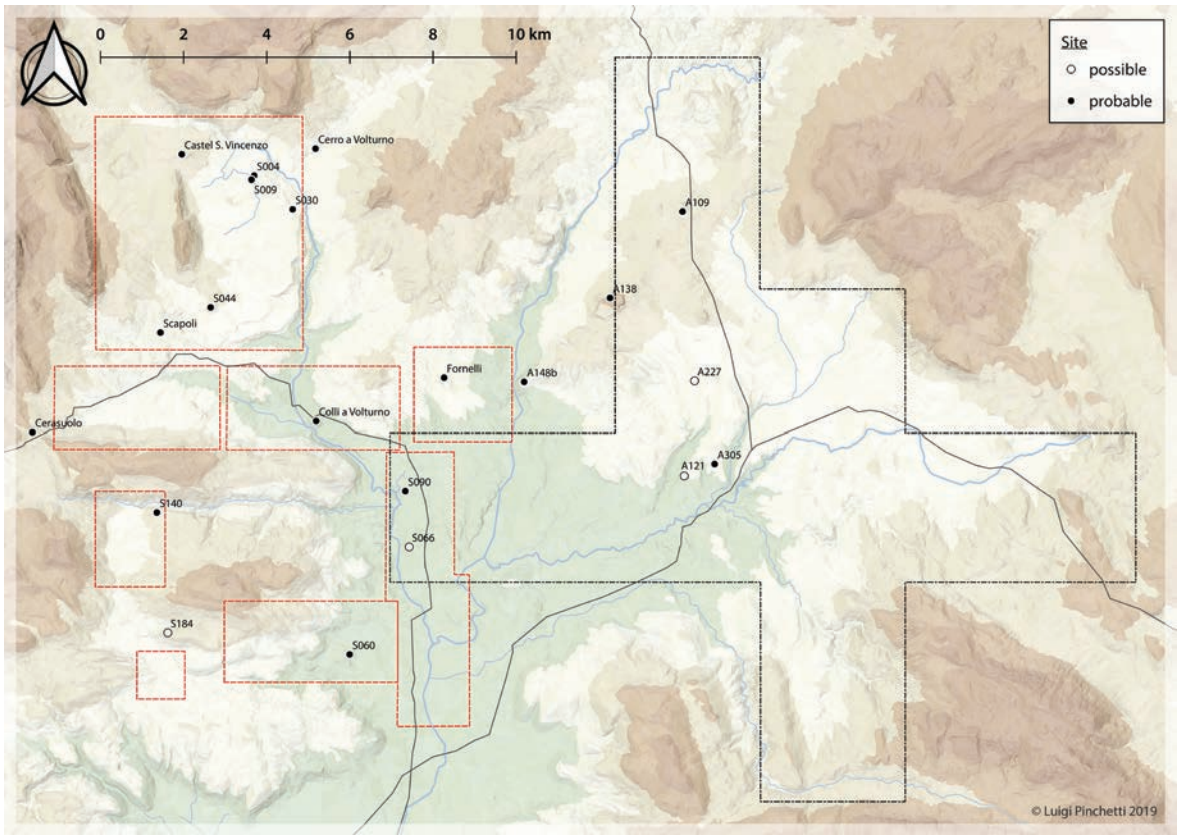


Fig. 3.9f EM2 settlement pattern

4. The ceramics of the Upper Volturno Basin

Ceramic is the dominant component of the archaeological record. A sound knowledge of the pottery circulating in the Upper Volturno Basin is fundamental to have a reliable chronological framework for a study of ancient exchange, to understand its transformations and to study the nature of distribution networks.

In Italy, a thorough understanding of the late Roman and the early medieval ceramics has been problematic for several reasons, ranging from the lack of published data to the chronological poorness of the published contexts. Nonetheless, significant steps forward have been undertaken in the last decades thanks to the growing interest in post-classical archaeology and the publication of excavations with relevant material. As research progresses, macro-regional trends are becoming clearer, but micro-regional sequences are still extremely dependent on the availability of local high-quality stratigraphic information. In Molise, the study of late antique and early medieval ceramics received great attention in the 1980s, in the Biferno Valley[1] and in Helen Patterson's long-lasting research on San Vincenzo's material[2]. Since then, few new data became available, but anyhow the first assessments on the circulation of late antique ceramics are beginning to appear[3], despite suffering of the lack of well-preserved post-classical layers.

The chapter is thought as a short summary of the state of art on the main pottery classes circulating in the Central Italy between the 2nd to the 10th century AD. The aim is to provide the necessary background knowledge to readers with little familiarity with the local material culture. For such reason, the largest section of this chapter is dedicated to a thorough description of the main characteristics and the chronological setting of each ware, in order to evaluate the importance of each ceramic class for survey archaeology. The final part of the chapter uses the gathered knowledge to give a first examination of the material recovered in the SVP and CLP. In such overview, particular attention will be directed towards identifying divergences from the 'normal' late antique and early medieval material culture of Southern Central Italy and define the characteristics of the ceramic assemblage of the Upper Volturno Basin.

1 Cann, Lloyd 1984; Albarella, Ceglia, Roberts 1993

2 Patterson 2004b; Patterson 2001; Patterson 1992b

3 Ceglia, Marchetta 2015

4.1 Late Roman Red Slip Wares

African Red Slip Ware (ARS) is the late antique ceramic *par excellence*. Distinguished by a characteristic red-orange slip, its production was based in Northern Africa (roughly in the region of modern Tunisia) and its distribution ranged throughout the Mediterranean[4]. In the Italian peninsula, its earliest presence is documented at the end of the 1st century AD (in the Vesuvian region and Ostia) and the latest occurrence dates to the 7th century[5]. Nicola Lamboglia carried out the first Italian study on ARS for the excavations of *Albintimilium*[6]. The work of the Italian archaeologist had the merit of identifying the chronological framework of this pottery and of distinguishing four different fabric classes (A to D, but class B was later discovered to be a Gaulish product)[7]. In 1972, John Hayes published a monography titled *Late Roman Pottery*[8], which introduced some modifications to the original work of Lamboglia, prolonged the chronology of class D until the 7th century and offered an easily accessible 'dictionary' of all the ARS shapes known until that time. Since its publication, the author himself[9] and other contributors[10] intervened to improve this seminal work, refining the division in classes, the relation amongst different shapes and the chronology of the distribution. Nonetheless, *Late Roman Pottery* is recognised as a basic guide for African ceramic products[11] and it is still nowadays a coherent reference in the study of late antique ceramics[12].

The first productions of ARS are the so-called «fabric A». Produced between the end of the 1st until the end of the 3rd century AD, the first exemplars (series A^1, until late 2nd cen.) are characterised by a fabric with some quartz inclusions, producing the effect «*a buccia d'arancia*», and a good quality slip of the same colour of the fabric and covering the whole vessel. This first African production tries to imitate the shapes of specific Italian and Gaulish products, in particular small cups (H3) and closed forms[13]. The decorations remind of several features typical of non-African products, as the barbotine and rouletted decoration or the *planta pedis* stamp[14]. Later exemplars (series A^2, 3rd cen.) have slightly coarser fabrics and thinner and duller slips[15]. The fabric A permeates slowly the Italian peninsula, with the earlier exemplars in A^1 mostly present on the Tyrrhenian coast, especially in the Campanian and in the Roman region, and the A^2 well attested also on the Adriatic coast and in internal areas.

In the 3rd century, some workshops of Southern-Central Tunisia produced big vessels in a fabric that brings together many characteristics of the fabrics A and C and seems to prelude to fabric D. In order not confuse this class with the Lamboglia B, the fabric has been named "A/D"[16]. The vessels in A/D had a coarser fabric, resulting in rougher surfaces, and a dark-orange slip which tends to «flake off»[17]. The produced shapes, mostly plates and open forms, imitate the latter shapes of the fabric A^2 or the contemporary C classes and it is possible to notice a progressive reduction of the ring-base[18]. The fabric A/D, even though attested in some quantity throughout the Italian peninsula, always represent a minor part of the fine wares assemblage, as the fabric A^2 and C^{1-2} were dominating the ceramic market of the 3rd century.

The fabric C starts being produced at the beginning of the 3rd century AD in Africa Byzacena (modern southern Tunisia), following a growth in African food exports. The production is based on the use of a matrix, a method that allows producing vessels with thinner walls. Five different series have been distinguished within this fabric (C^{1-5}). C^1 and C^2 seems to be almost contemporary or slightly subsequent one to the other. They are characterised by an extremely high quality: thin walls, fine fabrics and a thin slip, glossy and red in the C^1, matte and orange in the C^2. The groups C^3 and C^4 belong to a later phase of production (respectively beginning and late 4th century) and show a slightly

4 Carandini 1981b p. 11; Bonifay 2004 p. 155
5 Carandini 1981b; Gandolfi 2005a
6 Lamboglia 1941; Lamboglia 1950
7 Carandini 1981b p. 12; Hayes 1972 pp. 287–288
8 Hayes 1972
9 Hayes 1998; Hayes 1980
10 Bonifay 2004; Mackensen 1998; Carandini 1981b
11 Tortorella 1998 p. 41; Carandini 1981b p. 13
12 Bonifay 2004 p. 156
13 Carandini 1981b p. 19
14 Saguì 1980
15 Gandolfi 2005a p. 198; Hayes 1972 p. 289
16 Carandini 1981b p. 53
17 Hayes 1972 p. 289
18 Gandolfi 2005a pp. 198–203; Carandini 1981b p. 53

minor attention to the quality of the end-product. The colour of the slip tends to vary more often, from pink-orange to red-brown depending on the firing, and the fabric becomes slightly coarser with a consequent increase in the thickness of the walls. In the 5th century, a finer product starts being distributed in the Mediterranean, reaching also Egypt, the group C^5. Groups C^3 and C^5 show a peculiar «feather-rouletting» decoration. This fabric is the first to have a thorough distribution in the whole Mediterranean and in Italy is no exception to this trend[19].

The later series of the C fabric (C^{4-5}) competed with the newer products in fabric D. This class starts being distributed in the 4th century and the last produced vessels are dated to the early 7th century. Fabric D is the most common fabric in the Italian peninsula and two subsequent phases of production (D^1 and D^2) have been recognised[20]. The dishes in D^1, a direct filiation from the A^2 production, have a coarse fabric with medium-thickness walls and a pinkish slip that now covers only the exterior part of open shapes. It is the slip that allows a differentiation between the two groups of fabric D products. The fabric D^2 has a «thick, bright, highly polished slip […] that contrast markedly with the dull-surfaced vessels of the main series»[21].

Alongside these African products, between the 5th and the mid-7th century another refined ceramic reaches the Italian shores. This was the Phocaean Red Slip Ware (or 'Late Roman C' ware), a ceramic produced exclusively on Phocaea, in modern western Turkey, and the only eastern fine ware to be distributed in Italy[22]. The fabric is characterised by a fine clay with small lime inclusions. The slip, a finer version of the clay without any glossy appearance, covers the whole body of the vessels with a very thin film, almost fusing with the body. The vessels are evenly fired, with a red-brown colour and only in earlier fragments acquiring an orange gradation. Some vessels of the 5th-early 6th century have a rouletted decoration[23]. This ware is characterised by only ten forms, with form 3 and 10 clearly dominating[24]. In Italy, it is common in Southern and Central Italy, though it is visible a stronger concentration on the Adriatic coast and in the area of Rome and Naples[25]. Interestingly, in Molise, Phocaean ceramics are attested not only near the coast (S. Giacomo degli Schiavoni[26] and S. Martino in Pensilis[27]), but also in the Apennine interior (Sepinum and Ligures Baebiani[28]), suggesting a good connection between inland and coast in the 6th century.

Despite the wide use in survey archaeology of Red Slip Wares as a reliable late Roman marker, some weaknesses have been recognised in the last three decades. Already John Hayes pointed out a variance in the chronological reliability of ARS: in general earlier shapes (2nd - 5th AD) occur more often in stratified assemblages and, thus, have precise dates; while later shapes (6th - 7th AD) tend to be found in unclear contexts, which often results in wider chronologies[29]. This results in a variable chronological relevance within this ceramic class, with some forms still in need of circumstantial evaluations to assess their reliability[30]. Moreover, there seems to exist a 'cultural divide' between Italian scholars, that seem to prefer higher chronologies, and German, French and Anglo-Saxon archaeologists, which on the contrary have a predilection for lower chronologies[31].

As much as for chronological variances, the geographical distribution of ARS shapes is also problematic. Specifically, the presence of African fine wares in the Italian peninsula was not uniform even at the apogee of the production (mid-4th until mid-5th century AD). Such condition needs to be recognised in order not to fall in dangerous interpretative pitfalls. Especially after the 5th century AD, the distribution of African ceramics becomes more irregular, with inner valleys of the Apennines and Northern Italy growingly separated from the Mediterranean trade networks[32], a trend well exemplified in S. Giovanni di Ruoti[33].

19 Hayes 1972 pp. 289–291; Carandini 1981b pp. 58–60; Gandolfi 2005a pp. 203–207
20 Carandini 1981b pp. 78–79
21 Hayes 1972 p. 291
22 Gandolfi 2005b p. 233; Martin 1998 p. 115
23 Hayes 1972 pp. 323–324
24 Gandolfi 2005b p. 234; Martin 1998 p. 109
25 Martin 1998 pp. 115–116; Gandolfi 2005b pp. 242–245, 247 tav. 8
26 Albarella, Ceglia, Roberts 1993 pp. 167–171
27 Rossi 2010 p. 7
28 Martin 1998 pp. 118–119
29 Hayes 1998 pp. 10–11
30 Bonifay 2004 pp. 155–156
31 Bonifay 2004 p. 445
32 Tortorella 1998 pp. 50, 54
33 Small, Freed 1986 pp. 119–120

Enrico Zanini[34], supported also by Stefano Tortorella[35], linked the distribution of ARS in the 6th-7th century to the political situation of late antique Italy and, specifically, that the persistence of Byzantine rule in some areas of Italy stimulated idiosyncratic economic processes eventually visible in the archaeological record. A comparison between the distribution of Red Slip Wares in the 6th and in the 7th century shows that, after the creation of the Lombard Kingdom in Italy, Red Slip vessels stopped reaching internal territories, suggesting that in the 7th century only the Byzantine regions of the Itlaian peninsula took part in a Mediterranean trading network[36]. Such geopolitical explanation of ARS distribution attracted the critiques of Michel Bonifay, who argues that maps represent a 'state of the art' rather than past situations. Besides, he disagrees with the site chronologies proposed in Zanini's maps, which are too broad to create a link between archaeological remains and political context[37]. Bonifay's critiques are well-founded and future analysis need to address them. Nonetheless, Zanini's scenario remains stimulating and new archaeological research must consider this hypothesis as a possible framework for the economic development in the Italian peninsula after the arrival of the Lombards.

The uneven distribution of Red Slip wares in the peninsula does not affect only the last phases of use of this ceramic class. Variations have been noted throughout the timespan when ARS was circulating in the peninsula and the changes in the presence of this ceramic class have been a crucial theme of debate[38]. Significantly, regional differentiations existed in the Italian peninsula and an outlook on the surrounding regions is helpful to contextualise the economic meaning of ARS distribution in the Upper Volturno Basin. When looking at the trends drawn by African imports, one can recognise three different regions in the Italian peninsula. A look at the data from a group of excavations from Central and Southern Italy can help understand the various trends that characterise the distribution of the African products in the Italian peninsula.

The Tyrrhenian coast, due to the presence of the major ports of Pozzuoli, Ostia and Portus, shows a strong and continuous trade link with Africa. Here are located both the earliest (Pompeii, Sperlonga) and the latest (Crypta Balbi, Rome) evidence of ARS in Italy. Typically, fabrics A and D are majoritarian in the assemblages of the sites excavated in this region, as for example visible in the Villa di Tiberio in Sperlonga, in which fabric A and D composed respectively 35% of the assemblage and fabric C only the 10%[39], but evidence of economic links with Africa is present until a very late date. In the Crypta Balbi in Roma, the presence of a great quantity of bowls H99c and dishes H109 indicate a strong connection in the early 7th century[40] and also in Sperlonga a small number of fragments (H91D, H99, 102, 104C) can be attributed to the very last phases of African production[41]. In this area of peninsular Italy, absence of ARS shapes can be an extremely precise indicator of sites' histories. For example, by comparing the assemblages of the *Terme del Nuotatore* in Ostia and those of the field survey in the nearby Portus, one clearly gets a good impression of the different chronologies of occupation at the two locations, with the former abandoned in the 5th century and very few fabric D vessels[42], while the second is still settled in the 6th century, as clearly testified by some later ARS shapes (H91c, H104, H105)[43]. The relative abundance of ARS in this area, makes this fabric a reliable indicator of a community's prosperity in different periods. For example the assemblage of the villa at Posto in Francolise (CE), settled until the 2nd century AD and then reoccupied by squatters between the 4th and the 6th century AD, is composed by fabric A (H8b, H9a-b, H14b) shapes and fabric D shapes (e.g. H61, H88, H91, H99), with almost complete absence of the 3rd century fabric C[44].

Moving inland, the main divergence between the Apennine region and the Tyrrhenian coast is in the quantity and chronology of the imported ceramics. In the interior, African pottery is consistently present only with the latest shapes in fabric A and not rarely stops

34 Zanini 1998
35 Tortorella 1998
36 Tortorella 1998 pp. 56–57; Zanini 1998 pp. 314–316; Tortorella 1986 p. 220
37 Bonifay 2004 p. 449
38 Tortorella 1998 p. 47
39 Saguì 1986 pp. 131–133
40 Saguì 2001 pp. 268–274
41 Saguì 1980 p. 495
42 Anselmino, Coletti, Ferrantini, et al. 1986 pp. 46–49
43 Bousquet, Clarke, Del Vecchio, et al. 2004
44 Cotton 1979 pp. 130–133

being present at the end of the 5th century. Meaningful exceptions are micro-regions where river connections with the coast (e.g. the Middle Tiber Valley) allowed a more constant trade link with the Mediterranean commerce. A quite typical context is the recently excavated Palazzo Aluffi in Rieti, in which the quantity of ARS fragments is relatively modest (283 fragments) and in which the most common shapes of the 6th and 7th century AD (e.g. Hayes 91 or 99) are missing[45]. At Poggio Gramignano, in Umbria, ARS was recovered exclusively in a mid-5th century layer, as indicated by the presence of a Hayes 91 vessel, but the majority of other ceramics pertained to an earlier phase of occupation, though fabric D was almost completely absent in the assemblage. According to the excavators, the presence of imported amphorae dated to the later centuries of occupation of the villa, suggests that after the 4th century there was a relative lack of interest in the acquisition of the African fine ware because of the presence of good quality material arriving from the Adriatic coast[46]. A certain difficulty in receiving ARS after the 5th century is also visible at the villa of San Giovanni di Ruoti in modern Basilicata. Only 78 diagnostic fragments were imported from northern Africa and there was a clear preference for fine wares produced locally[47].

The Adriatic coast shares some aspects with the Apennine region, especially the relative late appearance of ARS. Yet, it differentiates clearly with a steadier presence of imported wares in the last phases of African production and an earlier appearance of a well-made imitation of the African products, the so-called *terra sigillata medio-adriatica*, that reached a wide distribution along the Adriatic coast. The excavations of the *Domus Coiedii* at Suasa, in the modern Marche region, is possibly the most indicative site of the region. At this site, despite its consistent presence, ARS never monopolised the assemblage as occurs in sites located on the Tyrrhenian coast. The earliest shapes, as Hayes 8 and 9, are absent, while more consistent is the presence of later 2nd century shapes such as Hayes 14, Hayes 16 and Hayes 27. Overall, shapes in fabric D dating to the 4th and 5th century are the most common, especially the dish Hayes 61 and the bowl Hayes 58. Later shapes are instead not present, possibly due to a preference for local fine wares[48]. In the Adriatic context, *Apulia* represents an important exception and it shows more commonalities with Southern Italy and the eastern Mediterranean. In the 'heel' of the Italian peninsula, the fabric A is well attested in the whole region, both in urban and rural sites and on the coast as well as in the inland. Fabric C is, instead, less common and, while it remains well attested in Salento, the northern part of the region sees a steep contraction of the fine ware imports. Finally, fabric D shows a pattern that is in many cases overlapping the situation described for fabric A. It is only in the 5th century that a clear difference between coastal and inland sites starts being visible, with the inland sites start showing difficulties in retrieving African imports[49].

45 Alvino, Lezzi 2015
46 Martin 1999
47 Small, Freed 1986 pp. 119–121; p. 129 tab. 2
48 Biondoni 2014
49 Rizzitelli 2000 pp. 273–277

4.2 Imitations of ARS

As shown by the case of the *terra sigillata medio-adriatica,* since the mid-imperial period, a considerable quantity of locally produced imitations of ARS shapes was circulating alongside the imported Red Slip wares. The term 'imitation' is used to indicate a wide range of regional products whose shape and decoration can be traced back to ARS vessels. Generally, imitations have shapes that are vaguely reminding the African originals and have a red-brownish polished surface, obtained with a range of different kinds of techniques (e.g.: slip, *lucidatura a stecca*)[50]. The fabric of the vessels and the production techniques varied greatly in their quality throughout the Italian peninsula, because several kilns carried out the production of this wares supplying regional or sub-regional markets. Until now, it has been possible to locate and excavate some production centres in Central and Southern Italy[51]. Kilns have been identified in southern Lazio (Paliano; Valmontone); northern Campania (Cascano; Masseria

50 Fontana 1998 p. 83
51 Fontana 1998 p. 89

Dragone); Abruzzo (San Vito Chietino, Spoltore) and Basilicata (Calle di Tricarico). The patterns of distribution of their products have a great informative power on the late antique market networks and have been used to reconstruct the economic ties linking different settlements[52]. These products were by no means the products of unspecialised work, but vessels produced semi-industrially by specialist and aiming at filling a gap in the African offer. Such level of specialisation is a good indicator of economic complexity in the late antique countryside, as it is only possible when agriculture is flourishing and, thus, the rural population creates an appropriate demand for pottery artisans[53].

Despite their good level of manufacture, local products possibly were a lower-priced alternative to imported vessels. Still, these 'imitations' were not commercialised to substitute the original product, but rather to integrate its offer. An analysis of the material assemblages from the House of Gaudenzio in Rome, showed that ARS and the local imitation differed markedly in two features: diameter and shape. If later ARS shapes tend to have big diameters (20<x<40cm) and are usually plates and dishes, indicating their use as representative vessels to serve dry food (as fish or meat), 'imitations' tend to specialise in the replication of bowls with a small diameters (15<x<17cm), suitable for individual meals of semi-liquid food (as soups or stews)[54]. Not only in cities like Rome, but also in several rural settlements it has been documented the presence of ARS vessels alongside their replicas and it was also observed a similar specialisation in size and shape[55]. It is unclear why 'imitations' started being produced in the first place and how they reached such a large popularity. Some scholars suggested that the two wares were fulfilling the requests of different social classes: ARS targeted richer people, which looked for big serving vessels, while the kilns producing imitation vessels targeted the needs of the lower strata of society[56]. Andrea Staffa suggested a similar 'stratified' model also for the contexts of coastal Abruzzo, characterised by three different products: imported fine wares from Northern Africa and the Eastern Mediterranean, local tablewares and imitations produced in industrial complexes and coarse wares produced in technologically simple kilns. Such stratification would have ended in the mid-6th century, when the coarser products, mostly cooking pots and closed shapes for semi-liquid meals substituted completely the finer ceramics[57]. Helga Di Giuseppe[58] opposed this hypothesis by pointing out that the compresence of ARS and its imitations in various elite rural settlements, and especially in S. Giovanni di Ruoti, contradicted the existence of a social differentiation of products' demand. Rather, she proposed a functional differentiation between the wares. According to her hypothesis, then, the imitations of ARS and the local fine wares would have answered to specific local demands that could not be satisfied by the range of imported vessels.

52 Di Giuseppe 1998; Arthur, Soricelli 2015
53 Fontana 1998 p. 96; Blake 1978 p. 439; Small, Freed 1986 p. 126
54 Fontana 1998 p. 96
55 Di Giuseppe 1998
56 Fontana 1998 p. 96
57 Staffa 2015 p. 613
58 Di Giuseppe 1998 p. 745

4.3 Red Painted Ware

Red Painted Ware (RPW) is a broad class of ceramics that includes a wide set of late antique and medieval productions (roughly from the end of the 4th century until the 12th) that in many instances share exclusively the use of red paint. The wide range combined with the long chronological life of this ceramic typology lead to some confusion in the use of the term, which is still present in the academic debate. The first study of RPW as a typically post-Roman product identified two phases of production, distinguished by a change in the painted decoration: from "broad-line" to "narrow-line" decorations[59]. Different classifications have been offered since, either based on the fabric[60] or on the subject of the decoration[61]. Besides, some scholars identified specific regional productions, most notably the Crecchio type, which are certainly acting within the schemes of the Red Painted Wares, but are clearly distinguishable for some peculiarities[62].

59 Whitehouse 1966
60 Cann, Lloyd 1984
61 Salvatore 1982
62 Staffa 2004 pp. 208–211

In this paragraph is offered a classification based on chronology, following a division also used to analyse the RPW material from Naples[63]:

- A late antique phase (5th-7th century), characterised by a high standardisation of forms and a high quality of the products. In this phase, the influence of ARS can be still observed in some products and open shapes are still present.
- An early medieval phase (8th-10th century), characterised by the presence of some lower quality products, thicker handles, almost only closed shapes.
- A late medieval phase (10th-13th century), which will not be discussed here, characterised by a rising quality of the products. Big storage vessels become more common. Jars, jugs and amphorae are characterised by broad flat handles while the paint lines become extremely thin following geometric shapes.

4.3.1 Late Antiquity

The origins of RPW can be set in the later 4th century, when new pottery kilns in the Italian peninsula started producing ceramics to distribute on the regional market. This phase of production is characterised by vessels with a hard, well-depurated fabric and a decoration either obtained with splashes of red paint or with broad brushed lines. The painted decoration could have been combined with an incised or a combed decoration. In this first phase of production, RPW vessels were characterised by a fairly wide range of shapes including dishes, bowls, jugs and jars.

In the villa of San Giacomo degli Schiavoni, only a few kilometres away from the Molisan coast, a deposit dating to the 4th to 6th century contained 85 fragments of RPW, constituting almost the 20% of the material. The assemblage was mainly composed by medium-size bowls (diam. 15-25 cm), some of which (type 23) reminded of contemporary ARS shapes, and small jugs with double handles. In some cases, the pots had rouletted or combed wavy decorations. The paint is applied with splashes or with broad brush-strokes without reproducing any clear drawing. A small group of fragments make exception, as the painter is clearly reproducing an abstract plan. Besides, almost all of the fragments are likely to be the product of a different kiln, as they show peculiarities which clearly distinguish them from the main assemblage (polychrome paint, n. 53-57; «flaking paint» n. 32)[64].

The context of San Giacomo as many commonalities with the site of Calle di Tricarico, where excavations in 1972 intercepted a rectangular pottery kiln active from the 4th until the 6th century. Most of the pottery produced in loco was RPW decorated with disordered splashes of red paint on the surfaces. The forms were various and consisted of both tablewares and storage vessels. The two most common shapes were the same of San Giacomo: a small jug with two handles (40 vessels) and a basin of various sizes (31 vessels). As in the Molisan villa, the vessels were sometimes decorated with wavy or linear incisions that complemented the red paint. The same kiln produced, in the same fashion of the RPW, also a small number of dishes that imitate the shapes of some ARS vessel, especially H61 and H99. The importance of this excavation is enhanced by the findings at the nearby site of S. Giovanni di Ruoti, a late antique élite villa [65]. Here, Calle's RPW were found in great quantities alongside African products, indicating that local ceramics were complementing the African assemblage on the local markets without substituting it. Furthermore, ceramics that share many features with the products of Calle have been found in several other sites in Southern Italy, highlighting how the RPW from this Lucanian settlement had a regional distribution, sometimes reaching Northern Campania (Capua) and Northern Apulia (Bovino).

A regional diffusion is documented also for the products of a series of kilns located in coastal Abruzzo. Excavated in the 1990s, these kilns were active from the 5th until the 7th century and provided fundamental information on the transformations occurring in the technology of pottery production as much as on the distribution of local wares[66]. The Abruzzian products are clearly different from others in the peninsula and are generally known as Crecchio and Val Pescara wares. Their production spans form the 6th to the 7th century and are recognisable for the use of polychrome paint and the intricate patterns drawn on the vessels[67]. The diffusion documented for these wares is remarkable

63 Carsana 2009 p. 139

64 Albarella, Ceglia, Roberts 1993 pp. 171–180

65 Small, Buck 1994

66 Petrone, Siena, Troiano, et al. 1994; Staffa 2015; Staffa 2004

67 Staffa 1998 pp. 452–461

and reaches both sites located along the coast, as S. Giacomo degli Schiavoni[68], and also settlements located inland[69]. A comparison of the kilns active before and after the 6th century shows a deep change in the technology of pottery production. The stone-built structures excavated at San Vito Chietino and at Spoltore (with five kilns)[70] show a greater technological complexity and a wider range of shapes produced than those documented for the later (7th century) productive centre of Pianella[71].

4.3.2 Early Middle Ages

The Val Pescara and the Crecchio wares are amongst the latest painted productions in the Italian peninsula with clear links with late Roman pottery production. In fact, the continuity between late antique and early medieval RPWs is not always certain and regional developments may vary considerably. On a general level, in the Early Middle Ages the vessels with splashes or full cover of red paint disappear, while predominate the use of broad red lines on the outer surface. Also the range of forms varies regionally, with areas where exclusively closed shapes are present, and others where deep open shapes, as bowls and basins, keep on being produced.

Recent research on early medieval assemblages from Naples showed that RPW circulated without breaks from the 5th until the 12th century[72]. The city shows an interesting trend in the Early Middle Ages. After the 8th century, it is possible to notice an increased quality of the vessels and a greater care in the application of the painted decoration. This fact testifies a growth in the ability of the potters and their craft specialisation. Even the range of shapes does not diminish. Open shapes, also of big size (up to 40 cm of diameter), are still produced and are mainly represented by basins with inward rim. Nonetheless, far more common are closed shapes, normally of small size, as jugs (sometimes with tap), jars and small table amphorae with double-handle. The painted decoration normally represents wavy lines, spirals or, more rarely, dots. Handles are oval in section and attached either on the rim or right below it[73]. Contrarily to Naples, the supply of RPW in Rome changed rapidly after the 7th century. Geochemical analysis on the material from the *Crypta Balbi* revealed that, in the 8th century, RPW stops being imported from Southern Italy to be produced in Rome or in its surroundings[74]. The transition comported some morphological changes. Only three shapes were produced (table amphorae, a trefoil-jug and a jar), but the variety of produced sizes and the bad quality of the firing suggest a low level of standardisation of the work which contrasts markedly with the situation just described for Naples.

The state of the art in the Apennines does not allow yet a detailed history of RPW production, because well-preserved and well-excavated stratigraphic contexts as those in Naples and Rome are rarer[75]. A peculiar case is that of San Vincenzo al Volturno, where RPW constitutes more than 60% of the 8th-9th century ceramic material[76]. At this site, the painted pottery is well made, produced in one workshop, and comprises a wide morphological variety, reminding of some Neapolitan contexts[77]. The location of the production centre is yet unknown, even if there is a high likelihood that it was produced at the monastery itself. Discontinuity characterises the monastic assemblage in the 10th rather than in the 7th-8th century. For example, the big basins with inward rim, representing the 30% of the 8th century RPW assemblage, are not present in the 10th century. Similarly, the painted jugs of the 9th century have more similarities with the pottery from local funerary contexts of the 6th and 7th century AD, but are clearly differentiated from those dating to the 10th-11th centuries found in neighbouring sites[78].

68 Albarella, Ceglia, Roberts 1993
69 Aquilano, Somma, Cimini 2009; Colantoni, Colantoni, Lucidi, et al. 2015; Ceglia, Marchetta 2015
70 Staffa 2004 pp. 204–208; Staffa 2015 pp. 601–603
71 Petrone, Siena, Troiano, et al. 1994
72 Arthur 1986
73 Carsana 2009 pp. 142–146
74 Romei 2004
75 Arthur, Patterson 1994 p. 427
76 Patterson 2001 p. 314
77 Arthur, Patterson 1994 p. 431
78 Patterson 2001 pp. 314–315; Arthur, Patterson 1994 p. 435

4.4 Forum Ware

Forum Ware is an early medieval ceramic class characterised by a thick glazed layer covering the whole vessel, therefore also known as *ceramica a vetrina pesante*. The vessels have a decoration composed of appliques of various shape, most commonly small petals distributed in lines or randomly. It was recognised for the first time as typically early medieval when a considerable amount (80 full jugs, 1 partial jug and ca. 1500 fragments) was found in the excavations of the *Fons Iuturnae* at the end of the 19th century[79]. Produced from the end of the 8th century until the 10th century, Forum Ware is best known for its Roman exemplars, but the find spots are distributed throughout Southern and Central Italy. It is very likely, that the production was decentralised and carried out at different locations, a trend clearer in the 10th century[80].

The most solid stratigraphic contexts are to be found in the *Crypta Balbi*. Here, the first fragments of Forum Ware are three chafing dishes, vessels of Byzantine tradition dating to the 8th century, decorated with applied petals and a thick yellow-brown glaze and characterised by a coarse fabric of local production[81]. In the 9th century a much broader spectrum of Forum Ware shapes, including basins, cups, lids and jugs, starts being produced. Jugs are the most common form and are often decorated with vertical lines of appliques[82]. The recent publication of the Forum Ware found in sealed deposits in Piazza Venezia offers another reference for this pottery class which helps consolidating the chronological sequence of decorative styles (especially in the disposition of the appliques) and the frequency of rare forms[83].

The chronological framework of Forum Ware vessels excavated in other contexts of Southern Italy are less clear, because of the lower diffusion of this ware. A medieval stratification in the church of Santa Patrizia in Naples suggests that Forum Ware became common at a slightly later date than in Rome, between the 10th and the 11th century[84]. The fabric and the morphology of the Forum Ware sherds collected by the British School of Rome in the upper Volturno Valley[85] indicates a strong relation with the material from Montella (AV), Naples and the region of Salerno[86] and also the same tendency of appearing slightly later than in Latium[87]. However, the recent discovery of an 11th century filtering cup in the early medieval house of the Forum of Nerva[88] with very strong similarities with a fragment from San Vincenzo[89], opened new hypothesis on the trade links between the UVB and Rome.

79 Boni 1901 pp. 97–98
80 Paroli 1992 pp. 44–46
81 Romei 2001a
82 Romei 2001b
83 Serlorenzi, De Luca 2015
84 Arthur, Capece 1992
85 Patterson 1992b
86 Paroli 1992 pp. 44–45
87 Patterson 1992b p. 489
88 Ricci 2001
89 Patterson 2001 p. 287 fig. 10:136

4.5 Coarse wares from the UVB

In an article published 40 years ago, Blake stated: 'an account of medieval pottery usually starts by contrasting its poor quality, limited quantity and restricted range of shapes with the 'industrial' products of the Roman period'[90]. The surge in interest in post-classical archaeology, make Blake' words outdated, however knowledge gaps are still present in regional coarse ware sequences for the second half of the 1st millennium AD. The strong decentralisation of production in the post-antique era makes a full account of all the late and post-Roman coarse wares of central Italy beyond the scopes of this paragraph. Rather, here it will be provided a short introduction on the spectrum of shapes circulating in different periods in the Italian peninsula, to give the reader a summary to comprehend the transformations occurred between the 4th and the 10th century in the use of ceramic vessels.

90 Blake 1978 p. 436

4.5.1 Late Antiquity

Alongside kilns producing ARS imitations and RPW, in

the Italian peninsula several centres were also active in producing coarse ware vessels. Their products possibly covered the major part of the local market, but, as for African imitations, the highly regional variation makes it difficult to reconstruct a linear history of coarse ware production in late antique Italy. Also coarse wares suffer of a chronological bias, with forms of the 5th AD on average known better than those of the 6th and 7th AD[91]. Recently, the conference series *Late Roman Coarse Wares* provided great support to the study of coarse ware circulation and production, which in some cases drew the attention to sites located not far from the Upper Volturno Basin[92]. Fairly recently, a good amount of new data on the central Italian peninsula has been published in the proceedings of *Le Forme della Crisi* conference[93], despite the relatively few new information for Molise and the Volturno Basin[94].

Possibly the two nearest sites with the richest information on the late antique coarse wares are *Alifae* in northeastern Campania[95] and San Giacomo degli Schiavoni in the Biferno Valley[96]. In *Alifae*, the ceramics are coming from different contexts dated between the 3rd and the 7th century AD. The most common shape is the basin or mortar with a characteristic flange just below the rim. The form has several variants and in some cases a sprout below the flange is present. Other common open shapes are the carinated bowl with a distinct rim, the basin with a thickened rim towards the interior and the large casseroles with almond shapes rims, in many ways recalling African cooking pots. Closed shapes are relatively less common, with only a jug with strap-handle attested in considerable numbers, and some shapes amongst kitchen vessels[97]. In the chronologically more definite assemblage of the cistern in San Giacomo degli Schiavoni coarse wares are composed by two clearly differentiated groups, one of imported "Aegean" pots and one of local products. Aegean vessels[98] are almost exclusively cooking vessels with a characteristic ridged outer wall. The most common shape was the carinated cooking pot, of which several variants are present, but a bowl with a small handle has also been recovered. Conversely, local products show a much greater variety of shapes, ranging from bowls, to casseroles, and lids[99]. The quality of the potting was always high with standardised shapes, showing evident signs of specialised production. As much as in *Alifae*, open shapes are extremely common, especially bowls and basins with inverted rims. Yet, the most attested shape was that of jars, used for a variety of purposes, often decorated with wavy combed lines, and jugs and flagons were also quite common. Cooking pots were also produced locally, sometimes resembling the style of Aegean imports, but most commonly integrating the imported assemblage with different shapes.

In general, *Alifae* and San Giacomo show extremely different assemblages, the first was included in the Campanian tradition, while the latter shows a stronger influence of Apulian styles. Unfortunately, it is not possible to know which area influenced the most the material culture of the UVB, as local coarse wares are almost unknown. The late Roman assemblage from San Vincenzo al Volturno[100] shows a predominance of casseroles, jars and lids, whose shape is attributable to both the Apulian and the Campanian fashions. The almost complete absence of the flanged basins, so common in *Alifae* might indicate a stronger link with the Adriatic coast, but might stem from the fragmentary nature of the assemblage.

4.5.2 Early Middle Ages

Singularly, the early medieval coarse wares circulating in the UVB are known much better than those dating to the late antique period. This is mainly due to the long-lasting research carried out in San Vincenzo al Volturno[101] and in several neighbouring sites[102].

Both the painted and coarse wares found in the monastic complex of San Vincenzo show a stark similarity to some vessels excavated in Benevento at the church of Santa Sofia, indicating a strict economic relation between the two centres between the 8th and

91 Panella 1998
92 Marazzi, Di Cosmo, Salamida, et al. 2010
93 Cirelli, Diosono, Patterson 2015
94 Ceglia, Marchetta 2015
95 Marazzi, Di Cosmo, Salamida, et al. 2010
96 Albarella, Ceglia, Roberts 1993
97 Marazzi, Di Cosmo, Salamida, et al. 2010 pp. 497–500
98 Albarella, Ceglia, Roberts 1993 pp. 180–184
99 Albarella, Ceglia, Roberts 1993 pp. 184–198
100 Patterson 2001 pp. 305–306
101 Patterson 2001; Di Cosmo 2015; Marazzi, Di Cosmo 2015; Patterson 2004b
102 Hodges, Clark, Coccia, et al. 2006; Hodges, Wickham, Nowakowski, et al. 1984; Hodges, Patterson 1986

the 10th century[103]. 9th century coarse ceramics have been found in four different fabrics, two produced locally and two imported from outside the Volturno Basin. The vessels produced in an evenly fired, dark grey fabric (fabric 4.3), are mainly represented by globular jars with ridges on the interior, but open shapes as large basins, *testi* and casseroles are also attested. Contrarily, vessels produced in fabric 4.4, produced with the slow wheel, are limited to ovoid thick-walled jars with collared rims. Comparatively, imported coarse wares (fabrics 2.2 and 2.3) show a much finer and standardised production, with fine wheel marks and wire-cut bases. Even in this case, the shapes are restricted to a series of variations of the ovoid jar, often with a strap handle attached directly to the rim. Fabric 2.3 vessels normally have a collared rim, which instead is not common in fabric 2.2 pots[104]. The ovoid cooking jars are the most common shape also in the recent excavations in the monastic kitchens[105] and at bridge over the Volturno[106]. Here, however, *clibani* – baking covers – with high domes and strap handles are attested in considerable quantities too, together with large basins with inwards rims[107].

Early medieval coarse wares from the UVB have been recovered both at Vaccherecia, a medieval site on the southern edge of the Rocchetta Plain, and at Colle Castellano, an hilltop settlement overlooking the Valle Porcina. At Vaccherecia five different fabrics compose the coarse ware assemblage, amongst which fabric A and E seems the most likely to be dated to a pre-10th century phase[108]. While fabric E is composed almost exclusively by handmade vessels whose forms cannot be reconstructed, forms of fabric A vessels are mainly cooking pots and pitchers with tall everted rims, either thickened or plain, mostly with sagging bases. Handles are normally of the strap-type. Open shapes such as bowls were also attested, but only in sporadic fragments. Two fragments interpreted as foot-ring bases were likely part of *clibani*[109]. At Colle Castellano four different fabrics characterised the coarse ceramics, but one was majoritarian. The most common shapes were, as usual, jars and pitchers with everted rims, mostly plain, but sometimes slightly thickened or rounded, and handles always of the strap type. Even in Colle Castellano bowls and open shapes are rare, while *clibani* have been identified in two different types[110]. The rough and coarse material from these sites, mostly local, has been contrasted with the better quality of the kitchen wares at san Vincenzo, suggesting that the ceramics circulating in the monastic environment were not available to the neighbouring peasant communities[111]. Nonetheless, rural coarse wares share the same ranges of forms and in the same ratios, indicating the participation to the same cultural milieu.

103 Patterson 2001 p. 299; Patterson 2004b p. 255
104 Patterson 2001 pp. 310–311; Patterson 2004b pp. 254–255
105 Marazzi, Gobbi 2007 pp. 50–51
106 Marazzi, Di Cosmo 2015 pp. 166–167
107 Marazzi, Di Cosmo 2015 pp. 167–168
108 cfr. Chap. 6 par. 5
109 Hodges, Wickham, Nowakowski, et al. 1984 pp. 166–167
110 Hodges, Clark, Coccia, et al. 2006 pp. 212–213
111 Hodges 2006c pp. 309–310; Patterson 2004b p. 256

4.6 The material of the SVV and the CLP projects

This rather long description of the material circulating in the Italian peninsula in the 1st millennium AD is necessary to correctly place the description of the ceramic material found in the UVB. The study of the ceramics collected in the CLP material was carried out in July-August 2016, with the help of Leiden University team, directed by dr. Tesse Stek. In March 2017 the material of the SVV survey was studied in the Soprintendenza storerooms of Castel San Vincenzo (IS). Survey material is known for its extreme fragmentary nature and the assemblages of the two projects made no exception. The result is that, especially when settlements have a long occupation phases, some fragments do not find a clear chronological setting, though some interesting patterns are visible.

4.6.1 Late antique ceramics

In total, 111 ARS fragments (in 25 sites) were recovered during the campaigns of the CLP project, of which 43 fragments (ca. 40%) did not have any feature that could help specify their chronology. Fabric

A is well attested (33 frr.). The earliest shapes date to the first half of the 2nd century AD (H3c; H9b), but the most common vessel of this early period is the form H8, in both variants A and B, with 14 fragments from nine different topographical contexts. Only 8 fragments could be attributed with certainty to fabric C, of which two rims are of the form H50B. Fabric D (60 frr.), is the most common African fabric and, as common in the Italian peninsula, the form H61 is the most attested shape (11 frr.). Quite common are also the shapes H91A and B (5 frr.) and H99A (3 frr.), which both date to the 5th-early 6th century AD, indicating that imports continued to reach the *ager Aeserninus* until a relatively late period. One fragment can be attributed to a "Vandalic" style lamp, finding references with vessels from Rome and Apulia[112].

Compared to the size of the CLP's ARS assemblage, the 33 fragments (at 11 sites) collected during the 1980-81 campaigns by the British team are a rather scarce number, but it probably the outcome of a less intensive collection method than that of the CLP project[113]. Amongst the ARS fragments, only 16 were diagnostics and could be related to specific shapes[114]. The resurvey of some late antique sites, carried out in August 2017, added only 4 new ARS fragments, of which none was diagnostic. However small, the assemblage from the eastern UVB is extremely various and it has characters resembling closely the CLP assemblage. Half of the assemblage is composed by fragments dating to the 2nd-3rd century AD (H3, H6b, H7, H8, H9, H14), while the other half dates to the end of the 4th-early 6th century (H61, H91). Of all the shapes, the most common are H61 and H91 (both with three sherds each), dating to the 5th- 6th century, and all retrieved in rather peripheral locations. When compared to the absence of African imports dated to the late 3rd-early 4th century, the presence of these late ARS fragments seems to suggest that in the 5th century the settlements in the Upper Volturno Valley were not as 'disconnected' as previously suggested[115], at least not more severely than other regions of the Central Apennines. Alongside ARS vessels, African cooking pots were also imported in the UVB. In the CLP assemblage, 14 fragments were attributed to African cooking pots, almost exclusively composed by casseroles H197. In the SVP assemblage only two fragments were attributed an African provenance thanks to comparisons with finds from Venafro's theatre[116]. Finally, a group of sherds shows strong similitude with the Aegean ware found at San Giacomo degli Schiavoni[117] and in Neaples[118].

As elsewhere in Southern Italy, there is evidence both in the CLP and in the SVP assemblages for the circulation of vessels imitating African imports, both in shapes and in surface treatments. As elsewhere in Italy, H61 was possibly the most imitated form and in the fragments occurred in the UVB is characterised by a rather a reduced diameter (ca. 20 cm) alongside to a brownish fabric with many inclusions and, in one case, by an incised line below the rim on the interior wall. Imitations of early shapes as H8 and H9 are attested almost exclusively in the CLP assemblage[119]. In the SVP material one fragment with light brown surface and grey core was identified as an imitation of H99, but could also be a local version of the most common H61[120]. If all these fragments do not show any slip or smoothing of the surface, it is worth mentioning three fragments of burnished ware, or *stralucido*, two found at site A121 and one at S117[121]. These fragments pertain to open vessels, most likely bowls, burnished with a stick on the interior surface before the cooking process. The fragments found in the CLP have very close similitude with some products of central and coastal Abruzzo[122]. The quality of the S117 fragment is rather low, with a burned part (*Plate IX*), and differentiates clearly from the fragments found in the CLP. Concerning late antique fine wares, it is rather important to notice the almost complete absence of RPW fragments certainly dated to the late antique period[123]. A notable exception is the presence of a high-quality vessel with an elaborated rim in the same

112 Arthur, Patterson 1998 p. 525 fig. 8.11; Ceci 1992 p. 760 tav. IX
113 Cfr. chap. 3 par. 2
114 Appendix I.
115 Bowes 2006 p. 291
116 Cappelletti 1986
117 Albarella, Ceglia, Roberts 1993 p. 181, fig. 11
118 Carsana, Del Vecchio 2010 p. 469, fig. 7 n.46
119 one fragment found also in the 2017 resurvey of A148: Appendix IV, A148, U1057 b.02 n.02
120 Appendix III, S134, n.01
121 A121 no numb.; S117 n. 4.
122 Siena, Verrocchio, Troiano 1998
123 Despite the presence of a characteristic RPW class in the nearby town of Venafro, cfr. Genito 1998

style of those found in Lucania[124].

Unsurprisingly, coarse wares found in the UVB have many similitude with Campanian and Apulian contexts. Jars and jugs with specifically late antique traits are not uncommon[125], but their recognition is definitely limited by the fragmentary nature of the material which often lead to uncertainties to the chronological attribution of the most generic shapes. More recognisable are the casseroles with straight walls and the rim thickened on the exterior[126], that find good comparisons in Herdonia[127] and Posta Crusta[128], but also with Campanian vessels in *Alifae*[129] and chronologically set in a period between the 4th and the 6th century AD. Similar basins with raised rims[130] are also common and find parallels in Apulia[131] as much as in Campania[132]. Interesting is also the rather widespread presence of vessels with folded rims similar to the tapered basins excavated in the northern Adriatic coast and dated to the 6th-7th century[133]. A typical late antique shape is also the small table amphora with *a fascia* rims[134], closely comparable to flasks circulating in Campania[135], in one case finds exact parallels in Rome[136] and in another example reminds of RPW bottles from Apulia[137]. Flanged basins – or *vasi a listello* – are also attested in the area[138], with clear connection with shapes found at San Vincenzo al Volturno[139], Neaples[140] and Apulia[141]. Kitchenwares are quite similar to those found in Campanian contexts. A cooking pot from A227 with triangular everted rim is extremely similar to cooking pots found in the Neapolitan harbour and produced locally[142]. A casserole of the 4th-5th century with exact reference from Neaples[143] was also identified.

