

The African Boom? Evaluating Economic Growth in the Roman Province of *Africa Proconsularis*

Thesis Submitted for the Degree of Doctor of Philosophy at the
University of Leicester

by

Matthew Simon Hobson MA

School of Archaeology and Ancient History

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ABSTRACT

This study attempts to evaluate the social implications of economic changes that occurred in Roman North Africa between the fall of Carthage in 146 BC and the arrival of the Vandals in the mid-5th century AD. Several authors have argued that Africa experienced significant economic growth during this period. Some have even argued that this increase in economic activity resulted in the lower orders being substantially better off by late Antiquity than they had been previously. Here, as well as assembling much quantitative information, I examine the qualitative elements which characterised this specific period of expansion in economic activity, manifested most clearly in the increasing exportation of African ceramics to Rome in the late 2nd century AD and the intensification of agricultural production visible in the remains of farms specialising in the production of olive oil and wine.

I repudiate the use of certain modern economic concepts such as “GDP”, “*per capita* income”, and “consumer behaviour”, which I see as reflecting the neoliberalisation of the study of the Roman economy. In their place, I attempt to substitute an approach that examines the changing structure of ancient North African society in its particular historical context. Substantial use is made of archaeological data, as well as literary and epigraphic sources, to try to piece together this structure.

A primary conclusion is that, from the point of the Roman conquest onward, high levels of inequality existed between Africa’s various social classes. Whilst the landscape of North Africa changed hugely during the course of the Roman period, privileged elites were able, at all times, to secure a high degree of personal wealth at the expense of an exploited mass of peasants and agricultural labourers. The structural inequalities between classes that existed in the aftermath of the conquest, although qualitatively altered, still existed nearly six centuries later, in spite of considerable economic growth having occurred.

ACKNOWLEDGEMENTS

The overall character of my approach in this work owes a great deal to several periods of archaeological apprenticeship of different character and to the influence of two men in particular, both of whom I hold in the highest regard: Professor David Mattingly and Dr Neil Faulkner. If I were forced to pick a specific moment when the seeds of thought that eventually grew into this thesis were sown in my mind, it would be a session held for the Theoretical Roman Archaeology Conference in London in the spring of 2007, the only time to my knowledge that the three of us have been together in the same room, before or since. As a still reasonably young Master's student (with fewer grey hairs than I have now), I was there with David, who was my course tutor for the year. We had arrived to listen to a series of papers dealing with the influence of current socio-political matters on Roman archaeology. Neil, who had been my long-term mentor in the context of the research excavations carried out by the Sedgeford Historical and Archaeological Research Project (SHARP), of which I had played a part as a volunteer and team member since the summer of 1999, was there to give a paper. The title of his talk was 'Roman Archaeology in an Epoch of Neoliberalism and Imperialist War', and in it he specifically questioned the methodology and underlying assumptions of recent work (some of David's work included). At that time, I was still ill-equipped to appreciate fully all the nuances of the fascinating and heated debate which ensued at the end of the session. It was that moment, however, probably more than any other, that confirmed to me my interest in the broad themes of imperialism and economy and the historiography of their study with regard to the Roman world. As I write this now, five years on, I have had greater time to reflect on these issues and explore them in relation to the data available from Roman North Africa. Though neither man would wholly accept my interpretation of the events which took place during the Roman rule of North Africa presented here, it is to both these men that I owe a profound debt of gratitude for provoking my sustained interest in this subject and influencing the way in which I have approached it. This is especially the case with David, who has been such an endless source of enthusiasm and encouragement at every stage of this endeavour, and as my supervisor has consistently been an endless source of inspiration and advice.

I am extremely grateful to the University of Leicester for providing me with the funding for the research in the form of a 50th Anniversary Scholarship, and once again to David, my supervisor, and to the Head of School, Professor Colin Haselgrove, for giving such strong support to my application. For my initial decision to come to Leicester to undertake a self-funded Master's course in 2006, I have to thank Dr John Creighton, who showed belief in me early on when I was an undergraduate student at the University of Reading. I should very much like to thank all my contemporaries and mentors at Leicester within the School of Archaeology and Ancient History, who have provided such a positive and stimulating academic environment to work in and to test out ideas over the last few years.

I also would like to thank the many participants, past and present, of SHARP, who for more than a decade now have provided such a wonderful atmosphere within which to share opinions and to conduct archaeological research. In particular, I owe a debt of gratitude to Neil, who I have already mentioned, for constantly providing intellectually challenging ideas excavation season after excavation season and encouraging bottom-up interpretation in the trenches. Without his commitment to this approach I may never have had such a positive first experience of excavation when I came to SHARP as a lower sixth-form student. I must also thank Dr Gareth Davies, Mark Dodd and John Boothroyd for their long-term friendship and boundless enthusiasm for archaeological excavation, for long and immensely enjoyable discussions in the pub, and for the experience of maturing as young archaeologists together. Without their companionship the journey of the last decade would have been a much lonelier one.

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years, most recently, all my friends and colleagues (archaeologists, geographers, geologists and anthropologists alike) from the Desert Migrations Project conducted in Fazzan, Libya.

My research visit to the library housed in the Maison Méditerranéenne des Sciences de l'Homme (MMSH), in Aix-en-Provence was made a hugely welcoming experience by Véronique Blanc-Bijon, Michel Bonifay, André Tchernia, Pol Troussset, Corinne Rencural, Marie-France Giacobbi-Lequément, Walid Ben Akacha, Elyssa Jerray and Anna Paul. I am very grateful to everyone there who showed an interest in my research and who helped me find what I needed in an environment that was strange to me, even items that seemed to have disappeared from the shelves.

I am endlessly indebted to my mother and my close friend from school days, Gareth Carrol, both of whom proof read the entire work. Abi Rhodes gave me valuable advice and help regarding the cover design and typesetting. Martin Sterry and Chris Green gave me invaluable help in getting to grips with using Geographical Information Systems at the beginning of the project. I am grateful to Jean-Pierre Brun and Professor Andrew Wilson for their insightful comments on a talk I gave at All Souls College at the University of Oxford in July 2011, which contained much of the information from chapters 3 and 4. Dr David Edwards at the University of Leicester also made many extremely helpful comments on one of my final drafts, and saved me from a number of errors. Once again, I must thank my supervisor David for never once failing to read draft chapters or to comment on them with great acumen and diligence, for pushing me to elaborate further on difficult issues and also reining in one or two of my wilder fancies. All remaining errors and inconsistencies are of course my own.

Finally, I must thank my family more generally, my mother, father and sister, for being a constant source of encouragement and support over the years. Although at the age of seven or eight I was suspicious that they were not taking seriously enough my ambitions to become either a train driver or a fire-eater, I owe a huge thank you to them for allowing and encouraging me to pursue and develop my interests in whatever direction I desired. The end result has been finding a subject and an occupation that I continue to love and enjoy.