In general, the features of the late antique pottery collected throughout the UVB does not differentiate strongly from the trends observed in other internal regions of Central Italy, with a rather early disappearance of ARS imports in the 6th century, but a still wide range of coarse vessels produced industrially or, at least, by specialised artisans. Probably the most striking feature of the late antique assemblage is the almost complete absence of RPW, but it is uncertain whether some of the flasks were painted or not. There is a clear dependence, if not commercial at least stylistic, with the Campanian material culture, testified by the many references to Neapolitan ceramics. Yet, the presence of Aegean cooking pots, of a basin with elaborated rim and of good comparability with some Ordona vessels indicate that the sources of ceramics until the 7th century were extremely variegated.

4.6.1 Early medieval ceramics

As normal in survey archaeology, early medieval ceramics are rarer than late antique ones. In the CLP assemblage, only 31 fragments of RPW have been found, of which more than a quarter is surely datable after the 1000 AD, and 10 coarse ware fragments are probably early medieval. However little the assemblage, it is highly informative. A138-La Romana, an hilltop site north of Isernia showed evidence of a clear early medieval phase, possibly starting in the late 8th century, but certainly established in the 9th century (*Fig. 6.7*). Alongside a great quantity of RPW, early medieval coarse wares (9th- 11th century) were also retrieved. Of early medieval reminiscences is the fragment of a basin with inverted rim, that finds comparisons in 9th century layers at San Vincenzo al Volturno[144] and in end-6th/early 7th century layers in Carminiello ai Mannesi[145]. Quite common are jugs or pitchers with strap handles attached directly to the rim, similar to vessels identified of San Vincenzo, Vaccherecia and

124 A216, n.3; cfr. Di Giuseppe 1998, fig. 5
125 eg. Appendix III S040 n.01
126 Appendix III S133 b.01 n.04; S157 n.03
127 Annese 2000 p. 323, tav. XVIII type 9.13
128 Leone 2000 p. 417, tav. XII type 5.1-8
129 Marazzi, Di Cosmo, Salamida, et al. 2010 p. 505, fig. 5 n.7
130 Appendix III S133 b01 n.08; S194 n.04
131 Annese 2000 p. 326, tav. XXI n. 23.4
132 Arthur 1994b p. 195, figs 88 type 64.2-3
133 from SVP: Appendix III S133 b.01 n.10; S147 n.08. From CLP: A119 n.64, 75; A224 n.16, A232 n. 34, A246 n. 21, 26, 27, 31, 41; Cirelli 2015 p. 32, fig. 2
134 Appendix III S146 n.02
135 A203 n.72, A204 n.6, A205 n.41; Carsana, Del Vecchio 2010 p. 470, fig. 8 nn. 67–68; Marazzi, Di Cosmo, Salamida, et al. 2010 p. 502, fig. 2 n.8
136 A205 n. 56; Bertoldi – Pacetti 2010 p. 445, fig. 9 type 4A
137 A138 n. 56; Annese 2000, 310, tav. X type 24.1
138 Appendix III S135 n.02
139 A203 n. 75; Patterson 2001, fig. 10:33
140 Arthur 1994b p. 188, fig. 83 nn. 26–32
141 Leone 2000 p. 409, tav. VIII type 4.1
142 A227 n. 5; Carsana, Del Vecchio 2010 p. 469, fig. 7 nn. 34, 37
143 A205 n. 39; Carsana 1994 p. 235, n. 28.3
144 A138 n.65; Patterson 2001 fig. 10:46
145 Carsana 1994, 227, fig. 106 nn. 5.2-4

Colle Castellano. Two fragments of *clibanus* with strap handle and triangular flange show similitudes with late 8th to 9th century vessels from the *Crypta Balbi* in Rome[146], but especially with 9th century exemplars from San Vincenzo's kitchens[147]. At site A109, a fragment of a jug with S-shaped neck and triangular rim finds close comparisons mid-9th century jars from San Vincenzo[148] but also with 8th-10th century jugs from Northern Latium[149], suggesting a long-lasting occupation at this site. Point-sampling activity on the hill of La Ginestra (*Fig. 3.7*) lead to the discovery of a new early medieval site with strong evidence of metal production at the site[150]. A large piece of RPW jug with possibly a sagging base finds comparison for the wavy painted decoration with an 8th century jug from Naples and for the size with the globular jars from the same site[151]. However, the quality of the vessel and the comparability of its fabric with local productions of San Vincenzo[152] does not seem to suggest an extra-regional provenance. A fragment of a wheel made vessel with sagging base was recovered also in the valley floor site below La Ginestra (*Plate VIII*), indicating that also the lower settlement continued being frequented also at a rather late period. At A232 a basin with round thickened inward rim resembles closely RPW fragments from 9th century layers from San Vincenzo[153].

In the SVP assemblage, contrarily to the evidence from the CLP project, no early medieval RPW was found. However, at the hilltop settlement of Le Mura-Mennella (S140) fragments of a coarse ware with traces of external burning have been found, amongst which one rim that is extremely similar to that found at A109 and with the same references (*Plate X*), and especially the mid- 9th century cooking pots "Form 1c" from the kitchens of the San Vincenzo monastery[154]. A similar fragment in a different fabric has been found at site S090-*Vadum Porcinum*, where one coarse ware basin is clearly the same as a late 8th-early 9th vessel from San Vincenzo[155]. In the survey of 2017, one fragment of Forum Ware was found on the fields at the foot of the hill of Colle Castellano (*Plate XI*). The fragment, possibly washed down from the hillslope, is a small portion of an applique and has a green glaze and a reddish coarse fabric. These characteristics allow to date it between the 9th and the 11th century, but comparisons are rather broad due to the small portion preserved. This is the first fragment of Forum Ware found by fieldwalking in the area.

Overall, the early medieval assemblage from the area is much richer than what expected from previous research in the area. Especially the ceramics collected during the SVP in the 1980s revealed material that was not originally recognised, because references were still lacking. Most importantly, the basin from S090 is extremely meaningful, because, together with the basin in A232, it shows that coarse wares used in the monastery were circulating in the countryside too, even though in small quantities. The absence of RPW in the SVP assemblage is mainly to be attributed to collection methods, as excavations both at Colle Castellano and at Vaccherecia revealed great quantities of this ware. More meaningful is the absence of Forum Ware from the material collected in the CLP, both in the fieldwalking seasons and in the point sampled hilltops. It has been once suggested that Forum Ware was circulating exclusively in church possessions[156], and this seems to hold true for the UVB. The evidence for early medieval coarse wares is still extremely variegated and based on scarce evidence, but the consistency of shapes showed in the excavations of Vaccherecia and Colle Castellano is confirmed in the point-sampling activity from Colle la Ginestra and La Romana as much as from the sporadic findings at Le Mura-Mennella and *Vadum Porcinum*.

146 A138 n.64, n.68; Ricci 1998 p. 38 fig. 3.10
147 Marazzi – Di Cosmo 2015, p. 166, fig. 1 forma 30
148 A109 n.19; Marazzi, Di Cosmo 2015 p. 166, fig. 1 forma 1C
149 Stasolla 1998 p. 75 fig.14
150 Cfr. chap. 3 par. 2.3
151 Appendix IV A148b U4003 POI03 n.01; Carsana 2009 pp. 142–145
152 Patterson 2001 figg. 10:42-45
153 A232 n.04; Patterson 2001 figg. 10:102-114
154 Marazzi, Di Cosmo 2015 p. 166 fig. 1
155 Appendix III, S090 n. 10; Patterson 2004b p. 260 fig. 2.2
156 Molinari 2017 pp. 278–279

5. Land suitability and agrarian production

The decline in number of rural sites characterising the 1st millennium AD has led to conflicting economic readings. The observations on the results of the earliest survey projects carried out in Italy stressed the negative economic effects of the demographic decline. Large tracts of land were deserted, leading to a drop in agrarian output, which in turn triggered a restriction of exchange horizons[1]. Since the mid-1980s, with new archaeological discoveries and a changed perception of the transition to the post-Roman period, this view started being challenged. Slowly, the idea that the evolution of the rural settlement pattern varied regionally found a wider support, with areas in which Roman agrarian structures lasted longer than previously thought[2]. Thus, the transition to the early medieval period started receiving much more nuanced evaluations, considering even the positive effects that the demographic decline may have had on peasant's quality of life[3].

A shared problem of both scenarios, with few notable exceptions, is a slight detachment from direct agricultural evidence. In fact, while making assumptions on agrarian performance, several studies structured their hypothesis around demographic trends and property rights. The nature of primary sources certainly helped creating this tendency: archaeology revealed settlement patterns, while documents informed mainly on the organisation of agrarian properties[4]. Land use and exploitation intensity needed to be extrapolated from these elements, often with contrasting estimates[5]. Despite the strong debate on the fate of agrarian economy in the post-Roman period, an archaeological perspective providing a more direct access to ancient land exploitation is yet to be reached.

Traditionally, prehistoric archaeology has been more keen on experimenting new approaches to ancient agrarian practices, because of the lack of written sources and higher difficulty of retrieving archaeological traces[6]. Such approaches are recently being applied also to Roman agriculture[7], but still with a marginal contribute to the academic debate. With the aim of narrowing the gap between archaeological data and agrarian history, this chapter uses these models to identify the effects of long-term agrarian changes starting from land, the main

1 Jones 1966 p. 343; Grigg 1974 p. 135
2 Francovich, Hodges 2003 p. 36–43
3 Hodges 1982b p. 138; Wickham 1988b pp. 120–124
4 Costambeys 2009 pp. 93–95
5 cfr. Bowman, Wilson 2013 p. 8
6 Hunt, Malone, Sevink, et al. 1990; Kamermans 2000; van Joolen 2003; Verhagen, Gili, Micó, et al. 2007
7 Goodchild 2013; Goodchild 2009; Fernández 2016

discriminant of ancient wealth[8]. Thus, the first step will be investigating the potential agrarian output of the UVB by using Land Suitability Analysis (LSA)[9]. Following, it will be considered which land types were more readily accessible to the rural population with the settlement patterns described in Chapter 3. Such step establishes a link between demographic distribution and environment that enables a comparison of land exploitation methods throughout the 1st millennium AD and, therefore, to make evaluations on the organisation of agrarian economy.

8 Finley 1973 p. 97; Hopkins 1978 p. 7–8; McCormick 2001 p. 31

9 FAO 1976 p. 21–56; Malczewski 2004 pp. 4–5

5.1 Agrarian change between Late Antiquity and Early Middle Ages

Summing up the agrarian changes occurred in the Italian peninsula between 400 and 1000 AD is not an easy task, as late antique and early medieval rural societies differed greatly and so does the quality of the evidence on these periods. Moreover, divergent views exist on key issues, which does complicate the matter. To give an idea, Wickham's *Framing the Early Middle Ages* spends more than 200 pages reviewing the evidence on the late antique and early medieval peasants and such impressive work was just the «springboard» for further in-depth studies[10]. Therefore, this section will be limited in explaining how agrarian changes have been included in debates regarding the economic history of Europe and, more specifically, peninsular Italy. To do so in a coherent manner, the debate is here simplified in two alternative lines of thought: the first stresses the negative effects of economic contraction on agrarian productivity, eventually leading the rural population to unprecedented levels of poverty. The other builds a cause-effect link between the imperial economic breakdown and the peasants' freedom from the oppressing power of State and landowners, generating an increase in population equality[11].

The oldest interpretation of the transition from Roman to Medieval agrarian economy is one that envisages a regression to a natural economy after the 5th century AD[12]. Influenced by the modernist views of Rostovtzeff, this conceptual framework interprets the Roman agrarian economy as a capitalist system of production based on slave labour and intensive agriculture and aiming at creating surplus for market exchange[13]. The «slave mode of production» was a typical feature of the Roman economy between the 2nd century BC and 2nd century AD, and it was strictly embedded in the political history of the Empire[14]. According to this scenario, an increase in *per capita* production and consumption would have taken place affecting all the strata of population, with consequent better life standards[15]. Advocating for the exceptionality of the Roman economic system, this view rejects the possibility of a seamless continuity with chronologically proximal periods, and later economic developments are inevitably interpreted as steps backwards in the direction of a closed economy in which the integration of the Roman economy could not be reproduced[16].

The output of archaeological surveys had a strong impact on this modernist reading of the Roman economy. In fact, the growth in settlement number until the beginning of the 2nd century AD and the subsequent dramatic fall that many surveys uncovered throughout the Italian peninsula were used to confirm the strong qualitative differentiation between Roman and post-Roman agrarian performances[17]. Reduction in site numbers was often interpreted as evidence of a widespread rural demographic decline[18]. The negative economic meaning of such trend was taken

10 Wickham 2005 pp. 383–588; Costambeys 2009; Banaji 2009; Sarris 2009

11 Such dichotomy is a product of generalisation, opinions are often much more nuanced and boundaries between the two strands are more blurred than expressed here. For clarity's sake, I preferred a general outlook to a detailed description. The interested reader can refer to the cited bibliography for in-depth discussions of the topic.

12 van Bath 1963 p. 30; Bandow 2013 p. 16

13 Bowman, Wilson 2013 p. 6; Corbier 1982 pp. 438–441

14 Lewit 1991 p. 4–11; Carandini 1982 pp. 251–252

15 Jongman 2007 p. 186; Scheidel 2012

16 Ward-Perkins 2005a pp. 117–121; 136–137; Bowes 2013 pp. 191–192; Carandini 1982 p. 249

17 Arthur 2004 p. 104; Ikeguchi 2004

18 Potter 1979 pp. 143–145; Duncan-Jones 2004 pp. 49–50; McCormick 2001 pp. 31–33

at face value: lower rural population numbers led to a less extensive land exploitation that, finally, would have produced less surplus available for market exchange[19]. Triggered by the Antonine plague, the initial demographic decline started a vicious cycle that created an almost deserted Italian countryside in the 7th century AD[20]. Finally, the disappearance of any trans-regional ceramic product suggests that early medieval rural settlements stopped being part of an integrated exchange network, therefore adapting their agrarian production to subsistence strategies with limited exchange with neighbouring communities.

Demographic decline led also to a change of the economic relationships linking the different strata of rural agents. The first step towards a new social organisation was undertaken with the emperor Diocletian (284-305). To limit the loss of fiscal revenue caused by the growing amount of abandoned land, a series of imperial decrees tied tenants (*coloni*) and their offspring to the land they worked and the collection of fiscal revenues became a duty of the landlords[21]. Moreover, taxes were increasingly paid in kind, rather than in money, to circumvent the detrimental effects of inflation[22]. These new obligations strongly restricted the freedom of rural workers and worsened their economic and social standing[23], and eventually had a negative effect on the efficiency of land exploitation too. According to many scholars, the binding of *coloni* to the land marked the transition from the Roman «slave mode of production» to the «feudal mode of production», as it created a subordinating bond between farmer and landlord that in many ways anticipated that of medieval serfdom[24].

Since the 1980s, a more optimistic vision on the transition started to permeate the academic debate[25]. This new approach stemmed from a general discontent with earlier readings on late antique and early medieval economic evidence and aimed at proposing a more nuanced image of the post-Roman change. On the one hand, this new branch of research found fundamental support in the appearance of numerous archaeological projects reserving a special attention to late- and post-Roman phases. On the other, it adopted a 'primitivist' outlook, according to which pre-industrial economies distinguished themselves for quantitative aspects, rather than qualitative[26]. Accordingly, Roman and post-Roman production systems had quantitatively different outputs, but their aims and exchange systems followed the same primitive rules. Such revisions found fundamental support in new works on the ancient economy adopting a multi-scalar approach to the imperial economy. Despite critiques, the impact of Horden and Purcell's *The Corrupting Sea* has been fundamental for introducing a new conceptualisation of the imperial economic network, envisaged not as a fixed complex of long-distance connections, but as a contingent system of small-scale exchanges[27]. Along the same lines, Peter Bang doubted the ability of the Roman Empire to integrate economically the whole territory under its control, and characterized imperial trade and society as a multi-layered system where social networks constituted the main channels of exchange (a «bazaar»)[28].

As the conceptualisation of the Roman economy saw a reappraisal of its local aspect, the approach to the post-Roman archaeological data changed accordingly. For example, the evidence of the reoccupation of villa structures, previously interpreted negatively as 'squatter' peasants' activity within abandoned élite residences, was now reinterpreted as outcome of a 'cultural revolution' within the élite, that after the 5th-6th century attributed little importance to architectural lavishness[29]. Alexandra Chavarria Arnau recognised various types of reuse of villas in the Iberian Peninsula and showed how, in a first phase (3rd century AD), reuses were mainly functional and part of a process of assimilation of smaller settlements within larger productive units. Subsequently, in concomitance with the Visigothic occupation of the peninsula (mid-5th century AD), villas reuse constituted mainly of funerary or religious functions, identifying a different conceptualisation of landscape occupation and of habitational structures[30]. The settlement patterns

19 Jongman 2007 p. 197
20 Giardina 2007 pp. 757–759; Harper 2017 pp. 113–118; McCormick 2015 p. 326; Duncan-Jones 1996 pp. 120–124
21 Wickham 2005 pp. 520–521; Jones 1958
22 Hopkins 1980 pp. 123–124
23 Jones 1964 pp. 795–796
24 Stevens 1966 p. 122; Lo Cascio 1997 pp. 15–18
25 Chavarría Arnau, Lewit 2004 pp. 3–4
26 seminal for 'primitivists' views is Finley 1973
27 Horden, Purcell 2000
28 Bang 2006 pp. 79–84
29 Lewit 2003
30 Chavarría Arnau 2004

Italian peninsula followed a parallel revaluation, based on the idea of a long survival of the Roman agrarian system and a subsequent relocation of population centres after the Lombard invasion, but in which no complete abandonment is ever occurred[31].

Despite the growing interest in late- and post-Roman phases, it needs to be noted a limited contribution of survey archaeology to this revisionist account[32]. The attempts to review earlier interpretations of survey data focused on the problems of «differential visibility» discussed above[33], and yet only few projects could upturn previous interpretations of the archaeological data[34], while many other dedicated projects failed in their attempt[35]. Recently, reflection on these failures generated a certain distrust in the reliability of survey archaeology amongst supporters of a continuitist perspective[36]. Despite the weak contribution of survey archaeology, 'revisionist' scholars produced a coherent model for the post-Roman agriculture. The starting argument was that, while Roman and medieval agriculture were both based on forced labour (either by slave or serfs) and on the profit-minded aims of landlords, in the period between the 4th and the early 9th century agricultural practices were organised around the needs and aims of free peasantry[37]. While acknowledging the low productivity rates of post-Roman agriculture, the lower control from landlords led to a rather positive account on the conditions of early medieval peasants[38]. Free from aristocratic pressure, early medieval peasants structured their productive aims around a «want not, lack not» approach, similar to that of prehistoric communities: they focused only on creating the premises for subsistence, thus working less and in better conditions than their Roman forerunners[39]. Within the framework of this 'revisionist' perspective was created the *modello Toscano* in the early 2000s. Based prominently on the archaeological research of the University of Siena, this model envisaged the demise of the Roman settlement pattern in the 6th century, with the rural population aggregating in small hilltop villages without internal hierarchies. The economy of these villages aimed almost exclusively at fulfilling the requirements of internal subsistence, therefore based on self-sufficiency and few unstable exchanges with other communities. Only in the 9th century appeared the first traces of social stratification within these settlements, finalised in the 10th century with the construction of stone-built castles[40]. Mainly based on hilltop evidence, this model is now being integrated with new research in the coastal area, which is revealing a mixed occupation of hilltops and plains until the 8th century, and the possible interference of the Carolingian state in the creation of rural hierarchies in the late 9th century[41].

The two research strands show a divergent approach on the effects that institutions have on agrarian economy and peasant living conditions. Supporter of the first strand believe that the bigger market area of large geopolitical formations stimulated an increase of agrarian production. Growth in aggregate wealth meant also an increase in *per capita* wealth, allowing the access to a wider range of products and services to a larger section of the population. In such scenario, political fragmentation and the loss of social stratification would lower the efficiency of the economic system, hindering peasant participation to market exchange. In this context, peasants endured, rather than chose, the restructuring of the agrarian production on subsistence strategies. 'Revisionists' accept the eventuality of a greater aggregate wealth in large geopolitical units, but refuse its influence on the production function and, thus, that the lower social strata enjoyed the effects of overall economic growth. In this perspective, hierarchical organisations are perceived as a burden for peasantry, because the obligations of aristocratic exchange detract resources from the peasantry, without redistributing its revenues.

The contribute of survey data to this debate has been unfairly weakened by the contempt on the several methodological issues encountered when this new approach was still being instituted as an autonomous field of research. The recent improvement of survey methodologies and the combination with other non-invasive research methods makes survey results much

31 Arthur 2004 pp. 123–126
32 McCormick 2001 pp. 31–33
33 cfr. chapter 3
34 Volpe 2005
35 Moreland 2005; Hodges 2006c
36 Bowden, Lavan 2004 p. xxii; Chavarría Arnau, Lewit 2004 pp. 5–6; Corsi 2016 p. 337
37 Wickham 2005 p. 259–265
38 Hodges 1982b
39 Hodges 2012 p. 42; Wickham 2005 p. 536–538
40 Francovich 2004; Valenti 2014 pp. 130–131; Hodges 2019 p. 14
41 Bianchi 2015; Bianchi, Collavini 2019

more reliable than in earlier years[42], therefore it is suggested that a 'return' to a landscape approach could provide fundamental contributions to the debate. Specifically, changes in production intensity and aims would leave a distinctive mark in the way the land was settled and in how access to resources was prioritised and researched. In this regard, it is meaningful to analyse the fundamental role that Settlement Catchment Analysis (SCA) had in distinguishing the economic choices of prehistoric and pre-Columbian societies[43]. In the following pages, we will apply SCA to the Roman and post-Roman UVB in order to trace the history of peasants' economic choices in the 1st millennium AD. This will then be compared to the scenarios proposed by 'classic' or 'revisionist' accounts on the post-Roman agrarian economy.

42 Cfr. chapter 3

43 Vita-Finzi, Higgs 1970; Zarky 1976

5.2 Approaching land productivity from survey data

To approach ancient agrarian production archaeologically, it is foremost necessary to embed the settlement patterns described in Chapter 3 within their territory. A methodology that received large attention amongst archaeologists has been SCA[44], which since the integration of geo-informatics in archaeological research underwent great improvements[45].

Largely indebted to von Thünen's location theory[46], SCA envisages in rural settlements the centre of a surrounding territory regularly exploited to gather primary resources and to perform economic activities[47]. This approach is based on a series of ethnological observations suggesting that human communities do not exploit the landscape evenly, but focus mostly on the direct hinterland of their home-base[48]. This behaviour pertains to both hunter-gatherers and farming communities[49]. Resources can vary in their ubiquity and in their nutrient value, creating a «hierarchy of importance of resources» which directly affects the distance travelled (and the effort spent) to gather each resource[50]. For example, the constant need of water, brought both the !Kung and the Aborigines to set their base-camps at a close distance with waterholes[51]. On the contrary, the occasional gathering of special resources in Mesoamerica was obtained through the creation of temporary annexes to a main settlement, which allowed seasonally broadening the catchment area[52].

Already in their seminal study, Vita-Finzi and Higgs stressed how the results of SCA relied on two features: the extension of the exploited areas and the possible land use[53]. In most cases, these elements cannot be determined directly from the archaeological record and depend heavily on modern assumptions on ancient human behaviours. Accordingly, it is not surprising to discover that the use of SCA shows a strong variety of approaches and results. Especially, with the integration of new geoinfomatic capabilities, the calculation of site catchments became more precise and the identification of the available resources less dependent on modern maps.

The debate on the determination of catchment boundaries anticipated the creation of SCA. Already in von Thünen's concentric land use was based on the assumption that land exploitation beyond a certain distance would not be profitable[54]. In order to define the limits of this «economic area»[55], archaeologists made large use of ethnographical accounts on historical primitive communities and, therefore, mainly concerned with hunters and gatherers. Maybe the most cited work is Richard Lee's research on the !Kung Bushmen in Southern Africa, in which it was observed that the community would not travel more than 6 miles (ca. 10 km) from their base camp to hunt or gather[56]. Similarly, in a landscape poor of natural

44 for an early evaluation of SCA cfr. Roper 1979
45 Hunt 1992; Ullah 2011; Surface-Evans 2012
46 Roper 1979 p. 122; Clarke 1978 p. 125; Hodder, Orton 1976 pp. 229–230
47 Flannery 1976a p. 91; Roper 1979 p. 120
48 Vita-Finzi, Higgs 1970 p. 7
49 Barker 1985 p. 25
50 Roper 1979 p. 121; Jochim 1981 pp. 38–39; Flannery 1976b pp. 107–109
51 Gould 1969 pp. 265–267; Lee 1968 p. 31
52 Flannery 1976a p. 94; Flannery 1976b p. 111
53 Vita-Finzi, Higgs 1970 pp. 7–8
54 Palme, Musil 2012 pp. 40–46
55 Butzer 1972 pp. 401–403
56 Lee 1968 p. 31

resources and with restricted storage capabilities, the Aborigines of the Western Desert in Australia gathered their daily resources in a range within 5 to 10 miles (8-16 km)[57]. Less attention has been dedicated to farming societies and, to this day, the only ethnographical source available is Chisholm's *Rural Settlement and Land Use*[58]. Quoting a vast number of ethnographic observations across Europe and from other areas of the World, the author concludes that, despite a strong variability, farms and cultivated fields are normally not more than 1 kilometre away from each other[59]. From this data, Vita-Finzi and Higgs derived that economic profitable areas had a 10 km radius in the case of mobile economies and a 5 km radius for sedentary communities[60]. The authors were aware of the hindering constituted by geomorphology and believed that catchments should be represented by walking-time areas rather than by concentric circular rings. Therefore, it was suggested to determine settlement catchments through ground control methods[61] and the two limits for nomadic and sedentary communities were respectively changed to 2-hours and 1-hour walking distances[62]. Ground control to determine settlement catchment revealed highly unpractical, especially when dealing with large amounts of sites, and thus led to a widespread use of circular or polygonal catchments[63].

Eventually, the introduction of GIS in archaeology offered an accessible way to integrate the topographical determination of site catchments in archaeological analysis[64]. Site territories could now be defined using Least Cost Analysis, a geoinformatic tool allowing the calculation of time-costs for moving through space[65]. Today, a number of software applications are available to calculate 'cost-catchments' following different algorithms and the current debate focuses on finding the most reliable software[66]. Sarah Surface-Evans created cost catchments based on two different algorithms, one based on slope ("built-in ESRI function") the other on walking times (Tobler's "hiking function"), and compared their results with 'traditional' 5-km-radius catchments and ground-checking, concluding that the built-in algorithm would offer the most accurate results of real possible movements[67]. Isaac Ullah[68] developed his own GRASS add-on (*r.catchment*) to calculate the cost catchment of herders and farmers in different areas of the Mediterranean. The add-on creates anisotropic cost surfaces following Naismith's rules as corrected by Langmuir[69]:

(1)

$$T = (A \cdot \Delta x) + (B \cdot \Delta z) + (C \cdot \Delta z_{d1}) + (D \cdot \Delta z_{d2})$$

where A is the time (s) to walk one metre on a flat surface; B is the time penalty gained when ascending on slopes (>5%); C is the time gained when descending on gentle slopes (5%-12%); D is the time penalty for descending on steep slopes (>12%); Δx, Δz Δz_{d1}, Δz_{d2}, are the cumulative distances walked respectively on flat land, ascending, descending gentle slopes and descending steep slopes. A recognised limit of this formula is its linearity between breakpoints[70], but it does offer the possibility to apply manually other impediments to the topographical cost surface, as the presence of rivers or woodland[71]. According to Irmela Herzog[72], the Tobler's cost function can be represented as:

(2)

$$V(s) = 6e^{-3.5|s+0{,}05|}$$

where V is the velocity and s is the slope expressed in slope in degrees divided by 100. Such equation would provide more accurate results than Langmuir's expression, even though some factors (as in the case of slope units) can be easily mistaken and lead to incorrect results[73].

David White[74], developing Herzog's formula, recently proposed a new version of Tobler's function:

(3a)

$$T = \frac{\frac{R}{1000}}{6e^{-3.5|\tan\left(\frac{D\cdot\pi}{180}\right)+0{,}05|}}$$

57 Gould 1969 p. 266
58 Chisholm 1968
59 Chisholm 1968 pp. 50–53
60 Higgs, Vita-Finzi 1972 p. 31
61 Higgs 1975
62 Vita-Finzi, Higgs 1970 p. 7
63 Rossmann 1976; Steponaitis 1981; Hastorf 1980
64 Ullah 2011 p. 624; Arroyo 2009 pp. 29–31
65 Surface-Evans 2012 pp. 139–141
66 Herzog 2014
67 Surface-Evans 2012 pp. 145–146
68 Ullah 2011
69 Langmuir 1984
70 Herzog 2013 p. 377
71 Ullah 2011 pp. 626–627
72 Herzog 2013 p. 376
73 Herzog 2014 p. 232
74 White 2015 p. 409

where *T* is the time expressed in hours; *R* is the resolution of the Digital Elevation Model (DEM) and *D* is slope in degrees. With respect to the original Tobler's cost function, the slope in White's formula is expressed in degrees and its outcome expresses time, rather than velocity. This allows an easier implementation of this formula in its application to SCA.

Alongside the definition of catchment boundaries, SCA is extremely dependent on the identification of available resources. Originally, it was common to use contemporary maps to abstract ancient agricultural use. In their seminal paper, even though aware of the possible pitfalls of equating the modern situation with prehistoric agricultural landscape, Vita-Finzi and Higgs used modern land-use maps to make assumptions on the ancient patterns of rural exploitation[75]. To avoid such bias, later research adopted modern geological maps as a proxy for agricultural suitability[76]. Nonetheless, both approaches start from the postulation that ancient landscapes were closely comparable to modern landscapes and that ancient perception of landscape properties were complete. This is, of course, not always the case and needs to be demonstrated rather than assumed[77].

Since the 1990s, once again thanks to the spreading of the use of GIS in archaeology, a more careful technique has appeared to reconstruct ancient land use or, more precisely, the ancient perception of land suitability. This is based on Land Suitability Analysis (LSA), a modern landscape-planning tool used to estimate the best land use patterns[78]. The application of LSA encompasses the conversion of sets of geographical information (either 'hard' or 'soft') into values based on predetermined criteria. The sum of the various levels will define the suitability of land for a specific use[79]. In agriculture, land suitability is computed from the biological requirements of specific crops and it measures if land suits this requirements in terms of geomorphology, soil, climate, etc.[80]. The resulting suitability map is crop-dependent and, therefore, the same plot has different suitability-values depending on the considered crop. There is no fixed list of criteria used to assess the suitability of land. Despite this variance, geomorphological features (e.g. slope, aspect) and soil properties[81] are fundamental in any research, while other data, as climatic information[82] or even socio-economic aspects[83], can be added if contextually meaningful[84].

In archaeology, LSA has already been used to complement SCA. Its introduction in Italian archaeology occurred in the same period both in Cambridge's 'Gubbio Project'[85] and in Groningen's 'Pontine Region Project'[86]. The adoption of LSA in these projects aimed at a deeper understanding of the human-environment relationship[87], investigating how the environmental framework influenced, limited and facilitated the settlement pattern and subsistence strategy[88]. In these early uses, LSA was applied to enhance the comprehension of prehistoric agriculture[89] and only 10 years later LSA was finally employed to investigate also historical periods[90]. The most valuable application of LSA to archaeological contexts was presented in Ester van Joolen's PhD thesis, which quality lies in the attention to a wide range of variables, accounting both for changes in farming techniques and for a large number of crop requirements[91].

While extremely time-consuming[92], van Joolen's approach has been particularly appreciated amongst classical archaeologists as it opened the way for new types

75 Vita-Finzi, Higgs 1970 p. 8; Flannery 1976a pp. 94–95
76 Hodges, Barker, Wade 1980; Rossmann 1976; Hunt 1992
77 Roper 1979 p. 127
78 Malczewski 2004 p. 4; Rossiter 1996 pp. 165–166
79 Malczewski 2004 p. 8
80 Wang 1994 p. 265; FAO 1976 p. 44
81 e.g. pH or temperature; Rossiter 1996 p. 167
82 Wang 1994 p. 275
83 Romano, Dal Sasso, Trisorio Liuzzi, et al. 2015 pp. 135–137
84 FAO 1976 p. 5
85 Malone, Stoddart 1994
86 Attema 1993
87 Kamermans 1993 p. 5; note that LSA in archaeological texts is also named Archaeological Land Evaluation. It has been decided to maintain the original name in this research.
88 van Joolen 2003 pp. 2–3; Malone, Stoddart 1994 p. 81
89 Malone, Stoddart 1994 p. 84; Kamermans 1993 pp. 176–186
90 van Joolen 2003
91 van Joolen 2003 pp. 129–152
92 Verhagen 2007 p. 201

of quantitative approaches to Roman agriculture[93]. In the framework of the Tiber Valley Project[94], Helen Goodchild was among the firsts to further explore the possibilities of LSA in Roman archaeology, and she used LSA to gather insights on Republican agriculture. Her aim was to evaluate the link between the food demand of Rome and the potential agrarian output of its hinterland[95]. Initially, Goodchild analysed land suitability for wheat, olives, vines and pastoralism[96], but in later articles she narrowed the focus on wheat production[97]. The method developed by the British scholar was organised in a sequence of steps based on transferring information from ancient sources in mathematical values to use in GIS analyses. First, she determined the average size of plots cultivated by each site and determined whether any regularity in the location of the sites could be identified. Then, she developed a multi-criteria evaluation based on the guidelines provided by ancient agronomists as Cato or Columella. Both geographical factors (slope, aspect, soil productive potential) and socio-economic criteria (distance to water, roads and towns) were accounted for in the final land suitability maps. Thirdly, she established the probable agricultural output of the sites located in Southern Etruria and compared it with the food demand of the city of Rome, based on different demographic estimations. Significantly, the purpose of the author was not to reconstruct precisely the ancient land use in the Middle Tiber Valley, but to offer a methodology to approach demographic figures through the limits imposed by the possible agrarian output[98].

More recently, Pedro Trapero Fernández[99] made a thorough study of the potential yield of vineyards in the marshlands of the Guadalquivir, in southwestern Iberia. The practices connected to vine cultivation were well-known thanks to the work of Columella, born in Cadiz, which provides rich details on the maintenance of vineyards in *Baetica*[100]. Four criteria are considered: land-orientation; soil type; slope and proximity to socio-economically meaningful features. Land orientation was calculated both for wind and sun exposition, and proximity was calculated for urban centres, roads, water connections and water supply. Fernandez averages the values to create a single map with the areas which are best suitable for vineyard plantations[101]. Differently from previous studies, Fernández research was not carried out in connection with previously acquired archaeological data, and thus it is not interested in giving figures of potential wine output, but only in suggesting the possible locations of ancient vineyards. This perspective needs further attention in future studies as it detaches LSA from the urge of offering quantitative figures of ancient agrarian productions (in most of the cases approximate) and leads towards the identification of micro-regional productive vocations within hilly and mountainous regions.

Applications of LSA in medieval archaeology in Italy are not as various as for the prehistoric and Roman period. The most interesting application, largely indebted to predictive modelling, have been carried out in southern Tuscany to locate the early medieval salt works[102]. After having reconstructed the ancient landscape, the most suitable positions for salt extraction were compared with the information gathered from literary sources. Also, a tentative evaluation of the best arable land was provided to understand the likely agrarian exploitation of the region[103]. The authors conclude that 'potential resource exploitation seems rather dogmatic' when used in the framework of predictive modelling and a more fruitful use would stem from the abandonment of inductive models ('where did they settle?') to the adoption of deductive models ('why did they settle there?'), named «postdictivity» from the authors[104]. Recently, Giuseppe Muci applied SCA and LSA to study the agrarian economy of Late Medieval Salento (Southern Apulia). His aim was to test the sustainability (or else: the autarchy) of the settlement network in Salento before and after the great economic depression of the 14th century. Similarly to Goodchild method, Muci calculated the areas of settlement catchments for

93 Jongman 2008 p. 121
94 Patterson 2004a
95 Goodchild 2006 p. 42; Goodchild 2007 p. 1
96 Goodchild 2007 pp. 191–237
97 Goodchild 2009 p. 770
98 Goodchild 2007 p. 385
99 Fernández 2016
100 Fernández 2016 pp. 54–55
101 Fernández 2016 p. 59
102 Arnoldus-Huyzendveld, Citter 2014; Arnoldus-Huyzendveld, Citter 2012
103 Arnoldus-Huyzendveld, Citter 2014 pp. 73–74
104 Arnoldus-Huyzendveld, Citter 2014 p. 76

each village and then the maximal wheat production within each area. Then, the maximal amount of calories produced was compared with the amount of calories necessary to sustain the projected population. The author concludes that the agrarian production system in Salento was still equilibrated at the eve of the 14th century, but also extremely frail and exposed to shortages, as that occurred with the Black Death and the political unrest of the second half of the 14th century[105].

Finally, while the research is focusing on developing ever more precise approaches to compute walking distances or land use maps, it is noticeable a certain lack of theoretical debate, only interrupted by occasional comments. Already in the second half of the 1970s, two texts analysed the first outcomes of SCA applications and identified some conceptual issues that needed further consideration. Hodder and Orton[106] considered SCA an innovative method that highlighted the economic importance of the micro-environment around a settlement. However, they were not persuaded that percentages of land use could directly indicate ancient economic priorities, especially considering that catchment boundaries are chosen arbitrarily[107]. Most prominently, they showed a strong dissatisfaction with the economic determinism that permeated the application of SCA. According to them, efforts should be spent to prove the eventual influence on settlement patterns of socio-cultural factors, such as defence or proximity to communication routes, rather than assuming their subordinate role. Donna Roper[108] was more concerned with some methodological aspects of SCA applications. In general, she warned against the uncritical treatment of Lee's and Chisholm observations, as their values could stem from socio-cultural contexts, and the mechanical application of territory boundaries «as if the site's inhabitants were on a […] leash».

Despite the considerable steps forward in SCA research, the concerns expressed at the end of the 1970s are still up-to-date. The urge of producing figures of agrarian outputs leaves little space to debate the conceptual framework of this approach. SCA has been linked with a positivistic view of the contribution of archaeology in economic history, in which the outcomes of archaeological research should be quantifiable. However, any figure proposed by these studies is strongly dependent on estimations, corrections and integrations that limit their reliability and shed doubts on their real significance[109]. This should not in any case lead to a rejection of quantitative approaches, but rather to a stronger integration with qualitative research questions, where the relativity and subjectivity of quantitative data is not hidden[110]. This approach, far from being limitative, when adopted in the study of ancient agriculture can be rewarding and unlock fresh perspectives on organisational changes and on social decisions.

Given the above, in this study SCA will not be used to provide an absolute quantitative estimation of the agrarian output in the UVB, but to look at the economic and social meaning of relative differences in catchment productivity. Building on Hodder and Orton's criticism, settlement patterns will not be interpreted as outcomes of a predetermined project of landscape exploitation. Rather, it will be asked what kind of agrarian economy could be sustained given a specific settlement pattern. A look to the earliest applications of SCA in prehistoric archaeology proves that this was the original use of this technique, in which land use was a proxy to reconstruct feasible agrarian strategies[111]. This method fits the «postdictivity» approach[112] as 'why' and 'how' questions find much more space in qualitative frameworks than in mere quantitative accounts.

105 Muci 2015 pp. 68; Muci 2016 p. 494
106 Hodder, Orton 1976 pp. 229–236
107 Barker 1975 p. 164; cfr. Vita-Finzi, Higgs 1970 p. 16
108 Roper 1979 pp. 124–127
109 Morley 2014
110 Hobson 2017
111 van Joolen 2003 pp. 191–192
112 Arnoldus-Huyzendveld, Citter 2014 p. 76

5.3 The agrarian suitability of the ancient UVB

The writings of Latin agronomists are an invaluable source for the study of Roman agriculture and it is therefore clear why applications of LSA often start by a detailed account of historical sources to reconstruct

the ancient perception of the countryside and of its potential[113]. Despite showing a deep awareness for regional differentiations, information from written sources does not always have a high enough resolution for a modern study and regions did not always receive the same amount of attention. In contexts lacking of written documentation, as the UVB, the integration with archaeological and topographical data and the use of LSA are a fundamental tool to obtain an overview of land use patterns, even when approximate. Thus, the following pages will proceed step by step, starting with the scant written information, continuing with a review of the available archaeological evidence and then proposing a reconstruction of land use pattern with LSA.

As just mentioned, few written sources discuss the rural economy of Samnium and even fewer are specifically concerned with the Upper Volturno region[114]. Traditionally, animal husbandry is considered the main component of the economy in ancient Samnium since pre-Roman times[115]. During the whole Roman age, the Central Apennines and the Tavoliere Plain were connected through the routes (*calles*) of transhumant herding[116]. Likely, the Roman State was involved in this long-range pastoralism and both invested in flocks as well as in the maintenance of transhumant routes. In the Early Middle Ages, the disappearance of public investments and the consequent decrease of safety along the *calles* determined the transition to short-range 'vertical' movements[117]. Comparatively, local agriculture has less information available. The few mentions are vague and almost anecdotal. Cato uses the countryside of Venafro as an example of particularly fertile and prosperous land[118], while Varro praised the oil of the same city[119]. Pliny the Elder provides only a reference to Sulmo, in modern Abruzzo, when citing the necessity of irrigating cereal fields to ensure crop growth and vineyards to limit the harshness of the wine[120]. The richest set of evidence on the agriculture of the Upper Volturno Basin are the 17 lease contracts laid down in the 10th century between San Vincenzo's abbots and the villages in the surroundings[121]. These charters are of some importance to us as they mention both the agrarian works to be carried out by the village communities and the products used as rent payment to the monastery. The indications are exposed in a formulaic manner, yet the constant mention of vine and cereal plantations (e.g.: *vinee que ibi sunt inculte quantas potuerint ad cultum perducere*; *et omnem granum, et ordeum, et milium […] vinea pastinare*; *granum bonum et bene siccum* […] *ordeo bono*; *vineas plantare*[122]) show the importance attributed by the monks to these cultivations. In specific cases the leases also mention the setup of orchards (*boni arbori* […] *plantandum*[123]) or the herding of pigs and sheep (*liceat porcos et peculia eorum andare et pascere infra iam dictos fines*[124]), but it is hard to determine whether these specifications were part of a premeditated plan of land exploitation or *impromptu* decisions. The rents appear to be quite regular in their requests and normally comprise different measures of wheat, barley and wine, sometimes complemented by one or two pigs. Interestingly, in spite of the importance that olive and oil have in the contemporary regional economy, references to olive groves and oil production is absent in written documents.

The vagueness of the written information is in some way replicated in the archaeological data, though the research carried out in some sites helps grasping other details. The only pollen diagram available for the region does not have the necessary resolution to distinguish between Roman and Medieval period[125]. However, the excavations at Colle Castellano and at San Vincenzo al Volturno collected paleo-botanical remains within early medieval layers, providing a peculiar insight on the vegetables cultivated and used by local communities in the 9th-10th century AD[126]. The context from which the paleo-botanical

113 Goodchild 2007 pp. 24–74; Viitanen 2010 pp. 62–68; Fernández 2016
114 Iasiello 2007 pp. 191–195
115 Gabba 1988 p. 137–138; Bispham 2007 p. 184–185
116 Barker 1995 pp. 34–37
117 Gabba 1985
118 Cato *agr.* 136
119 Varro *rust.* 1, 2, 6
120 Spurr 1986, 20, n. 60; Plin. *nat.* 17, 41
121 Wickham 1985b p. 25
122 *CV* 92, 95, 110, 112
123 *CV* 164
124 *CV* 108
125 Lebreton 2002
126 Marazzi, Gobbi 2007; Hodges, Clark, Coccia, et al. 2006

data was collected was extremely different and this had a noticeable impact on the composition of the assemblages (*Tab. 5.1*). Instead of constituting a hindrance, such diversity expands the range of our knowledge on the plants circulating amongst UVB communities.

The first assemblage was collected in trench excavations within the medieval site of Colle Castellano, a low hill above the fertile lands of Valle Porcina[127]. The paleo-botanical remains were almost completely collected in open areas and, from what is known, there was no specific concentration within the excavation area. Cereals of different kinds constitute the largest part of the botanical assemblage, amongst which millet is the most represented, despite wheat and barley being also attested in conspicuous amounts. It is worth noticing the sporadic presence of legumes (broad bean and peas) which were a fundamental crop in the Roman period and were used in a rotation system to avoid fallow periods in cereal fields[128]. Figs and vine seeds are also present, but their small quantity does not improve our knowledge of the village economy. The botanic assemblage of San Vincenzo was collected in the cooking and trash areas of the 9th century monastic kitchen[129]. Considered the provenance, it is not surprising to find out that fruit seeds constitute the largest part of the botanic assemblage, while cereals make up only a small percentage of the total. In fact, the firsts would have been processed directly in the kitchen, while the second would mostly arrive here as flour. As in Colle Castellano, the substantial presence of broad beans confirms their importance in the early medieval diet as much as in cultivations, while the presence of exclusively three types of cereals indicates that the monks' diet did not include the "lesser wheats" (millet and oat) largely represented in Colle Castellano. The plants composing both botanic assemblages could be cultivated within the UVB, a fact anyway that does not exclude a non-local origin of the monastic foodstuff. On this nehalf, it is important to highlight that the monastic assemblage, created shortly before the 10th October 881, contained in great part taxa of autumnal plants, suggesting the consume of fresh vegetables and fruits, most likely from the surroundings.

San Vincenzo al Volturno (Kitchens)		
Scientific	English	Seeds
Triticum dicoccum	Emmer	50
Triticum aestivum	Wheat	40
Hordeum	Barley	35
Vicia sp.	Broad bean	300
Lens sp.	Lentils	40
Vitis vinifera	Grapes	1428
Olea europea	Olive	20
Sambucus edbulus	Elderberry	673
Juglans regia	Walnut	320
Corylus avellana	Hazelnut	50
Colle Castellano		
Triticum aestivum, durum, sp.	Wheat	30
Triticum dicoccum	Emmer	1
Hordeum sativum L.	Barley	24
Panicum miliaceum	Millet	231
Avena sp.	Oat	4
	Ind. cereals	44
Vicia faba, fabaceae	Broad beans	12
Lathyrus sativus, Lathyrus sp.	Grass pea	6
Vitis vinifera	Grapes	2
Ficus carica	Fig	2
	Other plants	42

Tab. 5.1 Palaeobotanical data from S. Vincenzo's Kitchens and Colle Castellano

In San Vincenzo and Colle Castellano were also collected faunal remains, which provide an additional insight on rural economic practices in the UVB. The number of bones from Colle Castellano suggests a predominance of sheep/goat mammals, with a strong presence of pigs too. This led to imagine a pastoral economy that integrated the «unspecialised sheep herding» with «intensive pig-raising». Interestingly, the cattle bones collected at the site were not raised locally, suggesting the existence of cattle flocks moving seasonally from the Mainarde to the valley of the Volturno[130]. Conversely. in the monastic kitchens the predominant specie is pig, while sheep/goat and cattle bones are fewer. As for the case of botanical remains, the state in which the food reached the monastic kitchens surely biased the faunal assemblage: the scant presence of cow bones is probably the outcome of butchering practices. Nonetheless, it is interesting

127 Hodges, Clark, Coccia, et al. 2006

128 Spurr 1986 pp. 105–113, 119–120; White 1970 p. 113

129 Marazzi, Gobbi 2007 pp. 46–48

130 Hodges, Clark, Coccia, et al. 2006

to note that a diet in which pork is predominant dovetails with the evidence from the *Chronicon*, in which pigs recur as the only animal requested from the monks. In this regard, it is interesting to note the first hints of influence between monastic requests and the organisation of the production in the neighbouring rural communities.

Finally, a further support for the identification of ancient agricultural exploitation is the maintenance of land division and of place names (*Fig. 5.2*). The earliest land division still visible dates back to the 3rd century BC and defined the land North of Isernia with parallel lines at regular distances. A more classic centuriation structured in squares of 16 *actus* (560 metres) can still be seen in the area between Monteroduni and Montaquila and a region extending South and East of Isernia and dates back to the Augustan period[131]. Medieval land divisions have received less attention and thus are less known: the field systems in part of the Rocchetta Plain and in the Pantano Basin could date to pre-modern times, as the elongated fields are a common feature amongst medieval land division, but no chronological framework has been proposed for it yet. The maintenance of the Roman land division could indicate some continuity of land exploitation between the Roman and the Medieval period, but it is hard to evaluate to degree of such continuity. Also some of the terrace-systems characterising the area might date back to pre-modern periods, but the continuous use of this structures until recent times does not allow a safe chronological setting. The distribution of some toponyms within the research area gives some hints of intra-regional variation of land exploitation. For example, in the area towards Venafro several place names remind of olive cultivations (Olivella, S. Maria in Oliveto) and the valley between Monteroduni and Colli a Volturno is known as Valle Porcina, possibly in connection with its use for pig herding.

As clear from this short account, 'classical' means of obtaining information on the ancient and medieval land use provide only a nebulous account of the UVB landscape exploitation: there are indications of economic specificities, but these are punctual and sporadic, making it hard to gain a general picture. In this context, the creation of a land use model based on LSA can be especially helpful. On the one hand, the model can complement the gaps of documentary and archaeological sources, while, on the other hand, the known data can be used to confirm the reliability of the model itself. To avoid a vicious circle, land suitability will be modelled on the information provided by Latin agronomists on cultivation as synthetized in White's *Roman Farming*[132] and Spurr's *Arable Cultivation in Roman Italy*[133]. The resulting land suitability map can thus be compared with the distribution of place-names, the evidence of land division and the information from archaeological and documentary sources. The map will identify four land types, three for each component of the Mediterranean triad (wheat, olive and vines) and one for areas suitable for more than one product (mixed crop).

Roman agronomists were aware of the impact that a good choice of land would have had not only on the yield of the crop, but also on the amount of work requested to make the plant grow fruitfully[134]. Soils, even though described in an unsystematic manner, are normally defined by four qualities: texture, structure, moisture and temperature[135]. In setting up a new cultivation, ancient farmers made sensible choices in terms of topographical and climatic conditions, as these also conditioned plant growth and its productivity. Cereals received great attention in the agronomic treaties and it appears that throughout the Peninsula a wide range of varieties was available suiting the most disparate environmental contexts. In general, the agronomists suggested leaving the richest soils, well-drained loams and clays and heavy alluvial soils, to cereal farming[136]. In ideal conditions, plains and flat lands were most suited for cereals, even though hill slopes could also be adapted to cereal cultivation. Also temperature influences the growth of cereal, speeding up as temperature rises. Therefore, south-facing slopes are preferable and above 1000 metres only barley can grow[137]. Olive trees were appreciated for their adaptation to a wide variety of soils, but especially to light and well-drained soils. Important was to set olive groves on a westward slope, that

131 Chouquer, Clavel-Lévêque, Favory, et al. 1987 pp. 139–144

132 White 1970
133 Spurr 1986
134 Spurr 1986 p. 1
135 White 1970 pp. 86–89
136 Spurr 1986 p. 5–7
137 Spurr 1986 pp. 17–22

	Slope	Aspect	Insolation	Soil type	Elevation
LT1	Flat (0-5%)	South	Sunny in cold weather	Loams, clays or heavy alluvial soils.	< 1000m
LT2	gentle to steep slope (15-25%)	South-West	Sunny	Light and dry soils as lean marl or pebbles.	< 650m
LT3	gently sloping (5-15%)	South	Sunny in cool weather	Moist and well-drained.	< 800m

Tab. 5.2 Factors used for Land Suitability Analysis.

allowed a longer exposition to the sun and to benefit of summer breezes[138]. The variety of vine trees, allowed its cultivation in almost any weather, yet it privileged moist soils that were well-drained to avoid excessive amounts of water to dump the vineyards. Similarly, vine trees should be protected by summer winds. The table above (*Tab. 5.2*) summarise the crop specific requirements used to run the LSA. To the information provided by the ancient agronomists, it has been added some biological limitations of the crops that are valid today as much in antiquity.

Transforming the unsystematic and multifarious information provided by the Latin agronomist into measurable data requires a degree of simplification. Similar to modern CORINE land cover maps, the process of categorisation described by the table aims at creating a product that allows the identification of prevalent land use in micro-areas, with the inevitable loss of some detail. The formula (4) describes the transformation of the environmental factors into a land suitability value:

(4)

$$Suit(crop) = \frac{(Aspect + Slope + Soil + Insolation)}{4} \times Elevation$$

The formula assigns to each environmental factor the same influence on the final land suitability, with the exception of elevation that works as an absolute limiting factor. Aspect, slope, insolation and elevation data were derived from the TINITALY/01 digital elevation model provided by the Geophysics and Volcanology National Institute (INGV)[139], while geological information was extracted from the Geological Map of Italy[140], being a soil map unavailable at low scales. The resulting map (*Fig. 5.1*) describes how the various suitability classes distributed in the UVB. Approximately 40% of the research area (ca. 200 km^2) was highly suited for cultivation according to ancient standards and technologies. Four different land units were recognised. Land Type 1 (LT1, indicating cereal suited land) accounted for almost 40% of the total, LT2 (olive) for 30% and LT3 (grapes) for few more than the 10%, LT4 (mixed crop) occupied the remaining 20% was suitable for more than one crop. It is possible to notice a clear divide between the alluvial plains of the Southwest, where it is concentrated most of LT1, and the hilly region to the North, in which LT2 is clearly predominant. Concentrations of LT1 are also found in the valleys of the east (La Piana-Carpino and Piano di Sessano) and the inter-montane basins of the west (Pantano and Piana di Rocchetta). The areas where the environmental conditions allowed vine growing follow a rather different pattern. In fact, LT3 areas are less continuous and scattered throughout the research area, mostly at the edges of cereal-suited regions. LT4 areas, well suited to host a wider range of crops, are located in great part around Isernia, but substantial surfaces are located towards Venafro and at the edges of the Piana di Rocchetta.

The land suitability map produced here overlaps well with the information that gathered in the written and archaeological sources (*Fig. 5.2*). Centuriation overlaps well on areas that are suited for cultivation. The fragmentation of LT3 is coherent with the information provided in the ancient sources, according to which the suitability of land for vine growing is extremely localised[141]. It is also interesting to note that place names connected to animal herding are normally located at the edges or at some distance from

138 White 1970 p. 226
139 Tarquini, Isola, Favalli, et al. 2007
140 Manfredini, Scarsella 1971
141 White 1970 pp. 229–231; Thurmond 2017 pp. 51–61

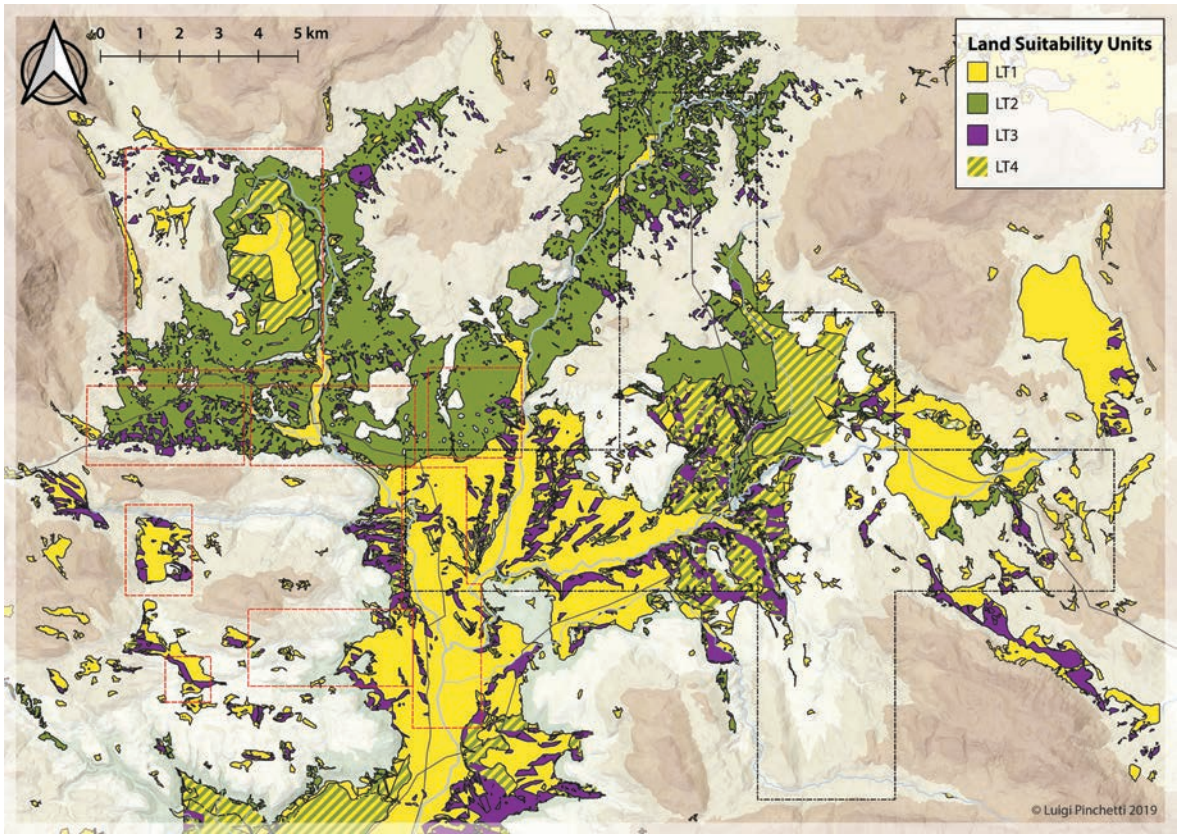


Fig. 5.1 Results of Land Suitability Analysis in the Upper Volturno Basin.

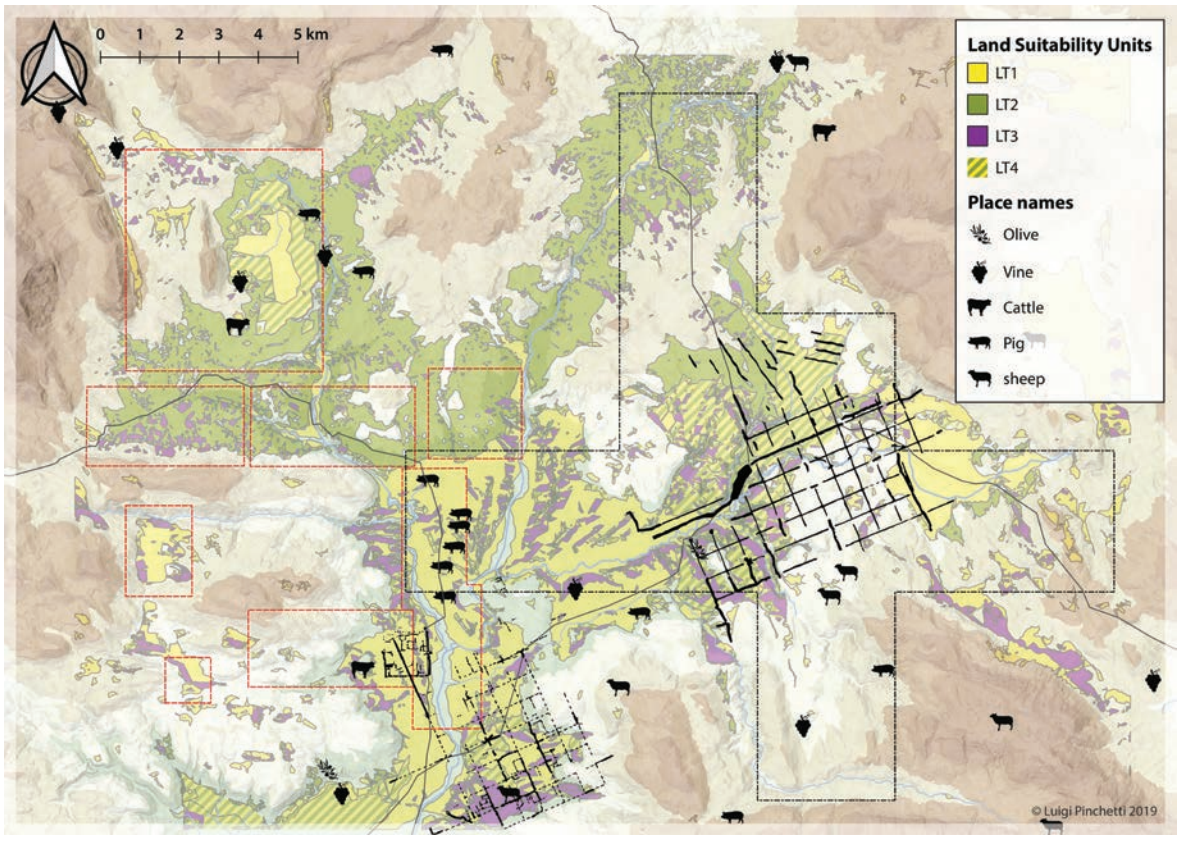


Fig. 5.2 Overlap of place names, centuriation (after Chouquer 1988) and LSA results.

agrarian suited land, with the noteworthy exception of pig-related names. It would be wrong to assume that all place names can date back to Antiquity, but their distribution in comparison with agrarian land seems meaningful in this case and suggests that the non-agrarian areas around the UVB were likely used to carry out complementary productive activities, as cattle and sheep herding.

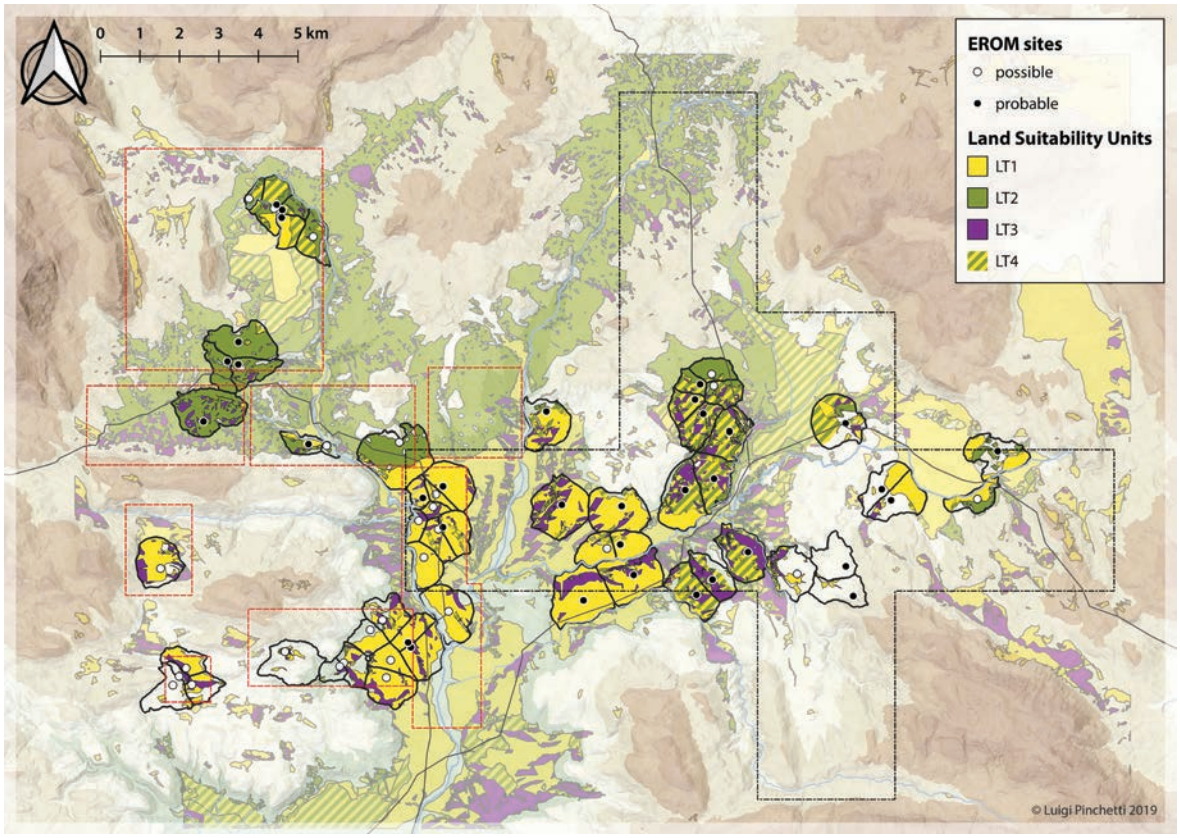


Fig. 5.3a Settlement Catchments in the EROM period.

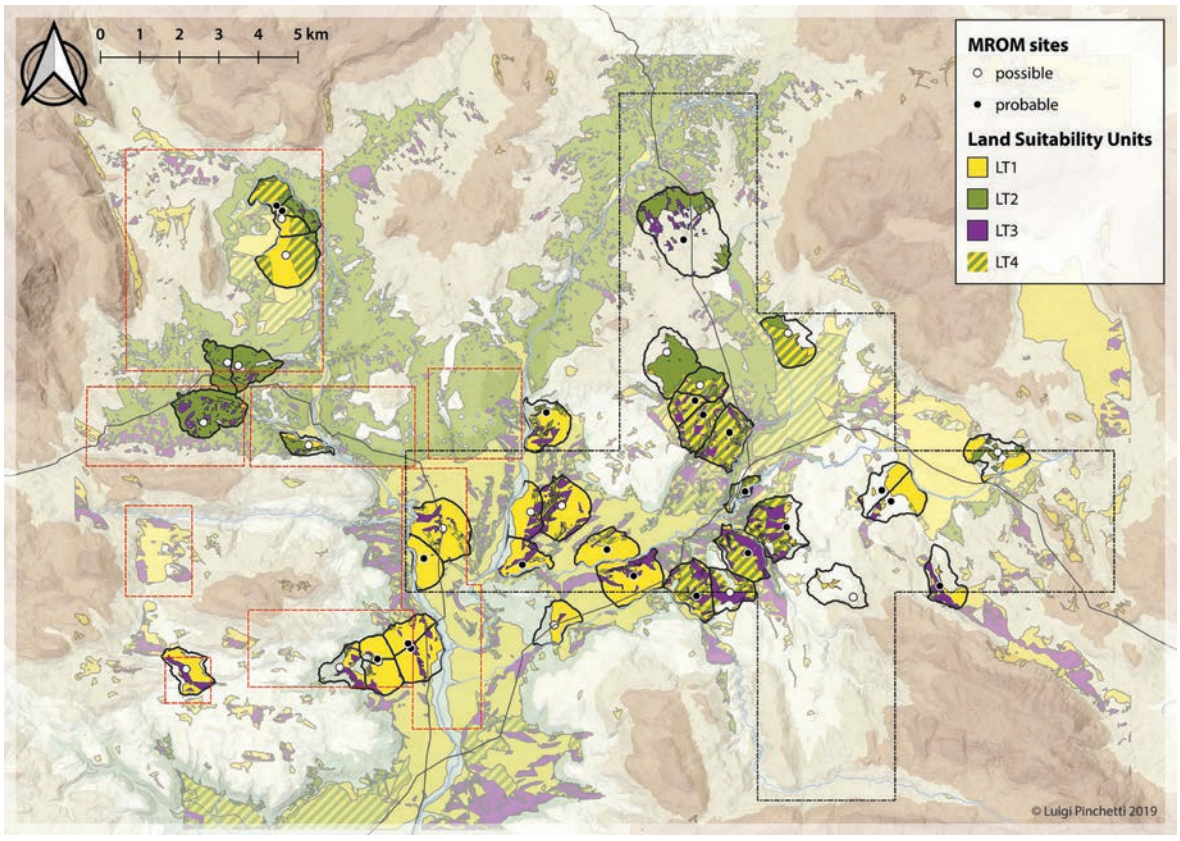


Fig. 5.3b Settlement Catchments in the MROM period.

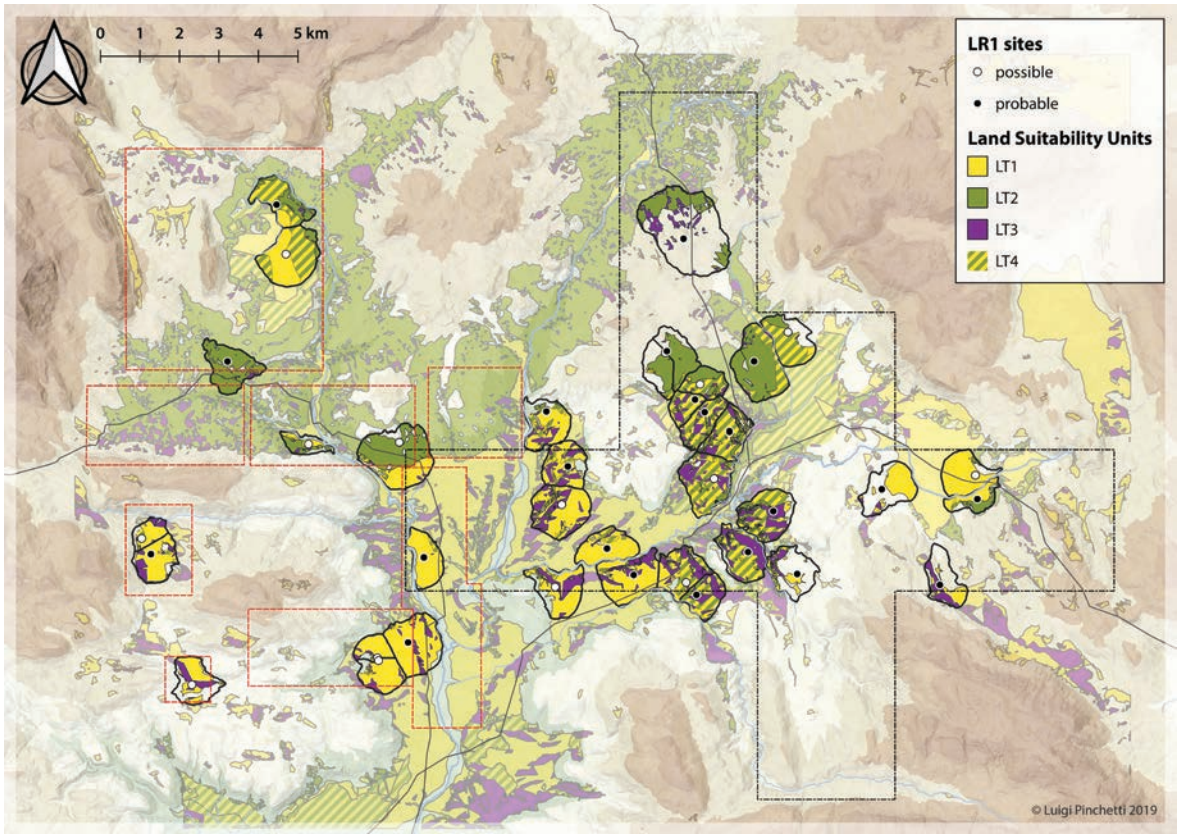


Fig. 5.3c Settlement Catchments in the LR1 period.

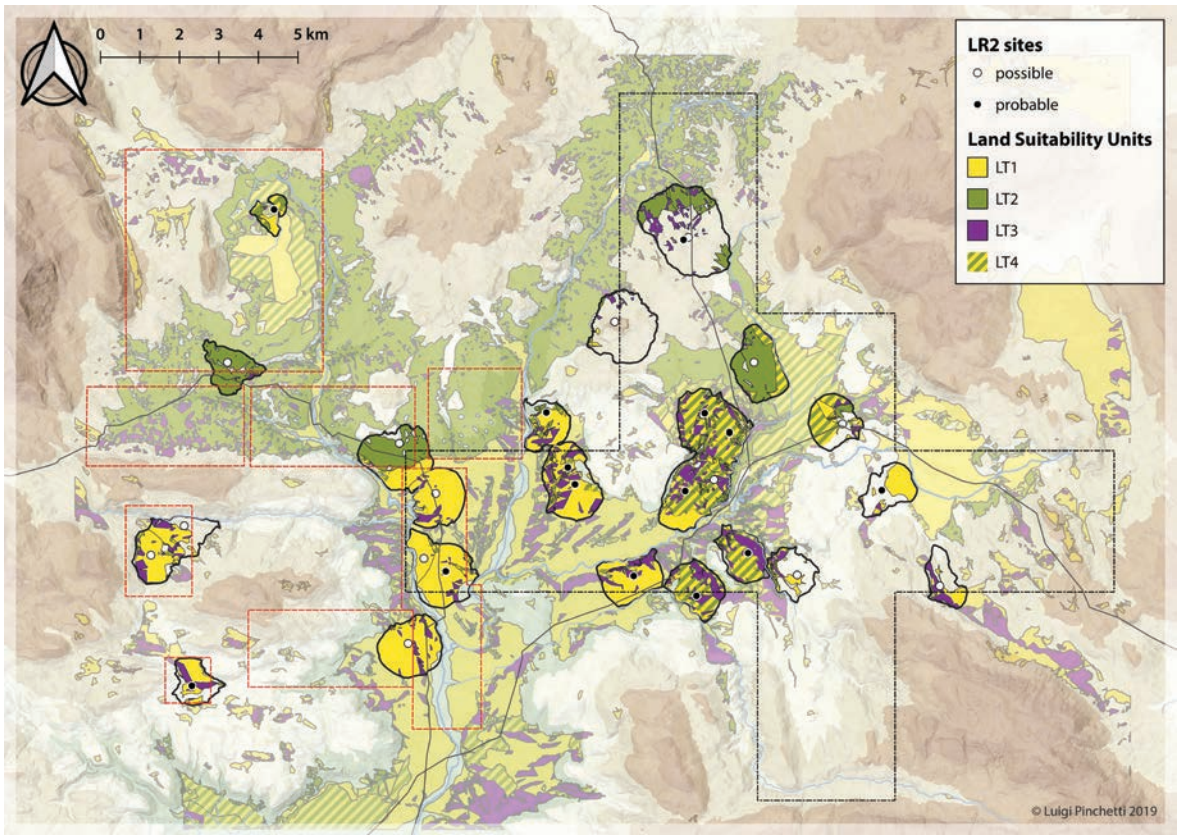


Fig. 5.3d Settlement Catchments in the LR2 period.

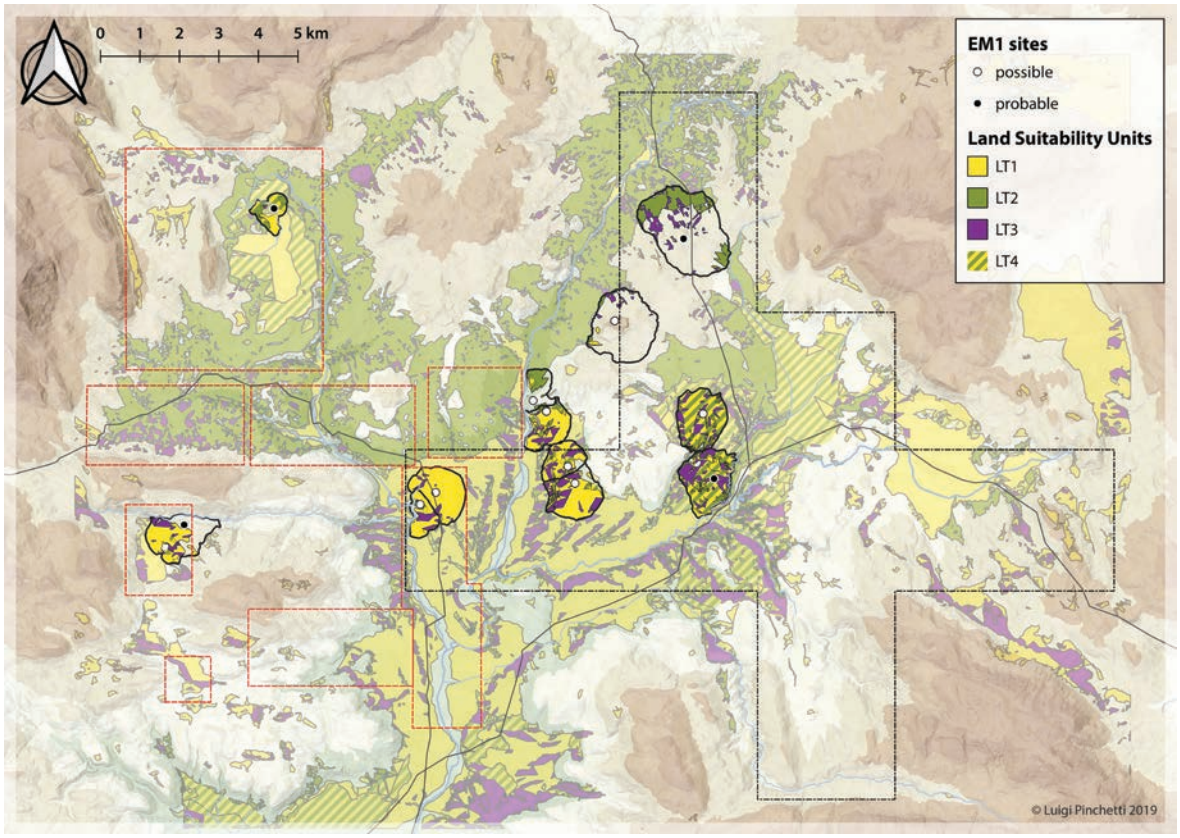


Fig. 5.3e Settlement Catchments in the EM1 period.

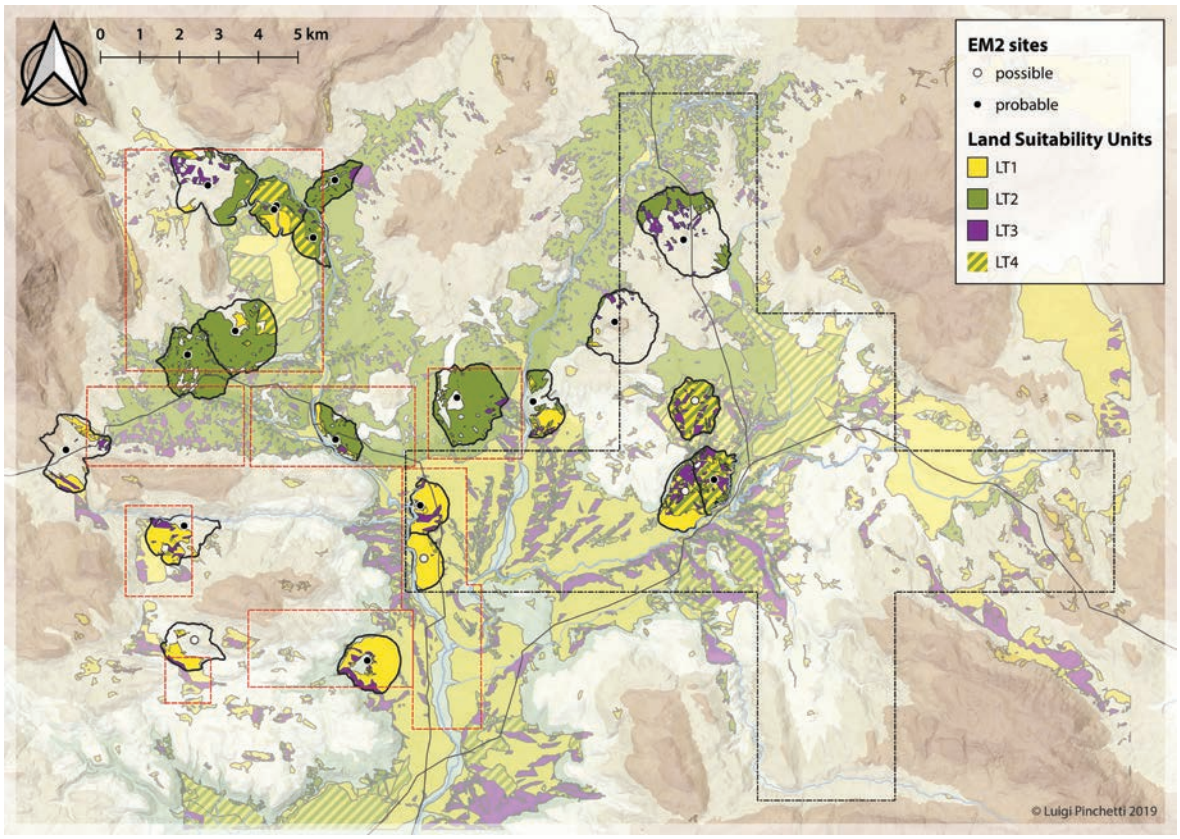


Fig. 5.3f Settlement Catchments in the EM2 period.

	Points	Obs mean dist	Exp mean dist	Nrst neigh indx	Z-Score
EROM	62	666,55	1.025,50	0,6	-5,27
MR	40	1115,82	1226,95	0,91	-1,10
LR1	37	1182,50	1317,56	0,90	-1,19
LR2	29	1473,79	1440,07	1,02	0,24
EM1	12	2425,98	1716,09	1,41	2,85
EM2	21	1815,66	1540,79	1,18	1,56

Tab. 5.3 Results of Nearest Neighbour Analysis per period

5.4 Land exploitation through the 1st millennium AD

The exploitation of the agrarian potential of the UVB had different degrees of intensity during the 1st millennium AD. Depending on the economic aims and on the agrarian strategies adopted in each period, the various qualities of the landscape would have received more or less attention. A cross-chronological comparison of settlement catchments in the course of the 1st millennium AD offers an archaeological approach to the changing relation between population and landscape. This approach aims at identifying trends and changes in the composition of the aggregate catchment and, from this, tries to reconstruct the probable economic scopes of the communities living in the UVB at different stages.

As seen above, the boundaries of settlement catchments are normally derived from ethnographical studies. Such procedure might underestimate issues in the comparability between ethnographical and archaeological contexts. In the analysis carried out here, it is crucial adopting a time-distance boundary fitting the archaeological context[142] and therefore it is necessary to choose an appropriate proxy to extrapolate the average size of a catchment. By comparing data from Central America and Europe, it has been noted that it exists a relation linking the size of site territories and the site density within a given region[143] and, thus, it can be concluded that by knowing this last piece of information it is possible to reconstruct the average catchment size. To ease cross-temporal comparisons, it was deemed valid to compute the average catchment size throughout the 1st millennium AD, instead of using different catchment sizes per period. To reach this aim, the first step has been computing the observed mean distance in the six chronological phases considered in this study, which ranged between a minimum of 660 metres in the early imperial period (62 sites) and a maximum of 2400 metres in the EM1 phase (12 sites) (*Tab. 5.3*). The average mean distance between rural settlements in the 1st millennium AD is of 1,4 kilometres, which means that the average radius of settlement catchments is of ca. 700 metres. Considering the rugged geomorphology of the UVB, 700 metres roughly equates 10 minutes walking. The main obstacle to movement is orography and, as seen above, various algorithms have been developed to precisely translate the time spent in movement into space units. In this specific case, White's formula was applied on a slope map obtained with the GRASS tool *r.slope.aspect* from the TINITALY/1 elevation model[144]. Unfortunately, due to the convoluted form of White's formula, the result presented negative values, which is impossible, being the result a time unit (hours). Consequently, it has been decided to rewrite White's formula in the following linear way[145]:

$$(3b) \quad T = \frac{R}{6000} \cdot e^{3{,}5\left(\tan\left(\frac{D \cdot \pi}{180}\right)+0{,}05\right)}$$

In *(3b)*, *T* is travel time expressed in seconds, while *R* and *D* maintain the meaning of *Formula 3a*. Formula 3b gives as an output a friction layer. This layer can be used in the GRASS plugin *r.walk* to calculate the settlement catchments measured in seconds. Additionally to the friction caused by geomorphology,

142 Bailey, Davidson 1983 p. 91
143 Bintliff 2000; Bintliff 1999
144 Tarquini, Isola, Favalli, et al. 2007
145 Many thanks to Gianmarco Brocchi for his help in refining formula 3a.

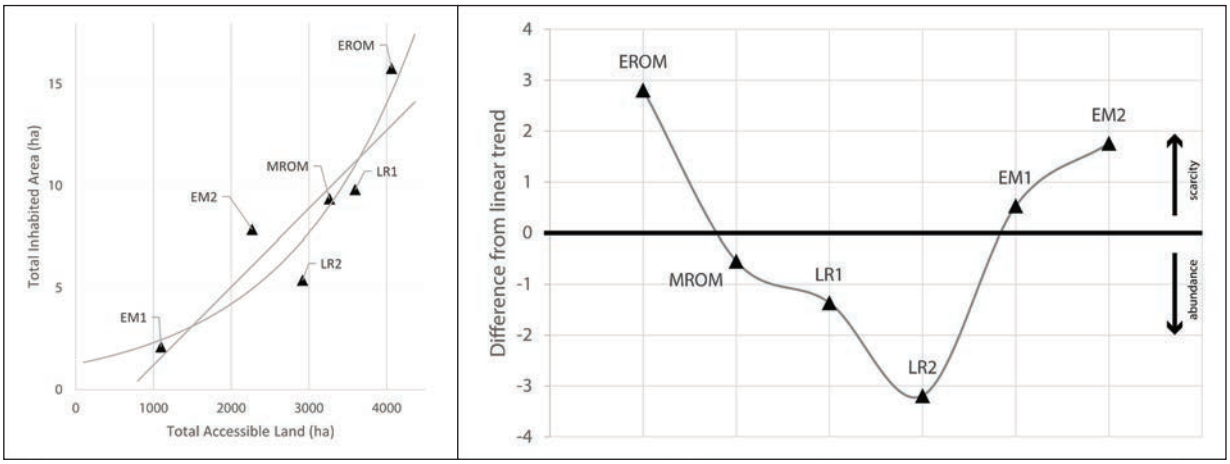


Fig. 5.4 (left) *Ratio between inhabited and accessible surface.*
Fig. 5.5 (right) *Land abundance or scarcity throughout the 1st millennium AD*

also streams and rivers hinder free movement in the landscape. Consequently, depending on the stream width, waterways created boundaries of 10 minutes (stream of 1,5 to 5 metres) or 30 minutes (more than 5 metres). River boundaries had no effect in the presence of known ancient bridges.

The outcomes of this analysis are visible in the maps below (*Fig. 5.3 a-f*). A first glimpse shows that the access to the various productive areas of the UVB changed greatly throughout time, which allows some preliminary thoughts. First, despite the fundamental changes in settlement pattern, some areas remain always accessible to part of the rural population. The Rocchetta plain, the Valle Porcina, the left bank of the Vandra and the area north of Isernia are always contained, at least partially, within the limits of a settlement catchment. These are certainly areas whose agrarian exploitation would have revealed profitable, but other similarly fertile areas (e.g. the Carpino and the Sordo plains) do not experience the same continuous human occupation. Secondly, there is a slow tendency of abandoning the alluvial plains between Volturno, Vandra and Cavaliere rivers to favour the hilly landscape of the northern section of the research area. The process occurs slowly, without sudden changes, but the land occupation of the 1st century AD, focused on the cereal-suited land of the lower Volturno, is extremely different from that of the 10th century, based on the exploitation of the hillsides between the Mainarde and the massif of Mt. Totila. Finally, few sites occur in unproductive areas. This pattern is probably the output of a survey bias affecting both project[146], but it is anyhow significant that only a minority of hilltop settlements, identified with point sampling or excavations, are surrounded by unproductive territories.

Beyond this impressionistic approach, statistical evidence can offer a more scientific analysis of these changes. The first thing to clarify is whether, in the course of the 1st millennium AD, the proportion between population and land changed significantly. This parameter can show whether variations in demographic pressure determined changes in intensity of land exploitation and/or in the dependency on imports. In the current context, the null hypothesis is that in the UVB there never was a change in the population/land ratio during the 1st millennium AD, meaning that the intensity of land exploitation was constant. In a land/population graph, the null hypothesis would then appear as a straight line. In the graph (*Fig. 5.4*), the surface of settled land is used as a proxy for population. As visible, the data follows a positive trend, but it better described by an exponential curve rather than to a straight line, indicating a discrepancy with the null hypothesis. In particular, the 1st millennium AD is characterised by a sinuous trend between periods of land scarcity (EROM and EM2 periods) and of land abundance (MROM to LR2)(*Fig. 5.5*). If in presence of land abundance, the rural population could meet the subsistence levels by relying on extensive land exploitation. Conversely, the approach to times of land scarcity could vary depending on the type of settlement pattern. In fact,

146 Casarotto, Stek, Pelgrom, et al. 2017

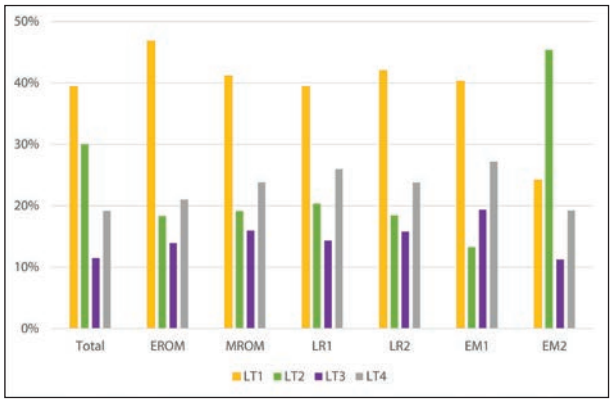


Fig. 5.6 Composition of accessible land per period.

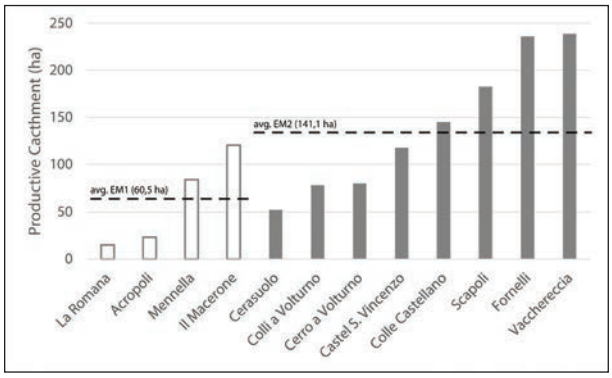
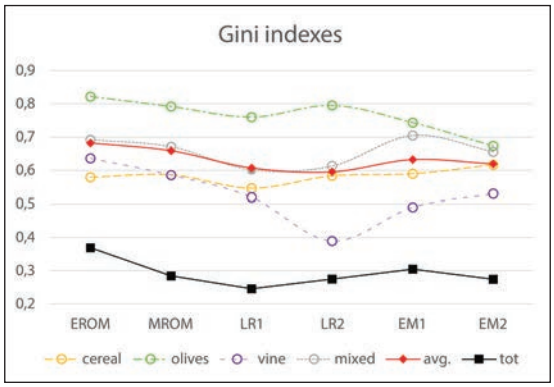


Fig. 5.7 Productivity difference between early and late hilltop settlements

differentiation is one of the main features of Mediterranean landscapes and it was the strongest trigger for specialisation of agrarian production[152]. It is unclear whether micro-regional agrarian specialisation reacted negatively to the disruption of the Roman Empire, as other types of economic specialisations[153]. A common narrative envisages a transition from a market-oriented to a subsistence-aimed agriculture, which would lead to a growing equality amongst rural population. In economics, a common mean to quantify (in)equality is the Gini coefficient, a statistical measure that indicates how evenly a certain good is distributed amongst a given population[154]. In practical terms, the Gini index measures the ratio between the area enclosed by the Lorenz curve and the perfect equality line to the total area below the perfect equality line and consequently, the index varies from 0, indicating perfect equality, and 1, indicating perfect inequality[155]. The evolution of the Gini coefficients regarding access to fertile land in the 1st millennium AD (*Fig. 5.8*) indicates a growing equality, supporting the current scenario of a transition to self-sufficient agriculture, with limited space for specialisation. However, some aspects of this trend provide further details that deserve discussion. First, the average Gini coefficient shows a limited variation (<0,1) and always keeps a high value (>0,6), suggesting that intra-regional differentiations always existed, making self-subsistence a weak strategy. Second, land types differed in their accessibility. In part, this is the outcome of the natural distribution of land types in the landscape. However, when variations are consistent, they indicate a change in the way the rural population exploited specific land types. Thirdly, access to fertile land is rather stable during the whole millennium. With the exception of the 1st century AD, in each later stage the Gini index remained below 0,3, meaning that between 100 and 1000 AD any rural settlement could access easily land suitable to cultivation.

Finally, the data on settlement catchments allows investigating how agrarian production connected to social complexity. To do so, it is useful to compare site sizes with the productivity of the relative catchments. Evidence from Central America revealed that in complex societies there is a direct positive relation between these factors and that different social groups tend to be organised according to different rules[156]. Thus, agrarian ('*producers*') settlements behave differently from non-agrarian ('*nonproducers*') settlements, as the first live out of their own product, while the second receive also an external support, which can either be the surplus of the producers' group or an external income. The graphs (*Fig. 5.9 a-f*) show the existence of three different groups that, despite some changes, are present in each of the six periods[157]. The first settlement-type is characterised by small scatter size (0-0.5 ha), but highly productive catchment. This is the producers' group, in our context defining farmsteads in the broadest sense, and it is estimated to have generated most of the agrarian output in the UVB. A second typology is positioned in the lower left quarter of the plots, characterised by medium scatter

152 Horden, Purcell 2000 pp. 175–230
153 Ward-Perkins 2005b pp. 136–137
154 Ceriani, Verme 2012 p. 424
155 Jenkins, Van Kerm 2011 p. 50
156 Steponaitis 1981
157 The trend lines in each graph are based on the EROM sites to ease comparisons.



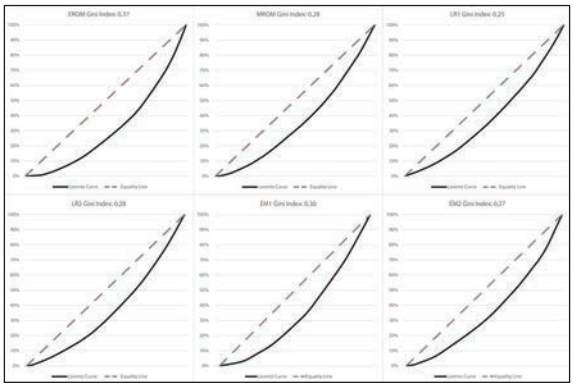
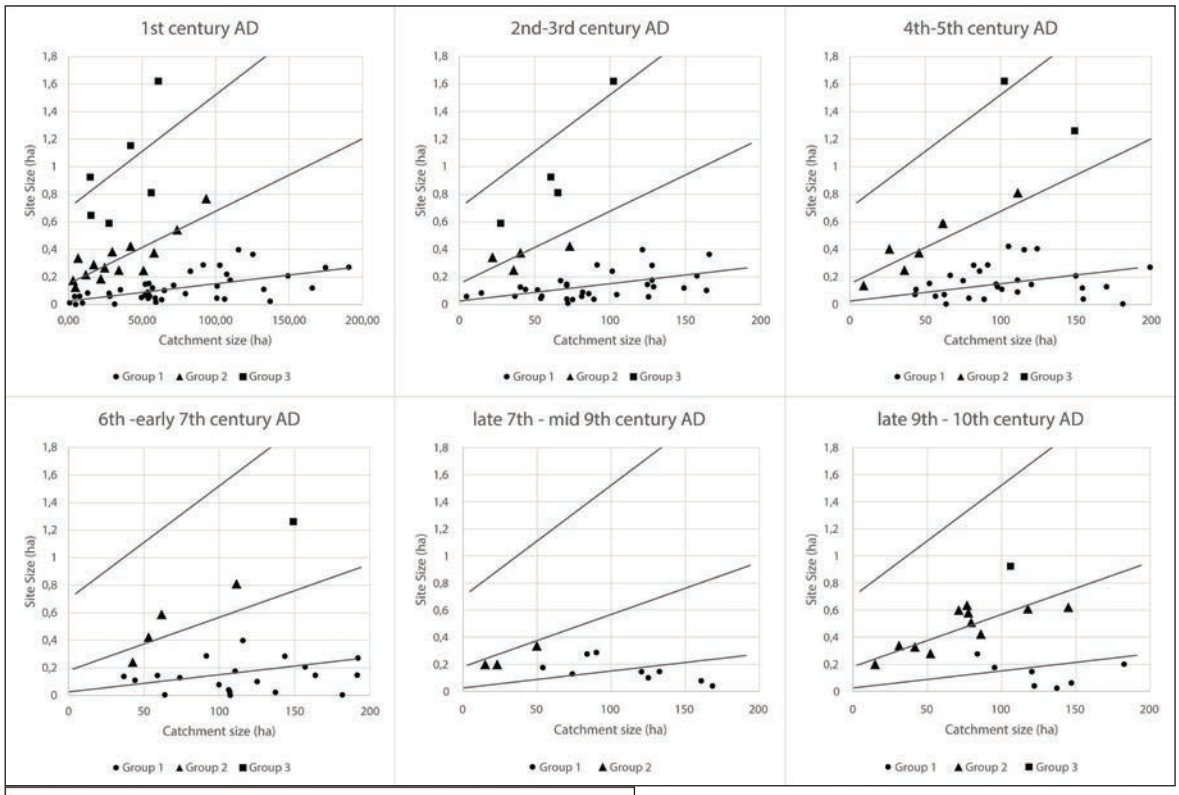


Fig. 5.8a (left) Access inequality (Gini index) to agrarian resources.
Fig. 5.8b (right) Gini curves for total land fertility (black line in fig. 5.8a).