CONTENTS

Table of Figures.....	vii
1 Introduction.....	1
1.1 African Boom?.....	1
1.2 The Geography and Climate of North Africa.....	6
1.3 The Cambridge Orthodoxy on the Ancient Economy.....	10
1.4 The Origin of the Debate: The Modernisers.....	13
1.5 The Italian Marxist School and The Slave Mode of Production.....	17
1.6 The Increasing Influence of Neoliberalism.....	20
1.7 Postcolonial Narratives.....	32
1.8 Conclusion.....	37
2 Roman Colonialism: The Accumulation of Land and the Formation of Great Estates.....	41
2.1 The Fate of Carthaginian Territory (146-46 BC): <i>Africa Vetus</i>	42
2.1.1 Centuriation.....	44
2.1.2 The <i>Lex Agraria</i> of 111 BC.....	49
2.1.3 Growing Fat Off the Land.....	53
2.1.4 Demography and Colonisation.....	56
2.1.5 Conclusion.....	62
2.2 Expansion After 46 BC: The Birth of <i>Africa Proconsularis</i>	63
2.2.1 Civic Promotions.....	67
2.2.2 The Great Agrarian Inscriptions and Imperial Estates.....	70
2.2.3 Interpretation.....	75
3 Olive oil and wine production in <i>Africa Proconsularis</i> . The Survey Evidence.....	84
3.1 Olive Press Elements.....	85
3.2 Wine Press Elements.....	95
3.3 Tunisia.....	100
3.3.1 Processing Capacity.....	104
3.3.2 The Sahel.....	116
3.3.3 Central Tunisia.....	120
3.3.4 Northern Tunisia.....	129
3.3.5 The Tripolitanian Region of Tunisia: Gabès, Kettana, Mareth and the Isle of Jerba.....	133
3.4 Libya.....	137
3.4.1 The Gebel and Coastal Plain.....	138
3.4.2 The Pre-desert.....	142
4 African ceramics: production and distribution.....	148
4.1 Amphora Production.....	150

4.1.1	Tunisian Amphora Kilns.....	151
4.1.2	Tripolitanian Amphora Kilns.....	159
4.1.3	Amphora Contents.....	166
4.2	The Distribution of Exported African Amphorae.....	174
4.2.1	Shipwrecks Carrying African Cargoes.....	193
4.2.2	Concluding remarks: The Distribution of the Main Exported African Amphorae Types....	203
5	Explanations: At What Cost?.....	210
5.1	African Exports	212
5.2	A Socially Embedded Economy	216
5.3	African Agricultural Development.....	220
5.4	The Formation of the Wealthier Classes	223
5.5	The Lower Orders	231
5.6	Conclusion	234
	Bibliography	238

TABLE OF FIGURES

Figure 1.1 The known ancient fish processing sites in Tunisia (after Slim <i>et al.</i> 2004) and in the Roman World more broadly (after Wilson 2006).	2
Figure 1.2 The geography of the study area.	6
Figure 1.3 Modern-day average <i>per annum</i> precipitation in the study area.	8
Figure 1.4 Digital elevation map of the study area, showing heights above sea level in metres.	9
Figure 2.1 The main regions of centuriation identified from aerial photography, the location of the seven free communities mentioned in the <i>Lex agraria</i> of 111 BC, and the four possible Marian foundations that lie west of the <i>Fossa Regia</i>	46
Figure 2.2 Fragments of the <i>Lex agraria</i> (after Lintott 1992).	51
Figure 2.3 Colonies and municipia created under Caesar and Augustus.	64
Figure 2.4 Civic promotions from the Flavian to Severan dynasties (after Gasco 1972).	68
Figure 2.5 The location of the seven agrarian inscriptions in relation to the probable route of the <i>Fossa Regia</i>	71
Figure 3.1 Diagram showing the relevant parts of two different types of olive press.	85
Figure 3.2 Left: press orthostats from site TUT09 in the Libyan Gebel (after Ahmed 2010: fig 4.12). Right: 18 th -century wine press, Speyer museum, Germany.	90
Figure 3.3 Distribution of <i>trapeta</i> (blue) and <i>mola olearia</i> (red) found by the <i>Carte Archéologique</i>	93
Figure 3.4 Subterranean olive mill excavated at the villa Demna (after Ghalia 2005).	94
Figure 3.5 Left: The Propriété Belgica (after Brun 2004, 203). Centre: perforated amphora lids from excavations at the villa Demna (after Ghalia 2005: 82). Right: a Hammamet-type amphora (after Bonifay 2004).	96
Figure 3.6. Separate olive oil and wine production areas at the Villa Demna, Tunisia (after Ghalia 2005: fig. 17).	98
Figure 3.7 The 22 published survey regions of the <i>Carte Archéologique</i> (I have also included Kalaat Es Senam, as, although not fully published, an article by Naddari includes information on several sites).	100
Figure 3.8 The location of sites found by the <i>Carte Archéologique</i> in the regions of Sidi El Hani (064), Oued Cherita (072) and Mahdia (074).	101
Figure 3.9 The frequency of stone elements of different types found in 26 different archaeological surveys in Tunisia (1845 elements from 794 sites).	103
Figure 3.10 Comparison of the frequency of each press element type in the <i>Carte Archéologique</i> and Tarhuna Archaeological Surveys.	104
Figure 3.11 A comparison of 121 counterweight volumes from different regions of Tunisia and Libya (values in m ³).	106
Figure 3.12 A comparison of 155 press orthostat heights from different regions of Tunisia and Libya.	106
Figure 3.13 A comparison of the interior area of the run-off grooves of 98 pressbeds from different regions of Tunisia and Libya (units in m ²).	106
Figure 3.14 Stone elements related to pressing found by survey in Tunisia (refer to Table 3.3).	109
Figure 3.15 Minimum number of presses per site in Tunisia.	113
Figure 3.16 The minimum number of presses recorded within each survey region (total number of sites = 794).	115
Figure 3.17 Examples of cisterns in the region of the Jebel Semmama (after Sehili 2009b: 318, 326).	121
Figure 3.18 The large press building at Kasserine site 225 (Yours truly and Farès Moussa providing scale. Photograph taken by Melissa Ratliff).	125
Figure 3.19 The largest press buildings of the Jebel Semmama 076 and their surrounding sites (including survey regions of Thala 067 and Ksar Tlili 068 in the background). Numbers indicate the estimated minimum number of presses on each site.	126
Figure 3.20 Number of press sites with ceramics dating from the above periods from the Dougga survey.	131
Figure 3.21 Comparison of the size and layout of buildings containing presses in Tunisia.	135
Figure 3.22 Comparison of the size and layout of buildings containing presses in Tunisia.	136

Figure 3.23 The minimum number of presses per site in the Libyan Gebel and Pre-desert.	141
Figure 3.24 Comparison of the size and layout of buildings containing presses in Libya.	144
Figure 3.25 Comparison of the size and layout of buildings containing presses in Libya.	145
Figure 4.1 Tunisian amphora stamps: FANFORT/COLHADR; LEPMI; TOP/HLV (After Zevi and Tchernia 1969, fig. 14).	152
Figure 4.2 The African Sigillata and Amphora kilns (after Bonifay 2004 fig. 2 and 22, with additions from recent findings).	157
Figure 4.3 Kiln sites at Leptiminus.	158
Figure 4.4 Kiln sites in north-west Libya.	162
Figure 4.5 The Tripolitanian amphora stamps from the sites mentioned in the text. Left: F AVG IMPANT; Middle: LSACV; Right: MVC (after Ahmed 2010, fig. 5.3).	164
Figure 4.6 The chronological development of African amphorae (after Bonifay 2004: fig. 46).	173
Figure 4.7 The relative percentages of amphorae of different origins in excavated deposits at the Terme del Nuotatore, Ostia (after Anselmino <i>et al.</i> 1986: table 2).	178
Figure 4.8 Relative percentages of amphorae of different origins from trial excavations undertaken by the DIA-AAR at Ostia (data from Martin 2008).	179
Figure 4.9 Relative percentages of amphorae of different origins through time from surface collection at Portus (data from Keay <i>et al.</i> 2005).	179
Figure 4.10 Relative percentages of imported amphorae at sites in Rome (Ciotola <i>et al.</i> 1989; Panella 1992).	181
Figure 4.11 Relative quantities of amphorae (percentage of total amphorae) according to origin at Crypta San Bonaventura, Palatine East, Temple of Magna Mater, and the House of Livia, mid-3 rd to mid 5 th centuries (data in Reynolds 2010: Table 2c).	181
Figure 4.12 Relative proportions of African Amphorae from various sources (0% values indicate a quantity between 0% and 1%).	183
Figure 4.13 The distribution of significant African cookware finds in the 3 rd to 4 th centuries (after Leitch 2008: fig. 7).	187
Figure 4.14 Shipwrecks carrying African amphorae.	198
Figure 5.1 Totals of inscriptions for Africa (contained in <i>CIL</i> 8) and Italy (<i>CIL</i> 5, 9, 10 and 11) averaged per year of reign (after Duncan-Jones 1982: Table 11).	228

1 INTRODUCTION

The focus of this work will be on a range of socio-economic developments that took place in Africa under the Roman occupation that followed the destruction of the city of Carthage in 146 BC down to the arrival of the Vandals in the first half of the 5th century AD. An attempt will be made to explain the reasons for the huge growth in the export of African amphorae and fine tablewares (African Red Slip) to the city of Rome from the mid-2nd century AD onwards, followed by the expansion of these exports to other parts of the Mediterranean basin during the course of the 3rd century. Specific attention will be given to changes in the agricultural organisation of the countryside relating to the introduction of large-scale olive oil and wine production, but also to agricultural production more generally. Broadly, the study area is taken as the Roman province of *Africa Proconsularis*, although in practice the investigation has been limited to the confines of modern day Tunisia and north-west Libya. This is an exploration of the economics of Roman imperialism which is directly relevant to the current postcolonial reappraisal of grand explanatory paradigms. Regarding the nature of the economy of the Roman Empire more generally, however, the work also tries to address certain logical inconsistencies that have resulted in the mixing of postmodern and postcolonial doctrine with a neocolonial and neoliberal economic outlook.

1.1 AFRICAN BOOM?

More than 40 years have passed since Carandini first put forward a model that suggested that towards the end of the 2nd century AD Africa had achieved an economic hegemony over the Mediterranean thanks to wealth derived mainly from the production and trade of vast quantities of olive oil (Carandini 1970). Carandini followed Broughton and Rostovtzeff in interpreting Roman legislation (attested in the agrarian inscriptions of the 2nd century AD, found in northern Tunisia at the end of the 19th and beginning of the 20th century, the *Lex Manciana* and *Lex Hadriana de rudibus agris*) as the explanation for the rapid spread of olive cultivation across North Africa during the Roman period. The “African boom” or “olive boom” was also seen to explain the wide distribution and dominance of African ceramics around the

Mediterranean basin from the 2nd to 7th centuries AD. Since the 1970s it has been widely believed that the majority of Roman African amphorae found outside Africa had been used to transport olive oil. However, work over the last few decades has begun to alter this picture. A survey of the Tunisian coastline during the 1980s and 1990s recorded an impressive number of previously unidentified fish-salting sites, and the presence of amphora workshops at some of these locations indicated that some of the forms produced there would have been intended for the transport of marine products, such as *garum* and *salsamenta*, rather than olive oil (Bonifay *et al.* 2002b; Bonifay *et al.* 1992; Paskoff *et al.* 1991; Slim *et al.* 2004). This hypothesis was confirmed by finds of fish bones in African amphorae recovered from several Mediterranean shipwrecks. The waterlogged conditions also showed that many types of African amphora seemed to have had a pitched lining which probably would have excluded their use for olive oil, making wine or fish products the probable contents of many of them (Lequément 1980).