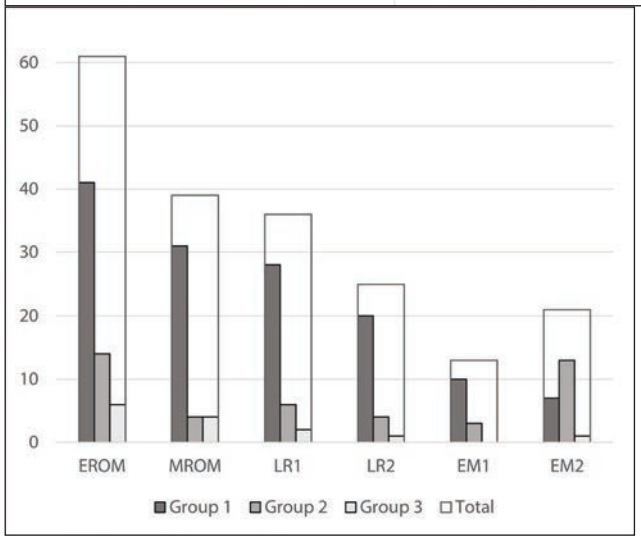


Fig. 5.9 Graphs showing the relation between site size and catchment productivity of the sites in the UVB. The lines indicate the trends of the three settlement groups.

Fig. 5.10 Histogram showing the chronological variation of settlement groups.

while a scattered population could find fruitful a more intensive land exploitation, inhabitants nucleated into village units could also extend the cultivated area beyond the 10-minutes catchments.

A second aspect requiring attention is evidence of specialisation or diversification of agrarian production, which can be obtained by comparing the composition of the aggregate catchment[147] with that of the UVB in general. Similarity between the composition of aggregate catchment and regional land would stand for a non-specialised land exploitation, while divergence in land composition would connote an interest in the qualities of a specific land typology. A cross-chronological comparison of aggregate catchments (*Fig. 5.6*) indicates that between the 1st and the 9th century AD only slight changes occurred, with minor deviations from the overall environmental context. Overall, LT2 appears under represented, with values 10% to 15% less than in the general context, while LT3 and LT4 are normally slightly over represented. Interestingly, there does not seem to be any focus on LT1, with a slight exception in the EROM period, when it reaches a peak of the 46% of the aggregate catchment. The disappearance of this focus already in the 2nd century, contemporaneously with the growing dependence of Rome on provincial imports[148], might suggests that the immense demand of this exceptional city shaped the UVB's agriculture until the 1st century AD. More interestingly, the 10th century marks a profound change in land composition and defines a marked deviation from the environmental norm[149]. Such sudden change fits well with the hypothesis of a top-down monastic imposition of the new settlement pattern. A comparison of the catchment suitability of EM1 (L'Acropoli, Le Mura-Mennella, La Romana, Il Macerone) and EM2 (Castel S. Vincenzo, Cerasuolo, Cerro a Volturno, Colle Castellano, Colli a Volturno, Fornelli, Scapoli, Vaccherecia) hilltop settlements shows a radical modification of hilltop subsistence strategies (*Fig. 5.7*). Earlier hilltop sites have rather unproductive catchments, with suitable land mostly at the edges of their catchments, suggesting a certain difficulty in carrying out agriculture, even at the small scale, and a comparative advantage of contemporary low-lying farmsteads. Such pattern could indicate the existence of small-scale settlement systems, in which lower agrarian farmsteads and higher, non-agrarian, settlements worked in association and specialised in different tasks. Conversely, EM2 hilltops have fertile catchments, indicating a stronger agrarian attitude and greater autonomy from scattered farmsteads. This might be an indication of a progressive nucleation of the majority of the rural population in hilltop villages as part of a monastic organisational impulse[150]. Thus, the data collected here suggests that, until the 9th century, the rural population was in great part dispersed, though at times occupying new parts of the local environment. In the 10th century, encouraged by monastic involvement, a nucleation process took shape leading to the formation of a new settlement form that combined nucleated villages with nearby exploitable lands[151].

A third factor that needs to be considered is the level of individual agrarian specialisation, which means investigating how land-type distributed amongst the settlements. Micro-regional environmental

147 Sum of all the singular catchments

148 Panella 1986 pp. 432–437

149 The new land composition should not evoke a specialisation in olive production, which would have found mention in the *Chronicon*. Rather it should be read as a proxy of a new approach to the exploitation of land.

150 That most of new 'villagers' were already local residents is also tacitly confirmed by the Chronicon Vulturnense. In fact, its silence about their provenance is in evident contrast with the explicit mention of the place of origin of 'immigrants': cfr. *CV 110* «*…Gualdu et Ursu marsican(i)s…*»; *CV 111* «*… Dominico Bonefaro de Landi, nativi de territorio Sancti Petri de Trite…*»; *CV 112* «*…qui fuerunt nativi de finibus Francia…*»; *CV 306* «*…Iohannes Termulese…*».

151 Against this reasoning, it could be argued that catchment suitability might have caused different rates of settlement success. In this alternative narrative, one needs to suppose that most of the hilltop sites date back to the Lombard period and that the real switch to nucleated rural population occurred in the Later Middle Ages-Early Modern period, when the sites with poor surroundings were abandoned. Accordingly, a dispersed rural population needs to be existing up to the same period. While this is a viable option, the current historical and archaeological knowledge does not support this hypothesis, as late medieval farmsteads in the area are almost unknown. However, future excavations in still inhabited villages, as much as survey methods more attentive of sub-recent periods, could provide fundamental new data on the issue.

size (0,2-1 ha) and low productive catchments. These sites could not have been completely self-sufficient and therefore depended to some extent on the agrarian product of group 1. These sites can be interpreted as "non-agrarian" rural settlements, which includes anything like *stationes*, workshops, pastoral sites or small villas. Finally, a third type of sites is characterised by medium-large scatter size (>0,5 ha) and occupies the top of the chart. The sites belonging to this last group could be generically termed as secondary rural centres, as their size implies a relatively high population, but it is to be expected a fluctuating involvement in agriculture depending on the horizontal position on the plot.

From the graphs, it appears clear that until the Lombard period the settlement hierarchy of the UVB was rather stable. Some slight changes occurred in the 2nd and the 6th centuries AD, but the rural organisation remained strongly pyramidal, with a large number of productive sites supporting fewer type-2 and type-3 settlements. During this period, it has been noted that the area in the proximity of Isernia (<1 hour walking) maintained a higher level of settlement density indicating the attractive role that the urban centre had on the rural population[158]. The disappearance of most of the rural settlements after the Lombard conquest lead to the abandonment of the Roman hierarchical organisation, which opened the way to the appearance of a new rural system. Despite the low site number, the EM1 period shows a loss of correlation between site size and catchment productivity. This could be explained as a particular outcome of the early medieval cultural milieu, in which architecture lost its role as indicator of power and wealth[159]. In the EM2 phase reappears a positive correlation between size and catchment productivity, but type-2 sites are now the most common, despite the trends of previous phases are respected. This new demographic structure is a further indicator of a change towards an economic organisation that allows a stronger autonomy of village communities in the UVB. The transition from a pyramidal structure, favouring interdependency between settlement groups, to an 'egalitarian' system, in which each settlement could sustain itself, suggests the transition from an exchange economy to a redistributive economy, as also the evidence of a growingly equal access to means of production (land) substantiates.

158 Pinchetti *in press*.
159 Wickham 2005 p. 486

5.5 Towards an agrarian history of the UVB

It is now necessary to translate the statistics presented above in a coherent history of the regional agrarian economy. The agrarian history of the UVB can be divided in four subsequent phases. The first, of which we are probably analysing only the final part, is limited to the 1st century AD and is characterised by a rather dense rural population, partially focused on cereal production possibly in relation with external demand (Rome? Neaples?). Already in the 2nd century AD occurs a first consistent reduction in site quantity (from 63 to 40; -30%), mostly affecting mid-sized "non-agrarian" settlements. The sudden growth in land access equality and the associated loss of agrarian specialisation indicate a new approach to agrarian production, less focused on the exploitation of one specific land type and more closely representing the composition of the UVB environment. The continuity until the 5th century AD, with evidence of a slight productive growth in the 4th century AD, suggests that the new local agrarian structure tied well within the imperial economy. The third phase includes both the LR2 and the EM1 periods. It entailed a further demographic contraction, leading to a drastic drop in the total amount of accessible land, and the gradual disappearance of the Roman hierarchical organisation of the rural settlements. Between the 6th and the 9th century rural settlements tend to be extremely small, indicating a substantial change in living habits. Despite the low demographic density would have created large tracts of free land in the most fertile areas of the UVB, some hilltops start being settled in apparently low productive surroundings. The poor agrarian potential of their catchments would not lead to believe that the local population could support itself autonomously and some economic tie must have existed between hilltop sites and lower farmsteads. Yet, the nature of these relations is still unclear. These hilltops might have been aristocratic dwellings, as

might indicate the material evidence from Le Mura-Mennella, whose inhabitants could impose some kind of toll on low-lying communities. Conversely, hilltops and valley sites could have been peer-settlements, whose economy was based on reciprocal exchange of foodstuff and whose largely different environments might have been aiming at a fuller exploitation of the various micro-environmental niches in the UVB. Whatever their origins, between the late 9th and the 10th century AD hilltop sites become the most common settlement type. The 10th century settlement pattern was innovative in many aspects and it appears to be part of a completely new economic system. Based on (proto-)villages located on hilltops, exploitation was probably limited to larger catchments in fertile hilly regions, granting a growing independence from low-lying farmsteads, but also requiring a fundamentally different way of conducting agriculture.

The evidence gathered in this chapter allows highlighting some elements defining the agrarian production system in the transition from the Roman to the Middle Ages. The key element of the period is the blend of elements of continuity and discontinuity. The chronological outlook proposed above shows the persistence of a slow and relentless change throughout the whole 1st millennium AD, but it is also possible to identify moments of stronger economic redefinition. The first occurred in the 2nd century AD, when land use becomes progressively less intense and evidence of agrarian specialisation disappears. These changes, were already in progress, but the inter-regional context (the growing reliance on provincial goods) accelerated its evolution in this particular contingency, determining the growingly local horizons of Apennine agriculture. Even the creation of hilltop villages in the 10th century was less abrupt than what the written evidence suggested and the event seems the apex of a series of unfolding events. In fact, some of the 10th century villages might have been settled already in the 9th century (as hypothesized for *Vadu Porcinum*), and the monastic reform is strengthening an already existing settlement system. Thus, continuity and discontinuity were occurring at different scales. On the short-term agrarian practices were extremely resilient and each new centuries introduces few novelties; however, in the long-term, the sum of these small shifts create huge differences, as clear when one compares the early imperial agrarian pattern with that of the 10th century.

Finally, it is worth asking to what extent the Early Middle Ages in this part of Italy were a «golden age of the peasantry», in which peasant households, free from rent and/or tax obligations, could organise their production independently and have full control of the output of their work[160]. Several elements suggest a high potential for peasant autonomy. The low demographic density of the period offered a high ratio of *per capita* fertile land, as much as a range of diverse exploitative approaches. The analysis of settlement hierarchies also indicates a rather egalitarian rural society between the 7th and the 9th century. Besides, the relatively low fertility of early medieval catchments supports the hypothesis that rural households in this period were following an almost self-sufficient lifestyle, in which surplus production was reduced to a bare minimum. Nonetheless, the existence of a variety of settlement types, some still following the Roman pattern and other prefiguring the later hilltop villages, suggests that intra-regional economic differences could have emerged from the occupation of different ecological niches. Communities occupying different ecological niches could have been interested in better exploiting the qualities of their territories in order to enter in symmetrical exchange with neighbouring households.

Therefore, in the UVB the «golden age» of early medieval agriculture materialised in the absence of a Central Place enforcing production goals and supervising exchange. The local horizons of peasant communities stimulated the research of a fuller exploitation of the landscape potential and created a peer-to-peer economy in which peasant participation was flexible and inconstant. Eventually, the monastery hijacked this independent economic system in the 10th century AD. Catchments started including larger tracts of fertile land and settlement differentiation was strongly reduced, eliminating a fundamental requirement for peasant independence. Still, the acceptance of the monastic reform from the rural population without any evidence of revolt (known for other parts of Italy[161]) indicates that farmers foresee some benefits in the active participation to the monastic project. As the next chapter will discuss, such benefits were mainly dependent on the possibility of participating to a broader exchange network.

160 Hodges 2012 p. 41; Wickham 2005 pp. 535–541
161 Wickham 2005 pp. 582–583

6. Ceramic distribution, economic integration and exchange networks

This chapter embeds the agrarian system described above within the inter- and intra-regional exchange networks, with the aim of understanding the relation between agriculture and exchange in the 1st millennium AD. There is a long-lasting debate on the nature of Roman exchange and on the effects of political fragmentation on its efficiency. While the decreasing homogeneity of material culture is used to indicate how negative imperial fragmentation was for trade, here ceramics are used to investigate how local exchange patterns adapted to the changing socio-political context. The founding concept is that local exchange systems offer a seamless history of the economic inter-relations amongst the rural communities throughout the 1st millennium AD. This information can be used to investigate the shifting influence of the various strata of society on goods distribution and lead to a multi-scalar understanding of exchange.

Archaeological approaches to the Roman economy already recognised the centrality of small-scale exchange networks in the understanding of economic systems, shaping a new way of conceptualising Roman trade. The study of early medieval economics can profit enormously from this change of perspective, as it disentangles the interpretation of post-Roman evidence from unrewarding comparisons of scale of exchange and opens the way for a completely new range of questions. Accordingly, the following chapter links intra-regional ceramic distribution to the integration within the broader Mediterranean context. After a short introduction on the concept of economic integration and on previous archaeological approaches to the topic, the central part of this chapter uses fine wares to describe the shifting integration within the Mediterranean exchange network. Following, intra-regional ceramic distribution is used to analyse the internal dynamics of exchange and its effects on the rural society. The approach to early medieval exchange is obtained through a sound methodology, giving more weight to qualitative aspects of material assemblages. The collected data will be used to discuss the role of Central Places (city and monastery) in shaping the local economic environment during the 1st millennium AD.

6.1 Economic integration and the pervasiveness of small-scale exchange.

To understand how local exchange relates to economic integration, it is first necessary to review briefly the meaning of integration in modern economics. While it might seem a straightforward term, its definition appeared only in 1961, when the concept was already in use amongst economists[1]. According to Bela Balassa, the term indicates both the *process* with which discriminations amongst economic units are abolished and the *state of affairs* in which lack «various forms of discrimination between national economies»[2]. Thus, different stages or levels of integration can subsist. These encompass a whole range of economic relations, from simple free trade areas (FTAs), in which tariffs are abolished, to total economic integration, in which the two economic units become fully economically interdependent with the acceptance of a common supranational controlling institution[3]. Initially, it was expected that economic integration would have been a major trigger for economic growth as a larger market area would allow more production and, consequently, a generalised growth in GDP. Nonetheless, empirical evidence showed that integration creates 'winners and losers'[4] and that a large series of biasing factors influence the effect of economic integration on national economies[5]. Therefore, it does not exist a simple equation between economic integration and economic growth, because the effects of integration depend not only on the size of the new system, but also on intra-regional contexts.

Part of this multi-layered complexity has been lost in the applications of the term in ancient economy, where it maintained the positive connotation that characterised its use in the 1950s. Economic integration is commonly discussed in relation to the economic effects of the constitution of empires. In general terms, it is assumed that, as empires unified a large geographical area in one political entity, they also eased trade connections amongst different geographic areas and, thus, created higher levels of economic integration[6]. In the imperial market, each province would find profitable to start a process of specialisation of production, and to use its output to trade with other regions of the empire[7]. The Roman Empire is often used as a typical example of such model, because the mass of material criss-crossing the Mediterranean (ceramics, foodstuff and raw materials) is believed as the indisputable evidence of a well-integrated economic system[8].

However, evidence of long-distance trade is not necessarily an indicator of economic integration and this is obvious when considering the long-lasting debate between 'modernists' and 'primitivists' on ancient trade[9]. Still, in spite of the divergences on the nature of imperial economy, it is taken at face value that the disappearance of political unity caused the fragmentation of the Mediterranean economic region[10]. Material evidence certainly had a role in creating such narrative. The disappearance of mass-produced ceramics in the 7th century AD is an unmistakable evidence of the disruption of the Mediterranean market[11]. In the 8th century, even the Italian peninsula transformed into a mosaic of non-interacting economic micro-units in which exchange was limited to urban hinterlands and to relatively poor-quality material[12].

If the archaeological material clearly testifies the narrowing of exchange horizons, focusing exclusively on economic fragmentation risks of misrepresenting the complexity of the transition from the Roman to the early medieval exchange network. For example, some archaeologists have been particularly interested in highlighting continuity in long-distance trade after the 5th century, but by doing so they downplayed the role of local exchange networks in the imperial economy[13] and the importance of local exchange in the *longue duree*. Moreover, it is not necessarily true that political fragmentation leads to a growth in trade

1 Balassa 1961a pp. 1–3
2 Balassa 1961b p. 1
3 Balassa 1961b
4 Baldwin, Forslid 2000 p. 307
5 Venables 2003; Baldwin, Venables 1995
6 Woolf 1992 p. 283
7 Bang 2002 pp. 5–6
8 Howgego 1994 pp. 5–6
9 De Blois, Pleket, Rich 2002 pp. ix–xiv; Morley 2007 pp. 2–6
10 Ward-Perkins 2005a pp. 128–134; Reynolds 1995 p. 106
11 McCormick 2001 pp. 53–60; Panella 1986
12 Wickham 2000b pp. 358–363; Wickham 2005 pp. 728–741
13 Paterson 1998 p. 164

friction. Modern evidence suggests that the limited internal markets of small political entities are often a stimulus for more exchange between geopolitical units[14]. Finally, it is often unspecified the level to which poorer social groups are integrated in long-distance exchange[15]. Answers to these questions can start providing a more nuanced outlook on the transition from the Roman to the medieval exchange systems.

Adopting the concept of economic integration in the archaeological discourse can help acquiring a clearer representation of how the rural economy of the UVB changed in the course of the 1st millennium AD. To do so, it is necessary to understand whether the Roman UVB was more integrated in the Mediterranean economy than in the second half of the millennium and to develop a sound archaeological methodology that explains the relation between long- and short-distance exchange networks. Conveniently, recent research on the Roman economy investigated the potential of different approaches to the topic, offering the possibility of building on this previous work to start analysing the change from the Roman to the Medieval rural economy.

14 Alesina, Spolaore, Wacziarg 1997
15 Bowden, Wilson 2009 p. 27

6.2 Archaeological approaches to small-scale exchange networks and their value for economic integration.

The ceramic evidence of the 1st millennium AD from the Italian peninsula has been a prime mover for a narrative of regionalisation and fragmentation. The apparent clarity of such evidence created two opposite tendencies amongst scholars dealing with post-Roman exchange networks[16]. A first approach, rooted in French scholarship, negates a complete disappearance of long-distance exchange and supports the existence of early medieval trade mainly using written references[17]. A second approach, based on the archaeological evidence from the Peninsula, gives more weight to intra-regional exchange networks and tacitly accepts the negative economic effects of the political fragmentation[18]. However, recent archaeological research is reassessing the importance of intra-regional economic systems in the Roman Empire, which implicates a changed perception of ancient economic integration and of the terms in which continuity between the Roman and the medieval period should be envisaged.

A considerably new understanding of ancient economic integration was provided in a recent output of the Roman Peasant Project[19]. The article outlines briefly the excavations carried out at Podere Marzuolo, in southern Tuscany, but it is mainly interested in describing how the ceramic production occurring at the site took part in the broader framework of the economy of Roman Italy[20]. Building up on previous discoveries (namely that from Torrita di Siena), the evidence from Podere Marzuolo suggests that, alongside the main ITS production based in Arezzo, a variety of local workshops fulfilled intra-regional demand. The site, located 60 km southwest of Arezzo, showed evidence of two phases of production, in the first (30-10 BC) an experimental type of ITS was also present, in the second (50-70 AD) 'real' ITS was produced. The second phase, corresponding to the period of maximum expansion of ITS distribution, is especially meaningful as it indicates that, despite this region being close to the main production area of this ceramic (ca. 60 km away), the local demand could be satisfied only by local artisans. The results demonstrated that local communities did not have access to Arretine ITS, which was produced to satisfy principally the demand of long-distance trade and urban centres, thus showing a divide between rural exchange and long distance trade already at the height of Roman Imperial period. However, such divide did not translate into a strong qualitative difference between the products circulating in the two spheres of exchange.

Also the work of the Minor Centre Project, investigating the role of secondary agglomerations in the rural economy, allowed further outlooks on the

16 McCormick 2001 p. 2
17 Duby 1974 pp. 57–61; Lombard 1972 pp. 31–46, 95–105
18 Cfr. the prominently local focus of the contributions in Cirelli, Diosono, Patterson 2015.
19 Ghisleni, Vaccaro, Bowes, et al. 2011; Vaccaro, Ghisleni, Arnoldus-Huyzendveld, et al. 2013
20 Vaccaro, Capelli, Ghisleni 2017

relation between intra- and inter-regional networks[21]. A first article aimed at offering a first approach to the reconstruction of small-scale exchange networks by tracing the catchment area served by kilns producing coarse ceramic items. To do so, the compositional fingerprint of various kilns' products was obtained through thin-section analysis, and then it was compared with the evidence from field survey assemblages. Despite this scientific approach revealed unsuccessful due to some methodological limitations, a morphological approach to ceramic distribution demonstrated that artisans at minor centres were committed to produce pots especially aimed at the local market, sometimes proposing variations of other common ceramic shapes[22]. In another article[23], Gijs Tol developed a methodology to use survey data to determine the level of integration of the various micro-regions within the Pontine Region (60 km south of Rome) within long distance market. The experimental method adopted in this second article tries to address economic 'performance' at different scales. First, amphorae and fine-wares overall quantities are used as a proxy of regional dependence on imported or self-produced goods. Secondly, the same proxies, but within micro-regions, are used to demonstrate how specificities arise depending on the economic role expressed by certain location on an intra-regional level. Finally, the distribution of well-known amphora types, imported from other regions, is used to identify preferential marketing areas of some products. Despite the preliminary stage of its publications, the Minor Centre Project shows clearly that even in the Roman period crucial differences existed amongst sites in the same territory and that their local economic role would determine their success in accessing larger scale exchange networks.

If intra-regional systems of exchange are a rather recent 'discovery' for the early imperial period, their existence has always been known for the late Roman period. Still, as knowledge on late antique ceramics increased in the last two decades, the conceptualisation of late antique exchange networks is acquiring a more complex structure. A ground-breaking study has certainly been the publication of the material from the kiln at Calle di Tricarico[24]. The novelty was not only the availability of a well-stratified late antique pottery production facility (4th-6th century AD), but the possibility of inserting it within an already known network of distribution. The pottery found at Calle was mainly RPW, but plain- and cooking-wares were also present. As typical for late antique ceramics, the assemblage was dominated by closed shapes such small table-amphorae and single-handle jars, even though basins were also well attested[25]. Ceramic fragments sharing similar characteristics to those produced at Calle have been found throughout Lucania, Campania and in some sites of Apulia, even though it has been noted that the specimens further away from Calle were clearly produced at different kilns[26]. Importantly, the discovery of great quantities of Calle's ceramic in the nearby excavation of S. Giovanni di Ruoti showed how this ware became dominant also amongst the elites in the course of the 5th century AD[27]. Also other sites in Lucania present the same pattern in which RPW is constantly more present than ARS ware, suggesting the possibility that this region of the Southern Apennines could sustain a relatively strong economic autonomy from the rest of the Peninsula and yet maintain a high economic complexity[28]. While Calle's products were certainly more regional than Arretin wares, the Lucanian context is one of the strongest archaeological indications of a functioning exchange system in Late Antiquity, in which regional demand could be satisfied by locally produced high-quality ceramics and, thus, in which the economy allowed sustaining a class of specialised artisans[29]. Besides, the recent discovery of a kiln dated to the 2nd-3rd century AD is suggesting that the function of Calle is inserted in a longer tradition of local ceramic production[30].

A complex reconstruction of a regional exchange system exists for the province of Siena[31], close to the area investigated by the Roman Peasant Project. By comparing the different percentages of imported and local ceramics in an urban context

21 Tol, de Haas 2016
22 Tol, Borgers 2016 pp. 365–369
23 Tol 2017
24 Di Giuseppe 1998; Di Giuseppe, Capelli 2005
25 Di Giuseppe 1998 pp. 737–738
26 Di Giuseppe, Capelli 2005 pp. 396–397
27 Freed 1982 p. 335 tab. VIII; Small, Freed 1986 pp. 119–123
28 Di Giuseppe, Capelli 2005 p. 397
29 Small, Freed 1986 p. 126; Salvatore 1982 p. 51
30 Di Giuseppe 2010
31 Bertoldi, Castiglia, Castrorao Barba 2015

(Siena) and in several rural settlements (but with a focus on the *vicus* at S. Cristina in Caio), the authors managed to determine how urban and rural centres participated to a regional exchange network in many ways similar to that existing in Lucania. The first set of evidence, amphorae distribution, showed that in Siena transport containers were almost exclusively arriving through maritime exchange (ca. 90% of the amphorae sherds), while Santa Cristina in Caio had a much stronger presence of italic vessels, even though still in the minority (ca. 25%)[32]. Similarly, tablewares in the urban context were mainly African vessels, even after the appearance of RPW in the 5th century. On the contrary, the material from the excavations of S. Cristina in Caio and of Torraccia di Chiusi, together with those from the survey in the Chianti Senese, show that rural inhabitants were almost exclusively dependent on local imitations of ARS and on RPW vessels[33]. The authors explained the quantitative difference between the two contexts as resulting from a hierarchical difference of rural and urban markets in the wider distribution network. In this reconstruction, the town acquired both Mediterranean imports and local products, but proceeded to redistribute only these latter items to the hinterland, creating a local network that was active both in the imperial and in the late Roman period[34].

The site of Philosophiana in inland Sicily, even though located outside peninsular Italy, depicts well how rural centres could change their economic function role throughout the 1st millennium AD[35]. The settlement, few kilometres away from the luxurious villa of Piazza Armerina, has been interpreted as an agro-town founded in the Augustan period, undergoing a major expansion in the 4th and 5th century AD and still occupied in the 8th-9th century, even though with a considerably different shape[36]. The ceramic assemblage from the intensive archaeological fieldwork at the site revealed that the late Roman settlement had a strong economic link with Tunisia and this connection continued uninterrupted also during and after the Vandal conquest of the African Mediterranean coast[37]. Amphora evidence shows that the trade of foodstuff from Tunisia possibly went alongside, or maybe marshalled, a thriving regional wine trade in the 5th century[38], which shows how Philosophiana functioned as a gateway between Mediterranean and local exchange networks. The end of the economic relation with Tunisia did not lead to the collapse of Philosophiana's economic system, which instead redesigned its role of local economic hub, as testified by the 8th-9th century ceramics produced *in situ* and found at various sites in its hinterland[39]. The example of Philosophiana, surely atypical in its vitality for peninsular Italy, is anyhow meaningful, as it shows how small-scale exchange draws a different history of continuity and transformation, than that of the long-distance trade.

Despite the variety of chronologies and of archaeological contexts analysed above, all the case studies highlight the seamless existence of a local exchange network, rooted in the Roman period and lasting into the Early Middle Ages. This network, more than providing 'global' goods to peasants, linked rural demand to regional production. Besides, the evidence from the Pontine Region and Southern Tuscany confirm that local exchange could take advantage of the infrastructures of long-distance trade, but also that it was much more flexible and could easily find alternative linkages. The comparison of the distribution of local wares against that of «industrial productions»[40] showed that in all centuries these latter products were quite selective in their distribution, and reached settlements of different hierarchical classes in various quantities. On the contrary, local alternatives were definitely more pervasive in their outreach and, despite their difficult recognition in the archaeological record, eventually reached a wider range of settlement types.

It is noticeable a certain under-representation of survey material in the case studies above. Certainly, the poor chronology of survey assemblages[41] makes their

32 Bertoldi, Castiglia 2015a p. 135
33 Bertoldi, Castiglia 2015a pp. 136–137
34 Castiglia 2014; Bertoldi, Castiglia 2015b
35 Vaccaro 2015
36 Vaccaro 2015 pp. 281–289
37 Vaccaro 2015 pp. 289–292
38 Vaccaro 2015 p. 297
39 Vaccaro 2015 pp. 298–302
40 Whitehouse, Arthur 1982 p. 39
41 Patterson, Cambi, Raynaud, et al. 2000 p. 259; this still holds true for the majority of survey projects in peninsular Italy.

analysis more complex, but, as highlighted by Gjis Tol, they hold the potential of contributing substantially in the reconstruction of ancient local trade networks[1]. The following chapter will build on the approach proposed by Tol, trying to add some elements of the other case studies and distributes the analysis in a three-levelled fashion. The first part of the analysis will investigate the integration of the UVB within the larger economic framework of the Italian peninsula. The second level of analysis will focus on intra-regional variances and will try to identify correlation with 'global' economic shifts. Thirdly, the early medieval context, whose data source is the most atypical, will be analysed from an alternative perspective, based more on qualitative aspects of the material culture, rather than quantitative. This threefold approach offers a novel insight on the history of exchange networks within the UVB, which can then be compared with the conclusions on production reached in the previous chapter and eventually provide a fuller outlook on the economy of this Apennine region throughout the 1st millennium AD.

1 Tol 2017 pp. 367

6.3 Fine wares: a proxy for inter-regional integration.

Ceramic assemblages hold a strong economic meaning, providing insights on the activities taking place in a site and, consequently, on the organisation of economic production. Survey archaeologists often leave unexplored the economic value that is inherent in the collected material, preferring to use ceramic as a chronological indicator[2]. The first and most straightforward mean to measure the economic integration of a region within a larger economic context is by analysing the amount of imported goods circulating in the research area. This approach is easily applicable in landscape archaeological projects and is comparable to that used by Gijs Tol in the Pontine Region and explained in the previous paragraph[3]. While the approach of the Dutch archaeologist was based on the double evidence of amphorae and fine wares, both the SVP and the CLP amphorae fragments are scarce, and therefore the following analysis will be based exclusively on fine wares (Italian Terra Sigillata, ITS; African Red Slip Ware, ARS; *ceramica levigata a stecca*, o *a stralucido*, STR; and Red Painted Ware, RPW)[4].

The histograms below represent the weighted quantities of fine wares in the UVB during the 1st millennium AD. The left diagram (*Fig. 6.1a*), including all the sherds attributed to any of the four ceramic classes, clearly indicates that, after a peak in the first half of the 1st century AD, the amount of imports decreased slowly until the mid-4th century AD. The timid growht of the 5th century does not last over the beginning of the 6th century AD. Interestingly, as the flux of African ceramics dies out between the end of the 6th and the 7th century AD, there is no growth in the amount of RPW, because this ceramic class occurs mainly in the 9th-10th century AD to become more widespread in the High Middle Ages. This is extremely interesting, as it might indicate that in Late Antiquity this ware was exclusively circulating in urban contexts, not reaching the rural communities in this part of the peninsula.

The data showed in the diagram *1a* is disturbed by a large number of sherds that cannot be attributed with certainty to any shape, and therefore create a background noise that might bias cross-chronological differentiation. For this reason, a second diagram (*fig. 6.1b*) built exclusively with diagnostic fragments can usefully integrate the observations made on the first diagram. In this case, it is possible to notice that the trend of the first half of the 1st millennium AD is extremely different. First, there is no evident decline. There are some up and downs, with the 3rd century marking an evident and meaningful contraction in the number of imports, but the overall trend between 1st and 5th century AD is of stability. The 2nd century AD marks a much brisker transition from ITS to ARS than what shown in the other graph, with ITS imports almost disappearing in the second half of the 1st century AD and ARS filling the gap only in the 2nd century. The 5th century AD marks the moment of maximum circulation of fine wares in the 1st millennium AD, partially be explained by the appearance of the successful Hayes 61, but also an

2 Tol 2017 pp. 367
3 Tol 2017 pp. 371–376
4 For more thorough information about ceramic classes cfr. chap. 4 par.1-5

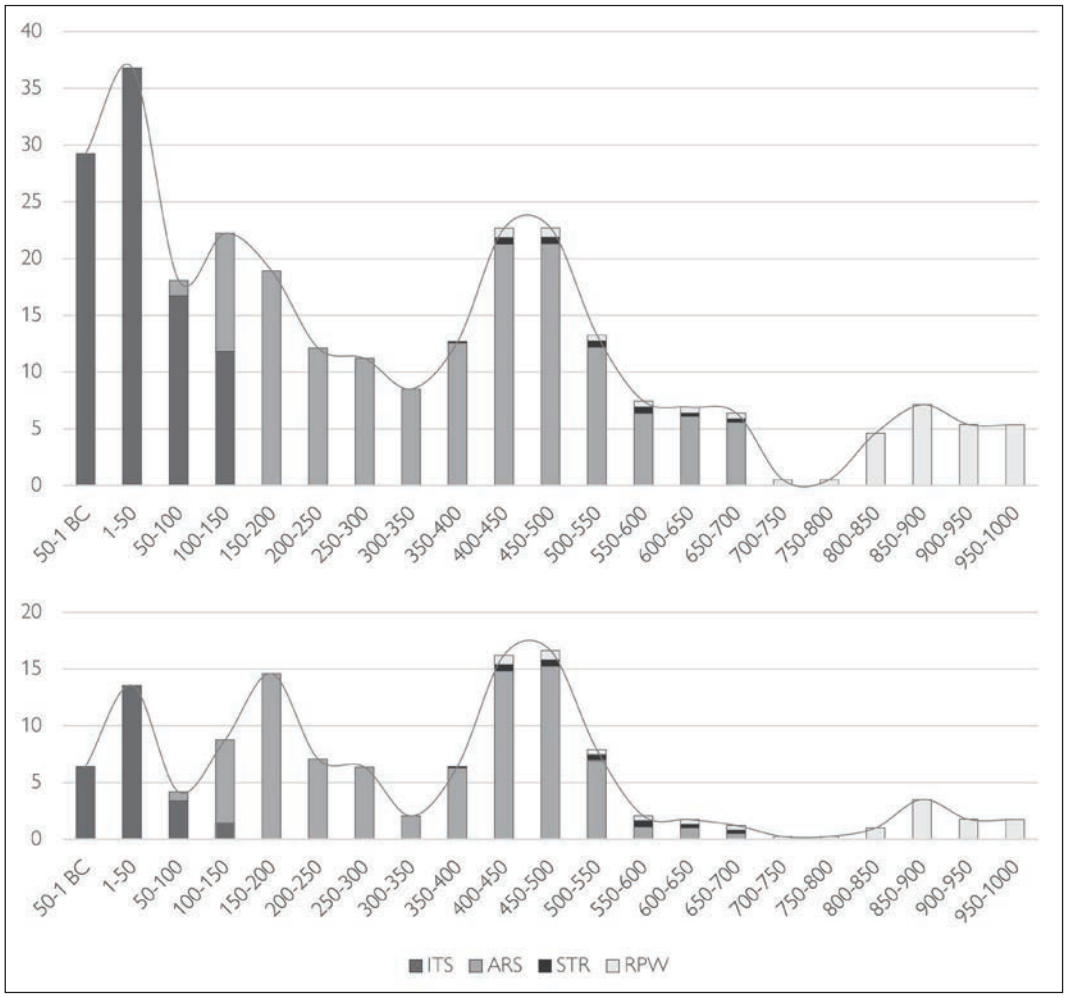


Fig. 6.1a (top) Fine ware trend (all fragments).
Fig. 6.1b (down) Fine ware trend (only diagnostic).

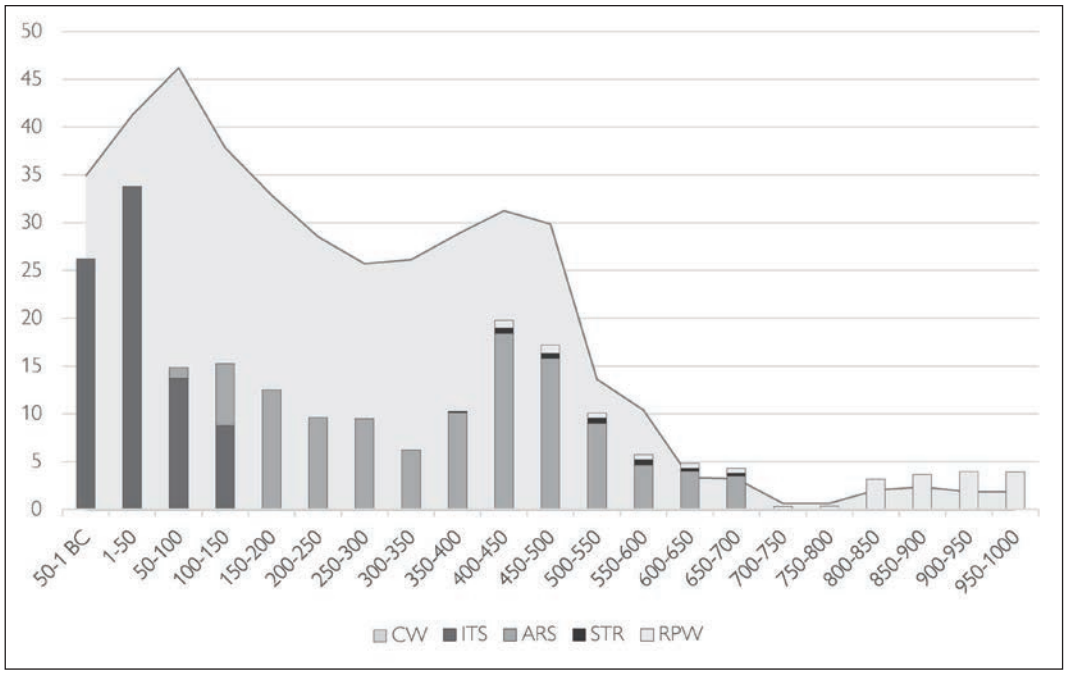


Fig. 6.2 Comparison fine ware and coarse ware quantities in the CLP assemblage.

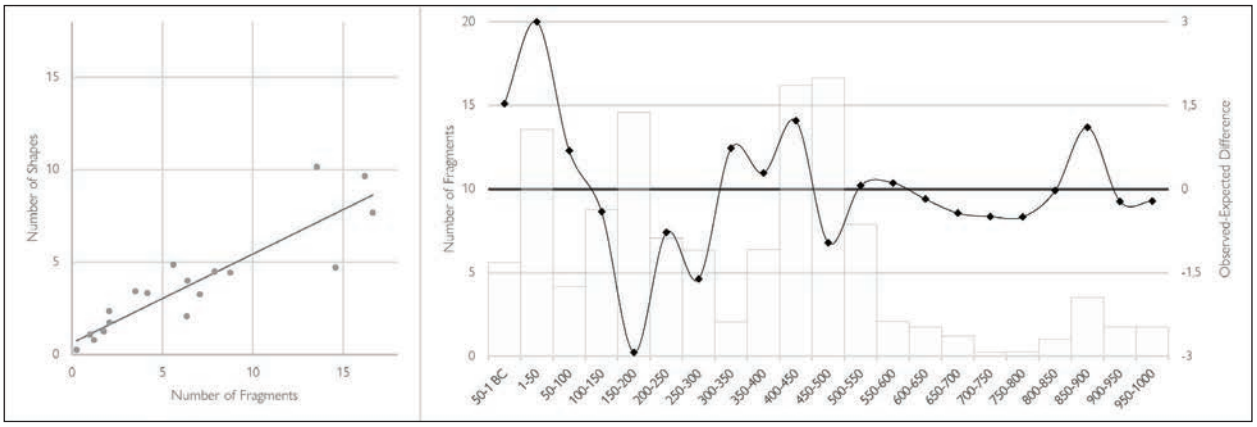


Fig. 6.3a-b Fine ware assemblage heterogeneity. The black line in 3b indicates the trend line in 3a.

inversion of tendency. In fact, the second half of the 1st millennium AD has a much reduced presence of fine ceramics, despite a timid growth after 850. While the low rate of success in accessing EM settlements without stratigraphic research certainly biased negatively the data, it remains indicative that the sites containing early medieval material produced relatively few fragments of higher quality ceramic.

It is worth adding some context to the data just showed, by considering also the presence of coarse wares. A quantitative comparison between fine and coarse wares is possible exclusively with the CLP assemblage, as the collection method used in the SVP does not represent faithfully coarse wares quantities. As it can be seen in *fig. 6.2*, fine and coarse wares follow extremely similar trends: two peaks are evident in the 1st and in the 5th century AD and after this second period of growth, ceramic quantities simply decline until the 10th century. The chronological relation between the inversions of trend in coarse wares and fine wares shows an interesting feature. In fact, the former shows more inertia to demand drops (its decline begins only with the 2nd century AD) and more sensibility to growths in demand (it anticipates of half a century the growth of the 5th century). Moreover, variations in coarse wares appear much less dramatic than in fine wares. It is possible that the distance between production centre and consumption area created these chronological variances, at least in the Roman period. In fact, if coarse wares were mainly produced in the Italian peninsula for the Italian consumers, they could more easily adapt to changes of taste or of quantity of demand. Conversely, fine wares, whose production aimed at a much larger public, could not adapt production to each supplied region, therefore having more difficulties in accessing the rural public.

Another important indicator for ancient economic integration is the variety of imported goods, as this can be used as a proxy for the strength of the link between local and global networks. In the case of this research, this means that two ceramic assemblages with the same amount of fragments, but different quantities of shapes, indicate different levels of economic integration, because it can be assumed that, the more variegated the ceramic assemblage, the stronger was the ancient economic tie. Variety can be measured in two different ways: "richness" indicates the number of shapes available on the market; "heterogeneity" is the difference between the observed number of shapes and the expectation based on the size of the sample[5]. The following analysis will use heterogeneity, because sample weighing allows a better cross-chronological comparison.

Fig. 6.3a shows the relation occurring between number of fragments and number of shapes. As expected, the two factors follow a straight positive relation, indicating that to a growth in number of fragments always leads to a growth in number of shapes. The relation described by the tendency line has almost a 2:1 ratio (every two new fragments it appears a new shape) and the divergence from the trend can be used as an alternative measurement of heterogeneity. A positive divergence indicates that the assemblage is richer (more shapes) than what expected from the average, while a negative divergence indicates a period in which the market was relatively poor (less shapes than

5 Garraty 2009 pp. 160

expected). Graph *3b* indicates the cross-chronological change in the two factors used to measure "integrative performance" in the UVB. As it can be noted, the observed-expected shape difference follows a different trend from that of fragment numbers, yet there clearly is some type of relation amongst the two factors.

Three main phases, partially overlapping with changes in wares, characterise the 1st millennium AD. In the first phase, corresponding to the period dominated by ITS (until 100 AD), it is noticeable a certain direct relationship between shape and fragment factor, with growing fluxes of imported wares accompanied also by a widening rage of shapes available to the consumers of the UVB. With the introduction of ARS, the relation between quantity of fragments and number of shapes breaks up and, despite the sudden success of ARS, its introduction led a strong reduction in shape heterogeneity. As the link with African imports stabilises, the range of available shapes widens again and reaches a positive ratio in the 4th century AD, interrupted abruptly in the second half of the 5th century AD. With the 7th century AD and the transition to RPW, the relation amongst the shape and fragment factors returns to the direct relation noticed during the ITS period. Nonetheless, it is interesting to notice that the heterogeneity value is almost continuously negative, a sign of the relative poverty of the range of early medieval fine wares. Interestingly, during the ARS phase, the shape factor seems always anticipating the changing tendencies in quantity of imports, as if the availability of different shapes affected the development of ARS demand. The absence of such delay in the other wares is probably to be connected with the fact that ITS and RPW production centres were closer to the UVB and, therefore, information on demand was faster in reaching the producer.

In synthesis, two main features characterise UVB's economic integration in the course of the 1st millennium AD. First, the 5th century AD marks the turning point, after which the UVB peasantry stops being an integral part of a Mediterranean economic network. The first half of the millennium is characterised by a widespread presence of imported wares, at specific times even offering a wide range of shapes. Conversely, the ceramics circulating in the second half of the millennium show both a quantitatively poor availability and a limited range of shapes. Secondly, the comparisons of coarse ware and fine ware fluxes as much as that between assemblage heterogeneity and number of vessels support the eventuality that a higher flexibility to changes in demand determined a stronger resilience in moments of crisis, and greater sensibility to periods of growth.

6.4 Ceramic distributions and the economic role of settlements.

As internal demand was shaping the relation of the UVB with the Mediterranean and peninsular economy, it is worth asking how it modified intra-regional exchange in the 1st millennium AD. The following paragraph reconstructs the history of the intra-regional economic system of the UVB and links its changes to the integration/segregation periods recognised above. To ease linking the two levels of analysis, intra-regional modifications will be approached with the same proxy used to measure economic integration, fine wares, but adopting a new scale of analysis. Thus, the paragraph looks for micro-regional, sometimes individual, divergences from the regional, or aggregate, trend. The results will provide new data on the modification of intra-regional structures of exchange and on the percentage of rural population participating in long-distance trade. The analysis of the distribution of fine wares within the UVB throughout the 1st millennium AD is a necessary introductory step to approach regional exchange. First, it shows how imported goods distributed amongst the rural society, offering a tool to measure the pervasiveness of inter-regional links. Second, fine wares distribution can reveal the presence of routes and hubs within the UVB. To better approach these two aspects of fine ware distribution, the analysis will consist of a statistical and a locational part, the first describing the evolution of fine ware access amongst the rural population, the second aiming at describing the modification of trade networks and the emergence of hubs of exchange.

Histograms showing the frequency of diverse quantities of fine ware fragments are a relatively simple way to visualise how pervasive the access to fine wares was amongst the rural population of the UVB[6]. As

6 Shennan 1988 pp. 34–36

shown in *Fig. 6.4*, all the periods are positively skewed, a trend recreating the most common patterns of wealth distribution[7]. A positively skewed histogram indicates a non-egalitarian distribution of a good, where the largest portion of individuals have a poor access to the commodity while only a minority shows a stronger purchasing power. After the 4th century AD, the flattening of the graphs kurtosis marks a moment of visible change, during which the number of sites with only one fragment reduces greatly, while the number of sites with 2 or more fragments is rather stable. This change indicates that while access to fine wares remained almost unvaried for those settlements with a solid connection to the distribution network of this ceramic type, poorer settlements find it more difficult to continue accessing this market. Finally, with the end of the 7th century AD, it is evident a progressive end of fine ware accumulation, with no site having more than 2-3 sherds.

These histograms cannot be fully understood without an analysis of the change of geographical distribution of imported ceramics in the UVB. *Fig. 6.5* shows the sites with imported wares classified by quantity of fragments. The 95% and 80% percentile density areas (weighted by fragment number) and the three nearest settlements are also drawn to help identify clusters of imported ceramics and preferred routes. The maps show that, while histograms suggest a certain continuity, geographical distribution indicates a strong dynamism. These patterns can be interpreted by using the spatial economic models of Leah Minc[8], an adaptation to archaeological contexts of Caroline Smith's economic schemes[9]. In Smith's original work, the spatial organisation of distribution networks connotes the specific exchange system for economies with different levels of commercialisation[10]. In her reappraisal, Leah Minc proposed a way to identify the exchange systems dominating in ancient societies using the archaeological data. Her approach identifies four exchange systems (*solar*, *dendritic*, *overlapping* and *integrated*) according to four distinguishing features (*scale*, *network*, *hierarchy* and *political congruence*), but

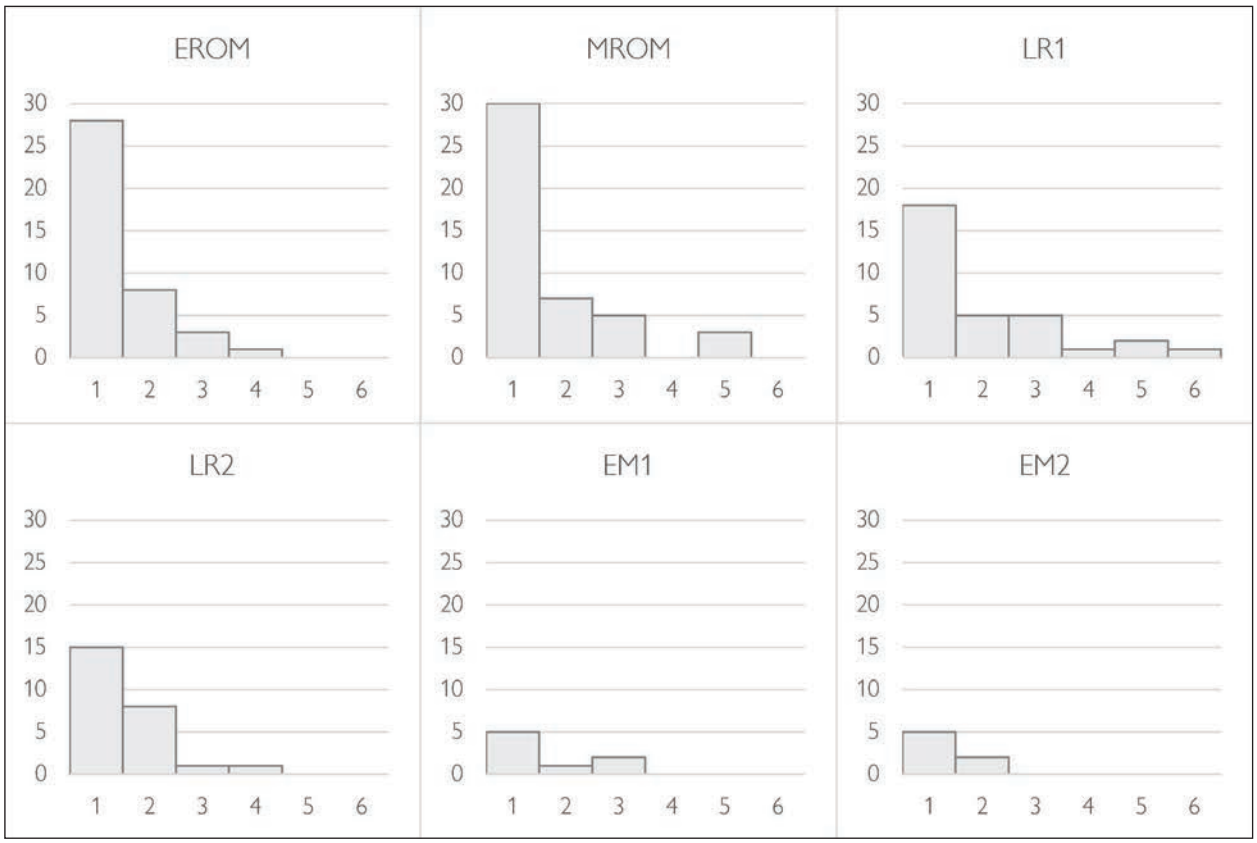


Fig. 6.4 Site frequency per number of fine ware fragments.