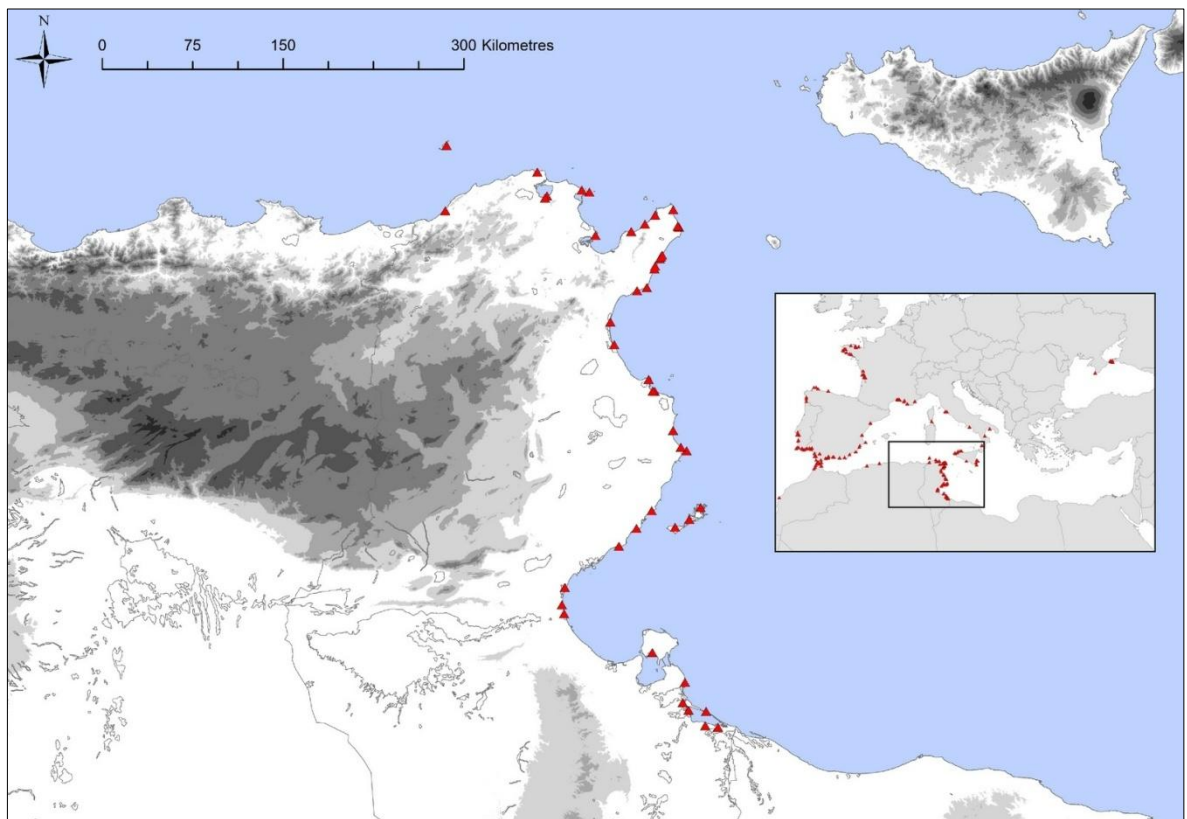


Figure 1.1 The known ancient fish processing sites in Tunisia (after Slim *et al.* 2004) and in the Roman World more broadly (after Wilson 2006).

These discoveries prompted further investigation into the subject of amphora contents more generally, and in 1995 a broader study of (the presence or absence of) pitch lining in African amphorae suggested that many more of them would have been used for the transportation of both wine and fish products than had previously been imagined (Ben Lazreg *et al.* 1995). In 2004 Michel Bonifay's *Etudes sur la Céramique Romaine Tardive d'Afrique* tackled the question of amphora contents more fully, arguing for greater emphasis to be placed on wine and fish products in the future (Bonifay 2004). More or less at the same time, Jean-Pierre Brun's book, *Archéologie du Vin et de l'Huile dans l'Empire Romain* (2004a), appeared, which, following the summary of the plentiful literary and epigraphic evidence for African wine production provided by Lequément (1980), further emphasised the numerous African sites where wine production could clearly be identified from the archaeological remains.¹

Bonifay has been the most prominent of those trying to use these new discoveries to reassess the integrity of the "olive boom" model (Bonifay 2007b, c). However, other researchers dealing with large-scale ceramic collections of amphorae seem to have been slow to alter their interpretations. Martin's recent discussion of the types of goods borne in African amphorae to Ostia from the imperial period to late antiquity, for example, includes no reference to wine at all, despite thousands upon thousands of amphora sherds being examined (Martin 2008). Bonifay has begun to downplay the central role given to the oil trade, arguing that the small quantity of African amphorae on sites in the eastern Mediterranean indicates that the fine African table ware, which is well distributed there, was probably being shipped with other less archaeologically visible African products, such as grain or textiles (Bonifay 2004: 477-479; 2007b: 144; 2007c: 9).² These other African exports may also have been extremely important economically. Grain is a well-attested African export in the literary sources, as are textiles to a lesser extent (Jones 1974; Rickman 1980). A further indication that textile manufacture was taking place on a significant scale somewhere within the region has been provided by the same coastal survey of Tunisia just

¹ This was part of a series of very detailed books focusing on olive oil and wine production (Brun 2003a, 2003b, 2004b, 2005).

² Bonifay mainly emphasises grain, but other products that do not survive well in the archaeological record, such as textiles, may also be crucially responsible for the more visible distribution of African Red Slip ware.

mentioned, which recorded several sites where deposits of *Murex* shells suggest the ancient production of purple dye (Slim *et al.* 2004).

What are the wider implications of altering the oil trade narrative? The model of the “olive boom” has been used to challenge an orthodoxy on the Roman economy, once dominant particularly amongst British ancient historians (Brunt 1971b; Finley 1985; Garnsey and Saller 1987), which viewed the economy as a whole as essentially “undeveloped” and stagnating, with a very limited role assigned to interconnected markets and long-distance trade. Mattingly and Hitchner argued strongly that, although more recent debate had led some individuals to allow for at least a modest rate of economic growth (Hopkins 1980, 2002; Saller 2002), the evidence from North Africa seemed to suggest considerable economic expansion over several centuries. In this, they supported the view of Carandini and other ceramicists in his circle (Carandini 1970, 1983b; Fontana 1991; Panella 1993), that trade in olive oil directly contributed to a shift in political power away from Italy to the southern shore of the Mediterranean (Hitchner 1993; Mattingly and Hitchner 1995). They stressed that this model was not only supported by the ceramic evidence, but by much of the rural settlement evidence as well (Mattingly and Hitchner 1995: 199, 204). Now that olive oil might not provide the sole explanation for African economic expansion, this evidence surely needs to be interpreted in a more balanced way, which takes into account the biases in the identification of different production activities archaeologically.

The model of the “olive boom” was also supported in a series of articles by Mattingly during the 1980s, in which he documented the great size of presses in the Libyan Gebel and the Tunisian High Steppe, their extraordinary density, and the implications of these factors on the likely production capacity of these regions (Mattingly 1985, 1988a, b, c, d, 1989a; see also Mattingly 1993, 1994, 1996a). This evidence made clear the potential for significant levels of olive oil production in very marginal areas during the Roman period. However, since Mattingly’s work, a huge amount of high quality archaeological data relevant to this subject has become available, not only in the regions traditionally identified as large exporters of olive oil, but also in territory given less consideration until now. This information comes in the form of survey data, which can help to make regional comparisons of the nature,

location and number of pressing sites in these two countries. From the 1980s onwards European teams working in conjunction with the Libyan or Tunisian departments of antiquities in the regions of Kasserine, Jerba, Segermes, Dougga and Leptiminus in Tunisia and in the pre-desert zone in Libya have conducted high quality archaeological surveys. However, for Tunisia, the majority of evidence relating to rural production sites comes from a vast programme of survey work begun by the Tunisian government in 1987. The *Carte Nationale des Sites Archéologiques et des Monuments Historiques*, aimed at protecting the country's archaeological heritage, is now beginning to bear real fruit. A series of 22 archaeological reports has been published over the course of the last 10 years, providing a wealth of new evidence relevant to the study of the rural production of olive oil and wine. In Libya there is a smaller quantity of newly-published survey data, but an extremely important recent survey project, carried out by Muftah Ahmed (2010) as part of his doctoral research in the Gebel Tarhuna, nonetheless provides exciting new information on rural settlement within this region (the heartland of many of the largest press sites in North Africa, and of the ancient world in general).

Having set out the main focus of this study, the rest of this chapter will introduce some general methodological and theoretical principles concerning the current debate. Chapter 2 will examine the evidence for the growth of agricultural estates, first in the original province during the first century after the conquest, and subsequently in regions that were annexed later, under Julius Caesar and the emperors. The archaeological evidence for the production of olive oil and wine is dealt with in Chapter 3, while the production and consumption of ceramic goods is examined in Chapter 4. Chapter 5 will attempt to draw these various strands of evidence together into an interpretation of how economic growth was achieved and which sections of society it affected most dramatically.

1.2 THE GEOGRAPHY AND CLIMATE OF NORTH AFRICA

One of the surprising things about the ostensible rise to economic dominance of the African provinces, is that the prevailing geographical and climatic conditions were not necessarily those one would expect to be most conducive to great economic productivity. Indeed, one might have assumed that the aridity of much of the region restricted such development, but that this in fact was not the case is manifestly obvious when one surveys the evidence. The geography of the Maghreb, with almost no navigable rivers and with mountain chains dividing up the landscape into latitudinal bands that blocked the most direct routes to the sea, no doubt played a significant role in the development of the road network and overland trade routes in antiquity (Bonifay, forthcoming), but Africa was no doubt one of the most active provinces when it came to trade.

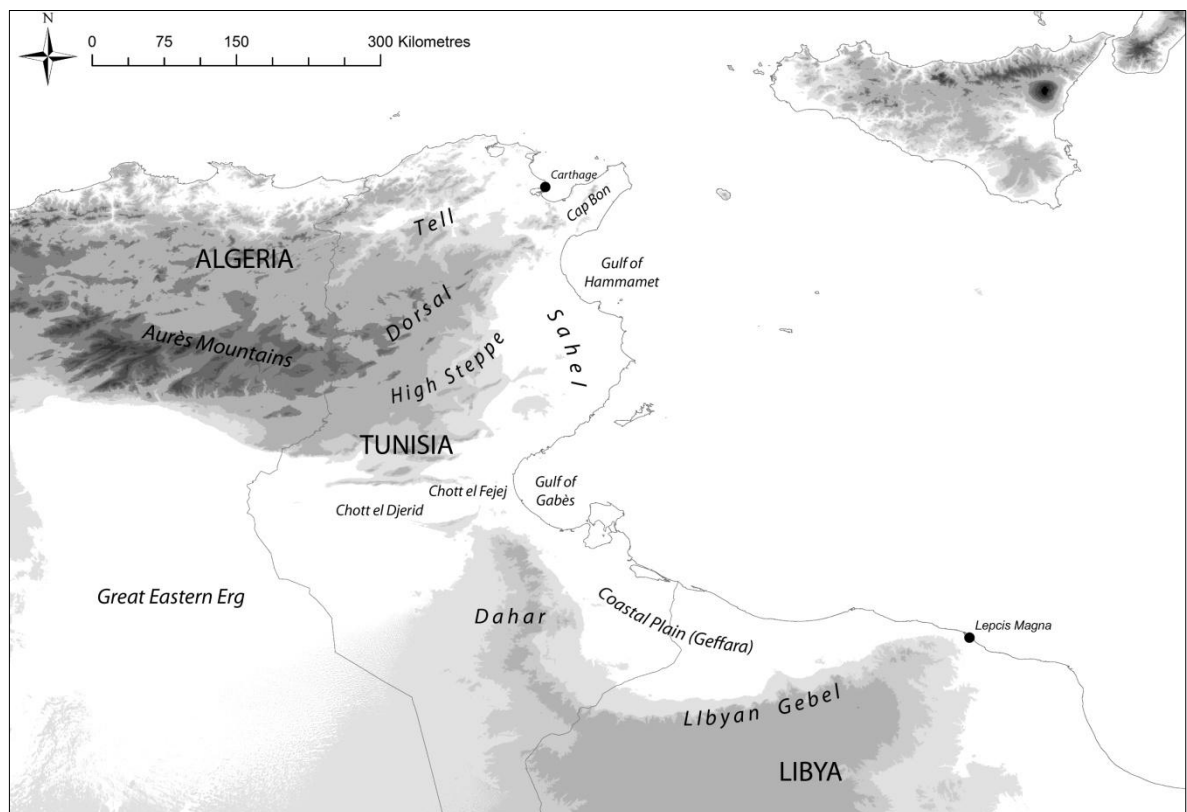


Figure 1.2 The geography of the study area.

The most recognisable geological feature of Tunisia is probably the Dorsal mountain chain, an eastern extension of the Algerian Aurès, that runs on a south-west to north-east alignment from the Algerian border to the Cap Bon peninsula. North of

the Dorsal is the Tell, characterised by low rolling hills and plains. It is drained by the Wadi Medjerda (ancient Bagradas), Tunisia's only perennially flowing stream, which rises in north-eastern Algeria and flows out into the Gulf of Tunis. Inland and south of the Dorsal is the semi-arid High Steppe, the relief of which is dominated by a series of anticlinal ridges, punctuated by broad platform-like depressions which are drained by sometimes deep-cut, non-perennial wadi channels. Between this region and Tunisia's eastern coastline is a broadening plain known as the Sahel, today one of the world's premier regions of olive cultivation.

Travelling south from the High Steppe, one passes over the Gafsa mountains and then across two large salt lakes that are almost entirely dry in summer, the Chott el Djerid and the Chott el Fejej. South of the Chotts the Gebel Dahar rises and becomes the Gebel Nafusa after the modern Libyan border. Within north-west Libya this significant chain of hills then curves to run on a more east-west alignment, and is separated from the Mediterranean Sea by a coastal plain known as the Geffara. South of the Libyan Gebel lies the desolate upland plateau of the Hamada el Hamra, which on its eastern side descends into the hills of the pre-desert Libyan valleys. These are drained into the Mediterranean by several large wadi networks, the most significant of which are the Wadi Sofeggin and the Wadi Zemzem.

Levels of precipitation were, and still are, a basic prerequisite for determining North Africa's various agricultural zones. Modern rainfall patterns are thought to be broadly similar to those during the Roman period, and therefore these can be broadly outlined by plotting the modern average *per annum* rainfall isohyets on a map (Figure 1.3). This operation clearly shows the decreasing rainfall as one moves from north to south, from the reasonably lush countryside of the Tell into the more arid lands of the Dorsal and High Steppe towards the Sahara. Precipitation above 400mm *per annum* is "sufficient to support agriculture without recourse to any special water control techniques" (Shaw 1984: 135).³ As Figure 1.3 shows, a large proportion of the study area falls below this threshold. Above 600mm *per annum* (for Africa an area coterminous with the "Tellian" Atlas ranges) can be considered as belonging to a true "Mediterranean" regime. The zone receiving 400-600mm *per annum* is of course less

³ Shaw's 1984 article *Water and Society in the Ancient Maghrib* gives a most comprehensive treatment of this subject, as well as a thorough historiographical account of its study.

favourable, although it is still considered as part of the Tell by North African agriculturalists. Regions receiving less than 400mm can be sub-divided into a semi-arid (200-400mm *per annum*) and an arid zone (100-200mm). Regions falling below the 100mm rainfall *per annum* threshold can be regarded as desert.