7 Smith 1991 p. 53

8 Minc 2006 p. 85

9 Smith 1976b; a summary can be found in Hodges 1988 pp. 18–25

10 Smith 1976b pp. 313–314

an initial differentiation can already be prospected using network and hierarchy levels[11].

The dispersal of ITS in the 1st century AD shows that there is a certain evenness in the distribution of this ceramic throughout the UVB. Some richer settlements can be identified, but their differentiation from the rest of the population is rather low. Two denser concentrations of material can be identified around Isernia. ITS seems then distributed around a clear centre (the town) in concentric areas, indicating a wide-ranging marketing area making use of several secondary agglomerations. These qualities would suggest the existence of an integrated exchange system with some 'imperfections' (the Rocchetta plain) possibly created by gaps in the archaeological knowledge. In the 2nd century AD, the transition from ITS to ARS brought a profound change in the way fine wares distributed across the countryside. While the wide outreach of the first ARS shapes indicate the maintenance of a highly networked rural population, the appearance of a rather large number of similarly rich hubs symbolise the crisis of the mono-focal system of the 1st century AD, substituted by a system of smaller redistributive centres. As seen above, this new economic equilibrium, in which different centres offered the access to long distance exchange to the rural population of the UVB, widened the gap between few 'fine ware rich' hubs and many 'fine ware poor' satellite settlements. As there is no evidence that Isernia maintained the previous leading economic role, it can be suggested that in the 2nd-3rd century minor centres became more independent and formed a series of overlapping (and competing?) economic networks.

At the eve of Late Antiquity this minor-centre-model disappears. In fact, in the 4th-5th century a series of profound innovations gave a new shape to the economic system of the UVB , offering an equilibrium that will last until the 7th century AD. As noticed in the histograms, it disappears the 'carpet' of 1-fragment sites that characterised the research area until that moment, with a consequent reduction of the network edges amongst the settlements. Second, most of the material concentrates in few sites around the city of Isernia, proving the reappearance of the town as a leading economic hub, but with less relevance than in the 1st century AD. Therefore, the UVB is divided in a dynamic peri-urban region and a stagnating peripheral area (especially west of the Vandra river). This context could be related to the emergence of a dendritic system. Compared to the early imperial period, in the late antique context physical and social distance from the gateway community (the town of Isernia) had a much stronger effect in defining the participation to long distance exchange. Still, the evidence from S133 and its network with the southern Valle Porcina shows that independent hubs still existed also in economic backwaters. Eventually, with the further weakening of core-periphery relations in the 6th-7th century, a solar system is established in the UVB urban areas, while the economic ties of peripheries decay, anticipating some characters of the early medieval economy.

An endemic lack of data limits the speculation on the economic evolution after the 8th century. The fact that RPW fragments are extremely few, despite the rather close production centres in Campania and Abruzzo, or even at San Vincenzo al Volturno itself, would suggest that RPW did not circulate amongst the rural population and that its use regarded mostly the urban inhabitants[12]. The fact that the site with the richest RPW evidence from fieldwalking (A305) was located only a few hundred metres from the urban walls give further support to the idea of RPW as a predominantly urban phenomenon. With these premises, it is not hard to envisage the disappearance of exchange networks amongst the rural population of the UVB, which became in these centuries growingly self-sufficient. While apparently unquestionable, this picture is largely based on biased archaeological data. Therefore, it is necessary to offer an alternative approach on the early medieval exchange, with which this scenario of apparent economic self sufficiency can be tested.

11 Minc 2006 pp. 83–87

12 RPW in urban contexts is known from Terzani 2004 p. 183 fig. 9.

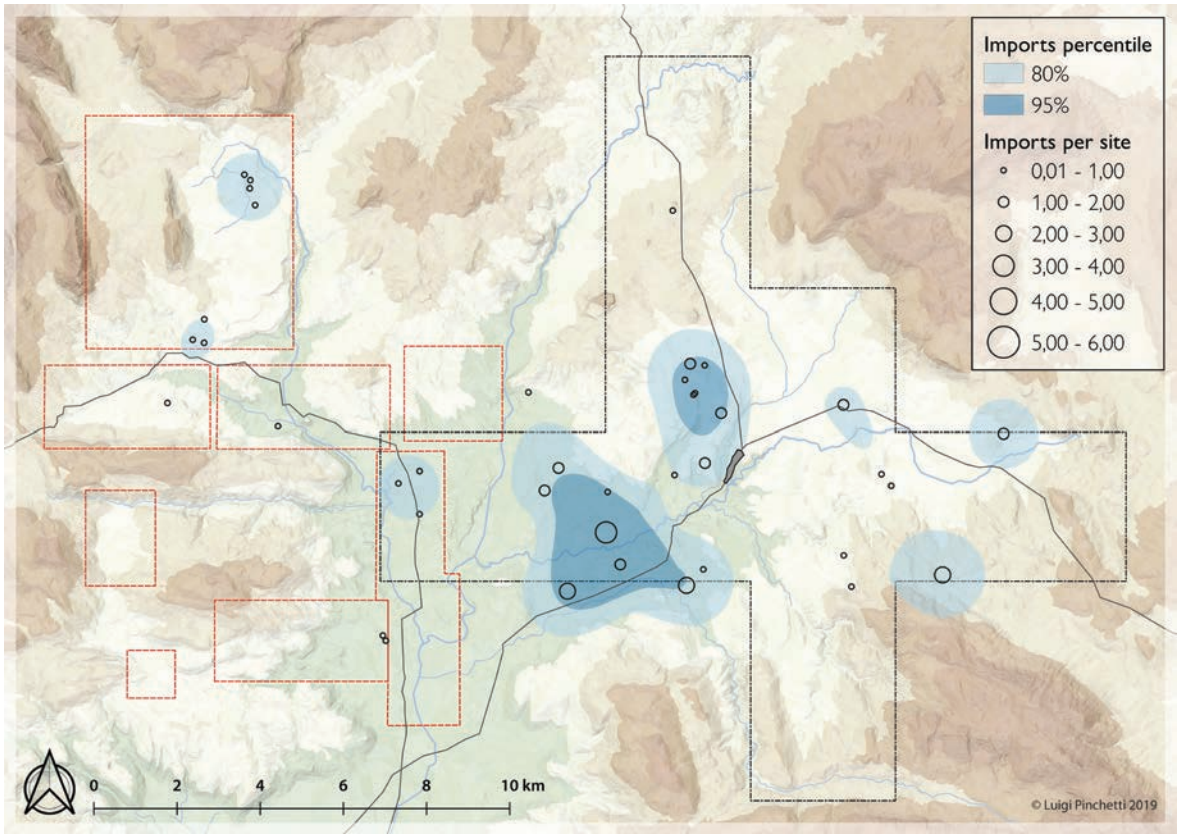


Fig. 6.5a Fine ware distribution in the EROM period.

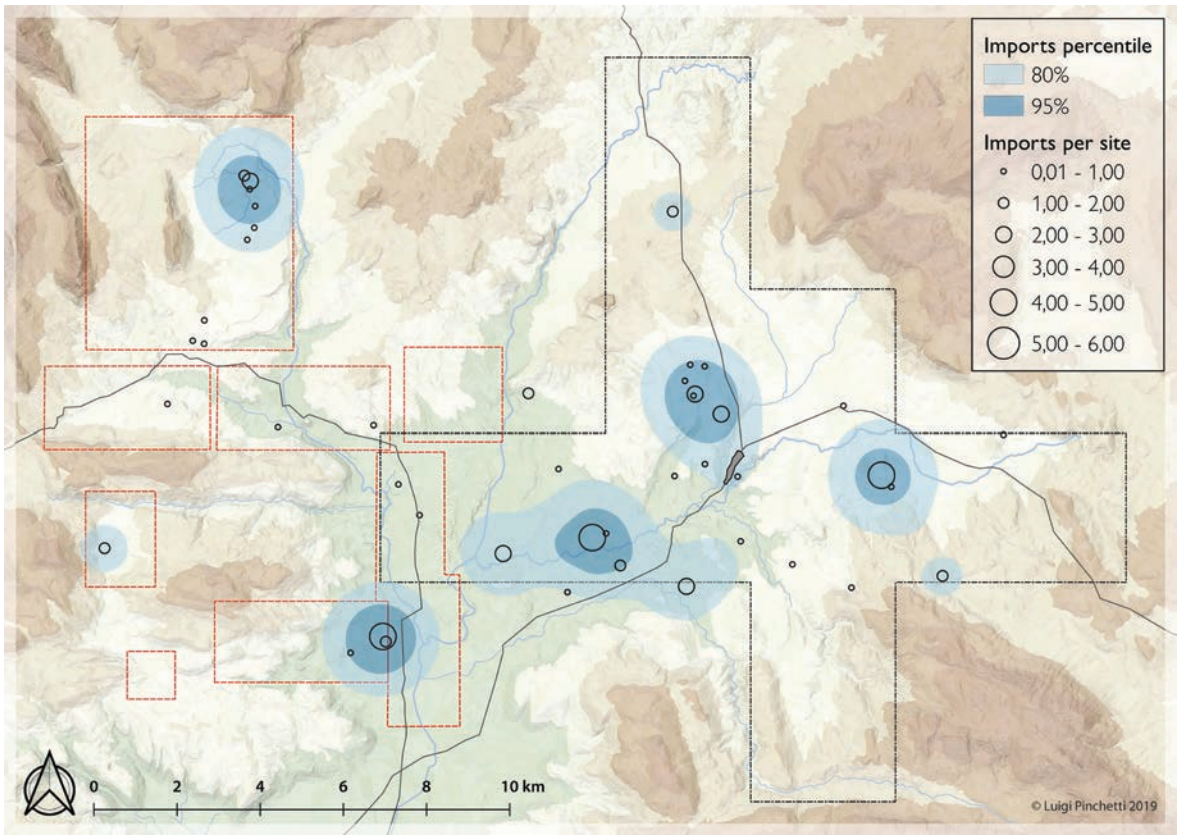


Fig. 6.5b Fine ware distribution in the MROM period.

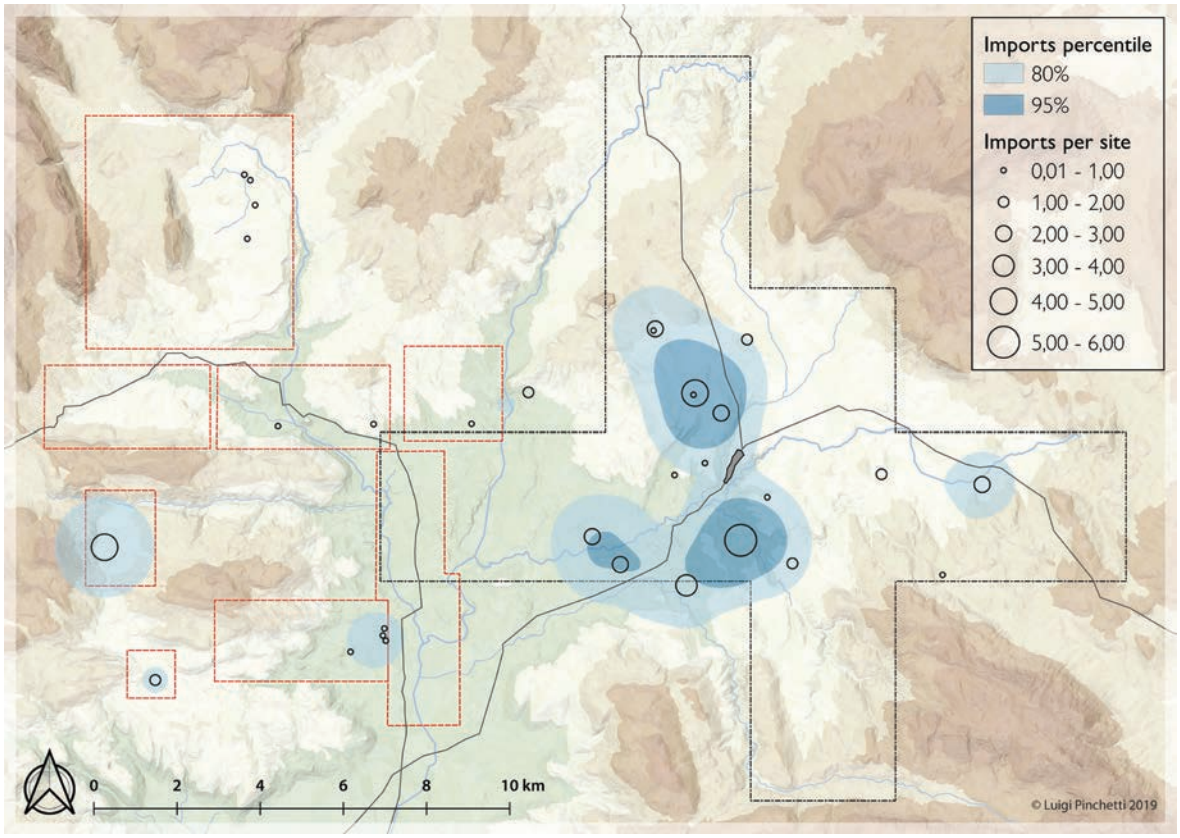


Fig. 6.5c Fine ware distribution in the LR1 period.

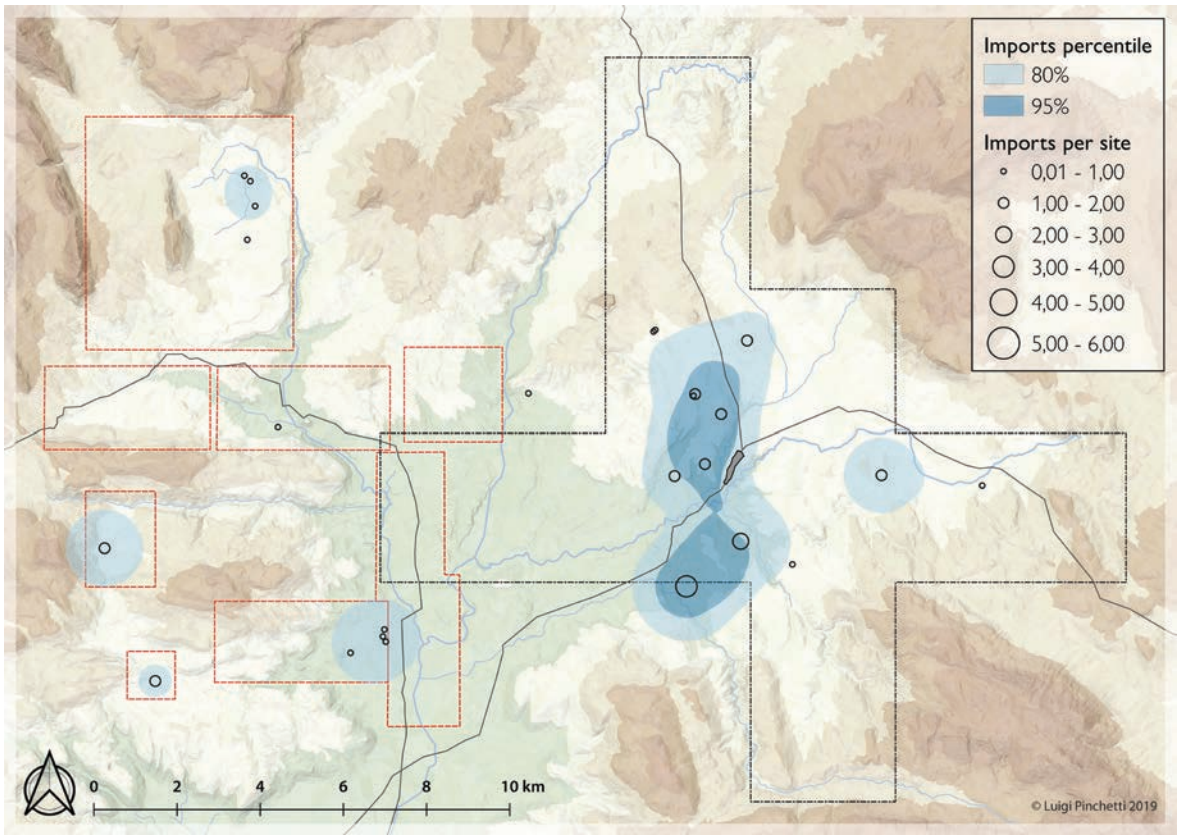


Fig. 6.5d Fine ware distribution in the LR2 period.

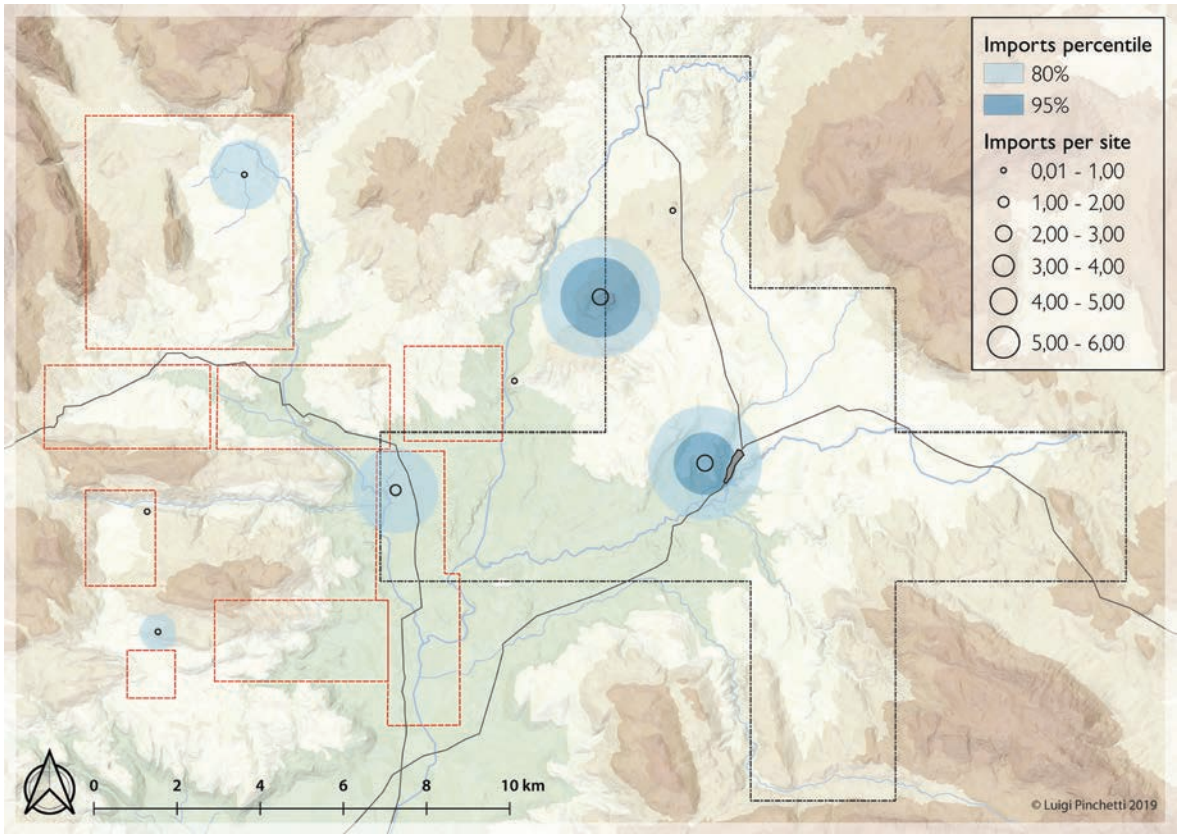


Fig. 6.5e Fine ware distribution in the EM1 period.

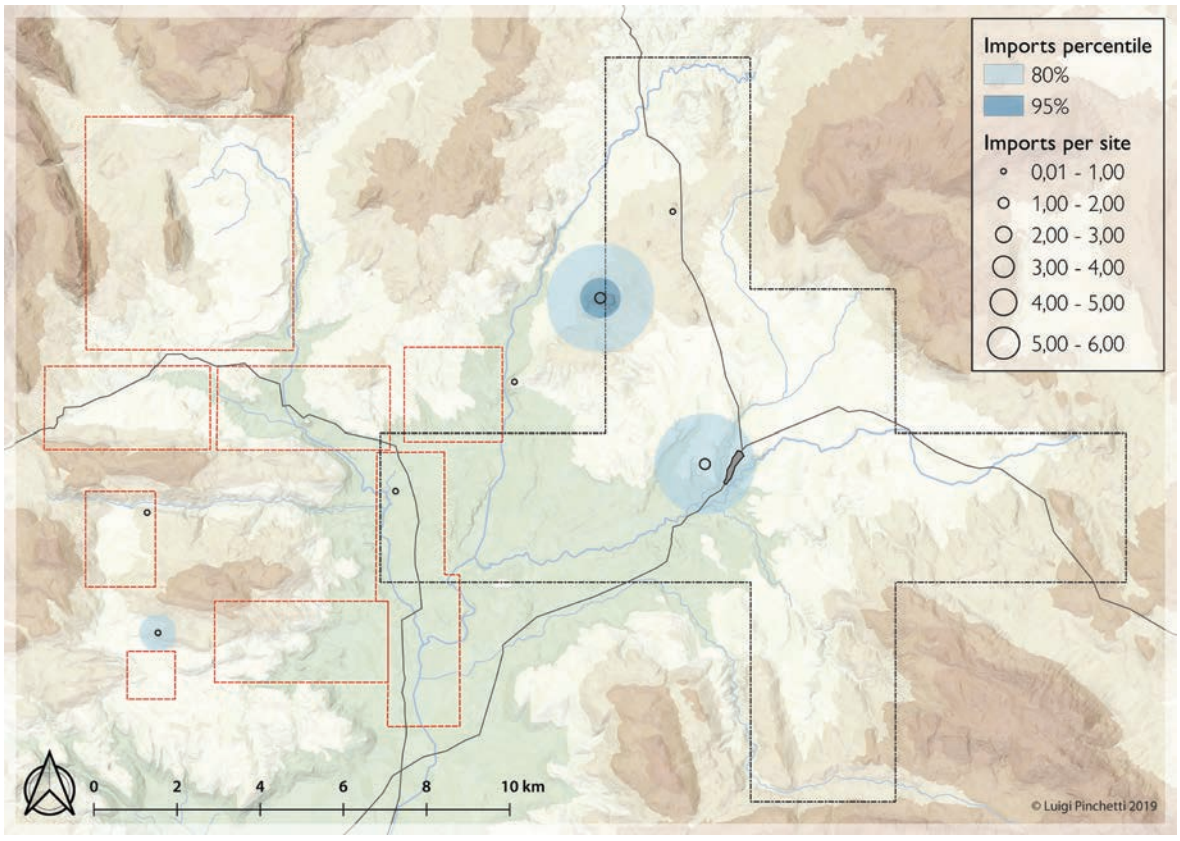


Fig. 6.5f Fine ware distribution in the EM2 period.

6.5 How integrated were early medieval rural communities?

It has been mentioned above[13] that most of the archaeological information on early medieval settlements has not been acquired through traditional survey archaeology, but with the adoption of alternative research methods (shovel testing, trench excavation, point-sampling) that allowed investigating uncultivated areas. On the one hand, these approaches were successful as they revealed the presence of early medieval ceramics in a region that seemed otherwise lacking post-Roman settlements. On the other, their output has been so different on a quantitative level that, any attempt to investigate early medieval exchange needs to adopt a qualitative perspective. The issue here is to understand to which extent early medieval sites in the UVB shared the same material culture or whether they gathered their material culture from different sources. With this in mind, it will be reviewed the evidence at four sites with early medieval phases and whose assemblage is more complete - Vacchereccia, Colle Castellano, La Romana and La Ginestra – while a short note will be dedicated to A305, the only early medieval site to be identified by fieldwalking. Their material will be compared in terms of fabric, forms and decoration in order to find traces of communal/diverse ceramic sources and from these to reconstruct exchange links in the early medieval period.

The first site to be investigated amongst the four here considered was Vacchereccia[14]. The site lies on a small hill on the southwestern end of the Rocchetta plain, not far from the monastery of San Vincenzo. In 1982, after a preliminary reconnaissance survey and shovel test season, seven trenches were excavated on the hilltop in order to identify the presence of early medieval occupation. The trenches were quite small and did not find any long-lasting stratigraphy with the exception of trench III that, following several expansions, covered an area of 10x8.5 metres. Within this area were identified four different phases of use, amongst which only phase 1 can be attributed with certainty to a pre-11th century date. Still, due to slope and forest cover, the disturbance between layers was particularly high[15]. In total, five different fabrics composed the coarse ware assemblage and three fabrics composed the RPW assemblage[16]. In both cases, one fabric was predominant throughout the phases (fab. A for CWs, and fab. G for the RPWs), but it can be noticed a slight chronological variation (*tab. 1*). In particular, phase 1 layers are exceptional for the consistency of their RPW fragments (almost exclusively in fab. G) and the conspicuous presence of handmade vessels (fab. E). Interestingly, later phases shows a more variegated composition of the RPW class, and the appearance of fabric B and D coarse ware contemporaneous to the disappearance of the handmade vessels.

Patterson noticed that, despite the fabric variation, forms revolved around few definite shapes. Closed shapes represented the largest part of coarse wares, mainly cooking pots or pitchers with everted or upright rims. Open shapes were also present as large bowls or basins. Contrarily to what originally thought, some of these[17] might rather be *clibani*, a more usual early medieval ceramic form. RPW fragments are also almost exclusively closed shapes, mainly pitchers with tall upright rims and strap handles that remind of 9th-11th century fragments from San Vincenzo[18]. Some fragments show evidence of combed decoration[19], a feature rarely attested in the UVB[20], but well-known in Umbria in the 6th-7th century[21] with evidence also in Abruzzo[22] and Molise[23].

Despite the stratigraphic confusion and the resulting chronological broadness of Vaccherecia's material, the information gathered at Vacchereccia hold a great economic significance. Even accounting for the disturbance caused by soil erosion, the variety

13 Cfr. Chap. 2 par. 5-6
14 Hodges, Wickham, Nowakowski, et al. 1984
15 Hodges, Wickham, Nowakowski, et al. 1984 pp. 153–165
16 Hodges, Wickham, Nowakowski, et al. 1984 pp. 165–169
17 Hodges, Wickham, Nowakowski, et al. 1984 fig. 6.9 n. 10, fig. 6.13 n.14
18 Patterson 2001 pp. 279–281 fig. 10.91-99
19 Hodges, Wickham, Nowakowski, et al. 1984 fig. 6.20-21
20 A248 n.1
21 Scortecci, Bordoni 2015 pp. 429 tav. 5b; Donnini, Gasperini 2015 pp. 393–395
22 Odoardi 2015 p. 621 fig. 6.3; Meloni 2015 p. 632 tav. 1.1
23 Albarella, Ceglia, Roberts 1993 fig. 7.27, 8.31, 9.36

	Coarseware					Red Painted Ware		
Phase	A	B	C	D	E	F	G	H
I	621	40	9	7	79	13	381	12
II	228	29	4	2	4	17	84	4
III	246	24	1	1	10	9	106	16
IV	730	82	4	30	8	61	268	74
topsoil	356	34	6	13	3	20	143	27

Tab. 6.1 Ceramics in Vaccherecia (after Hodges, Wickham, Nowakowski, et al. 1984, Tab. 1)

of wares and fabrics in the earliest layers indicates that already before the 11th century different artisans provided the pottery in use at the site. Most crucially, the substantial presence of RPW fragments suggests a good integration of the local community in the exchange network of this fine ware and contrasts with the results of fieldwalking described above. Still, even when well-crafted ceramics were clearly accessible at an early stage in Vaccherecia, the necessity of producing handmade ceramics within the settlement suggests that RPW and wheel-made vessels were not satisfying wholly the demand of Vaccherecia. Such hypothesis is reinforced by the sudden disappearance of handmade pottery in post-11th century layers, possibly when the influx of well-crafted ceramics became steadier. All these elements indicate a rural community with a complex range of necessities, well integrated in all the levels of the local network of exchange, but still autonomously filling the gaps of demand left over by external producers.

A situation similar to that of Vaccherecia was observed in Colle Castellano, where the excavations were carried out between 1983 and 1989[24]. The site is located on a low hill southwest of the Valle Porcina, with easy access to the fertile Volturno plain and along the north-south communication route linking the monastery of San Vincenzo to Campania. Despite the richness of the material assemblage, comprising a wide variety of early medieval wares, stratification was extremely poor and a division in phases as that available in Vaccherecia was not possible. In total, four fabric groups compose the coarse ware assemblage and three the RPW assemblage. Generally, coarse ware fabrics were different from those of Vaccherecia and they appear to be produced mainly in the proximity of the settlement. The only exception is the sporadic presence of Colle Castellano's fab. D, that overlaps with the fab. A of Vaccherecia. Despite the difference in fabrics, Colle Castellano and Vaccherecia share many of their coarse ware shapes, with the occurrence of jugs and pitchers with upright or everted rims and handles attached directly on the rim; open vessels are rare and limited to few basins, while baking covers (*clibani*) and *testi* are well attested. While Vaccherecia and Colle Castellano's coarse wares appear to be produced at different places (locally?), RPW's most common fabric is the same of Vaccherecia and San Vincenzo al Volturno, suggesting that one source could satisfy the demand of a rather wide area. Still, the two other fabric groups, despite being badly represented, do indicate the existence of alternative sources, even though these could also have appeared at a later date as for the case of Vaccherecia.

Moving to the eastern part of the research area, La Romana was the first hilltop investigated in the Dutch project to reveal traits in many ways similar to those uncovered by the SVP in Vaccherecia and Colle Castellano. Known for its Samnite fortifications[25] and, from textual sources, as the location of a late medieval fortification[26], the site is located 5 kilometres north of Isernia and dominates the whole valley from Isernia to the Valle Porcina. The archaeological investigation on the hill started in the summer of 2015 and entailed systematic point-sampling together with random grab sampling (*Fig. 6.7*). Only the topmost units (4002, 4006, 4007, 4030, 4038) revealed early medieval material, while some late Roman sherds (5th-7th century AD) have been identified on a mid-slope terrace. Witness of the early medieval occupation are

24 Hodges, Clark, Coccia, et al. 2006

25 Capini 1984

26 Di Rocco 2009 p. 97

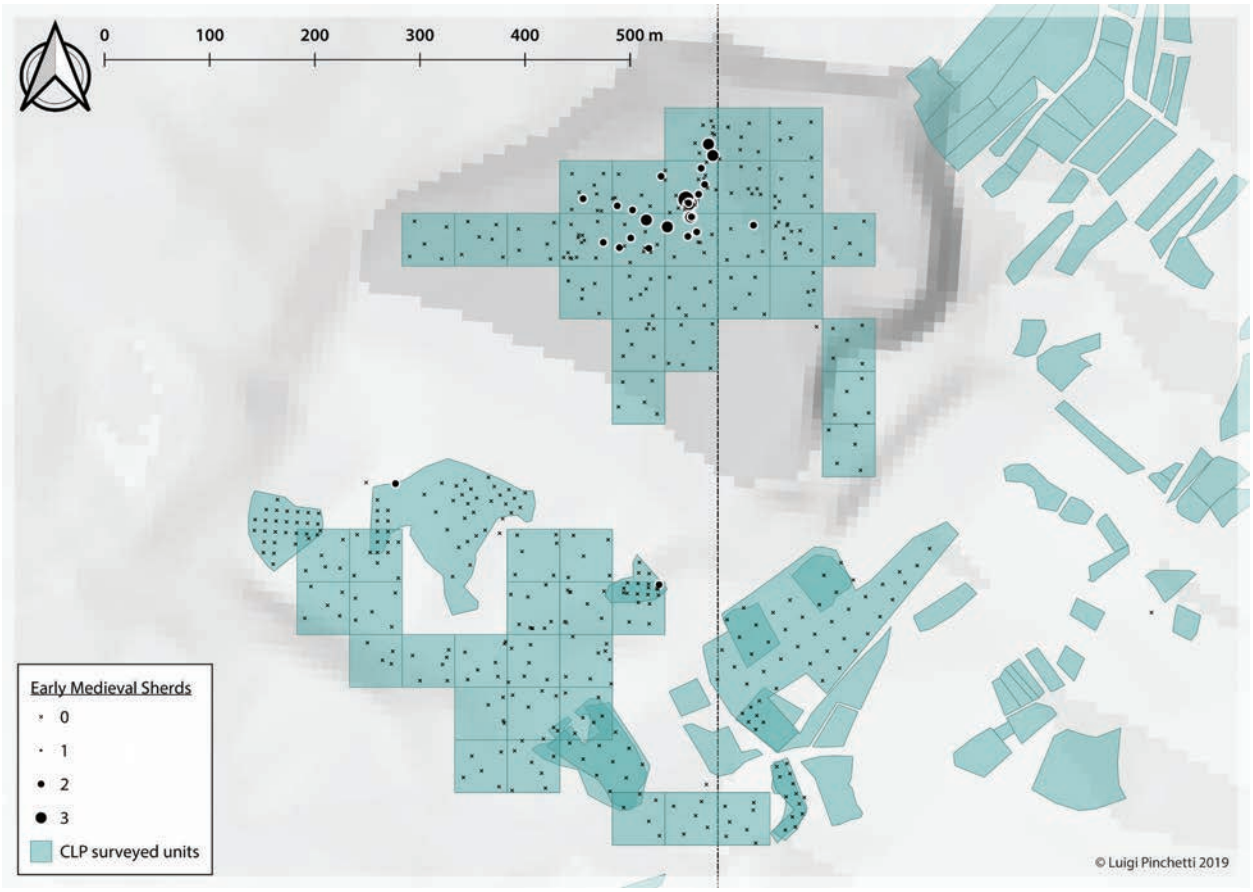


Fig. 6.7 Early medieval finds on the hilltop of La Romana (A138).

the early medieval coarse wares, RPW sherds and one glass rim that is comparable to the 8th-9th century lamps produced in San Vincenzo[27] and those found in the church of Colle S. Angelo[28]. Due to the presence of a conspicuous quantity of pre-Roman material, it is not always easy to distinguish with certainty early medieval material and thus only clearly recognisable diagnostic fragments have been attributed an early medieval date. In general, coarse ware fabrics range from brown to grey, with mostly white (limestone?) inclusions. There does not seem to be a fabric overlap with those described for western sites, but nonetheless vessels share many morphological features. The most attested early medieval shape is the jug with upright/everted rim, often thickened. In three cases, attachments of strap handles, insisting directly on the rim, have been found. Two *clibani* could be securely attributed to the early medieval phase, but many other exemplars exists which have been tentatively linked with the pre-Roman occupation. The two early medieval exemplars have a brown fabric with many inclusions and one of them may have been produced without the use of the wheel, but the worn out conditions of the fragment does not allow any conclusive statement. The other preserves part of a strap handle and could be attributed to the later 10th century[29], even though in San Vincenzo al Volturno *clibani* with strap handles have been retrieved in 9th century layers[30]. 22 fragments of RPW have been found on the top of La Romana and they are almost uniquely made out of the same pale pink/light brown fabric, poor in inclusions. The paint is always applied with curvilinear brush strokes of varying width. Shapes are exclusively closed, but the material was extremely fragmentary. One of the sherds with thin lines has a fabric with light brown surface and reduced grey core that fits well in the description of fabric F in Vaccherecia. Two other fragments are made of a considerably coarser fabric with a rough feel and much higher component of inclusions. The traces of paint on these fragments are hardly visible and

27 Stevenson 2001 p. 240, cfr. 7:91
28 Francis, Hodges 2006 p. 254, fig. 7.24.090
29 Manacorda, Paroli, Molinari, et al. 1986 p. 539
30 Marazzi, Di Cosmo 2015 p. 167

therefore it is not possible to see whether a decorative difference was also present. One fragment made of the common dull pink fabric has an incised decoration below the paint, reminding closely a fragment found in Colle Castellano[31] and a fragment from a 9th century layer in San Vincenzo[32].

Finally, the last hilltop is L'Acropoli-La Ginestra, investigated in 2017 during the revision of the San Vincenzo Project conducted by the author. The hill was known to have standing remains of a late medieval fortification with two concentric walls and, according to Gabriella di Rocco[33], could be identified as the site of *Vadu Transpadini* mentioned in the *Chronicon Vulturnense*[34]. The fields below, first investigated during the CLP campaigns, revealed a large late antique settlement (A148). The hilltop was approached with the same methodology used on La Romana, so dividing the hilltop in square units of 50 metres length and fieldwalking the areas that were free from vegetation (*Fig. 3.7*). The outcome have been extremely positive and the amount of material found on the surface revealed much more material than what expected based on the experience on the other hilltops. The richest area of the hilltop revealed to be the southeastern side of the hilltop, just outside of the external wall circuit. Alongside considerable evidence of metal and glass production, ceramic material was found ranging from the later 8th century until the 13th-14th century AD. The study of the material is still at a preliminary stage, but appears clear a certain comparability with the other UVB hilltops. Amongst the coarse wares, some thicker fragments occur in a dark brown fabric with several white inclusions that reminds closely Vaccherecia's type A fabric, but especially similar to the ceramics from La Romana. One of these fragments is clearly handmade and with evidence of surface smoothening, while another is a straight rim that reminds of the big open shapes found in Vaccherecia and Colle Castellano. One extremely worn fragment of *clibanus* made of the same fabric and extremely similar in shape of that from La Romana has been also found. A decorated fragment of an open shape (a basin?) is also attested, but it might date to a later phase of occupation. From the field below the hilltop, fieldwalking research recovered a large fragment of a closed vessel with a sagging base, a typical early medieval feature[35]. Concerning RPW, the retrieved sherds are all of high quality and the clay is extremely well depurated. Many fragments date to the later phases (post-11th century) of occupation, but some are unmistakably earlier. Amongst them, quite interesting is a large fragment of a small globular jar/jug with a wave decoration and marked finger-ridges on the interior. The handle attaches almost at the base, in a fashion that is not common in the UVB, but is attested in San Vincenzo[36] and in Naples[37] in layers attributed to the 9th century. The fabric of this large fragment is much richer in inclusions than in RPW sherds dated to the later Middle Ages, possibly indicating a change in the production modes as the millennium changed. Another fragment, a strap handle, is decorated with small perpendicular lines, a common feature in 6th-7th century table amphorae[38].

Site A305 deserves a mention on its own. The site, the only to have produced early medieval wares from non-intensive archaeological investigation and the only one not to be on a hilltop, is located just 500 metres northwards from the walls of Isernia in an open field. Five RPW fragments fall within the standards found at the other sites, with fine clays poor in inclusions, mostly closed shapes with a red/dark red paint. A sixth fragment was rather peculiar. Its fabric was much coarser and the reduced grey core was clearly distinguished from the brownish red surfaces. The sherd belongs to a small basin or a large bowl with an external ridge below the rim and a triangular section on the interior part. The external surface is painted with two concentric curved lines, while the interior has a drip. The shape is unknown in the rest of the UVB, but a reference can be found in the 8th-10th century material from Piazza Bovio in Naples[39].

The evidence gathered in this close-up on these five early medieval sites allows delving in some aspects of

31 Hodges, Clark, Coccia, et al. 2006 p. 215, fig. 6.7 bottom right
32 Patterson 2001 p. 10:100
33 Di Rocco 2009 pp. 128–130
34 *CV* 109
35 Hodges, Patterson 1986 p. 20 fig. 5.26-27; Arthur 2007 p. 171
36 Di Cosmo 2015 p. 21, fig. 21.145
37 Carsana 2009 p. 143, fig. 4.6
38 Meloni 2015 p. 634, tav. 3.4; Terzani 2015 p. 677, fig. 9
39 Carsana 2009 p. 143, fig. 4.21

the economic environment of the early medieval UVB. As the chronological differentiation between EM1 and EM2 phases could not always be determined, the early medieval period will be analysed as a coherent phase, with specific exceptions.

The first element that strikes when analysing the early medieval ceramic evidence is the composite nature of the assemblage. In all the hilltop sites there is often a combination of handmade and wheel-made coarse wares together with high standardised RPW fragments and, in Vaccherecia and Colle Castellano cases, Forum Ware. In Southern Tuscany, a similar ceramic record has been interpreted as the evidence for the existence of a multi-layered structure of the exchange network[40]. In that context, the occurrence of material of different quality between the 6th and the 8th century was linked to a production system divided between stable artisanal centres producing for a large-scale market exchange, seasonal pottery workshops ran by itinerant artisans producing for regional markets and household production aimed at direct consumption. Such model overlaps well with the evidence of the UVB with RPW pertaining to the first group, wheel made coarse wares to the second and handmade pottery to the third group. Especially the fact that wheel made ceramics share the same morphology, despite the use of different clays, could find a good explanation in the presence of itinerant artisans using at each visited site local resources. Temporary structures for the production of pottery have not been recovered in the UVB, but one of such kilns, dated to the 6th-7th century, has been excavated in the Abruzzo region[41]. The evidence from Vaccherecia, in which handmade pottery disappears in the post-10th century layers, could be interpreted as the abandonment of household production when products of specialised artisans became more widespread and easier to acquire. Still, one has to be careful to interpret every handmade sherd as the product of household manufacture. In fact, as several handmade fragments refer to bread ovens, the production mode might reflect a technological choice rather than a difference in workmanship.

A second element that requires further consideration is the distribution of RPW in the UVB and the way it accessed the rural communities of this part of Italy. The application of Grassi's model to the UVB evidence would suggest that RPW distribution occurred through an inter-regional market network. However, if the physical properties of the ceramics do indicate the existence of a singular source, the distribution of the ceramic class does not fit the classic market imprint. In fact, market exchange leaves a characteristic archaeological pattern, distinguished by the presence of a halo around the major consumption centres, as highlighted for ITS and ARS. Such halo is non-existing after the 7th century (Fig. 6.5), which leads to hypothesize that RPW circulated through a redistributive network of exchange filtered by few specific gateway communities. The fact that RPW composes almost the 70% of the monastic assemblage, while in Vaccherecia[42] and Colle Castellano[43] does not reach 40%, indicate that these rural communities had a more limited access to fine wares, maybe mediated by the monastery. The stratified evidence from Vaccherecia does suggest that other RPW sources appeared only at a rather late stage, somewhere after the 11th century, indicating a growing autonomy from the monastic exchange network.

On the possible function of the monastery as a gateway-settlement, fundamental evidence arrives from the Forum Ware distribution. In fact, fragments of this pottery class have been retrieved exclusively in the western part of the research area[44], under the direct control of the monastery, while they are lacking in the assemblages of La Romana and Acropoli-La Ginestra[45]. Recently, Alessandra Molinari pointed out that, in the 9th century, Forum Ware, together with globular amphorae, has been retrieved exclusively in ecclesiastical centres, suggesting that certain goods did not circulate in a normal market networks, but only in a chain of elite exchanges[46]. It can then be seen how the presence of Forum Ware in the UVB exclusively in sites on the western bank of the Volturno, not only reinforces the idea of their socio-political subordination to the monastery, but also of the existence of an alternative economic system in which

40 Grassi, Guirado 2017 pp. 310–314

41 Siena, Verrocchio, Troiano 1998 p. 697; Petrone, Siena, Troiano, et al. 1994

42 Hodges, Wickham, Nowakowski, et al. 1984 p. 165, tab. 1

43 Hodges, Clark, Coccia, et al. 2006 p. 215

44 Patterson 1992b

45 Also, no Forum Ware sherd is known for Isernia.

46 Molinari 2017 p. 278–279

market exchange had a minor role.

How about the towns' hinterland in the early medieval period? The evidence from A305, in which RPW fragments were identified in a context that could not be referred to a nucleated settlement might indicate the existence of a limited urban market area around Isernia, possibly an heritage of the later Roman economic network. The one potsherd of a basin with a decoration and a fabric that reminds of Neapolitan products might indeed point towards the existence of a trade link between Campania and Isernia, but it is difficult to evaluate the consistency and the steadiness of such an economic link from just one fragment. To really understand the role of Isernia in the early medieval period one would need a comparable knowledge of the town's early medieval material culture to that available for San Vincenzo al Volturno. Excavations have been carried out, but interest has been focused exclusively on the Roman and pre-Roman phases[47], and even then, rarely the publication of ceramic assemblages has been satisfactory[48]. Similarly, more information needs to be gathered on the metal and glass production evidence from Acropoli-La Ginestra, the first hilltop to offer evidence for craft activities. If the retrieved traces are likely pertinent to the later phases of the occupation of the hilltop, their origin might be rooted in the early medieval period. The possibility that the production at this hilltop site was directed to satisfy the urban market and its hinterland is intriguing, but necessitates the support of stratigraphic evidence.

Finally, despite the relative material poverty compared to Roman phases, the early medieval economic context revealed to be much more active and variegated than previously thought. Not only the existence of a multi-layered exchange network has been proven, but cannot be ruled out the existence of a long-range exchange network reliant on social and religious links rather than simply economic profit. In this framework, the absence of RPW from the classical fieldwalking survey assemblages seem to point at the exclusion of part of the population from accessing this ware. Nevertheless, the new evidence shows that early medieval communities were economically inter-related, but exchange was probably occurring through intermediaries at different levels: monastic in case of fine wares; itinerant artisans in case of common, regionally crafted, products.

47 Terzani 1989; Ciliberto, Molle, Ricci 2012; Pagano 2004

48 with the exception of Guidi 2013

6.6 The transformation of exchange in the UVB.

The data presented in this chapter highlighted some important aspects of exchange behaviours during the 1st millennium AD. The firsts needing recognition, and possibly the most important from a conceptual point of view, is the continuity of change during the whole analysed period. Both the evidence of inter-regional economic integration as much as the analysis of intra-regional fine ware distributions showed that the economic strategy of the rural population of the UVB was extremely dynamic, adapting wittingly or not to the wider global context. Such consideration leads to recognise that running comparisons between Roman and post-Roman economic systems oversimplifies an extremely complex evolution. It has been seen that already in the period stretching from the 1st until the 6th century some fundamental transformations already occurred, not justifying the use of a unified label (e.g. Roman) that encompasses the whole period.

Building on this founding aspect, it has been noticed some fluctuations in the role of the town of Isernia in the local economic network. Before the analysis, it appeared almost obvious to postulate an economic centrality of the town at least during the first half of the 1st millennium AD. The ceramic evidence showed that this was not the case and that, on the contrary, Isernia's role adapted to a variety of contexts. In the 1st century AD, the town was the leading fulcrum within an extremely complex and integrated network of rural settlements, some of which possibly creating autonomous links to the wider inter-regional exchange. Eventually, the strengthening of these links in the 2nd-3rd century AD lead to a considerable growth of the economic centrality of minor rural centres, which went hand in hand with the weakening of the town's control over the rural economy. When in the 4th-5th century AD Isernia reappears as an undisputed Central Place, its relation with the hinterland is radically different from that of the early empire. More similar to a solar Central Place, around which all the long-distance exchange is organised,

late antique Isernia influenced and controlled a much smaller territory, beyond which long-distance exchange is almost non-existent. It is unclear how much of this economic centrality was maintained in the Early Middle Ages, and a tentative interpretation of the ceramic evidence from A305 suggested that, in the 9th century, the proximity to Isernia was still a factor easing the access to long-distance exchange. Nonetheless, it is difficult to evaluate such suggestion without further information on the archaeological evidence from Isernia itself. Similarly difficult is a thorough understanding of the economic relation existing between nearby hilltops (most prominently La Romana) and the urban centre.

Besides the town's importance, some new elements are available to describe the economic role played by the monastery in the early medieval exchange network of the UVB. Based on the ceramic evidence, it has been suggested that the monastery of San Vincenzo held some kind of economic bond with the communities inhabiting the hilltops of the UVB in the 9th-10th century AD. The evidence of RPW has been of great help in clarifying several aspects of the role of the monastery in the early medieval exchange network. First, the fact that the RPW fabric found at Vaccherecia, Colle Castellano and the other UVB hilltop sites resembled closely in terms of fabric and shapes the vessels found in early medieval layers in the monastery suggests that a unique source provided RPW in the whole UVB. Moreover, the higher frequency of RPW in San Vincenzo indicates an easier access to this ware in the monastic centre rather than in the hilltop settlements. From this evidence, it has been suggested that RPW, either produced in the monastery or imported from elsewhere, was redistributed to the UVB settlements from the monastic centre. The absence of RPW from early medieval 'farmsteads' (Case San Lorenzo, Vadum Porcinum, A148) was interpreted as a clue against market exchange. It was concluded that the economic link between hilltops and monastery was rather exclusive (gift? redistribution?) and only part of the rural population living in the hilltops could participate in it. Such eventuality was reinforced by the presence of Forum Ware exclusively in the monastic territory, in a pattern reminding evidence from southern Latium. Therefore, the monastery appeared in the Early Middle Ages as an extremely different type of Central Place than the town. The transactions with this centre, in great part occurring in kind and not in money, seem much more oriented in establishing the power of the monastic community rather than answering to the peasants' demand. Amongst the rural population, only a small section could exchange directly with the monastery, while most of the transactions seem to be mediated by hilltop sites, where most of the population will nucleate after the 10th century.

Finally, it can be noticed a certain link between economic integration and the main drivers of internal exchange. The town, as it has been seen, used its political and demographic prominence to create an exchange hub in which 'global' and local networks could meet, but was therefore extremely dependent on the seamless efficiency of both worlds. It has been seen that even during the Roman period changes in the ceramic sources could create new equilibria that altered the morphology of local society. The monastery, on the contrary, happened to use its 'global' connections to reinforce its local power, yet always intervening as mediator of the exchange, because in this mediation lied part of the value of the exchanged objects[49]. For this reason, the reappearance of money and of a market economy in the later middle ages slowly weakened the benefit of monastic exchange and lead to the resurgence of towns. Thus, having accepted that a merely quantitative approach limits the interpretation of survey material, the evidence from the UVB shows that economic integration was a tool for both political and religious centres to reinforce their local power.

49 Theuws 2004

7. Discussion

A full understanding of how the rural economy of this mountainous region worked can be obtained exclusively by conceptualising agrarian production and exchange network as the two facets of a unique economic system. In fact, changes in any of the two strands would not occur in a vacuum, but would directly affect the rest of the economy, creating the necessity to find a new equilibrium. This chapter offers a thoughtful revision of the results obtained throughout the book by entering in a dialogue with other studies carried out in the rest of the Italian peninsula. The aim is to present a first reading of the potential value of this research for various aspects of early medieval economy in the Italian peninsula. The discussion will start by reviewing the current narratives on early medieval economy and especially on how they integrate agrarian production and exchange systems. It will be seen how demand recently emerged as a fundamental tool to explain changes in both facets of the economic life. Afterwards, it will offer a chronological overview of the data gathered in the UVB, trying to pinpoint connections and divergences of production modes and exchange systems, but also to explain the particular character of the economy that each facets is able to enlighten. Finally, it will proceed by discussing the role played by different actors (aristocracy, clergy and peasantry) in creating and satisfying demand and, therefore, in giving its defining characteristics to the early medieval peasant economy.

7.1 Demand as the determinant factor of economic change

For a long time, pre-modern agriculture was conceived as trapped in a Malthusian cage, in which the costs of maintaining a larger population limited the positive effects of economic growth. The opinions in this regard are now changing and is drawing an increasing attention the possibility that pre-modern economy did know growths and crises. Specifically, agrarian productivity shows a strong dependency on demand and market integration even before the introduction of the substantial technological advancements of the Industrial Revolution[1]. Wittingly or not, peasant always participated in exchange, either reciprocally with neighbouring communities or commercially in institutional markets, and the intensity of such participation affected agrarian strategies and the intensity of production[2]. Examples from pre-modern Europe show that a rising demand for rural products

1 Pinilla 2009 pp. 13–15; Olsson, Svensson 2011 p. 25; Grantham 1999 pp. 201–203

2 Ronsijn 2014 pp. 10–19

often leads to a more pervasive presence of markets in peasant communities, which eventually determines a growth in agrarian productivity[3]. Along the same lines, the shrinking demand and the fragmentation of the exchange systems after the fall of the Roman Empire are often cited as main causes of a return to a 'natural' economy in the early medieval period[4]. Peasants' participation in market transactions would have been hindered by the growing irregularity of long distance trade, making imported commodities more expensive, and by the decreasing demographic density, curtailing the urban demand of rural products[5]. While the most recent trend in agrarian history sees in demand-shifts the cause of changes in production and exchange[6], studies on early medieval economy rarely adopt demand as a synthetizing concept that successfully integrates how production and distribution transformed in relation to each other. In fact, early medieval economics is still dominated by a "production model" and a "distribution model", focused on different questions (land property vs. good circulation) and creating a dichotomy that complicates a holistic perception of the transition from ancient to feudal economy[7]. Attempts to find a synthesis between the two models are finally appearing and the next pages will also use the 'demand framework' as a tool to take to mean the UVB data.

Chris Wickham has been one of the firsts to suggest a way in which demand could explain the transformation of the economy in the early medieval period. Wickham's view is based on two main pillars. The first is that the ancient economy was predominantly regional and therefore economic change and sources of demand should be mainly looked for in the intra-regional environment. The second is the belief that the main creator of demand in the pre-modern period was the aristocracy, and therefore to this social class can be attributed the main influence on distribution and production. Only the highest stratum of society (either lay or religious) had the necessary financial power for requesting products on a large enough scale to allow the creation of a class of specialised artisans. These artisans would constitute a middle class that could also exchange part of their products with the peasantry, enhancing the overall complexity of the exchange network. Besides, landowners constituted the only class that, depending on the scale of their possessions, on the intensity of their cultivation and on their geographical dispersion, could induce peasants to produce more and, in some cases, more efficiently[8].

The centrality of the elite's welfare and behaviour in the regional economic performance would have been such that, if the aristocracy was relatively poor, also agrarian productivity and exchange complexity were compromised. This is exactly the process occurred in the Italian peninsula in the centuries after the fragmentation of the Roman Empire, and especially after the Greek-Gothic wars. In fact, the period between 400 and 800 AD saw the relentless contraction of aristocratic landowning from the large properties of Roman senators often stretching over various regions, to the small peri-urban properties of the Lombard aristocracy[9]. This economic weakness had a direct influence on the exchange system. In fact, Northern Italy, where the aristocracies always had narrower horizons, shows a much stronger contraction of the exchange networks compared to Southern Italy, where, because of the relative stability of the Duchy of Benevento and Spoleto and of the papal political power, ceramics show a more widespread distribution[10]. Besides, Wickham argues that early medieval agriculture could not show any sign of specialisation until the aristocratic demand was large enough to justify any effort in maximising the outcomes from one specific cultivation. From this premise, he deduces that the low fiscal burden of the Early Middle Ages did not justify any surplus-seeking mentality in rural production[11].

Wickham's appraisal stimulated Richard Hodges to redevelop the model for the early medieval economy offered in *Dark Age Economics* that saw in exchange the main constituent of socio-political transformations[12]. In the *new audit*, Hodges's «trade model» integrates with a stronger attention to the role of agrarian production and religious beliefs in the constitution

3 Hoffman 1996 p. 204; Kopsidis 2009 p. 130
4 van Bath 1963 pp. 30–31
5 Persson, Sharp 2015 pp. 29–31
6 especially for the period between the 13th and the 19th century
7 Wickham 2008a pp. 19–21
8 Wickham 2008b
9 Wickham 2005 pp. 204–219
10 Wickham 2005 p. 740
11 Wickham 2008b pp. 11–17
12 Hodges 1982b

of pre-modern socio-economic systems. As much as in Wickham's model, demand is now seen as the prime mover for both production and exchange, but in Hodges's audit it is not important *who* drives the demand, but rather *why* such demand is requested in that specific form (the socio-cultural context) and *how* such demand could be procured (the economic context). This different perspective allows Hodges to move beyond the aristocracy as an independent financial actor and looks at the forces that shaped the elite's requests and provided the means to pursue them. In this respect, Hodges is convinced that peasantry, aristocracy and institutions were three economic agents whose relation (competitive or collaborative) was in continuous change according to the context[13].

In Hodges's view, mainly focused on Northwestern Europe, the economic history of the 6th to 9th century can be divided in three phases, each of which saw the Church as the main institution legitimising the economic relationships between aristocracy and peasantry. The first phase (ca. 6th-7th century AD) is characterised by the creation of a new type of peasant-landlord relation, in which the power of the elite over the peasantry was much more effective than in the Roman period also thanks to the Christian ideological framework. In this phase, the aristocracy used rent-revenues to materialise their social distinction, first by using prestige items in funerary contexts, and later by building stone structures that stood out in a landscape dominated by timber buildings. Peasants, though, were not passively enduring elite's requests. There are clear archaeological indicators of a rural life above subsistence level, and some households actively attempted in climbing the social ladder by enhancing their productivity. In the following phase (late-7th – 8th century AD) the way manufacture and exchange were carried out altered substantially. After a period in which kin and personal relations shaped each economic action, the 8th century economy was characterised by a growing separation between producer and consumer, enhancing the social differentiation between peasantry and elite. In fact, from the late 7th century the material circulating in rural contexts, even in relatively rich estate centres, was not the same available at emporia and towns. In this framework of growing social disparity, the Carolingian state and the Church emerged as the new connecting tissues of early medieval society. In the third phase (9th century), the construction of monasteries and palaces determined the appearance of a new consumer in the early medieval economy, whose enormous size limited the economic weight of the aristocratic demand and allowed a growth of peasant economic participation.

The works of Wickham and Hodges, as much as recent work on pre-modern agrarian economies, show how using demand as an overarching explanatory tool can lead to a fuller integration between production modes and distribution networks. Despite the agreement on the importance of demand in defining ancient economic trends, the models on the early medieval agriculture show a contrast on the origin of such demand, either identified exclusively in the aristocracy or in the combined necessities of three different social groups (peasantry, aristocracy and clergy). Such contrast is only apparent, as it is based on two different geographical contexts: Wickham deals more closely with the Italian peninsula, while Hodges is more focused on Northwestern Europe. Still, it is worth asking how the data gathered in this thesis fits Wickham's model and whether archaeology shows an entrepreneurial aspect of peasantry that is not recorded in the written sources. Besides, the appearance of the monastic community in the 8th century certainly introduced a new agent in the local economic context, but it needs to be clarified whether its role was clearly differentiated from that of the lay aristocracy. In this sense, the evidence described in the previous chapters can be used to reconstruct the history of demand in this mountainous region of peninsular Italy and offer some first thoughts on the effects of changes in demand in a peripheral economy.

13 Hodges 2012 pp. 121–136

7.2 The chronology of economic change in the UVB

Analysing the parallel transformations of production and of distribution in the course of the 1st millennium AD can give a measure of the level of interdependency between the two facets of peasant economy and provide a first estimation on the role of demand in their development.

Agrarian production revealed a strong continuity in land exploitation despite well-known modifications occurred in the organisation of land property and labour organisation. As seen, the pattern of exploited land types remained almost unchanged during the first eight centuries of the 1st millennium AD, with only a slight abandonment of cereal suited land in the mid-imperial period. At the same time, land progressively became more equally distributed and rural hierarchies tended to flatten out, contributing in giving a new shape to the rural landscape. Such transformation occurred slowly, without any strong break, and even the Greek-Gothic war, despite its negative demographic impact, had a low influence on the socio-economic organisation of the rural landscape. The main break in agrarian production occurred after the Arab Sack (881 AD), when the presence of nucleated hilltop settlements became hegemonic and land potential changed accordingly. The chronology of this transformation indicate that this new approach to land exploitation is not linked with the effects of depopulation or economic crisis, but rather with a growing interference of the monastic community with the economic life of the surrounding population, both by imposing rents and by encouraging specific measures for land exploitation. On this point it is worth noticing that, despite the demographic and social transformations of the 1st millennium AD, changes in land exploitation patterns (in the 2nd and in the 10th century AD) occurred exclusively alongside fluctuations in demand. In fact, the 2nd century de-specialisation was linked to the stabilisation of cereal imports from Northern Africa and the 10th century change was clearly caused by the growing pressure of the monastic community on the surrounding population. Such hypothesis, if confirmed by future research, curtails the actual impact of rural labour organisation and of internal demographic fluctuations on the modes of agrarian exploitation, at least for what concerns peripheral areas as the Central Apennines.

Contrarily to agrarian production, exchange systems revealed much more variable and fluid. Almost each period showed its own peculiarities, with the early imperial period characterised by a full integration between town and countryside, the mid-imperial period defined by a growing autonomy of rural hubs, the late Roman period showing a bipartite landscape, and the early medieval countryside in which, after some experimentations, exchange took completely new forms. The unstable nature of intra-regional exchange systems is a good indicator of the ever-changing nature of the opportunities provided locally by the 'global' socio-economic context to the peasantry. Thus, the availability of specific products certainly relied on the solidity of inter-regional commercial links, but intra-regional distribution ultimately depended on demand allocation and infrastructural media. In this regard, the distribution of fine wares revealed the importance of the elites in determining how goods circulated in the UVB, as most of the changes in the exchange networks can be attributed to the variable behaviour of the landowning class. As a meaningful example it can be indicated the creation of the 2nd century 'estate-based' network when, as aristocracy stopped using the urban market for the provision of imported wares, the economic centrality of the town dropped considerably, and larger settlements strengthened their power over satellite farmsteads. But elites were also partly dependent on a functioning exchange infrastructure (e.g.: a marketplace) that lowered transaction costs and, thus, created the conditions for a broader social participation in the a unique exchange network. Such trend is clear in the late antique period, when high-quality wares were circulating much more transversally in the peri-urban population, while in remote locations these reached exclusively specific (high-rank) settlements.

These considerations on the chronologies of change in production and distribution show the different rhythms followed by the two parts of economic life[14], but also their common origin in demand variations. What caused the diverging evolutions is the nature of their relations with the structure of demand. Production is the fundamental tool through which demand can be satisfied[15]. In the case of pre-modern societies, not only agrarian output supported the subsistence necessities of the rural population, but any surplus guaranteed the means for exchange or wealth accumulation and, eventually, a «fundamental pre-condition for economic development»[16]. The relation between demand and production is then mainly quantitative, with only indirect influences on the qualitative aspect of production modes. In economic

14 McCormick 2001 p. 578
15 McCandless 1991 p. 9
16 Nicholls 1964 pp. 365–366; Nicholls 1963 p. 1

peripheries as the UVB, whose exports where hindered by the competition of neighbouring fertile regions such as Apulia and Campania, the agrarian output was mostly supplying internal demand[17]. Such context limits the opportunities for demand change and restricts the potential of peasants' entrepreneurship. In fact, chances for an expansion of agrarian profits require investments and risks at a scale not in the reach of pre-modern autonomous peasants, fixing agriculture in a 'traditional' equilibrium where experimentation was not absent, as testified by the 8th century evidence, but rarely destined to have an impact[18]. Ways to break this equilibrium lie in sudden changes in internal demand driven by top-down interferences, as the case for either the weak early imperial cereal focus or the more successful 10th century monastic 'intrusion' in the agrarian organisation.

Conversely, distribution is the mean through which the resources reach the consumer. Exchange «is a social as well as an economic activity»[19] and therefore, compared to production, exchange systems are more strictly dependent on the structure of society[20]. Social factors determine what commodities are requested and the way a specific good allocates in the landscape[21]. The inherent social-rootedness of exchange is such that demand affects the quality as much as the quantity of exchange, especially in the context of small-scale transactions, and from this influence spurs the continuous change observed in the ceramic consumption of the 1st millennium UVB. The constant revision of power relations and social structure inevitably lead to a continuous reshuffling of consumption patterns and exchange systems. The role of town, monastery and secondary agglomerations in this system was not fixed, but their peculiar qualities were selectively used according to the contingent necessities of the rural society.

Finally, it appears evident that the transformations of production modes and exchange networks do not identify a defining moment in which the rural economy turned from Roman to medieval, but rather a slow and continuous modification. Nonetheless, demand revealed being a prime trigger for modifications in both production and distribution, in agreement with the most recent developments on pre-modern rural economy. The next pages analyse how the various components of society affected demand, its creation and its satisfaction, and how such relation determined the economic transformations of the 1st millennium AD.

17 A fact indirectly confirmed by the limited influence of cereal specialisation in the 1st century AD
18 Schultz 1964; Swift 1979 p. 41
19 Olausson 1988 p. 15
20 Sahlins 1972 pp. 185–186
21 Morley 2007 pp. 35–36

7.3 The aristocracy between town and territory

It is worth beginning by analysing the economic role of aristocracy, as this social class had the strongest influence on pre-modern economies[22]. It is quite clear that Roman landowners had the capability of creating a market web tailored to their necessities[23], while the available historical evidence suggests that their early medieval counterpart was much less influential. Documents show that, in the 8th century Lombard landowners controlled on average much less land than the Frankish elite, and also that their possessions were normally enclosed in a town's territory[24]. Such pattern not only limited elite's purchase power, but also restricted the range of their actions, jeopardising any possibility of forming solid inter-regional exchange networks[25]. Obviously, the crisis of the landowning class had negative consequences on the overall economy, but the most notable effects were on cities, that loss their centrality in local economic systems, despite the maintenance of social and political relevance[26].

Archaeology had a leading role in showing the urban effects of aristocratic collapse. The material signs of the degradation of civic life, such as the abandonment of Roman monumental structures, the signs of 'ruralisation' of urban spaces (e.g. 'dark earth' evidence) and the restriction of the inhabited areas, were all attributed to the economic decay of

22 Wickham 2008a
23 Sarris 2013 p. 177
24 Wickham 2005 pp. 203–219
25 Wickham 2005 pp. 210–216; Provero 2009 pp. 844–846
26 Martin 2009 p. 744–745; Wickham 1999 pp. 11

urban society[27], and, despite some disagreements[28], they undoubtedly indicate a poorer lifestyle than the Roman standard[29]. The urban evidence is not only important for towns' histories, as the rate of urban survival is often used as a proxy for the maintenance of Roman economic structures and, therefore, stronger rural economies[30]. Unfortunately, the link between urban and rural economic performance is still poorly understood archaeologically, and there has been few investigations interested in linking the archaeology of urban centres with that of the surrounding territories[31]. Principally, the modest results of survey projects left unanswered many questions regarding the process of urban immigration of the aristocracy, and principally on its effects on the distribution of demand in the countryside. Besides, it is also unclear whether urban centres, despite their material weakness, preserved a higher level of economic complexity in their hinterlands, or if the process of ruralisation of the urban population and environment broke definitely the economic relations between town and countryside.

In this regard, the reconstruction of the evolution of the rural society in the 1st millennium AD[32] allows a qualitative comparison of the potential of aristocratic demand in the Imperial and early medieval period, as much as describes the relation between urban demand and rural distribution. The graphs (*Fig. 5.9*) highlighted a relentless simplification of the rural society during the 1st millennium AD, but also a substantial disparity in the adaptation to the changing economic environment. Unsurprisingly, settlements in food-deficit suffered a stronger decline than food-producing sites. In this process of selective abandonment, not only the structure of the rural society collapsed, but the early medieval elite could not maintain a material differentiation from other inhabitants of the countryside[33]. The weakening social differentiation affected aristocratic influence on the economic context of the UVB. Indeed, the evolution of the exchange network[34] indicates that the weight of the aristocracy on the economic system reduced greatly from Late Antiquity onwards.

A comparison between the mid-imperial and the early medieval distribution of fine wares confirms the economic irrelevance of elite demand after the 7th century. It has been seen that in the mid-imperial period secondary agglomerations (aristocratic estate centres?) appeared as the new distribution centres of ARS, undermining the centrality and significance of the urban market. Conversely, in the Early Middle Ages alternative distribution hubs do not appear in the countryside, despite the town already lost its economic prosperity, giving a rough indication of the little economic bearing of elite demand at the onset of the Early Middle Ages. Still, archaeology shows that elite demand existed, as testified by the metal and bone objects retrieved on the hilltop of Le Mura-Mennella[35], but it probably limited its influence on part-time artisans, whose work could be commissioned on request by the local landlord.

The impoverishment of the local aristocracy had an impact also on the peasantry. In fact, the halo of satellite settlements surrounding sites with high presence of fine wares gradually disappears after the 3rd century AD, indicating a growing divide between elite and peasant settlements and, accordingly, a diminishing access to high quality ceramics for the peasantry. Nonetheless, peri-urban and peripheral areas followed diverse trajectories. In fact, despite the signs of urban decline, it has been seen that access to fine wares in the town's proximities was more widespread and socially transversal. Such trend might have been expected, as the relevance of cities in pre-modern economies is well known[36], but it is interesting noticing it despite the strong aristocratic weakness, testified by the isolation of settlements in 'ecological niches' to the west of the river Vandra[37]. Despite this peri-urban resilience into the early 7th century, any evidence of an urban exchange hub is lost in the Early Middle Ages, suggesting the complete ruralisation of urban society.

The implications of the above-mentioned evidence go mainly in two directions. First, Isernia appears as a marketplace that, despite evident difficulties already in the Roman period, offered a good economic impulse to

27 Brogiolo, Gelichi 1998 pp. 156–158
28 Pani Ermini 2009
29 Wickham 1999 p. 13; Wickham 2005 p. 654
30 a more recent approach in Gelichi 2007; a classic example in Schmiedt 1974
31 Gelichi 2000; Arthur, Patterson 1994
32 Chap. 5 par. 4
33 Theuws 2007
34 Chap. 6
35 Pani Ermini 2004
36 McCormick 2001 p. 575; Cruyningen, Thoen 2012 p. 1
37 Hodges 2006c p. 309

the surrounding rural population and, consequently, a certain degree of resilience to the late antique economic crisis. Such stimulus, waning after the 5th century, was lost in the Early Middle Ages, when, despite the maintenance of a political role, its economic functions were lost. Second, it shows how the rural aristocracy changed its economic relation with the surrounding rural communities in Late Antiquity, switching from a quasi-symmetrical exchange system to a vertical structure based on rent-collection, prefiguring in some ways the monastic gift network. If rent-collection might have worked in its early stages (4th-5th century), as testified by the accumulation of late ARS fragments in estate centres, on the long run this increased the wealth gap between landlords and peasants, eventually isolating the formers. This isolation would have brought to restrict the participation of rural aristocracy in the urban markets, thus weakening the attractiveness of towns for long-distance exchange. With time, the integration of this internal area with the Mediterranean market faded away and for the landowning elite the acquisition of fine ware vessels became increasingly difficult, even in the urban area. Therefore, the poverty of the early medieval aristocracy is the result of the creation of a new economic gap between rural aristocracy and peasantry, which lead to the disruption of the links between rural production and urban exchange.

7.4 San Vincenzo al Volturno as centre of a new economy

The decline of the economic power of town and aristocracy in the early medieval Italian peninsula was the necessary premise, as in Northwestern Europe, for an age of experimentation that lead to a profoundly different economic environment[38]. The Church could easily take advantage of the power vacuum left by the lack of a clear leadership and between the 6th and the 9th century bishoprics and monasteries gained an unprecedented influence on almost all the aspects of socio-economic life[39]. The lavishness of Carolingian monasteries provides an indication of the successfulness of religious communities in attracting economic resources. San Vincenzo al Volturno was certainly not the richest amongst early medieval monasteries and yet, at the apex of its success, was an influential economic agent whose power went beyond the boundaries of the UVB. Still, it would be erroneous to imply from such architectural richness an overall positive influence on the local economy, which instead should be proved by historical and archaeological research[40]. Specifically, an eventual match between monastic richness and regional economic growth can be tested by considering specific proxies.

For example, a clarification of the origin of monastic richness can offer a fuller understanding of the comparative weight of external patronage against local agrarian exploitation. An review on the economic organisation of late antique monasteries in the eastern Mediterranean proved that the origin of monastic wealth is a crucial factor in determining the economic function of monasteries[41]. The possibilities range from an extreme scenario in which monasteries were well-run agrarian estates, with a carefully planned land exploitation and marketing strategy, or conversely they could be patron-dependent communities supported by aristocratic donations. A similar approach can reveal fruitful in the study of early medieval monasticism too[42], as it exists evidence suggesting an active role of monastic institutions in reorganising the agrarian production of peripheral areas, possibly for profit making[43], as much as there are sources documenting a more passive attitude of monastic communities ,primarily relying on the incoming flux of aristocratic gifts and relegating the exploitation of agrarian resources to a minor role in the process of wealth creation[44].

The archaeological evidence summed up in this research does not bring any conclusive evidence on this regard, but the chronological sequence of the observed changes may be indicative. In fact, the reorganisation of agrarian production lead by the monastery dates to the 10th century, at least 200 years after the

38 Theuws 2004 pp. 128, 133; Hodges 2012 p. 129; Carver 2015 p. 19

39 Raftis 1961 p. 459

40 Henning 2007 pp. 17–21

41 Brenk 2004

42 A similar debate on "rural-embeddedness" can also be found regarding early medieval emporia: cfr. Hamerow 2007

43 Marazzi 2015 p. 163; Destefanis 2002 p. 95

44 Hodges 2012 p. 89

foundation of the monastery and, significantly, when the monastery already showed great prosperity in both its architectural forms and in the moveable objects, suggesting that the monastic ascendancy to power upheaval was funded through patronage. Yet, ceramic evidence showed that economic intercourses between the monastery and the neighbouring peasantry were occurring as early as the late-8th or early-9th century, exactly when monastic wealth was being expressed with a new monumental church. Considering that agrarian production tends to be more resilient to change than exchange patterns, these latter are a more sensible indicators for novelties in economic relations. It has also been proposed that, in the early stages of the monastery's life, exchange with the surrounding peasant communities was probably not driven by market relations, but rather by gift exchange or redistributive actions[45]. Therefore, it can be imagined that already late-8th early-9th century San Vincenzo al Volturno, having a limited coercive power over rural communities[46], acquired seasonally the services of the surrounding peasantry by providing back gifts in the form of blessings and petty commodities. Accordingly, if patronage was a fundamental first step to create monastic wealth, often determining the long-term success of a monastic project[47], this income did not entail a passive attitude of the monastic community, which is soon busy investing part of its inherited capital in relations with its most proximal neighbours. Necessarily, it took some time before these economic ties could be formalised in the rent leases transmitted in the *Chronicon Vulturnense* and leave a visible mark also in the agrarian organisation, but this should not downplay their essential role in consolidating the monastic economic power.

The success of monasteries as economic centres in a period characterised by a stagnating economy, was not just the effect of a clever use of resources. For example, it has been rightly pointed out that the position of almost all the major Lombard monasteries allowed controlling large transects of fiscal land in peripheral regions, often along important communication routes[48]. Relatively fewer attention received the role of the spiritual prominence of these centres, which often paved the way to their economic rise[49]. Because of their religious nature, monasteries offered neutral gateways that would have eased exchange across political borders, similarly to emporia in Northwestern Europe[50]. Moreover, the peripheral locations of monasteries determined a local monopoly in the distribution of salvation, a credence good that only accredited franchises of the Church could provide[51]. Being the Church a monopolistic supplier of salvation and monasteries the sole franchise available locally, the only manner to access salvation in these areas was to enter in an asymmetrical transaction of some kind with the monastic community, which eventually took the shape of land donations for the elites and labour and foodstuff for the peasantry[52].

The consolidation of San Vincenzo al Volturno as a prominent exchange centre is well documented by the patterns of ceramic distribution, showing how the monastery became the fulcrum of a redistributive network linked both with the aristocracy and the peasantry in the 9th century AD. The concentration of RPW sherds in few rural villages indicates circulating through market exchange but reached specific peasant communities through exclusive fluxes, possibly resembling the gifts of elaborated objects produced at the monastery and reserved for the aristocracy. Beyond certifying the economic centrality of the monastic enterprise, the exclusivity of monastic products in the UVB hints at a strong religious embeddedness of the exchange activities. Further evidence in this regard is that the economic decadence of San Vincenzo does not start with the Arab Sack, but with the loss of its local religious monopoly. With the (re-)creation of a bishopric in Isernia in the 10th-11th century, a prestigious competitor for acquisition of salvation was now available to both urban and rural inhabitants. In such context, it is probable that the religious meaningfulness of monastic exchange was reasserted with renewed strength, as attested for Bobbio[53], and in this direction might be interpreted the 'openness' of

45 Cfr. Chap. 6 par. 5
46 Wickham 2005 p. 583
47 Marazzi 2015
48 Hodges 1995b p. 172; Costambeys 2007 p. 4; Destefanis 2002 pp. 9–10
49 Theuws 2004; Carver 2015
50 Theuws 2004 pp. 133–134; Hodges 1994 pp. 120–124
51 Ekelund, Hébert, Tollison, et al. 1996 pp. 46–48; Davidson 1995 p. 121
52 Dall'Acqua 2011 p. 309
53 Destefanis 2002 pp. 96–97

the monastic architecture of the late 10th-11th century and the acquisition of episcopal rights through papal intervention[54].

In the 11th century, the competition between urban and monastic centres took thus a clear shape, but monasteries were possibly creating a urban alternative since their inception[55]. Urban resemblance was intentionally searched for in monastic architecture[56], indicating that a conceptual link between town and monastery was rooted in monks' mentality, but whether such similarity reached also economic functions is a matter of debate. Monasteries have been seen as nodes of exchange webs alternative to urban networks[57], as «tightly organised elite regional centres that operated in parallel and competition to the (polyfocal) nuclei such as royal households occupying largely deserted Roman towns»[58], as the main stimulus of urban revival in the 9th century[59], but also as a hindrance to early medieval town development[60]. In this thesis, it has been argued, on the basis of San Vincenzo's evidence, that monasteries were talented administrators of their territories, crucial exchange centres, as much as massive consumers. Such qualities have often been used to argue for a functional continuity with ancient towns. However, a much stronger criterion to discern the economic comparability of the two types of loci is their relationship with demand. In other words, it is necessary to know whether monasteries were institutions that, as much as urban markets, not only created, but also organised demand and worked as a buffer-zone in which the needs of different strata of society could meet.

The answer is not as clear-cut as one might wish. Urban characteristics are certainly visible because, from the 8th until the 10th century, the monastic enterprise was not exclusively the new focus of elite's expenditures (both local and regional), but also the location where elite demand materialised in specialised craft production and in new patterns of land exploitation. Moreover, the peasantry found in the monastery, not simply a landlord which extracted their agrarian surplus because of the imbalanced power relations, but also a centre where to access materials that could not be produced within the household and that were not available in the then 'ruralised' urban market. All these factors contributed in enhancing the economic complexity of the monastic centre, far greater than that of nearby towns. But the structure of monastic economy was also inherently different from that of the urban market, conditioning the way demand could be satisfied. The necessity of salvation, around which revolved the monastic economy, was a strictly personal matter, transforming exchange in an exclusive relation between monastery and faithful, being it aristocrat or peasant. This system limited the interaction with external agents, determining a lack of competition amongst patrons, testified by the drying out of donations, and a low interest of the peasantry in adjusting agrarian production to demand, as greater outputs did not lead to additional gain. More importantly, the monastic exchange system revolved around the demand of one specific good, salvation, tying the fate of exchange on the absence of other local providers of the same product. The result was that as market exchange revived in the High Middle Ages, it did not find a favourable environment in San Vincenzo and was redirected to Isernia, favoured not only by the (re-)appearance of the bishopric, but also from the variegated urban society.

Therefore, the monastery of San Vincenzo in the early medieval period was certainly a location that in some aspects resembled the economic functions of the Roman town, but that it was also fundamentally different in its structure and in its working system. It can be agreed with Joachim Henning that the monastic economic system was a «controlled economy», whose aim was mainly guaranteeing the subsistence of the inhabitants of the monastic complex[61], yet this was not a hindrance for economic growth. On the contrary, thanks to the size of the enterprise and of to the largeness of its wealth, San Vincenzo appears as an accelerator of some local economic aspects, which would then prove fundamental for the high and late medieval bourgeois economy. First, it was an incubator of the productive experiments appeared in the 8th century, supporting from the late 9th century onwards the village-based productive system. Second,

54 Marazzi 2006 pp. 446–448
55 Marazzi 2004; Cantino Wataghin 2011 p. 367
56 Cantino Wataghin 2011 p. 367
57 Marazzi 2004
58 Hodges 2012 pp. 69–70
59 Balzaretti 1996 pp. 225–228
60 Henning 2007
61 Henning 2007 pp. 20–21

the high level of economic complexity of the monastic context allowed levels of architectural and craft productions that in no other means could have been reached in that period in a peripheral area such as the Upper Volturno Basin. Third, the abandonment of market transactions should not be seen as a regression, but rather as an aware reaction to the fundamentally new global context. The necessity of attracting resources stimulated a different way of exchanging goods and led to the accumulation of wealth resources in unprecedented quantities. The real mistake of the monastery was that its economic well-being was based on an inflexible structure that could not adapt to the changes introduced in the 11th century. The creation of new craft centres, the raise of market exchange and the loss of religious monopoly determined the loss of San Vincenzo's power and its transformation in a subsidiary monastery of Montecassino.

7.5 The eternal struggle of peasants: a limited autonomy

The transition from an elite-driven market economy to a monastic-controlled redistributive system, though driven by changes in the demand structures of the landowning classes, was supported by the extraction of resources from the peasants, because in pre-modern economies, with few localised exceptions, the main activity of wealth creation was the exploitation of agrarian resources. Such strict interrelation assumes that a transformation in the structure of demand affected peasant lives, but does not inform on the role of peasantry in such change. Was the peasantry a reluctant supplier of an economic system imposed from above or it actively contributed in shaping the new economy? If the 8th century peasantry was generally free from rent and tax impositions, what led the peasantry to give away the direct control of production modes in the late 9th and 10th century?

The economic relation between peasant production and type of demand is explained by a relatively simple rule, which constitues the basis of the "peasant's dilemma". Generally, the more agrarian production aims at satisfying a demand that does not originate within the peasant community, the less producers have control over the cost of the product[62]. Peasants' reactions can thus range between two extremes. Either they focus on producing mainly for household necessities, with limited exchange to the neighbouring peasant households. Such approach limits the possibility of gains, but also contains the risk of losses and allows maintaining direct control on production, both in terms of input (e.g. cultivated vs. resting land, intensity, man-hours per hectare) and output (how much to store, how much to exchange). Conversely, they could commit on producing for a broader group of consumers, therefore partially or completely losing the control on the production strategies and on the cost of the products, but opening up the possibility of strongly increasing the gains acquired from land exploitation. This dichotomy is reflected by modern conceptualisations of early medieval peasantry mentioned in the first pages of this book. Post-Roman peasants have been both seen as a wretched social group, lacking access to good quality objects and forced to rely on subsistence strategies[63], but also as enjoying favourable contingencies, with stronger control on production and substantial freedom from taxes and rents[64].

The research conducted in the UVB was directly interested in discerning which view describes better the state of early medieval peasantry in the Central Apennines. To do so, it was decided not to focus exclusively on ceramic evidence, but also to use proxies (land composition) directly linked with agrarian production. In fact, while the ceramic evidence reproduced the material poverty well-known also from other contemporary rural settlements in the whole Italian peninsula, the analysis of land composition showed a growth in the diversity of catchment productivity between the late 7th to early 9th century, in counter-tendency with long-term modifications (*Fig. 5.8a*). Similarly, the appearance of hilltop settlements in the Early Middle Ages gains a new economic significance as it enriched the range of settlement types allowing for a wider range of land types to be exploited, reinforcing the perception of a widespread 'experimental' attitude in this period. In

62 Wolf 1966 pp. 42–43

63 Grigg 1974 pp. 135–136; van Bath 1963 pp. 30–31

64 Wickham 2005 pp. 535–541; Hodges 2012 pp. 41–66

accordance with evidence from Souther Tuscany[65], there are reasons to believe that these early hilltop settlements were the effect of autonomous peasant initiative. Besides, ethnological evidence suggests that in simpler economic regimes, families tend to take an extended form, as larger familiar nuclei allow maintaining a minimal level of intra-familiar specialisation[66]. Accordingly, it can be argued that the simplicity of the 8th century economy fostered the formation of extended families, which started using more thoroughly the various capabilities of the surrounding territory, determining the creation of seasonal settlements in different ecological niches. In fact, hilltop locations, used in combination with low-lying sites, permitted a more thorough access to the different resources offered by a rugged landscape, therefore adapting perfectly to the needs of subsistence strategies. Such trend would also explain why the upwards movement occurred slowly, with first (mid- 7th to 8th century) the settling of few nuclear families (maybe seasonally) and later (9th century), after a selection of the most fertile locations (*Fig. 5.7*), the inclusion of new members and, possibly, the construction of more durable structures.

Until the end of the 8th century, these communities were partially autonomous from the monastery[67], which allowed a good amount of freedom and limited social differentiation because of the lack of stimuli for wealth accumulation. As seen above, the earliest ceramics produced by specialised potters in Vadum Porcinum (S090) and Acropoli-La Ginestra date at least to the early 9th century, providing a reliable terminus *ante-quem* for the beginning of economic transactions between monastery and rural communities, anticipating of one century the documents of the *Chronicon Vulturnense*. These transactions might not have brought sudden economic upturns, but lead to an increasing inter-site hierarchical differentiation, even though minimal. Stone buildings, in a rural landscape where wooden structures prevailed, materialised the presence of the monastery in the territory. The transition from scattered independent churches, such as that at Colle Sant'Angelo[68], to intra-village structures, as the phase-2 stone building at Colle Castellano[69], indicate a change in the monastic strategy for connecting with the peasantry, first using accessible locations along routes and then focusing on hilltop nuclei. More importantly, this conversion offered the chance to part of the rural community of emerging socially thanks to its direct access to monastic services, while previous rural chapels, set in neutral territories, might have had a more 'egalitarian' outreach. If socially profitable at first, the direct monastery-hilltop links turned soon against the rural population. In fact, after the Arab Sack and the Capuan exile, the changed political and economic contingencies urged the monastery to adopt a stronger control over agrarian production, a fact well described by the many documents showing the abbots creating new villages[70] or 'promoting' the migration of new inhabitants in the existing ones[71]. Archaeologically, this translated in the construction of a substantial enclosure wall in Colle Castellano[72] and in the more stable presence of industrially produced ceramics in Vaccherecia[73], but also a loss in the variety of settlement types, which shows how the material benefits acquired by the rural communities came at the cost of a massive reorganisation of their production methods.

The model outlined above is closely comparable with a recent revision of the *modello Toscano* synthesizing the results of a series of excavations carried out in Southern Tuscany[74]. On the basis of the new collected evidence, it was noticed that the rural settlement pattern, instead of being composed exclusively of hilltop nuclei from the 7th century onwards, must have been heterogeneous until the early 8th century[75]. In the original Tuscan model, landowning elites were

65 Bianchi 2015 pp. 10–11
66 Wolf 1966 pp. 65–73
67 Hodges 2003 pp. 1094–1095
68 Francis, Hodges 2006 p. 228
69 Hodges 2003 pp. 1092–1093; Hodges, Clark, Coccia, et al. 2006 p. 193
70 cfr. *CV* 109: *facere castellum ubi illi voluerunt*; *CV* 110: *debeant edificare castellum in predictis terris*
71 cfr. *CV* 92: *et obligaverunt se omnes supra nominati ut a die ilio, quo in eodem castello habitaverint, non habeant licenciam ad habitandum pergere in alium locum*
72 Hodges, Clark, Coccia, et al. 2006
73 Hodges, Wickham, Nowakowski, et al. 1984; Chap. 6 par. 5
74 for the original Tuscan model see: Francovich – Hodges 2003 pp. 107–113, Francovich 2007 and Valenti 2014 pp. 130–131; the revision has been presented in Bianchi 2015
75 Bianchi 2015 pp. 10–11

attributed a leading role in these hilltop settlements already from the Lombard period. Such hypothesis was advanced on the basis of the appearance of imposing wooden structures and, later, of substantial stone buildings, which required agents with enough power and wealth to impose their plans over the rest of the community[76]. The most recent research confirmed this chronology in Siena's hinterland, but also showed that in the coastal region, lacking any urban centre, elite's intervention in the rural landscape was delayed, allowing for a strong peasant autonomy until the 9th century[77]. A similar trend characterised also the peasant settlements in the UVB. First, ceramic evidence (though still minimal) suggests the maintenance of a sparse settlement pattern until the mid-7th century with a later transitional or 'experimental' period that lasts well into the late 8th century. Secondly, the chronology of hilltop fortification indicates a late interest of the local landowning elite (the monastery) to transform its control over the rural population from a relaxed economic predominance to a strong social control. Interesting in this sense, would be a deeper archaeological knowledge of hilltop nuclei closer to Isernia (e.g.: La Romana) to see whether aristocratic interventions occurred earlier in a peri-urban landscape.

Therefore, peasants' independence was a crucial factor for the development of a different way of exploiting and occupying the landscape. However, peasant agency had a great limitation: the lack of external economic links constrained the chances of creating internal social differentiations, therefore jeopardising any attempt of wealth accumulation and, thus, a widespread adoption of new production habits. Only the intervention of a powerful agent such as the monastery could promote a thorough change of productivity, requiring a modification of the settlement pattern on a broad scale. The successfulness of the monastic action lied not only in its religious, political and economic power, but especially in making a clever use of the settlement patterns that the peasantry were creating autonomously and in promoting each transition with some tangible improvement for the rural communities. In part, these had a material form: it has been discussed how, between the mid-9th and the late-10th century, the community in Vaccherecia enjoyed progressively larger amounts of well-crafted pottery, and how Colle Castellano's structures where renovated. Still, what really convinced the peasantry to collaborate in the monastic project was the possibility of upgrading its social status. The possibility of dealing directly with monastic artisans (e.g. itinerant potters) and clergy created an inter-site social hierarchy that went lost between the 7th and the 8th century, allowing competition between rural communities to appear and to successful settlements to emerge. The counterbalance was a stronger dependence on monastic demand, which brought the peasantry to accept the weakest position in an asymmetric economic relation.

76 Francovich 2007 pp. 141–147
77 Bianchi 2015 pp. 11–15, 18–20

8. Conclusions

Change and continuity characterise the history of the UVB countryside. Several game changing events have been identified and their effects were often irreversible. Yet, they never altered all the aspects of economy, always leaving parts and bits were continuity with previous centuries was visible. A meaningful example of this intertwining of change and continuity is the demographic crisis occurred in the first three quarters of the 1st millennium AD, a characterising feature of the late antique and early medieval period. The research confirmed that between the 1st century and the 8th century AD the number of settlements in the UVB dropped from 61 to 13, a quantitative difference that methodological biases alone do not fully explain and indicating a thinning settlement density. However, further analyses demonstrated that this demographic shift did not alter the 'Roman' agrarian pattern until the 8th century, though integrated with hilltop settlements from the late 6th century onwards. It has been proposed to identify the origin of the coexistence of change and continuity in the different relation of agrarian production and exchange with demand. In fact, agriculture displayed a conservative attitude determining a slow reaction to changes in the distribution of demand. Conversely, exchange patterns revealed a malleable nature that adapted almost instantaneously to new demand configurations, resulting in an almost continuous change throughout the 1st millennium AD.

This combination of change and continuity shaped also peasants' attitude to economic processes. Continuity lied in the persistent necessity of meeting subsistence levels, so that, independently from the prevailing mode of production, the prime aim of peasant households was always gathering the sufficient sustenance to feed its components[1]. This essential obligation required the constant extraction of agrarian resources, whose output provided the means of reaching subsistence levels through self-consumption and exchange. This strategy of 'complex subsistence' dominated the life of pre-modern peasants, but it does not indicate an unchanging economic behaviour. The ratio between agrarian output used for self-consumption and that used for exchange varied according to the capabilities of the rural community and on the opportunities offered by the historical context[2]. The evidence obtained in this research confirms peasants' flexibility of approach. The changing intensity of land exploitation within a framework of demographic decrease, as much as the different patterns showed by peri-urban and peripheral micro-regions are all hints of the malleability of the rural population to different contexts. The resilience of farmsteads to the 8th century crisis and their distributional pattern in the landscape are also indicative of the maintenance of a

1 Wolf 1966 p. 12–13
2 Ellis 1993 p. 4–6

certain level of economic complexity that cannot be labelled as primitive. In fact, as the 'global' economic system suffered profound alterations and the top of local society was decimated, the rural population restructured its production on a more thorough exploitation of the regional ecological diversity that, most likely, created a network of rural symmetrical exchange. Thus, change in peasant economy occurred when new opportunities disclosed to the rural dwellers or when previous prospects of gain ceased to exist[3].

Accordingly, the stimulus of 'complex subsistence' would not lead to the establishment of solid and durable inter-regional connections. As demonstrated by the poor performance of the autonomous late antique settlements located west of the Vandra, even when rural aristocracies would establish independently long-distance economic links, these would reveal unreliable and short-lived. A stable connection to the larger inter-regional context could only emerge in collaboration with a Central Place that, by imposing rents or taxes, could support its non-agrarian inhabitants and further reinforce its relevance in the extra-regional environment[4]. Clearly, the disappearance of an attractive foreign horizon would reduce the rural demand for non-local commodities and, eventually, destabilise the hierarchical function of the Central Place. If monastic and urban Central Places shared their function of gateways between local and 'global' economic spheres, they differed in the methods of resource extraction and in how they justified their leading role in the local context, eventually determining a completely different conformation of rural society. The town based its economic predominance on the aggregate demand of a dense nucleus of people, creating a competitive environment in which the diverse economic potential of the rural population translated in settlement hierarchical stratification. Conversely, the centrality of the monastery originated from its spiritual, as much as political, relevance. The redistribution network identified archaeologically and mentioned in the leases of the *Chronicon Vulturnense* was based on the power relation between monastic community and subordinate villages, which flattened the differentiations between rural communities, but enhanced the social disparity within the village population.

3 Scott 1998 p. 9; Ellis 1993 p. 13
4 Langton 1998 p. 377

The archaeological evidence suggests that the dichotomy between the individualistic aims of peasants and the broader perspective of Central Places did not cause great tensions between peasants and non-agrarian population. Abrupt changes in the rural settlement pattern (signalling top-down interferences in agrarian production) or the lack of participation of the rural population to the same material culture of the Central Place (signalling a divide between rural and non-rural spheres of exchange) would show a clash between contrasting approaches to agricultural production. Conversely, the hints are all in the opposite direction. The continuity of the Roman settlement pattern until the 8th century indicates its practicality both for the decreasing urban demand as much as for peasant's necessities, and the relatively wide circulation of fine wares amongst the rural population shows a certain vitality of urban-country economic relations. The 10th century AD is the only period for which a peaceful centre-periphery relation cannot be inferred with certainty, because the sudden exclusivity of hilltop settlements confirmed the vigorous monastic impositions documented in the *Chronicon*. Yet, some elements, as the relative good access to RPW of the hilltop communities, suggests that the prospective socio-economic gains offered by the monastic project have been a successful incentive for a spontaneous cooperation of the rural population.

The separateness of the local economy from the 'global' economic environment was probably one of the main motivation of such cooperative environment. As showed in several instances throughout the thesis, the demand pressure of regional centres never reached levels so high as to require a reconversion of the local productive structure and, therefore, was never perceived as suppressive by the rural population. It can be argued that the peasants of the UVB always maintained a good control of their productive strategies, with relative little interference from higher social strata. It is for this reason that the disappearance of town's centrality did not immediately lead to the abandonment of the Roman rural settlement pattern and that peasants did not contrast the monastic reorganisation in the 10th century. The negative side of this separateness was the much narrower potential for economic redemption. Possibilities of climbing the social ladder were mainly limited to the local context, where traditional power structures might have been

difficult to fight.

Finally, the analysis of the archaeological data collected during two different survey projects in the UVB allowed some crucial steps forward in the understanding of the transition «from villa to village»[5] in this part of the peninsula. Beyond well-known demographic trends, it has been possible to recognise how peasants related to land, to their neighbours and to the main regional centres. To this thorough look, the peasant economy of the Early Middle Ages revealed an unprecedented level of complexity, with a constant tension between self-consumption and exchange, as much as a seamless adaption to the changing circumstances. Town and monastery embodied locally the larger economic horizons of the Empire and the Church. Their role was primarily that of organising and redirecting part of the agrarian production, but almost never with a complete parasitic behaviour. In this economic periphery at the core of the Italian peninsula, global and local established a dialogue in which both parts could pursue self-centred aims without eliminating the needs of the other, offering an interesting comparison to modern conceptualisations of globalisation processes.