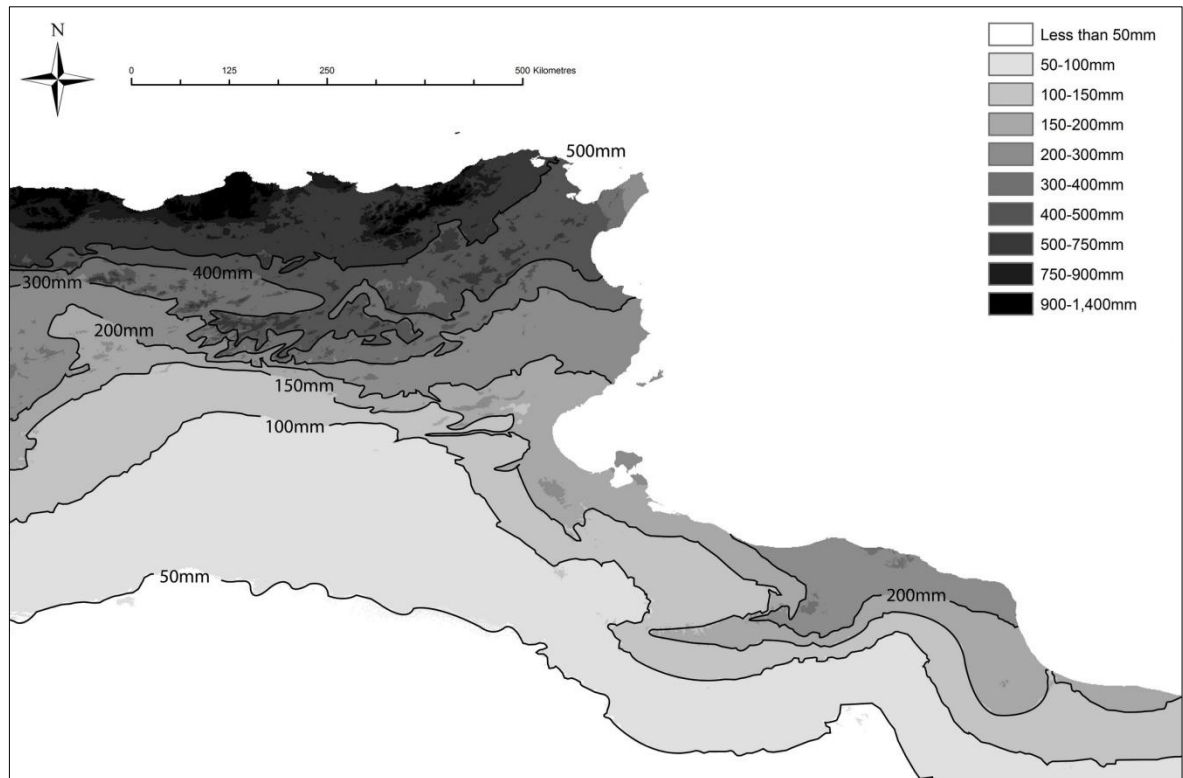


Figure 1.3 Modern-day average *per annum* precipitation in the study area.

Needless to say these measures of mean-average precipitation provide merely a convenient short-hand for geographers and climatologists. In fact, in North Africa rainfall is confined mainly to two specific seasonal peaks, one in November-December and another in March-May, the latter case representing a disproportionally high percentage of the total annual rainfall. On top of this, local and regional topography also have a significant influence, not just because higher altitude tends to correspond to higher rainfall, but also because differential altitude creates the possibility of exploiting run-off waters. Shaw gives the example of the High Plains region of Western Algeria, which in spite of its altitude cannot support agriculture due to its extreme isotropy (1984: 139).

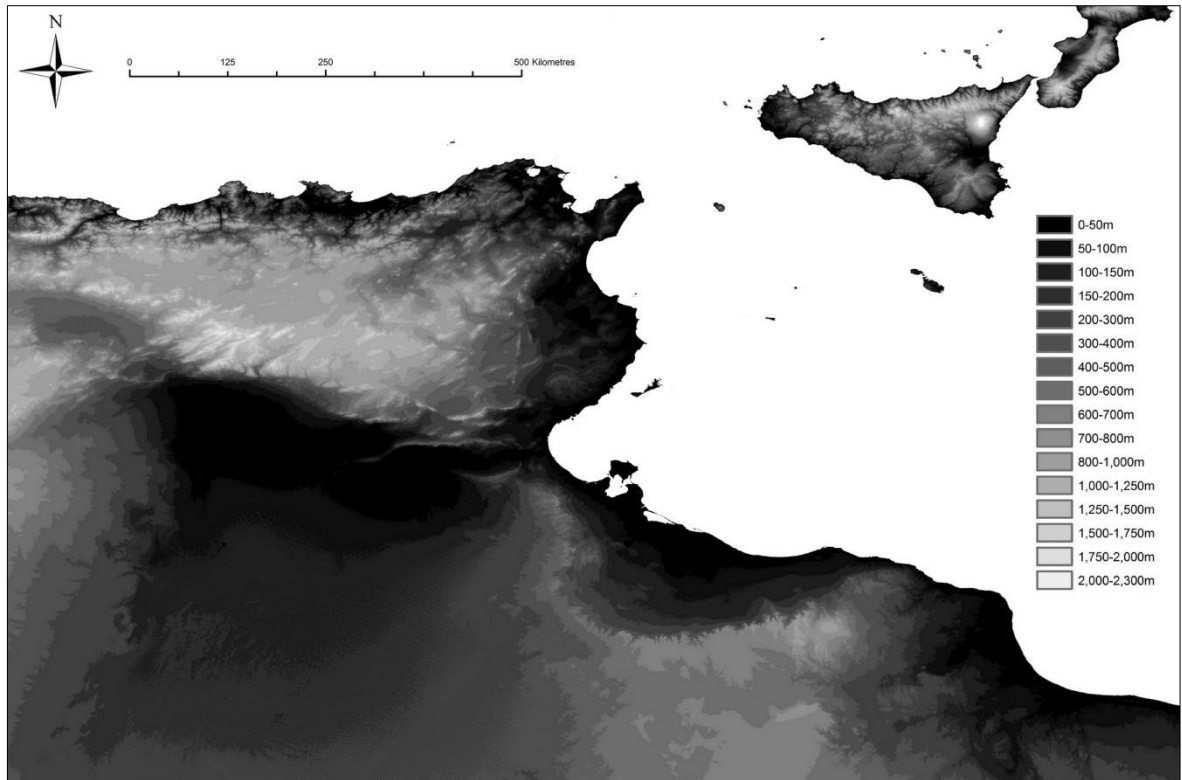


Figure 1.4 Digital elevation map of the study area, showing heights above sea level in metres.

This is most certainly not the case with the undulating region of west-central Tunisia that today, as it probably did then, falls between the 200-400mm *per annum* isohyets. It was particularly this region that impressed 19th and 20th-century writers, as, in spite of its aridity, it had supported several vibrant towns during the Roman period, such as Ammaedara, Sufetula, Cillium and Thelepte. In 1900, however, it had become:

“a mountainous land of desiccated steppes to which the nomads resorted with their flocks only during the brief rainy season of midwinter.”