5 Francovich, Hodges 2003

Appendix

The following pages contain:

1. The database of the SVP material studied in the Spring 2017 and preserved in the storerooms of Castel San Vincenzo;

2. The list of diagnostic fragments collected during the resurvey in summer 2017 (SVS17);

3. The drawings of selected diagnostic fragments collected during the SVP;

4. The drawings of selected diagnostic fragments collected during the resurvey of 2017 (SVS17);

5. Plates.

Appendix I: SVP material

Site	Bag	ID	Frag.	Tipe	Num	Wgt	Diam.	Pic	Dr.	Munsell	Ref.	Chrono	min	max	Comm.
1	1	1	wall	ARS	1	5		x		2.5YR 7/8	Hayes 9B	second half 2nd century [Hayes]	150	200	recognizable because the part with the two lines and the rouletted decoration is preserved.
1	1	2	rim	ARS	1	13	20	x		2.5YR 6/8	Hayes 6B				drawing not possible
1	1	3	rim	ARS	1	3	18	x	x	2.5YR 6/8	Hayes 14A	end 2nd cen- begin 3rd	180	220	
1	1	4	rim	CW	1	20	24	x	x	5YR 7/8	imitation Hayes 99 [Abruzzo]	VI-VII	500	700	Same shape of Hayes 99 but coarse, check because we also found it in Isernia
1	1	5	rim	CW	1	6	12	x	x	2.5YR 6/8					outward rim of a jug
9	1	2	rim	CW	1	18	9		x	GLEY1 8/10Y					greyish clay, handle attachment
9	2	1	rim	PW	4	222	36	x	x	7.5YR 8/4	same as 4a				4 fragments, which do not always connect well, but they are clearly from the same pot. That is not surprising, being this material collected in a trench excavation.
20	1	1	wall	ARS	1	6		x		2.5YR 6/8	ARS not identified	2nd to 7th AD	100	700	ARS, no inclusions
20	1	2	handle	CW	1			x	x	7.5YR 7/8		ROM			flat handle, ROM
21	1	1	wall	ARS	1	4		x		2.5YR 6/8	unid.				ARS? very coarse, I don't think so anymore
21	1	2	rim	CW	1	7		x	x	5YR 7/6		EROM?			same shape of site 135, n. 1
24	1	1	rim	CW	1	3		x	x	5YR 7/6		post-MED?			straight rim, wheelmarks, rouletting inside
24	1	2	base	RPW	1	7		x		fab. 2.5YR 6/8; paint 10R 4/8		LA? MED?			dark red paint seemingly covering both surfaces. Could be LA, but the presence of subrecent material might indicate a later chronological framework. Similar surface treatment to S117 fr. 2
24	1	3	wall	GL	1	9		x		fab. 2.5YR 6/8; glaze 2.5YR 3/4		post-MED?			sparse traces of dark red glaze (or paint, but it shines)
40	1	1	rim	CW	1	9	12	x	x	5YR 7/6	San Giacomo, f. 14, n. 85	5th century or earlier?			reference is close but not exact
40	1	2	rim	CW	1	11	10	x	x	7.5YR 6/4	Rotili et alii 2010, p. 320, f. 13, n. 4; Marazzi 2010, f. 3, n. 7	5th-7th [Rotili]; 6th-7th [Marazzi]	500	700	outwarding rim, with square section of neck. Rotili's general shape is more correct, however recalls Marazzi's 'squariness' and also Freed 1982 P1633 (375-425 AD). The grey fabric is exactly like Alifae, thus chronology.
88	1	1	rim	CW	1	13	12	x	x		Ceramica VI-VII, p. 429. fig. 6.2-3	6th-8th [Patterson]	500	800	square outwarding rim. Resemblance with wide mouthed jars from Casale San Donato. But most likely a LA jar or a jug. In A112 (the sister site from the CLP a 4th-7th cen.) a bottle has been found. I would suggest an early date for the site (4th-5th?). Very unsure.
90	3	1	rim	PMJ	1	6	26	x		fab. 10YR 8/3; red 10R 5/6			1200	1400	PMJ fragment only with red and black. Bowl with straight rim. Probably 12th century
90	3	2	rim	PMJ	1	6	18	x		fab. 10YR 8/3; red 10R 5/6			1200	1400	PMJ red and black. Round rim of a small bowl.
90	3	3	wall	PMJ	1	4		x		fab. 10YR 8/3			1200	1400	PMJ only black decoration with small lambdas
90	3	4	handle	RPW	1	52	8	x	x	fab. 7.5YR 7/4; paint 10R 4/4	SVV3, p. 279. f. 10:91.	late 9th century	875	900	jar or jug. coarse rectangular handle attachment to the neck. Traces of red paint on the top. Reference extremely close both for section, fabric and location of the paint.

90	3	5	wall	RPW	1	3		x		fab. 7.5YR 8/3; paint 10R 5/6			800	1200	small fragment. Generic. Broad band
90	3	6	wall	CW	1	5		x		fab. 10YR 8/2					coarse fragment with slight traces of red paint. Generic
90	3	7	rim	PW	1	1		x	x	10YR 8/3	brocchetta ad orlo rientrante. Ordona X 325, tipo 18.1 (similar, but no date) or 407, tipo 19.2 (RPW and thicker). Ceramica VI-VII Lucca, p. 300, fig. 6.1	second half 5th- first half 6th [Ordona RPW]; 6th-7th [Lucca]	450	700	Jar or jug. triangular inward rim, plain fabric, soft to the touch. Too little to determine diametre. The fabric well adapts to the material from Calle, yet there is no red paint.
90	3	8	rim	CW	1	8	18	x	x	2.5YR 7/8	Ceramica VI-VII, Abruzzo p. 442. fig. 2.6-8	5th-mid 6th century	400	550	ciotola-coperchio. Common shape. Reminds of some products from Abruzzo.
90	3	9	rim	CW	1	5	12	x	x	5YR 6/4	Ceramica VI-VII, Pianabella p. 406 fig. 9.7	7th century	600	700	round rim. Looks with the handle attachment on one side. Quite generic.
90	3	10	rim	CW	1	7	14	x							lid. Blackened rim. Colour not possible to be specified
90	3	11	rim	CW	1	15	22	x	x	7.5YR 7/4	Patterson 2001, pag. 260, f. 2.2	late 8th-early 9th	775	825	Same vessel of SVV. Similar fragment in the Isernia survey, but with red paint.
104	1	1	rim	CW	1	9	14	x	x		Marazzi et alii 2010, p. 8, fig. 3, n. 2				cooking pot, reference seems good, but this is a bit smaller. Generic
106	1	1	rim	CW	1	9	40 (?)		x		Ceramica VI-VII, Calle, 744, fig. 9.10; SVV3, 264, fig. 10:9	Late 4th-early 6th [Calle]; Late Roman [Patterson]	375	525	rim with lid groove. The references are extremely close and the fabric seems the same.
109	1	1	base	ARS	1	8		x		2.5YR 6/6	ARS D	4th-5th century	300	500	Flat base of Africana D, probably Hayes 61 dish
109	1	2	rim	CW	1	5	14	x	x	5YR 6/8	S. Giacomo Schiavoni, fig. 15 94-100	420s-430s	420	440	jar in orange fabric with everted rim and lid groove
109	1	3	rim	CW	1	7		x		5YR 6/6					very worn, diametre not distinguishable. Maybe a flange?
109	1	6	rim	CW	1	8	12	x		2.5YR 6/6					probably same shape as the one before, but less well preserved
117	1	1	rim	CW	1	12	16	x	x	5YR 7/8	SVV3, p. 268, fig. 10:34	Late Roman	350	550	Very worn. Rim with two incised lines on the exterior. Inclination different from reference, slightly straighter.
117	1	2	base	CW	1	42	7	x	x	2.5YR 5/6		MED?			Podium base, red wash on the exterior surface and also on the bottom of the base. similar surface treatment of S024 fr. 2. possibly MED due to shape.
117	1	3	rim	CW	1	27	20	x		5YR 6/6	Cappelletti 1986, tipo 2	età severiana-mid 3rd cen	190	250	Flat outward rim, pinkish clay. Abraded incision on the interior?
117	1	4	wall	STR	1	12		x		int 2.5YR 6/8; ext 2.5YR 5/6	Ceramiche VI-VII [Abruzzo] 683 fig. 16	5th-6th century	400	600	polished *a stecca* on the exterior wall, misfired (?). On the interior there are wheel-marks and seemingly a red wash.
117	1	5		STO	1	42		x		GLEY1 8/10Y					possibly a weight for a scale. There seems to be an N on one side (see photo). Could also be a fragment of peso da telaio, but it is much smaller than any other ever seen.
124	1	1	rim	CW	1	12	13	x		2.5YR 6/8	Quadrella, p. 155, fig. 1.84, tomba 50	end 1st cent. AD?	80	100	slightly bigger than ref.
126	1	7	rim	CW	1	7	12	x	x	5YR 4/1					a patina cinerognola?
126	1	1	wall	ARS	1	10		x		2.5YR 6/6	ARS D1		300	500	Very fine clay. The fracture glitters, maybe PRS? But very light in colour.
129	1	1	rim	AfCW	1	30	14	x	x	5YR 6/6	Cappelletti 1986, tipo 2	età severiana-mid 3rd cen	190	250	orlo annerito, mid 2nd century-mid 3rd
129	1	2	r+h	CW	1	16	14			2.5YR 6/8		ROM			orlo estroflesso with handle attachment. Probably small jug, too fragmentary to find good reference
129	1	3	handle	CW	1	46		x	x	5YR 7/8		ROM			flat handle with two ridges
129	1	4	handle	CW	1	33		x		5YR 6/8		ROM			oval handle, too common for ref.
129	1	5	handle	CW	1	17		x		7.5YR 6/6		ROM			rectangular handle with one ridge

131	2	1	rim	CW	1	12	22	x	x	2.5YR 6/8		ROM			cooking pot (?) with triangular rim
133	1	1	rim	CW	1	92	14	x		7.5YR 8/6					thick everted rim decorated with ticks on the exterior part and appliqués on the top of the rim. Decoration similar to 135 fr. 3
133	1	2	rim	CW	1	24	12	x		5YR 7/6					decoration similar to the other, but much smaller rim
133	1	3	flange	CW	1	48		x		5YR 6/6	Turchiano 2000, p. 362, f. 12.1; Leone 2000, p. 419, f. 14.1 [both only for decoration, this is clearly a clibanus]				clibanus with very peculiar flange decoration, somehow reminds of cooking pots from Ordona
133	1	4	rim	PW	1	33	20	x	x	5YR 7/8	Turchiano 2000, p. 363, f. 13.3				cooking pot with blackened inner part.
133	1	5	rim	CW	1	20	18	x	x	5YR 7/6	Annese 2000, p. 324, f. 16.1				cooking pot with round inverted rim and two lines below the rim. Similar to n. 4
133	1	6	rim	ARS	1	7	24	x		5YR 7/6	Hayes 6B	mid to end 2nd century	150	200	external part of the rim with line before the lip
133	1	7	rim	CW	1	19	32	x							rim of a lid
133	1	8	rim	CW	1	12	16	x	x	5YR 6/6					
133	1	9	rim	CW	1	15	24	x	x	5YR 7/6					
133	1	10	rim	CW	1	11	10	x	x	5YR 7/6					
133	1	11	rim	CW	1	6	12	x	x	7.5YR 7/6					
133	1	12	rim	CW	1	8	16	x	x	5YR 7/6					
133	1	13	rim	CW	1	11	16	x		5YR 8/6					worn fragment of folded flange rim
133	2	1	rim	ARS	1	14	30	x	x	2.5YR 7/6	Hayes 61B3	beginning to end 5th century [Bonifay 2004, p.169, n.33]	420	480	Big part of the rim
133	2	2	flange	ARS	1	13	24	x		2.5YR 6/6	Hayes 91B				Flange, quite worn
133	2	3	base	ARS	1	7	8	x	x	2.5YR 7/6					Ring base
133	2	4	base	ARS	1	12	18	x		2.5YR 7/8	Hayes 61 (?)	5th century	400	500	Base of a large dish without foot. Slight incised line over the interior surface
133	2	5	rim	ARS	1	1		x		2.5YR 6/8					inclination unclear, maybe flange of Hayes 3 or Hayes 91? too small to determine diametre
133	2	6	rim	ARS	1	2		x		2.5YR 6/6					inclination unclear, rouletting on one side. No ref. Found
133	3	1	rim+flange	ARS	1	26	22	x	x	2.5YR 7/6	Hayes 91B				
133	3	2	rim	CW	1	47	30	x	x	5YR 6/8					blackened rim of big cooking pot with line below the rim
133	3	3	rim	AfCW	1	29	28	x	x	5YR 7/8	Cappelletti 1986, p. 52, fig. 7 (tipo 2)				very coarse rim, blackened rim
133	3	4	rim	CW	1	6		x	x	5YR 7/6	Hayes 61	5th century	400	500	imitation, very coarse
133	3	5	rim	PW	1	14	30	x	x	2.5YR 6/8					lid
133	3	6	rim	CW	1	12	18	x	x	7.5YR 6/6					cooking pot with blackened interior
133	3	7	rim	CW	1	8		x		5YR 6/8					square rim
133	3	8	rim	CW	1	14	22	x		5YR 7/8					triangular rim
133	3	9	rim	CW	1	8	18	x		2.5YR 7/8					pot with lid groove
133	3	10	rim	CW	1	10	20	x		5YR 6/8					lid rim
133	3	11	rim	CW	1	11	16	x		5YR 7/8					straight rim; with groove below the rim.
134	1	1	rim	IMI	1	16	30	x	x	7.5YR 6/6	Hayes 99, Ceramica VI-VII [Calle] 739, fig. 4.7, 4.10	end 5th-mid 6th	475	550	imitation, extremely coarse. See. Imitations in acroma are common also in Abruzzo with the same chronology
135	1	1	rim	CW	1	7	16	x	x	5YR 6/8	Carminiello 202, fig 94 n. 92.1; Marazzi 2010, fig. 2.7	4th-5th [Carminiello]; 7th [Marazzi]	400	700	brocchetta con orlo a fascia, no reference is good, but give a rough reference for the type.

135	1	2	rim+flange	CW	1	13	ca. 18	x	x	5YR 7/8	Marazzi et alii 2010, p. 9, fig.4, n. 4; Ceramica VI-VII 682, fig. 14.11	5th-6th [for both]	400	600	too worn for diametre to be assessed
135	1	3	rim	CW	1	8	19	x	x	7.5YR 7/6	Quadrella, p. 231, form 64	1st- 4th century	0	400	same decoration of 133 bag 1 fr.1-2. Imitation African cooking pot?
135	1	4	rim	CW	1	3	11	x	x	5YR 7/8					jug Quadrella type? Imperial
135	1	5	rim	CW	1	2	18	x		5YR 7/8					lid
135	1	6	handle	CW	1	26		x		7.5YR 8/6					rectangular handle with one ridge
136	1	1	rim	CW	1	25	20	x	x	7.5YR 7/6	Ordona X 324, type 15	4th century	300	400	black top rim. Similar to reference, but not same.
139	1	1	rim	CW	1	12	12	x	x	5YR 7/8; patina 5YR 4/1	Ordona X 418-19, type 12	4th century	300	400	enlarged almond shape rim with patina and traces of stecca. Similar to reference, not the same
139	1	2	rim	CW	1	8		x		5YR 6/6	Ceramica VI-VII [Abruzzo] 667, fig. 2.13-14	6th-7th century	500	700	flat rim with 'decoration' on top. Reference unsure due to uncertainty on the shape [see photo]
140	1	8	rim	CW	1	9	20	x		5YR 6/6					folded flange rim
140	1	1	rim	RPW	1	1		x		fab. 7.5YR 8/3; paint 10R 5/6			800	1200	probably fragment of trefoil sprout. Plain light coloured fabric with no inclusions and wheel marks.
140	1	2	rim	CW	1	2		x		2.5YR 7/8					coarse fragment with maybe external polish. Small piece.
140	1	3		STO	1	85		x		white, not in Munsell					stone with hole (natural!)
140	3	1	rim	CW	1	6	12	x	x	GLEY 2 3/5PB	shape: Patterson 2001, 10:59-63; fabric: Patterson 2001, 304 group 5	9th to 11th century	800	1100	common EMED shape, but in a typical HMED fabric.
140	3	2	rim	CW	1	3	10	x	x	7.5YR 7/6	SVV3, p. 273, f. 10:61; Marazzi&DiCosmo 2015, p. 166, f. 1, forma 1	8th- 9th century	700	900	classic EMED shape with several local variations
140	3	3	wall	CW	2	6		x		GLEY 2 3/5PB	Patterson 2001, 304 group 5	10th-11th century	900	1000	same fabric as rim above
146	1	9	rim	CW	1	11	14	x		7.5YR 6/4					
146	1	1	r+h	CW	1	8		x	x	5YR 6/4					round everted rim with very smooth surface (MED?) and handle attachment directly on rim
146	1	2	rim	CW	1	5	8	x	x	10YR 7/4					straight rim with line below the lip
146	1	3	rim	CW	1	18	20	x	x	5YR 6/6	Ordona X, p. 363, tipo 13	5th century	400	500	triangular rim of cooking pot
146	1	4	rim	CW	1	17	18	x	x	5YR 7/6	Ordona X, p. 363, tipo 13.4	5th century	400	500	rim of cooking pot
146	2	1	wall	ARS	1	2		x		10R 7/6	ARS D		300	700	unrecognizable piece of ARS, very worn (brush marks)
147	1	1	rim	ARS	1	5		x		10R 7/6	Hayes 8		150	250	worn
147	1	2	rim	ARS	1	3		x		10R 7/6	Hayes 9	100-160+ (A); second half 2nd cen (B) [Hayes]	100	200	worn
147	1	3	rim	ARS	1	3		x		10R 7/6	Hayes 14	end 2nd- 3rd century	180	300	worn
147	1	4	wall	ARS	1	4		x		10R 7/6			100	300	Africana A; worn
147	1	5	wall	ARS	2	7		x		10R 6/6			300	700	Africana D
147	1	6	wall	AMP	1	89		x		5YR 7/8					
147	1	7	rim	CW	1	12	10	x	x	7.5YR 7/4	Quadrella, p. 195, tomba 111, n. 1	1st- 4th century [context]	0	400	patina cinerognola with ticks in the inner part
147	1	8	rim	CW	1	12	16	x	x	5YR 7/6	Quadrella, p. 231, form 56	1st- 4th century [context]	0	400	triangular rim
147	1	9	rim	CW	1	32		x		7.5YR 6/6					decorated rim
147	1	10	rim	CW	1	27	18	x	x	7.5YR 6/6	Quadrella, p. 231, form 56	1st- 4th century [context]	0	400	triangular rim
147	1	11	rim	CW	1	20	16	x	x	2.5YR 6/8					big round everted rim
147	1	12	rim	CW	1	11	17	x		5YR 7/6					rim with lid groove
147	1	13	rim	CW	1	7	12	x	x	5YR 6/6					rim with lid groove

147	1	14	rim	CW	1	17	14	x	x	5YR 6/6	Ordona X, p. 326, tipo 23.5; San Giacomo fig. 15 form 101; Ceramica VI-VII [Abruzzo] 671, fig. 5.7	5th century [San Giacomo]; 6th-7th century [Ordona]; 5th-6th [Abruzzo]	400	700	imitation of Aegean cooking pots (see also San Giacomo)
147	1	15	rim	CW	1	24	26	x		7.5YR 6/6					lid with blackened
147	1	16	rim	CW	1	7	16	x		5YR 7/8					lid
157	1	10	rim	PW	1	7	13	x		7.5YR 8/6					rim with extended tesa with line on the edge, quite small jar, likely Samnite or Early Roman
157	1	1	rim	CW	1	5	14	x	x	2.5YR 5/6	SVV3, p. 273, f. 10:61; Marazzi&DiCosmo 2015, p. 166, forma 1C; Arthur&Patterson 1994, 434, fig. 11.4	first half 9th century	800	850	in this case also the fabric is similar to the SVV examples. Washed down from the Colle Castellano hill?
157	1	2	rim	CW	1	17	16	x	x	5YR 7/4					cup with groove below the lip
157	1	3	rim	CW	1	18	20	x	x	2.5YR 7/8	Quadrella 230, n. 63				big rim on thin wall; common shape from the 2nd BC until the 3rd AD
157	1	4	rim	CW	1	9	10	x	x	5YR 8/4	Ordona X [Posta Crusta] 420, forma 17.1	end 5th century	475	500	straight rim slightly enlarged
157	1	5	rim	CW	1	3	12	x	x	10YR 7/3		EM? [fabric]			round rim in greyish fabric looking EM?
157	1	6	rim	CW	1	9		x	x	5YR 7/4					square rim "S" shaped
157	2	1	wall	ARS	1	1		x		2.5YR 7/8	ARS not identified		100	700	Africana D
175	1	1	rim	CW	1	13	13	x		2.5YR 6/6					reddish CW rim. Square section
175	1	2	rim	CW	1	6	15	x		5YR 7/8					orange everted rim
178	1	11	rim	CW	1	19	22	x			Ordona X, p. 416, f. 1.1 or 2.2				rim of common dish, too general for dating
178	1	1	wall	ARS	1	12		x		2.5YR 6/8	ARS not identified		100	700	non identified; Africana D; powdery;
184	?	12	whole	LW	3	428		x							3 fragments 2 individuals
184	2	1	wall	RPW	1	3		x		7.5YR 8/4			1100	1300	pale fabric with two worn lines (spiral?). Very worn and difficult to see
184	3	1	wall	RPW	1	5		x		7.5YR 8/2			800	1200	fine pale fabric with orange wide paint line
184	3	2	base	RPW	1	48		x		7.5YR 8/4	Siena&Terrigni 1997 in Ceramica Altomedievale in Italia	9th-10th century	800	1000	flat base with traces of decoration on the wall? The decoration looks similar to the material from Pianella described by Enrico Siena and dated to the 9th-10th century
184	3	3	rim	CW	1	22		x	x	2.5YR 6/4	Similar to rilled handled jars found in Otranto (Arthur 1998, 525, fig. 8.1) and to the same shape in Mons Dragonis M179 (Albarella et alii 1989, fig. 7.17)	7th century?	600	700	straight rim with lines on the interior.
185	1	1	rim	CW	1	21	20	x		5YR 7/8					round rim (EROM?)
185	1	2	rim	CW	1	21	24	x		5YR 7/8					triangular everted rim
193	1	1	rim+flange	ARS	1	13	18	x	x	10R 7/6	Hayes 91B				worn
193	1	2	carena	ARS	1	5		x		2.5YR 7/8	unid.		300	700	ARS D
193	1	3	rim	CW	1	16	24	x	x	5YR 7/6					blackened rim, cooking pot
193	1	4	rim	CW	1	5	20	x	x	5YR 6/6					blackened rim, cooking pot
193	1	5	rim	CW	1	8	18	x	x	10YR 7/3					cooking pot
194	3	1	r+h	AMP	1	144	12	x		5YR 6/8		EROM?			rim and handle of amphora
194	3	2	base	AMP	1	142		x		5YR 7/8					
194	3	3	rim	CW	1	11	10	x	x	2.5YR 7/8					blackened rim and light red fabric. Very fine fabric, almost PW
194	3	4	rim	CW	1	14	14	x	x	2.5YR 7/6		EROM?			Peculiar rim
194	3	5	rim	CW	1	13	17	x		5YR 7/6					blackened everted rim and light red fabric.
194	3	6	rim	CW	1	18	18	x	x	5YR 7/6					triangular rim
194	3	7	rim	CW	1	15	20	x	x	7.5YR 8/6		EROM?			everted rim
194	3	8	rim	CW	1	12	16	x		5YR 7/6					triangular rim

194	3	9	rim	CW	1	30	18	x		5YR 7/6		EROM			
194	3	10	rim	CW	1	12	14	x		7.5YR 7/6					
194	3	11	rim	CW	1	20		x		5YR 7/4		EROM			not drawn
194	3	12	base	CW	1	12	7	x		5YR 3/2					blackened podium base; cooking pot. Not drawn.
196	1	1	rim	CW	1	29	21	x	x	5YR 7/6					flat rim, orange soft fabric, grey inner
196	1	2	rim	CW	1	19	19	x	x	5YR 7/8					rim in orange soft fabric with blackened interior (cooking pot?)
196	1	3	rim	PW	1	26	18	x	x	7.5YR 7/6					thick rim with soft pinkish fabric
196	1	4	rim	CW	1	14	20	x	x	5YR 7/8					blackened everted rim
196	1	5	rim	CW	1	15	23	x	x	5YR 7/6					orlo a tesa
197	?	1	rim	CW	1	5	24	x		5YR 7/8	SVV3, p. 286, f. 10:122; San Giacomo f. 13, n. 78				
197	1	1	base	ARS	1	7		x		2.5YR 7/8	Hayes 61 (?)	5th century	400	500	Africana D
197	1	2	rim	CW	1	15	23	x	x	5YR 6/6					rim with slash decoration on the side
197	1	3	rim	CW	1	7	18	x	x	2.5YR 7/4					rim of a small bowl
197	1	4	rim	CW	1	10	24	x		2.5YR 7/4					square rim with lid groove
197	1	5	base	CW	1	7	5	x		5YR 7/8					quite peculiar base with line defining a ring around the base, which otherwise is a podium base. Miniaturistic?
197	1	6	base	CW	1	132		x		2.5YR 6/6					cap of an AMP (?)
197	1	7	rim	PW	1	3	11	x		7.5YR 8/4					round rim with traces of greyish patina (?), but a usual shape of patina cinerognola
197	3	1		STO	1	3		x		10R 4/8					red tessera, with golden cover
197	3	2	rim	CW	1	11		x		10R 4/3		EM?			triangular rim with reddish and extremely coarse fabric. Worn
197	3	3	base	CW	2	59		x		7.5YR 6/3					Coarse flat bases
198	1	1		STO	22	28		x							
198	1	2	wall	GLA	1	3		x							
198	1	3	wall	CW	1	6		x							
04a	1	1	rim	RPW	1	24	42	x	x	fab. 7.5YR 8/4; paint not distinguishable	SVV3, p. 285, 10:114				Red paint on top of the rim
04a	1	2	rim	PW	1	33	50	x	x	10YR 8/3	SVV3, p. 284, 10:112				Probably fragment RPW accidentally without paint
04a	1	3	rim	PW	1	18	34	x	x	10YR 8/4	SVV3, p. 283, 10:107				Probably fragment RPW accidentally without paint
04a	1	4	rim	CW	1	7	16	x	x	5YR 7/8	SVV3, p. 263, 10:6				reference not sure
04a	1	5	rim	CW	1	9	20	x	x	5YR 7/6	SVV3, p. 271, 10:50				reference is more an indication, diam unsure
04a	1	6	base	ARS	1	5	8	x	x	5YR 7/8					ring base, possibly Hayes 8 or 9
04a	1	7	rim	ARS	1	5	22	x	x	5YR 7/8	Hayes 52B	280/300 to late 4th cen	280	380	large exemplar, but plain lip
04a	1	8	wall	ARS	2	13					unid.				ARS
84 b	2	1	carena	ARS	1	3		x		2.5YR 7/8	Hayes 7				a bit coarse, traces of rouletting on the exterior surface, but the sherds changed direction exactly where the rouletting was.
84 b	2	2	rim	ARS	2	9		x		2.5YR 7/8	Hayes 3C	early-mid 2nd c. AD (possibly earlier and later)	100	150	flange without appliqué; smooth and pink, very recognizable, even though the diametre is not possible to be reconstructed.
84 b	2	3	base	ARS	2	7		x		2.5YR 7/6					ring base, extremely worn.
84 b	2	4	wall	ARS	1	1		x		2.5YR 7/8	unid.				
84 b	2	5		MET	2	9		x							metal slags
84 b	2	6		STO	6	448		x		10YR 6/4					volcanic stone

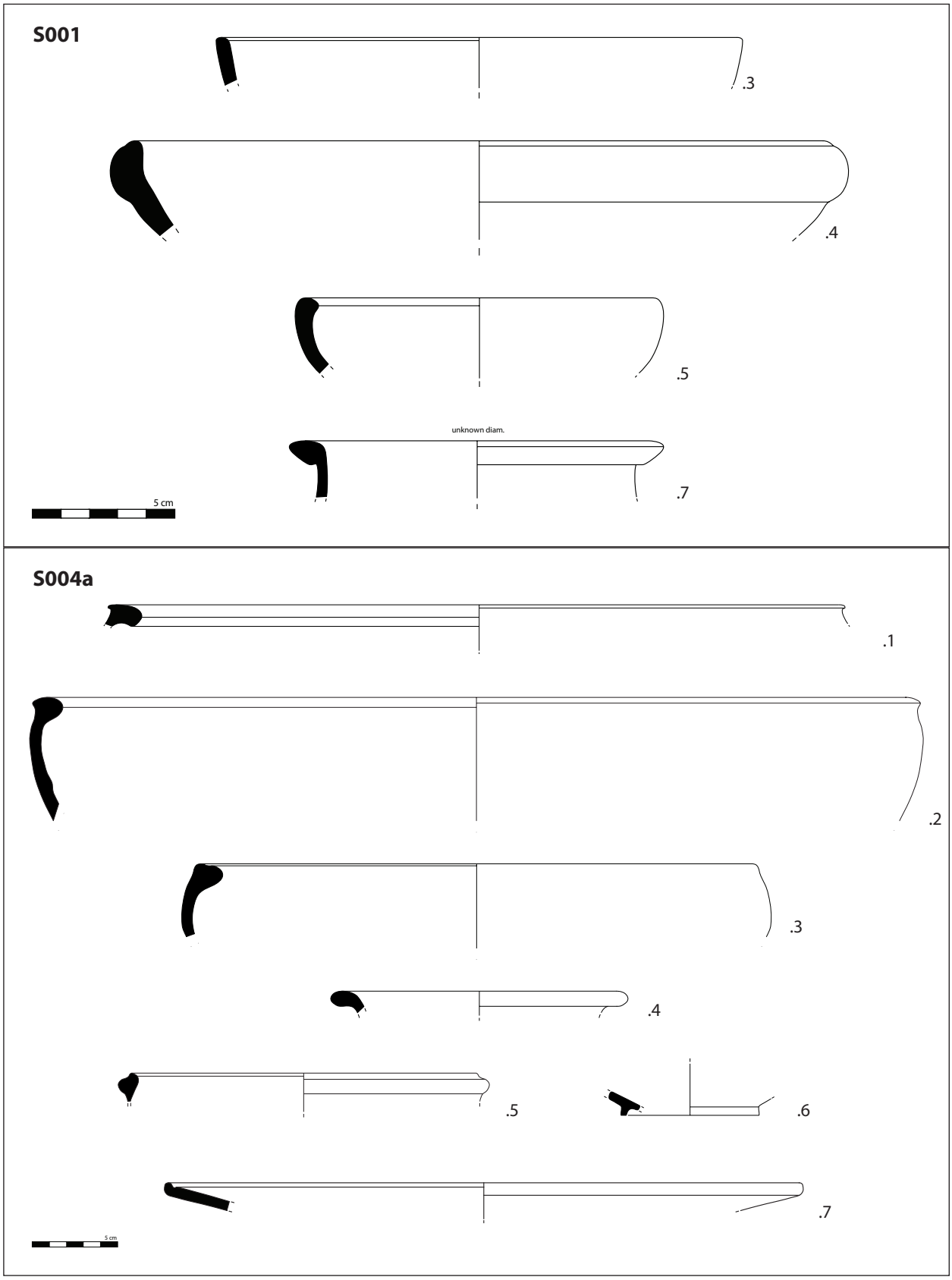
84 b	2	7	r+h	CW	1	53		x		5YR 7/8						rim with funny handle, check for references, but looks imperial.
84 b	2	8	rim	CW	2	47		x		5YR 7/6						folded flange rims, all quite expanded
84 b	2	9	handle	LPW	1	9		x		10YR 8/4						handle of lamp in plain ware
		189			228											

Appendix II: SVS17 diagnostic material

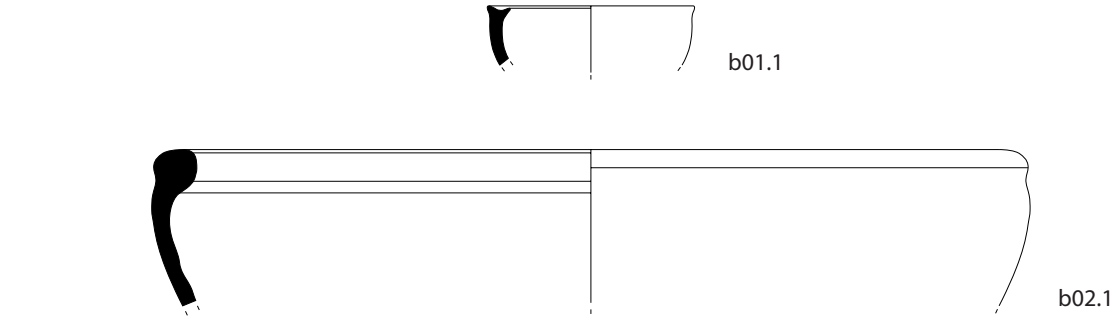
Unit	Site	vis	sam	Bag	ID	Frag.	Tipe	Num	Wgt	Diam	Pic	Dr.	Munsell	Ref.	Comm.
1000		1	1	1	1	r	CW1	1	10	15	x	x	5YR 6/6		common casserole
1000		1	1	1	2	r	CW1	1	22	30	x	x	5YR 6/8		
1001		1	1	1	1		ARS	1	1		x		10R 6/8		
1022		1	1	1	1	b	CW1	1	31	?	x		2.5YR 6/8	Hayes 61 (?)	probable imitation of ARS, otherwise medieval basin
1036		1	1	3	1	w	RPW	1	3	16	x	x	7.5YR 7/6; paint 10R 5/6		
1036		1	1	3	2	w	CW1	1	6		x		10YR 4/1		black fabric pottery similar to EM fragments from S140
1036		1	1	3	3	r	CW2	1	7		x		2.5YR 5/6		straight rim of impastoid ware, possibly some medieval local production
1036		1	1	3	4	b	CW2	1	23	16	x		7.5YR 5/4		flat base in impastoid ware, possibly some medieval local production
1036		1	1	3	5	f	CW2	1	66			x	2.5YR 5/6	Marazzi di Cosmo 2015, f. 1 n. 30Ah	clibanus.
1036		1	1	3	6	b	CW2	1	14	14?			5YR 4/4		clibanus? base? Uncertain
1045		1	1	1	3	r	CW1	1	10	32	x	x	7.5YR 6/4		*a patina cinerognola* (col: GLEY2 6/10BG)
1045	x	1	1	1	1	r	IMI	1	18	26?	x	x	2.5YR 5/8	Hayes 61	location imitation ARS
1045		1	1	1	2		FW	1	2		x	x	2.5YR 5/6; glaze 2.5Y 4/4		Forum Ware appliqué
1046		1	1	1	1	r	CW1	1	4	16		x	7.5YR 8/6		
1053		1	1	1	1	b	ARS	1	5	?	x		5YR 7/8; slip 5YR 6/2		beginning of ring base, fabric ARS like, but slip almost gray
1057	x	1	1	3	1		BT	1	330		x		2.5YR 4/3		kiln brick, colour takes also different shades of the recorded one (lighter and darker versions)
1057	x	1	1	4	1	h	CW1	1	13		x		2.5YR 6/8		fragment of grate
1057	x	1	1	4	2	r	ITS	1	2		x		7.5YR 8/6; gloss 10R 6/8	Ettlinger 1990, shape 18.2.5	small dish
1057	x	1	1	4	3	r	CW1	1	9		x		7.5YR 6/4	Quadrella p. 197, n.1.112 (but surface not lisciata)	
1057	x	1	1	4	4	r	CW1	1	17		x		2.5YR 7/8	Quadrella p. 230, n. 52	
1057	x	1	1	4	5	r	CW1	1	6		x		2.5YR 6/8	Roman jug	
1057	x	1	1	2	1	b	PW	1	28		x		10YR 7/4		convex base in plain ware. Round grooves around the centre of the base define the base from the wall. Sandy to the touch. Unclear if traces of brown slip are present on the interior
1057	x	1	1	2	2	r	IMI	1	1	10?	x	x	5YR 7/8	Hayes 8	Very worn fragment, but it looks extremely similar to Hayes 8. Rim is almost completely worn
1057	x	1	1	2	3	r	CW1	1	16	28	x	x	5YR 6/8	Leone 2000, Ordona X, p. 408, Tavola VII, 1.1	Basin almost plain ware
1057	x	1	1	2	4		ARS	1	3		x		2.5YR 7/8		incised line on interior

1057	x	1	1	2	5		ARS	1	3		x		2.5YR 7/8		coarse fragment, no slip preserved.
1057	x	1	1	2	6		CW2	1	10		x		2.5Y 3/1		black fabric pottery similar to EM fragments from S140, but thicker
1057		1	1	1	1		CER	1	8		x		2.5Y 7/6		clay dough or severely worn out ceramic
1057		1	1	1	2	r	CW1	2	30	17	x	x	2.5YR 5/6	Rizzitelli 2000, Ordona X, p. 323 n. 9.14	
1057		1	1	1	3	r	CW1	1	21	20	x	x	2.5YR 6/8	Annese 2000, Ordona X, p. 255 n. 7.2	
1057	x	1	1	1	3		TIL	1	419		x		7.5YR 8/6		kalypter hegemon or ring base of a large vessel
1057	x	1	1	1	2	b	BG	1	5		x		10YR 8/4		ring base with three concentrical lines incised on the interior of the cup
1057	x	1	1	1	1	r	CW1	1	12	26	x	x	7.5YR 5/6		casserole?
1057		1	2	2	1	r	DO2	1	1400		x		2.5YR 6/8		
4000		1	POI 01	1	1	r	DO2	1	2170		x		2.5YR 5/6	check Fentress and Goodson 2012, Villamagna for presence of dolia in post-roman structures	
4002		1	diag	1	1	h	RPW	1	10		x		2.5YR 8/4; paint 10R 5/8		flat handle with red dots on one side at regular distances
4003		1	diag	1	1	f	CW1	1	41	22	x	x	2.5YR 4/6	Hodges&Patterson 1986, p. 20 n. 20; Vaccherecia 1984, fig. 6 n. 13-14	clibanus; the flange is a bit thinner than in the scanned impression, so more similar to the references
4003		1	diag	1	2	r+h	CW1	1	43		x		5YR 5/6		oval handle, maybe top of a clibanus too. Not diag. Impastoid ware, possibly some medieval local production
4003		1	diag	1	3	h	RPW	1	42		x		10YR 8/3; paint 10R 4/8		flat handle of a big jar/small AMP? looking LMED (after 13th?). Circular decorations in thin red lines
4003		1	PS02	1	1	r	PW	1	4	12		x	7.5YR 8/4		distinct triangular rim, maybe for a table AMP or a small bowl. Maybe frag of RPW? In case a late one. Check ref.
4003		1	PS02	1	2	r	CW2	1	10	30?		x	2.5YR 5/6		lid, could not find a good reference. Diam could not be determined
4003		1	PS02	1	3	r	CW2	1	22	30		x	5YR 5/6	Vaccherecia 1984, fig. 6 n. 10	
4003		1	PS02	1	4	r	CW2	1	14	36?	x	x	2.5YR 4/8	Paroli et alii 1986, Tav XII, n. 1	diam difficult to determine, but definetely more than 26
4003		1	POI 03	1	1	b+h	RPW	1	103		x	x	10YR 7/4; paint 10R 4/4	decoration in Carsana 2009, p. 244, f. 6 n. 31;	shape maybe brocchetta con versatoio? handle attachment almost on base
4003		1	PS02	1	5	r	RPW	1	2		x		10YR 8/3; paint 10R 6/8		
4003		1	POI 02	1	1	r	CW2	1	42	37	x	x	7.5YR 5/4		basin with decorated rim with impressions on the top and distinct lip
4003		1	POI 02	1	2	b	RPW	1	23		x		10YR 5/4; paint 10R 5/6		flat base with one dot of red paint
4003		1	POI 02	1	3		RPW	1	6		x		7.5YR 6/6; paint 10R 4/6		traces of red paint
7006		1	BL11.9.10.16	1	1	b	CW1	1	41		x		5YR 5/6		ring base
SanVito		1	street	1	1		DO1	1	244		x	x	surface 2.5YR 7/6, interior 2.5 YR 5/2		

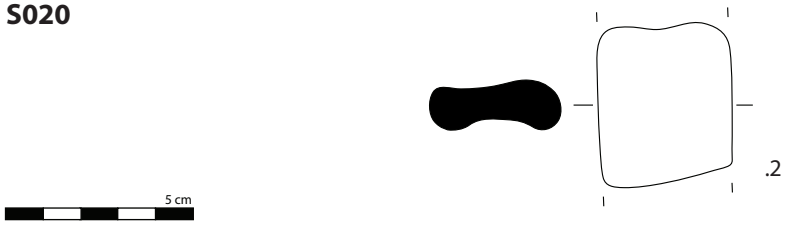
Appendix III: Drawings diagnostic material survey 1980-81



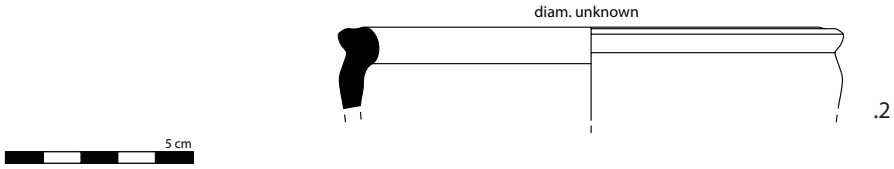
S009



S020



S021



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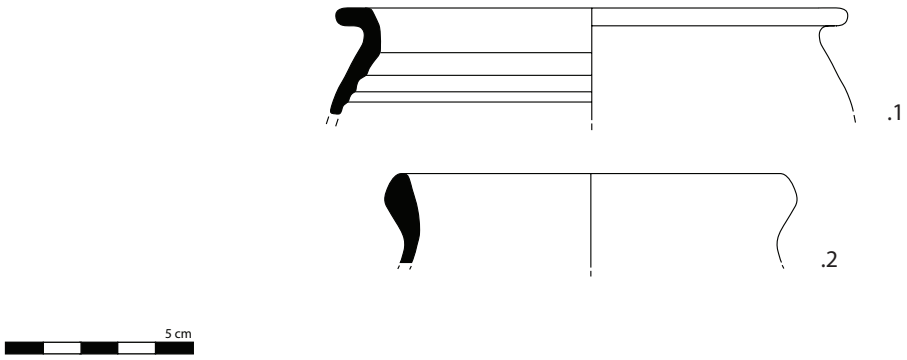
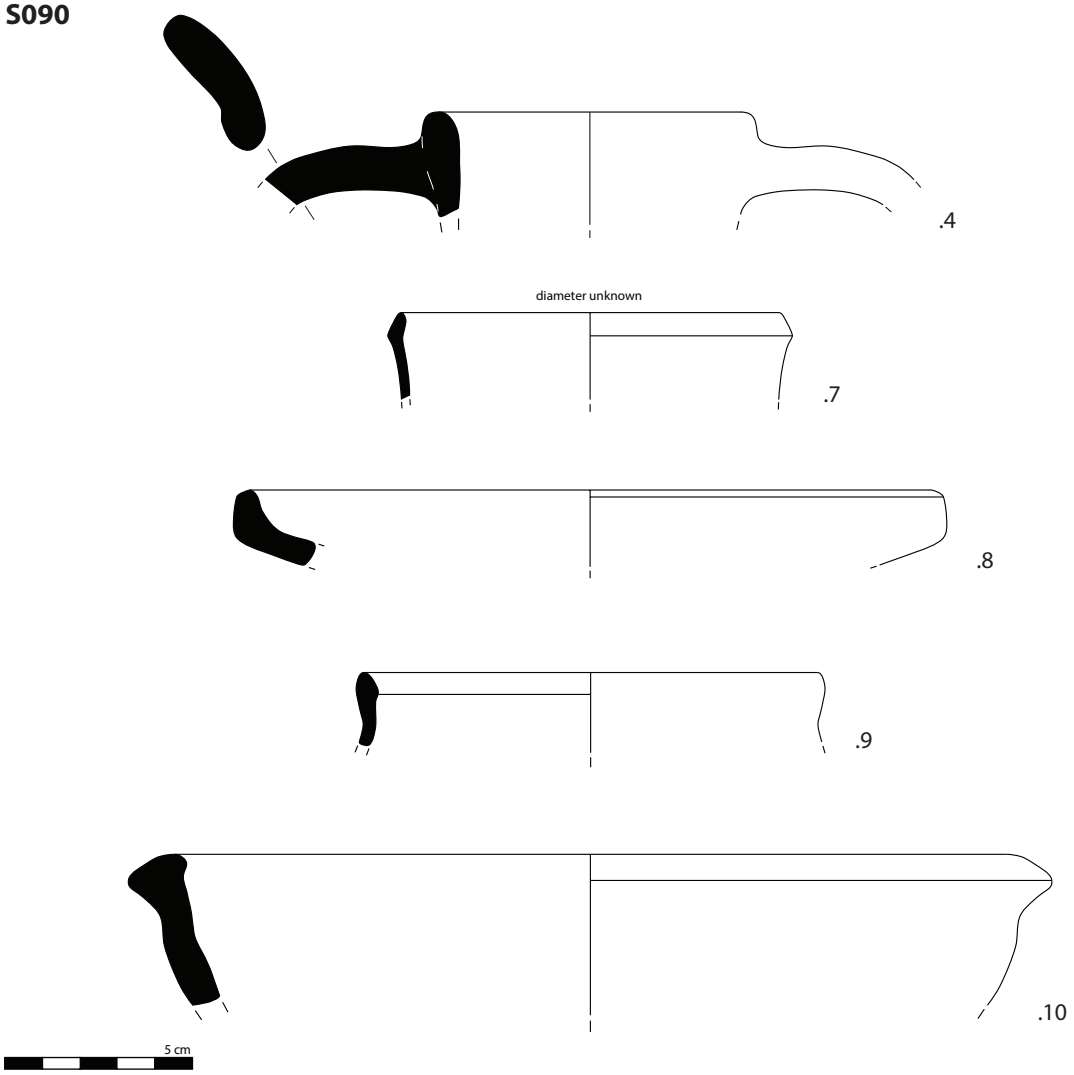


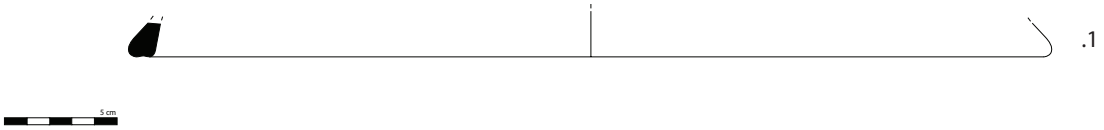
S088

S090



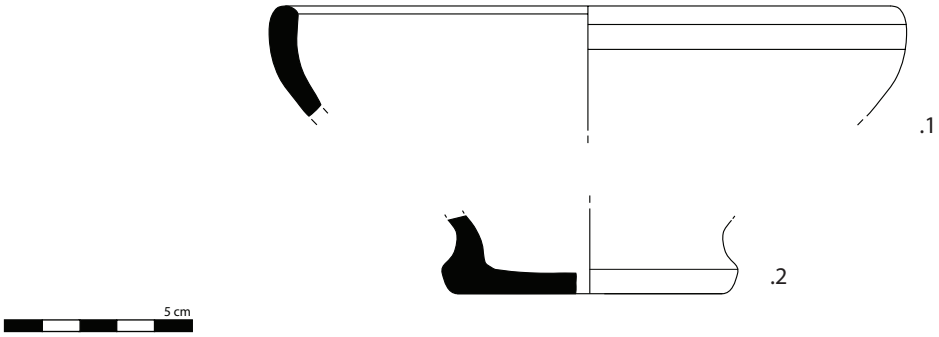
S104

S106



S109

S117



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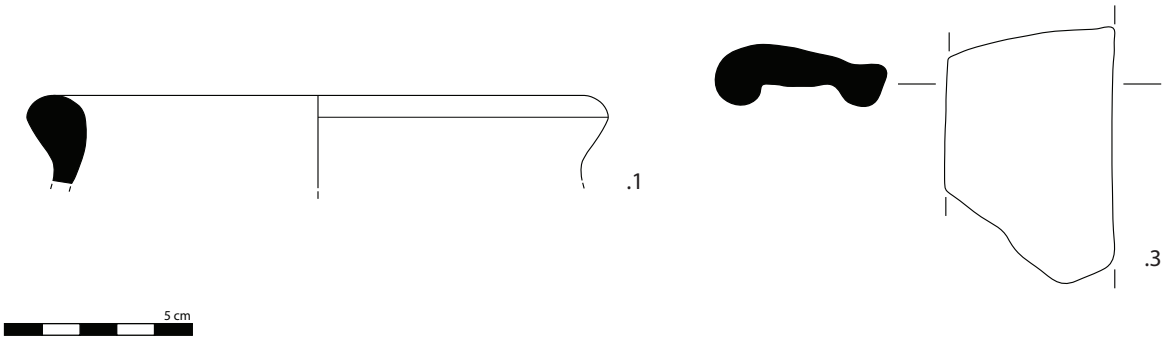

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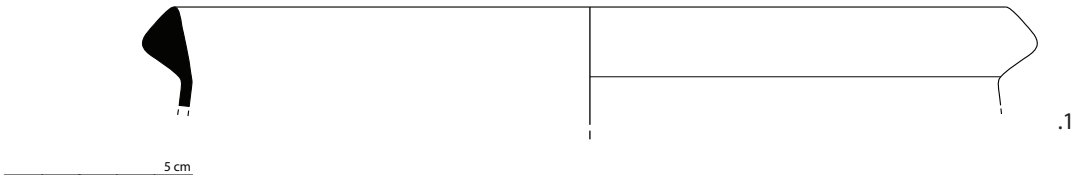