(Frank 1926b: 70-71)

Perhaps understandably for the time, the Romans were credited with the introduction of sophisticated water-management techniques to the region, which had made possible the agricultural exploitation of these arid zones and sustained the populations of towns that grew up in the area. Colonial farmers found some satisfaction in applying the right know-how to return the area to agricultural productivity once again. This

outdated model for understanding the historical development of the region has been brilliantly critiqued in two articles on the subject by Shaw (1984, 1991), who has pointed to the importance of indigenous water control techniques, which pre-dated the Roman conquest. He argues that it was the propagation of this pre-existing local knowledge, rather than the building of monumental urban aqueducts, which allowed growth in agricultural production (particularly olive oil production) to take place.

1.3 THE CAMBRIDGE ORTHODOXY ON THE ANCIENT ECONOMY

In 1983, in an edited volume focusing on trade in classical antiquity, Keith Hopkins described the ancient economy as “an academic battleground” in which “no new weapon is lethal, and none of the battles are finally decisive” (1983: ix). In spite of this opening gambit, he went on to summarise what he termed “the new orthodoxy” on the nature of the ancient economy. Developed by A.H.M. Jones and Sir Moses Finley,⁴ successively professors of ancient history at the University of Cambridge, the new orthodoxy stressed the cellular self-sufficiency of the ancient world (Hopkins 1983: x-xiv). Each economic unit, be it farm, town, city, or region, produced mainly for its own needs. In Finley’s opinion, this alone was reason enough to put a significant brake on extensive production for export (Finley 1985: 138), but on top of this, a lack of investment in productive techniques meant that unit production costs were never reduced far enough to compensate for the prohibitively high cost of transportation.⁵ Therefore, according to this model, long-distance trade was rarely a viable profit-making enterprise in the ancient world. Finley states specifically that “individuals could

⁴ Jones (1964, 1974), Finley (1985).

⁵ There is little doubt that the specific stress the Cambridge School laid on the difficulties of communication and transportation borrowed much from the work of other contemporary historians, particularly those who were contrasting the pre- and post-industrial worlds. See, for example, the opening section of Hobsbawm’s *The Age of Revolution 1789-1848* (1962), in particular where he remarks on the advantages of water transportation over that of land:

“Noblemen raced along in private carriages. But for the greater part of the world the speed of the carter walking beside his horse or mule governed land transport. Under the circumstances transport by water was therefore not only easier and cheaper, but often also (except for the uncertainties of wind and weather) faster...To be within reach of a port was to be within reach of the world: in a real sense London was closer to Plymouth or Leith than villages in the Breckland of Norfolk; Seville was more accessible from Veracruz than from Valladolid, Hamburg from Bahia than from the Pomeranian hinterland.”

not move bulky merchandise long distances by land as a normal activity, nor could any but the wealthiest and most powerful communities” (Finley 1985: 126).

As an increasing amount of archaeological evidence began to accumulate for the large-scale movement of foodstuffs packaged in, and accompanied by, ceramic vessels. Followers of this model argued that these goods were moved mainly within the re-distributive mechanisms put in place by the state, or by large landowners, rather than achieving their distribution through market trade (Whittaker 1983, 1985). This view became particularly dominant at Cambridge during the 1970s, and continued to have a commanding influence in other spheres long afterward. Brunt’s chapter on the Roman economy, in his book *Social Conflicts in the Roman Republic* (1971b), provides perhaps the most succinct paradigmatic statement of this viewpoint at the beginning of this period. He asserted that the basis of the Roman economy was fundamentally agrarian, “each district normally aimed at self sufficiency...even the great estates”, with long-distance trade limited to luxuries and essential commodities that could not be sourced locally (such as iron and salt). Furthermore, the generally negative attitude of the upper classes towards manual work, coupled with an over-reliance on unwilling slave labour, led to technological stagnation (Brunt 1971b: 17-26). In summary, the ancient economy, if one could refer to an economy at all without being gravely anachronistic, was dramatically different from that of our own times.

In his work Finley contrasted a seemingly autonomous modern economy with its constant crises, cycles of growth, deflation, and so on, with a fundamentally more controlled, embedded and predictable economy that had existed in antiquity. He argued that fluctuations in production, or so-called “credit crises”, identified by some in the literary sources were always attributable to natural catastrophes or political troubles. There was no evidence for the ancient economy displaying similar behaviour to that of its modern counterpart (Finley 1985: 142). The ancient world did not possess anything like the integrated system of markets in land, in commodities and in labour that we know today (elements which are fundamental in giving our modern economic system its apparent power and autonomy beyond the control of individual producers or even nation states). For Finley, the significance of this was twofold. Firstly, it was the reason why the ancients never discussed or developed theories about their own economy; secondly, it meant the kind of economic analysis carried out in the modern

day was wholly inappropriate for application to the ancient world. There was no abstract, general and impersonal market that the ancients had to take into account; instead, access to markets was strictly controlled and embedded in social relations (Finley 1985).

An obvious conclusion for Finley was that if there was no conception of an economy in antiquity, it obviously did not exist as the same kind of phenomenon studied in the modern era.⁶ The anonymity of the economy in antiquity was a problem first discussed explicitly by Karl Polanyi (Polanyi 1957), who no doubt drew this idea chiefly from his contemporary and one-time childhood friend, the Hegelian Marxist Georg Lukács (Burawoy 2003: 211-212).⁷ Finley had developed close contact with Polanyi during his time spent at Columbia University, and the two men in many ways shared a common agenda. In *The Ancient Economy* (1985) Finley was fighting a battle on two different but related fronts. Firstly, he was joining one side of a long debate that had been building since the end of the 19th century. On the opposite side of this debate were those who saw commercial interests as key to Roman expansion, particularly during the course of the 2nd century BC. On Finley's side, were those who felt that a completely alien, and in some senses irrational, mind-set dominated in antiquity. This latter group naturally saw the claims of the former with regard to the ancient economy, as highly anachronistic. On the second front, Finley was engaging with an unrelated, but equally anachronistic trend in American economic history, which tried to bring modern concepts and quantitative economic analysis to bear on past economies, often with little historical sensitivity to the particular period upon

⁶ 'Political economy' only acquired its familiar meaning in the second half of the 18th century, and the shorter 'economics' only gained common use after the publication of the first volume of Alfred Marshall's *Principles of Economics* in 1890 (Finley 1985: 21). In fact Finley explains that he has devoted such a considerable amount of space at the beginning of *The Ancient Economy* to developing this point, because there is a "fundamental question of method" at stake (Finley 1985: 23).