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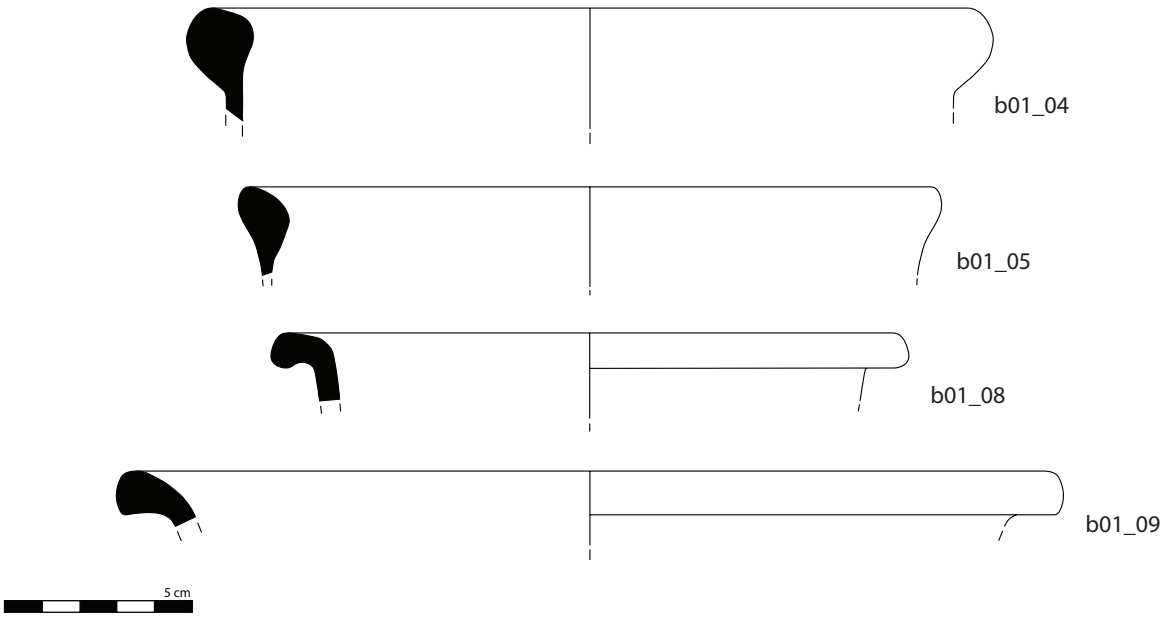

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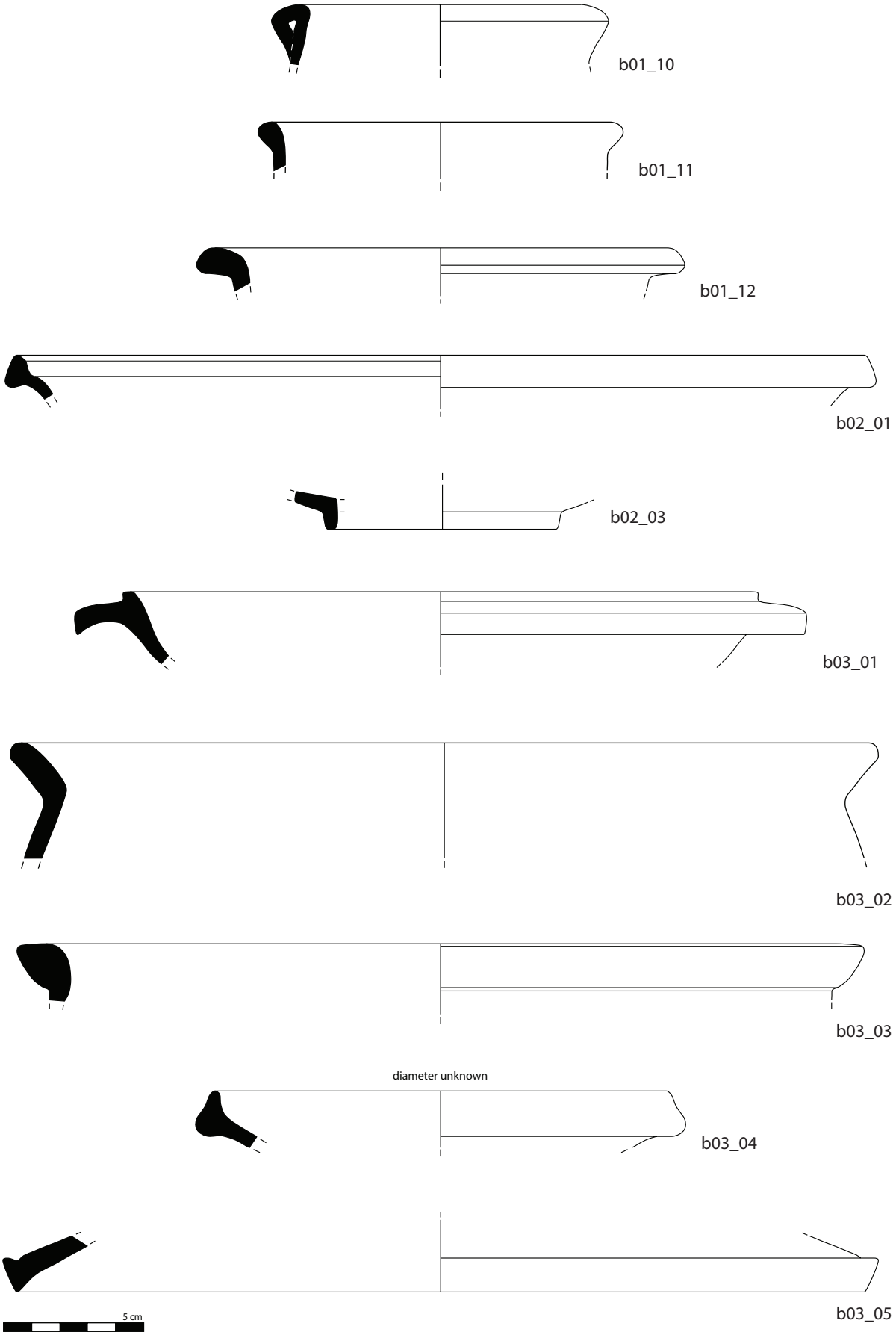

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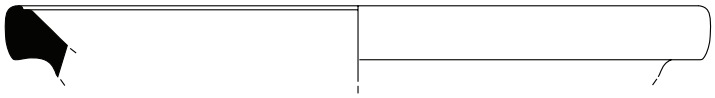
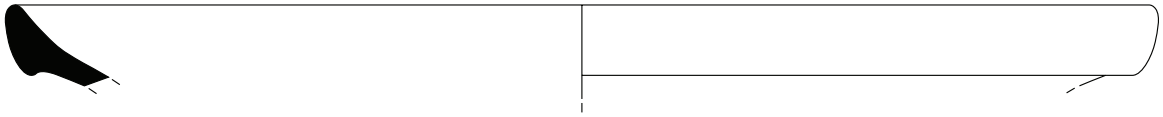


b03_06

5 cm

S134



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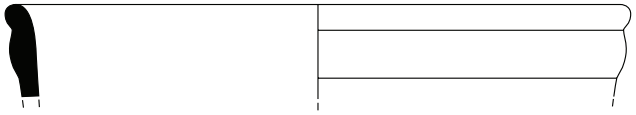
5 cm

S135



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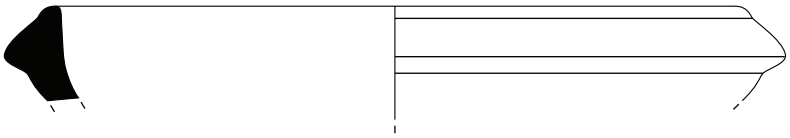

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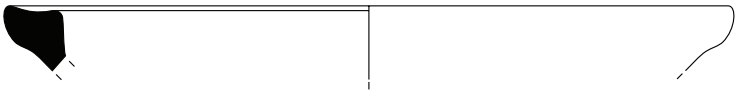
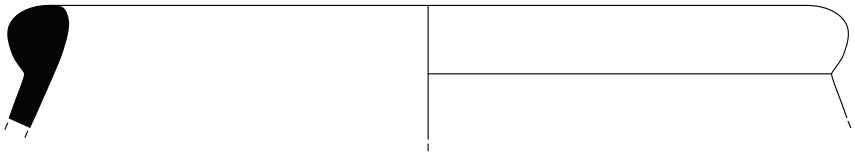


.3

.4

5 cm

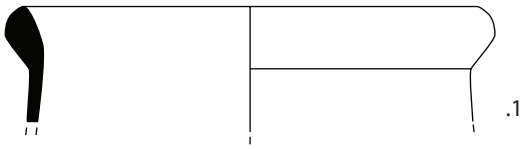
S136



.1

5 cm

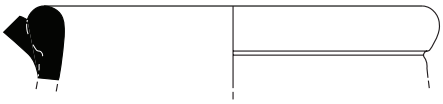
S139

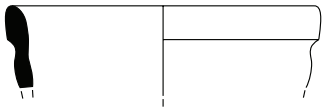


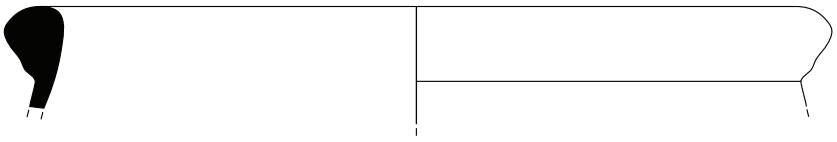
5 cm

S146

diameter unknown

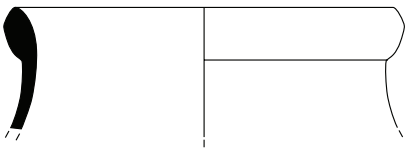


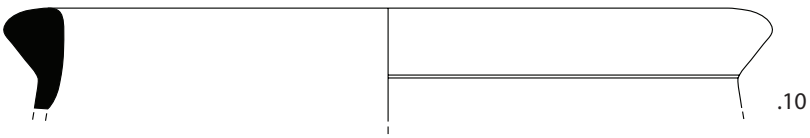




5 cm

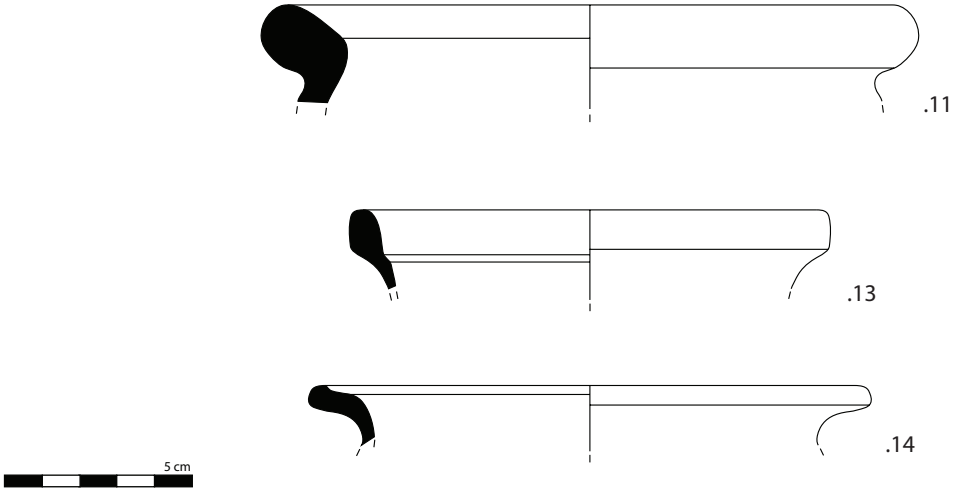
S147





5 cm

S147 [continued]



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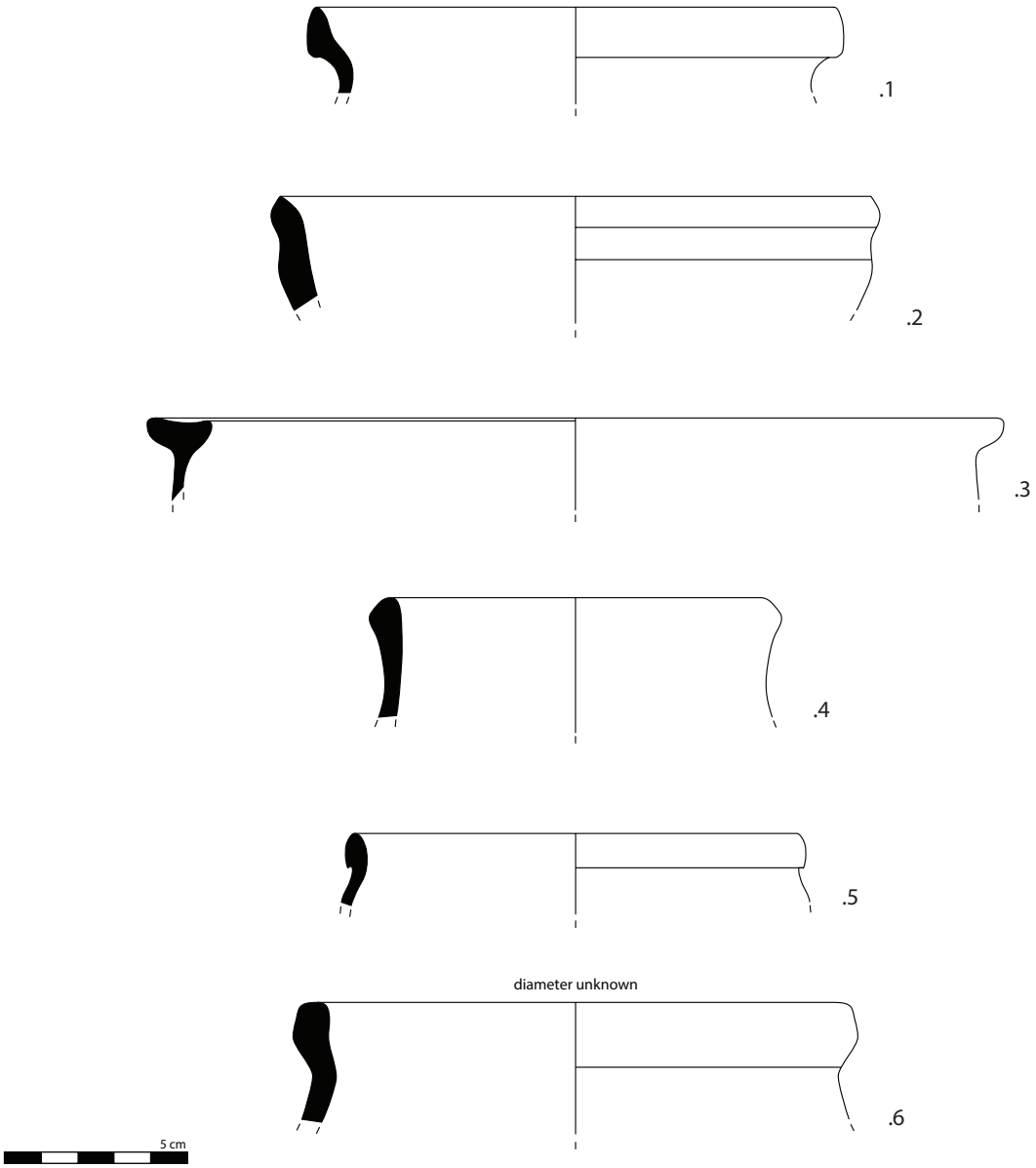

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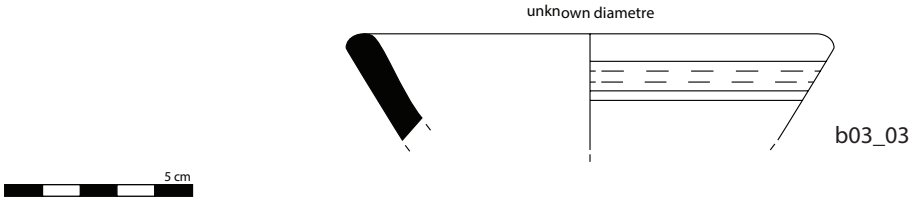

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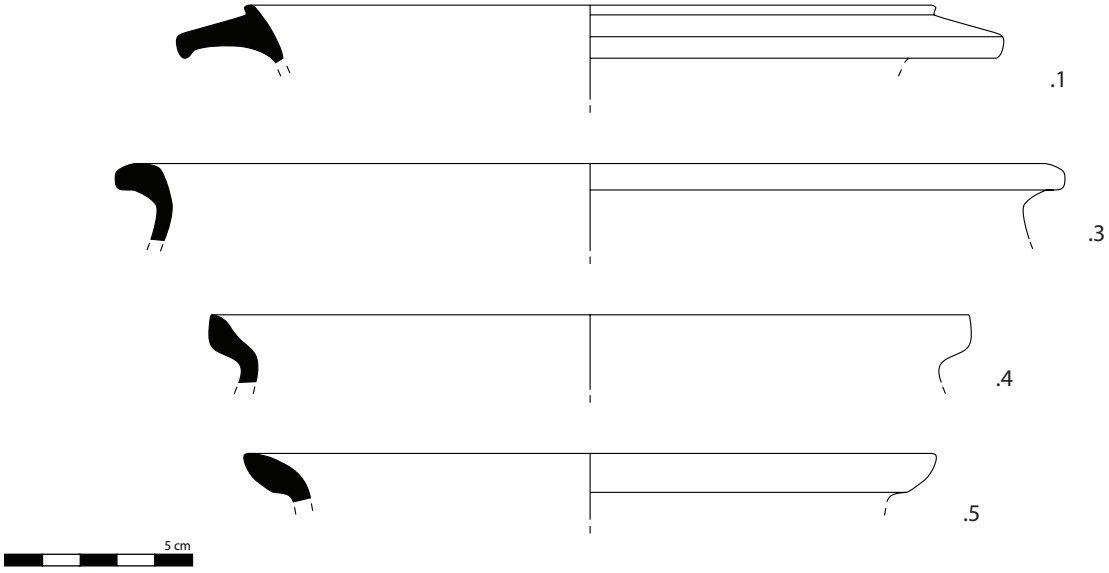

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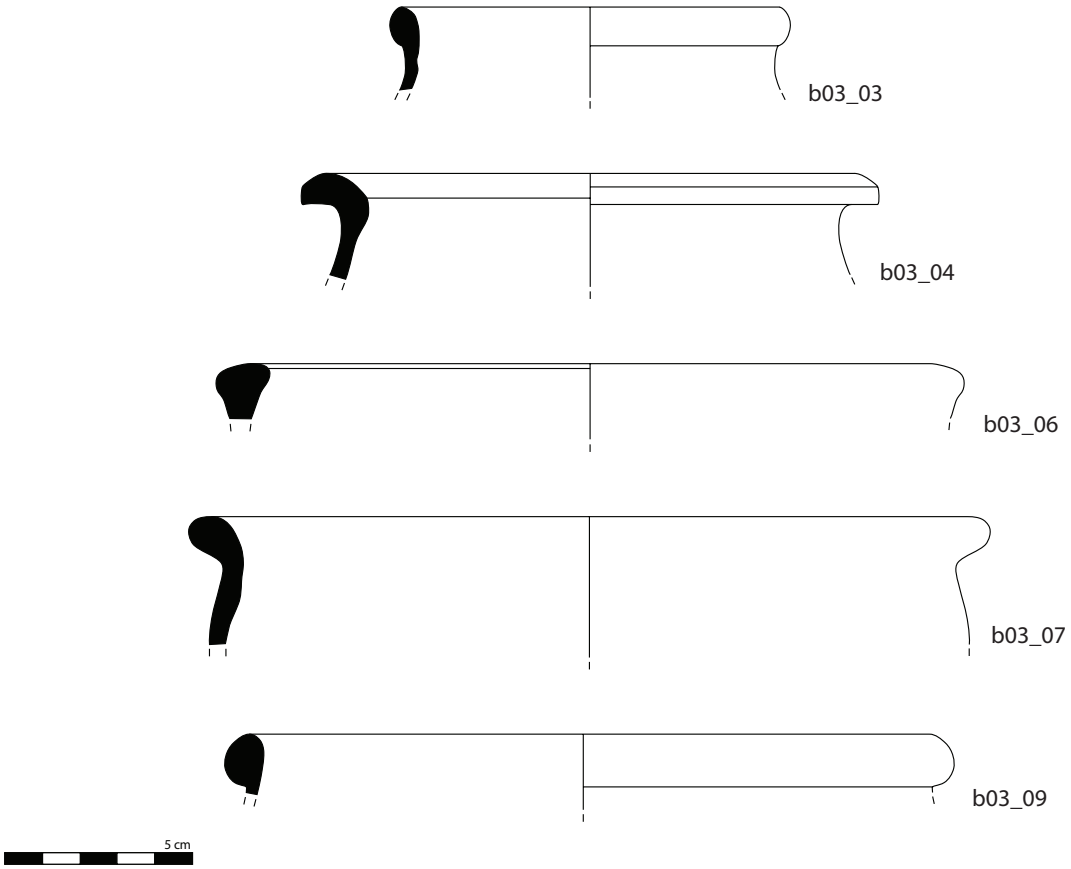

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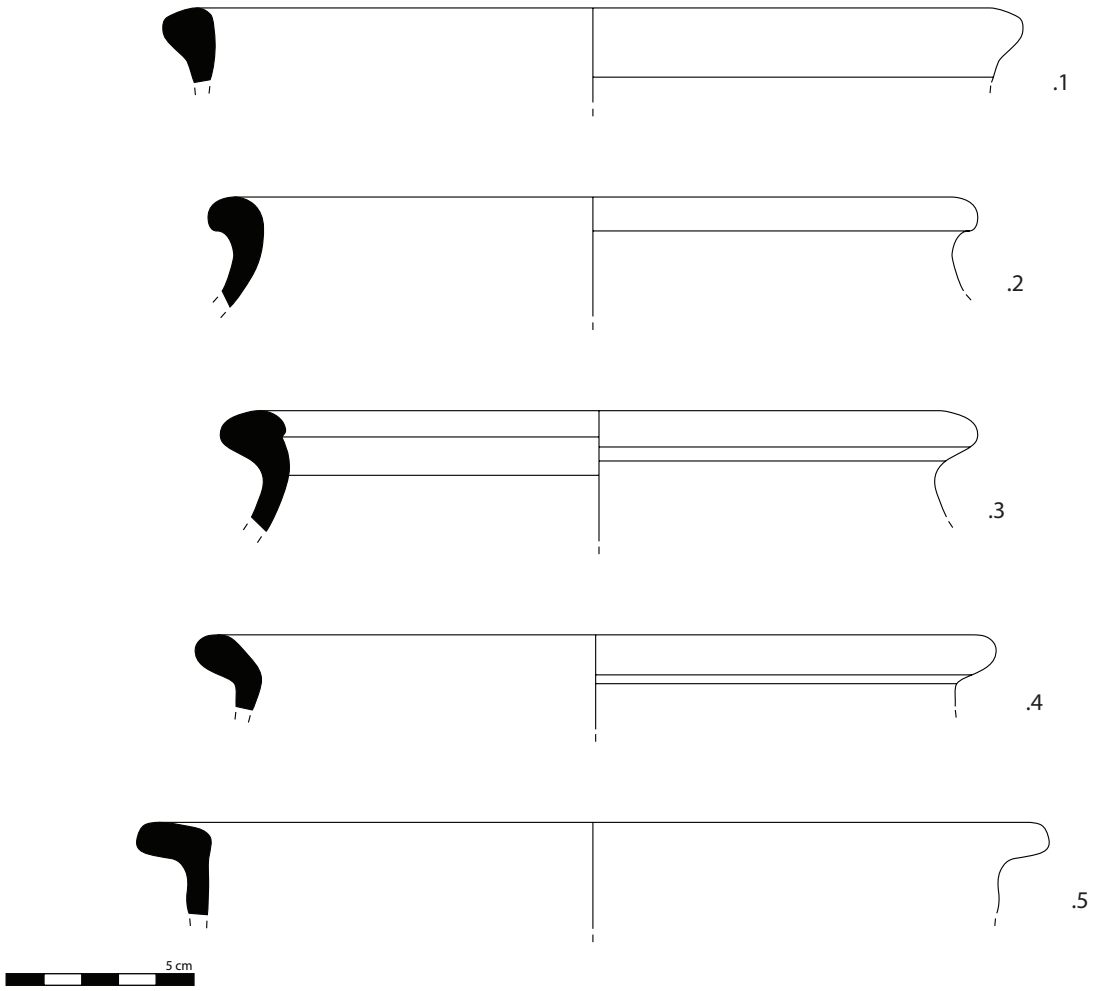

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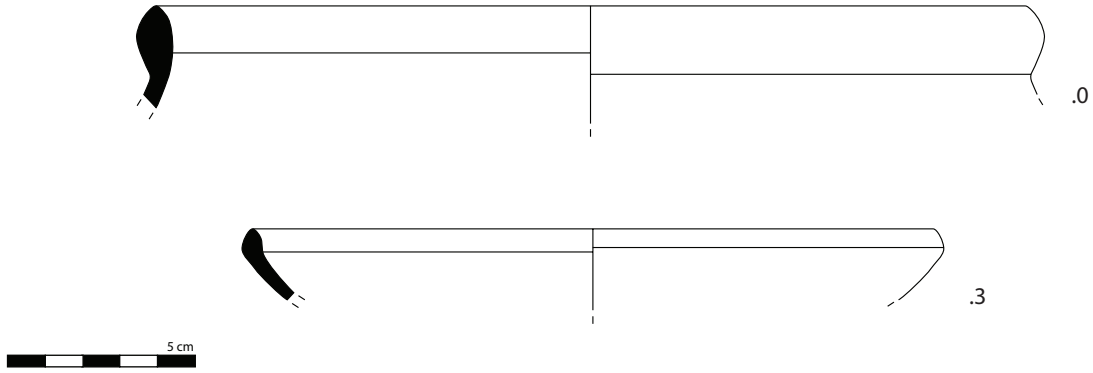
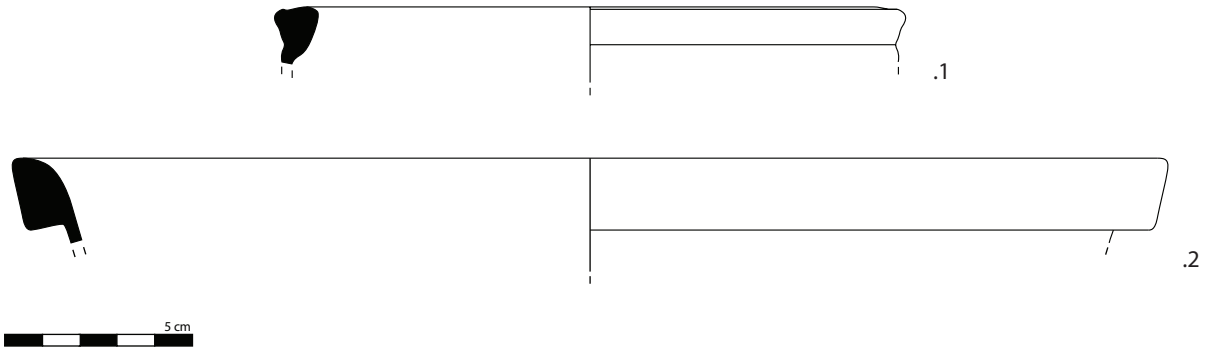
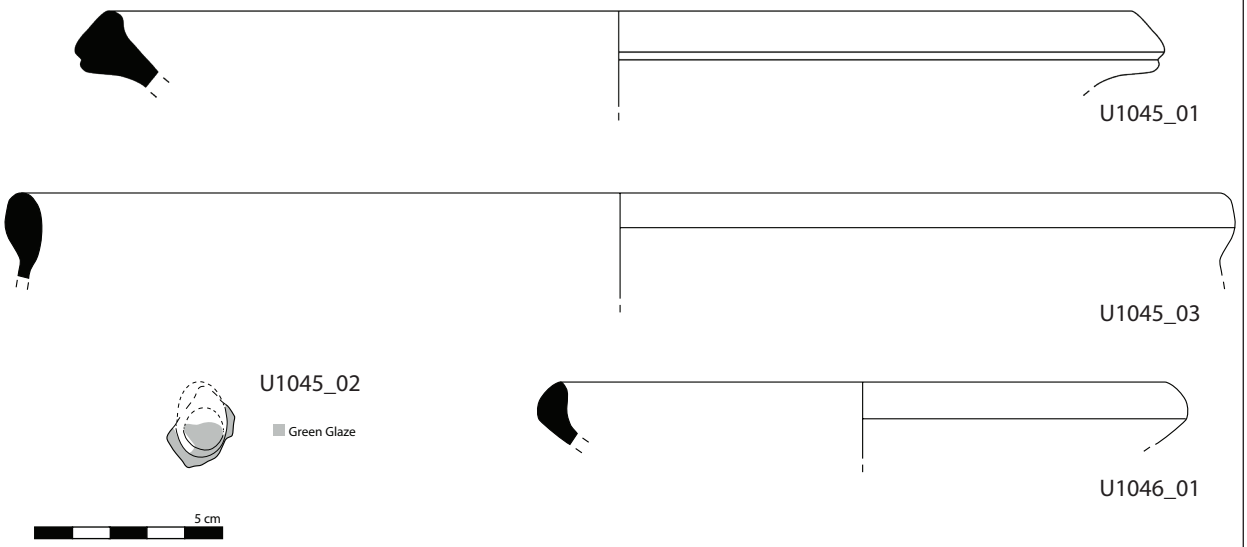


Appendix IV: Drawings diagnostic material SVS17

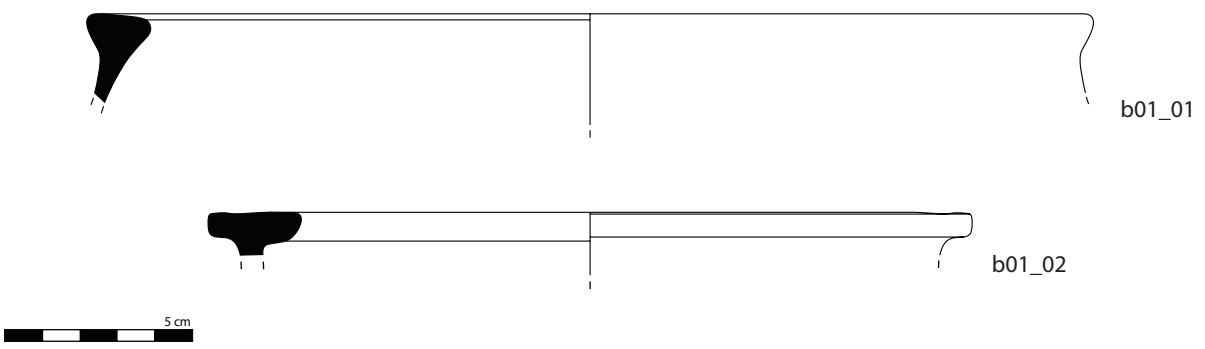
S008 [U1000]



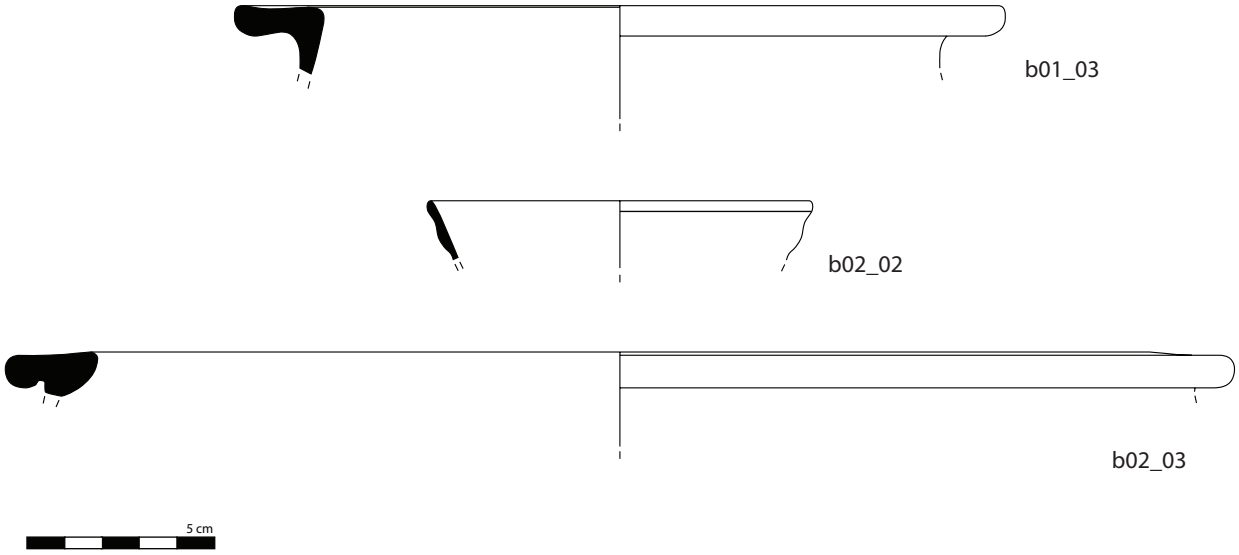
S159 [U1045-U1046]



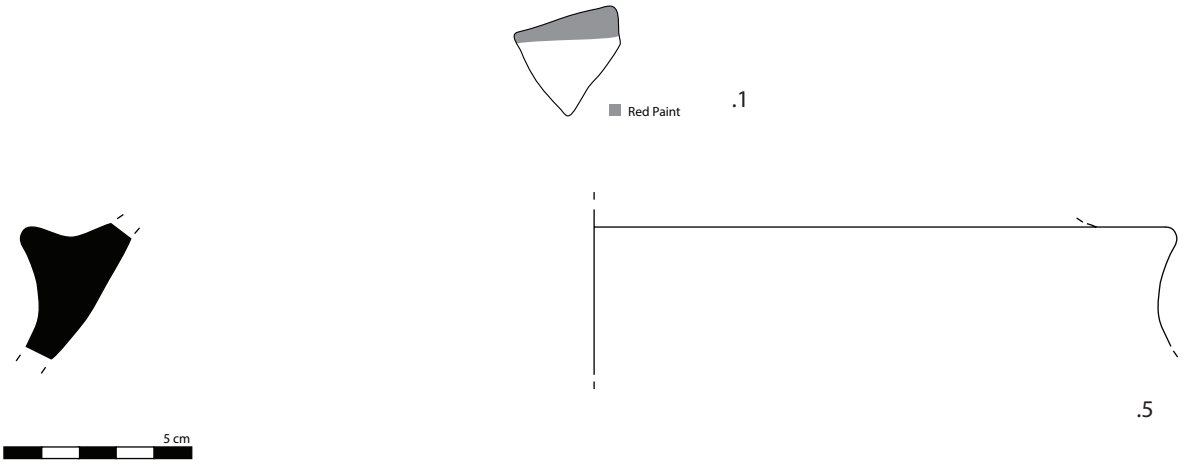
A148 [U1057]



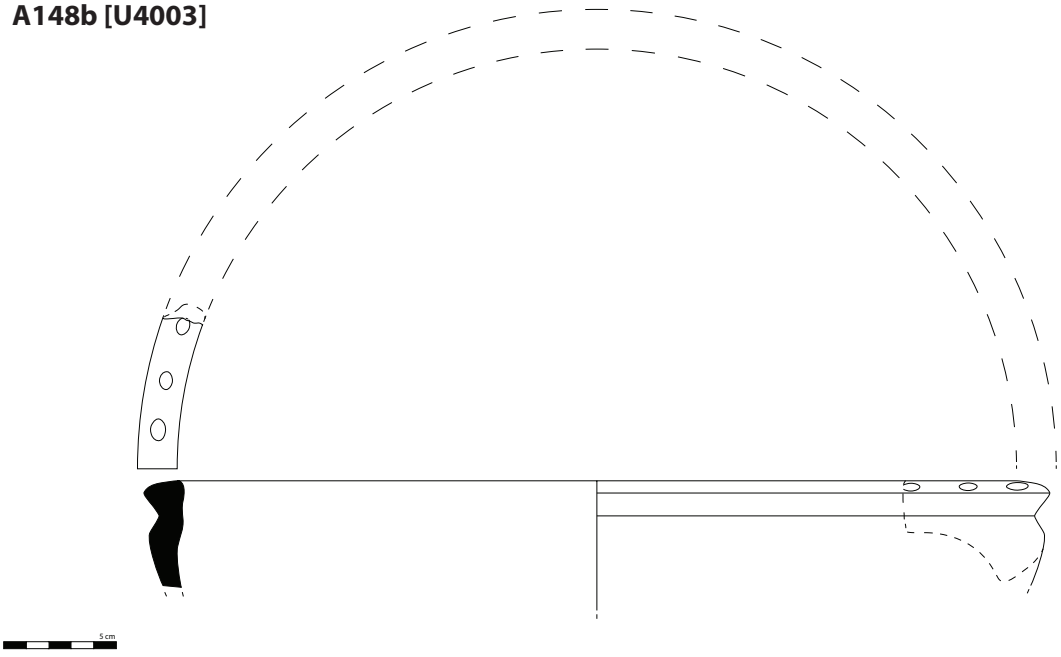
A148 [U1057, continued]



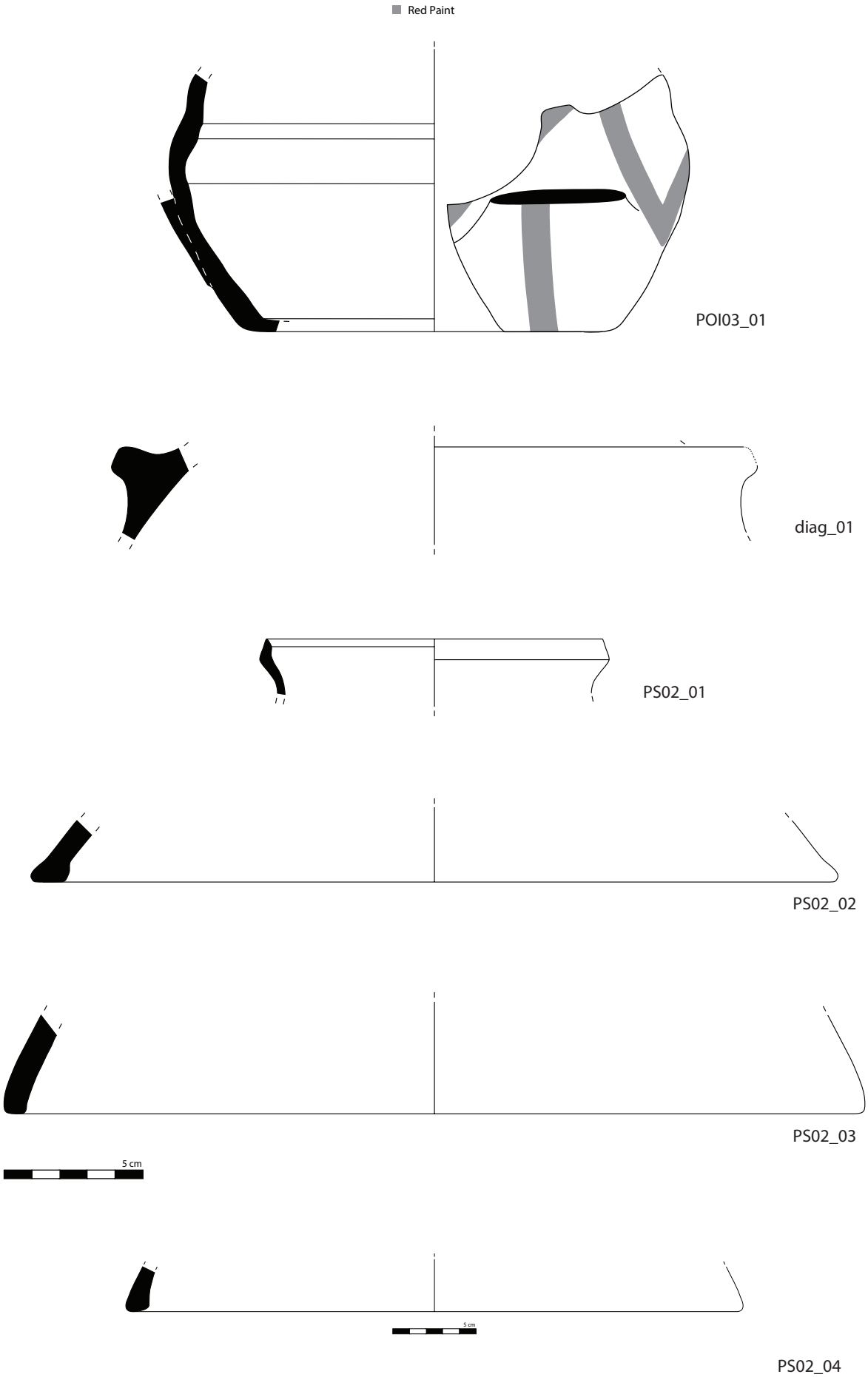
A148b [U1036]



A148b [U4003]



A148b [U4003, continued]



Appendix V: Plates

Plate I: View over San Vincenzo al Volturno (right) and Colle della Torre from Rocchetta Vecchia.

Plate II: View over the Rocchetta Plain from Castel San Vincenzo.

Plate III: View of A138-La Romana from Colle Finocchio.

Plate IV: View of A108-Il Macerone from Colle Finocchio.

Plate V: View of Castel San Vincenzo from San Vincenzo al Volturno.

Plate VI: Point-sampling in S030-Case San Lorenzo (photo C. Mader).

Plate VII: A148b-Acropoli La Ginestra; (top) view from the site of the Roman villa; (middle) the view from the hilltop; (bottom) the remains of a late medieval tower on the hilltop.

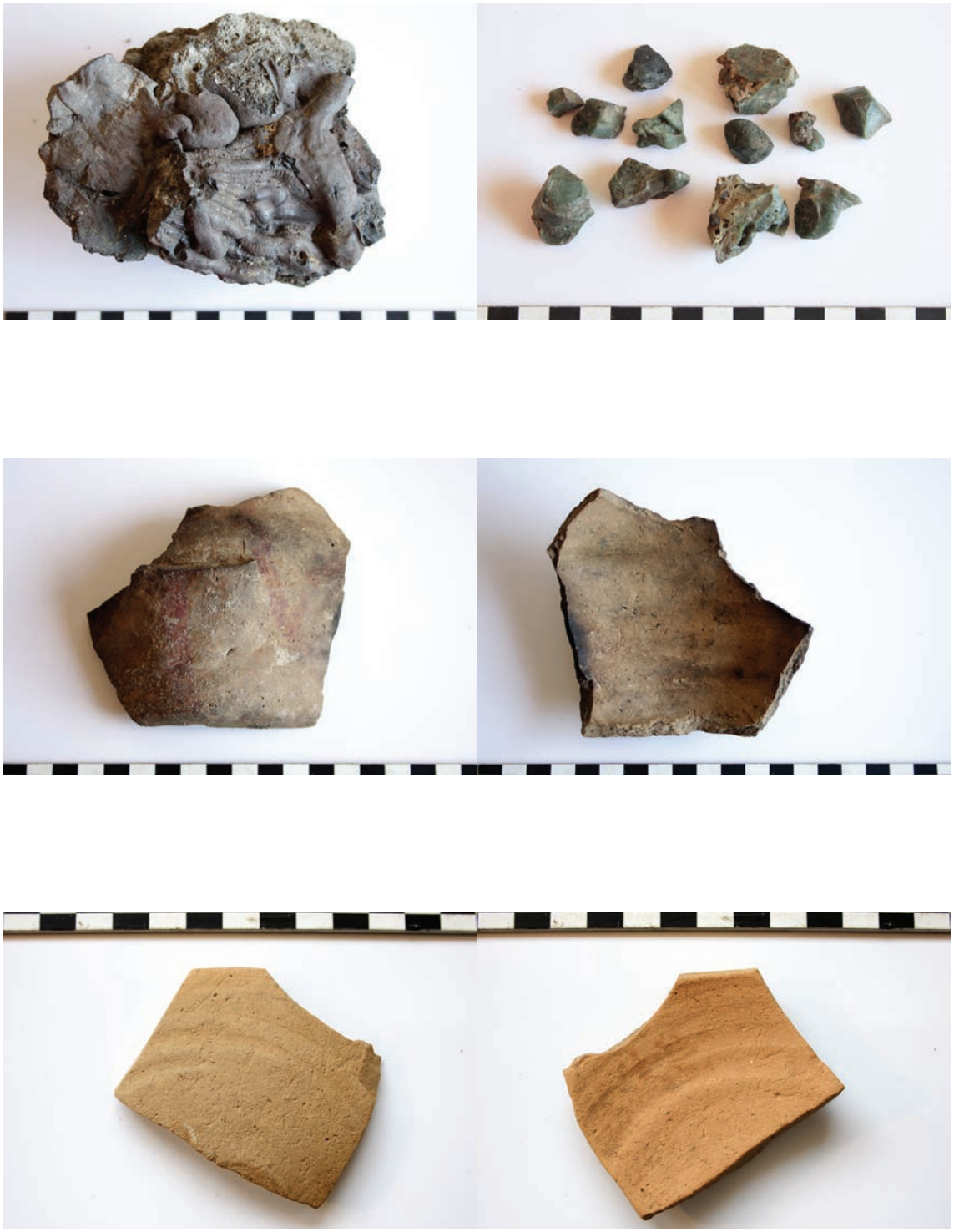


Plate VIII: Finds from A148; (top) metal and glass slags from the hilltop; (middle) RPW jug from the hilltop found in association with the slags; (bottom) fragment of sagging base from the lower settlement.

Plate IX: Prehistoric flint tool from S008, found during the 2017 survey.

Plate IX: Stralucido fragment from S117.

Plate X: Early medieval coarse ware from S140.

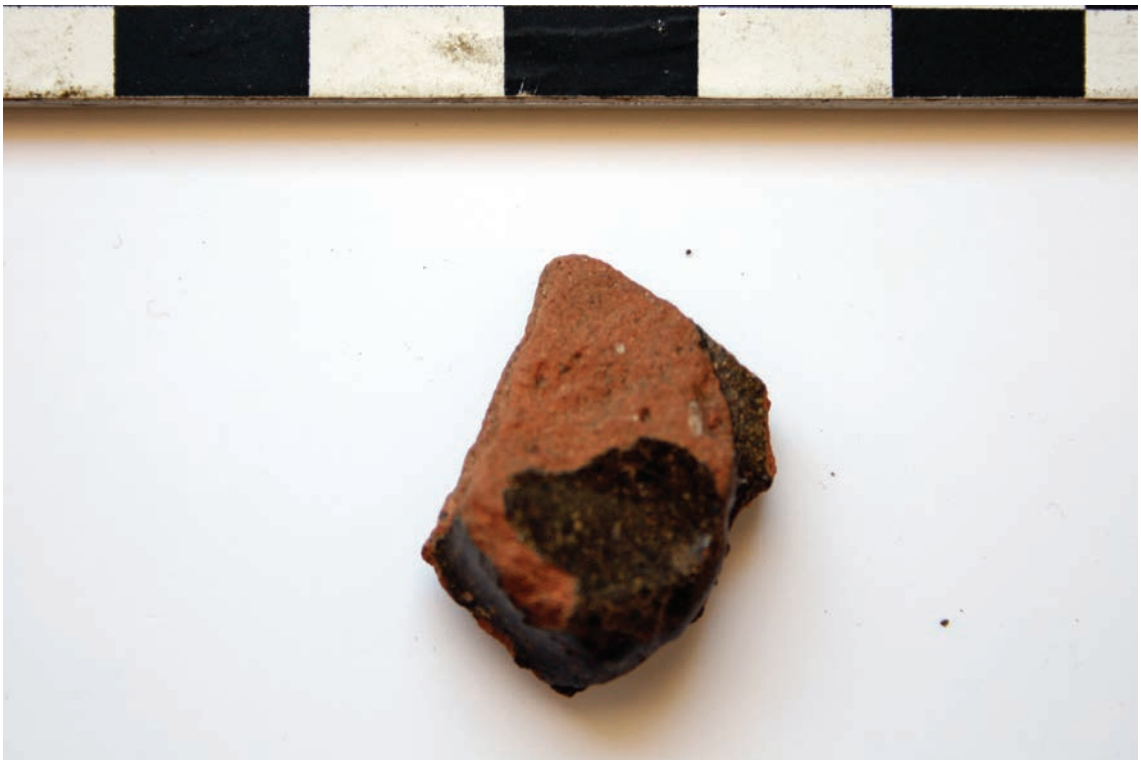


Plate XI: Forum Ware fragment found below Colle Castellano during the 2017 survey.

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CV	Federici V. (ed) 1929-38, *Chronicon Vulturnense*, 3 vols., Rome.
Paul. *hist.*	Bethmann L., Waitz, G. (eds) 1878, *Pauli Historia Langobardorum*, Hannover.
Plin. *nat.*	Rackman H. (ed) 1950*, Pliny Natural History,* London.
Varro *rust.*	Flach D. (ed) 2006, *Über die Landwirtschaft*, Darmstadt.

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