⁷ Polanyi and Finley are often cited as being fixedly Weberian, but the influence of Lukács is clearly referenced, at least in Finley, after the time of his exile from the United States (1985: 50 n. 34, 155 n. 9). The references in *The Ancient Economy* are to *History and Class Consciousness* (Lukács 1971: 55-59), and it is in this group of essays that the relationship between his work and Polanyi's is the most clear. It obviously would have been politically difficult for Polanyi to reference Lukács at the time of his writing. There is little doubt that it would have damaged the reception of many of his ideas, whilst his altered terminology allowed him to introduce undetected much orthodox Marxist theory of the 1920s into the America of the 1940s and 50s (Polanyi 1944, 1947, 1977, Polanyi, Arensberg and Pearson 1957). Finley, of course, was eventually forced to flee the persecution of McCarthyism during this period, his active involvement with the Frankfurt School making him a target.

which it focused.⁸ It was these anachronistic approaches to the past, which Polanyi had attacked more generally as “our obsolete market mentality” (Polanyi 1947), that Finley tried to address head-on.

1.4 THE ORIGIN OF THE DEBATE: THE MODERNISERS

At the turn of the last century there was a common tendency to see mercantile and commercial interests as the motivating force behind the rapid expansion of Rome’s Mediterranean empire during the last two centuries of the Republic, to the extent that this was essentially the orthodoxy on the subject at that time. A qualitative change in Roman foreign policy was thought to have occurred in the period immediately following the Hannibalic war, when many small farmers had been ruined and large landowners were able to begin exerting their power over the countryside. It was not only that Italian agricultural productivity was making an unprecedented recovery after the return to peaceful conditions following the Hannibalic war, so the argument went, but that at the same time there was also a qualitative shift in agrarian organisation towards the use of plantation slavery. Another important stimulus for change was the increasing importation of foreign corn to Rome, which was making it an unprofitable crop for Italian farmers. This supposedly resulted in a movement away from wheat production and towards olive groves, vineyards and pasturage. Commercial interests were suggested to lie behind such events as the second Macedonian war and the attack upon Rhodes in 167 BC.

Proponents of this view could also point to the fact that Cato, who wrote during the first half of the 2nd century BC, strongly advocated the planting of vines, olive-trees and other orchards, or that, by the time of Varro, who wrote his agricultural treatise at the age of 80, in 37-36 BC, the land was so densely cultivated that Italy could be described as “one great orchard” (Varro *RR* 1.2). These views were expressed in particular by Heinrich Nissen in his regional study of ancient Italy, *Italische Landeskunde*, (Nissen 1883: 439, 455-457), and given a more contextualised

⁸ I refer here to cliometrics, to be discussed in more detail below. Modern proponents of this school have dedicated a significant proportion of their writings to attempting to discredit the views held by Polanyi and Finley. See, for example, North (1977) and Silver (1995).

position in the narrative of the rise and fall of the Empire constructed by the Italian historian Guglielmo Ferrero (1907).

In his earlier work, the German sociologist Max Weber became one of the clearest exponents of this view, seeing a kind of proto-capitalism developing during the mid-2nd century BC:

“Large-scale slave imports are dated by our sources, as Ferrero has pointed out, at the time when plantations raising olives and grapes became critical factors in the economy, and this was also about the time of the Gracchan movement. However it is evident from Cato the Elder’s work on agriculture that slavery and plantations must have appeared earlier. The plantation run by slaves as described by Cato could only have been possible after the pacification of Italy which followed Hannibal’s defeat.”

(Weber 1976 [1908]: 314)⁹

The plight of Italian smallholders was demonstrated adequately by the brief but desperately violent period of land reform attempted by the Gracchi, as related chiefly by Appian and Plutarch, and which fell between the two great Sicilian slave wars of 135-132 and 103-99 BC that vividly demonstrated the horrors of contemporary agriculture (Heitland 1921: 175). This model achieved its most definitive statements in Rostovtzeff’s 1926 work *The Social and Economic History of the Roman Empire*, but was still being regurgitated largely in unaltered form by the time of Toynbee’s great two-volume work *Hannibal’s Legacy* (1965).

However, in developing his ideas over the next decade Weber had come to see an absence of the specific rationalism that he believed was central to the development of modern Capitalism (Love 1991: 44-55). Later, Johannes Hasebroek provided a sophisticated elaboration of Weber’s thesis (Hasebroek 1931). The debate by this time had become considerably more nuanced than the original controversy,¹⁰ although, as one can see, strong elements of both arguments still existed in various later works (Morris 1985; Pearson 1957).

Naturally the position on the ancient economy taken up by one historian or another had a direct relationship with the sort of agenda which they ascribed to Roman foreign policy, and to the motives of the elite factions behind that policy.

⁹ Originally written 1896-97. For references to slaves reanimating the agriculture of Italy and the replacement of wheat with olive trees and vines, see Ferrero (1907: Vol. 1. Pg. 49, 124, 144, 306 and 311).

¹⁰ The opposition between Bücher’s view of insular self-sufficiency and Meyer’s market-oriented approach need not be revisited here, but for reference see Pearson (1957) and Finley (1979).

Rostovtzeff, for example, insisted that with regard to Carthage there was “no doubt that it was the Italian capitalists and landowners, led by Cato, who insisted on the destruction of the city”, which had remained a serious commercial competitor, if not a military one, after the close of the Hannibalic war (1926: 21). On the other side, Frank, in his 1921 work *Roman Imperialism*, singled out for criticism the works of Mommsen (1901), Colin (1905) and von Wilamowitz-Moellendorff (1910), arguing, contrary to those authors, that the “supposed mercantilism of the last two centuries of the republic . . . disappears under examination” (Frank 1921: 284). Later, Brunt, drawing contrasts between British and Roman imperialism in 1965, stated that at Rome the “trading class was never influential” (1965). Finley added the most definitive statement: “there were no commercial or commercially inspired wars in Roman history” (Finley 1985: 158).

Arguments both for Rome’s supposed mercantilism and against it have been found in Polybius’s account of the first treaties that existed between Carthage and Rome (Polybius III.22-28).¹¹ Several other classic passages in Polybius state that, at the time of the first Punic war, Rome had more or less no experience of shipbuilding or sailing: “not only had they no decked ships, but no warships at all, not so much as a single galley.” When Rome did undertake to construct warships the entire fleet was based on the design of a single Carthaginian ship, which had been captured by chance (Polybius I.20). The impression given to us by Polybius is that, up to this time, it was the Carthaginians rather than the Romans who had been a great seafaring and trading nation.

Another passage, however, this time in Cicero’s writings (*rep.* III 16), seems to give a contrasting impression, and its interpretation has become notoriously controversial. In a dialogue dating to sometime before 129 BC, Cicero has Scipio Aemilianus reprove the Romans for not allowing tribes in Transalpine Gaul to plant olive trees and vines in order to make their farms more profitable. Cicero states that this was to the benefit of Italian agriculture, but both Frank (1921: 280-281) and Badian (1968: 20) dismissed the idea, seized upon by Mommsen (1901: Vol. 3. 167, 395 & 407, Vol. 4. 171-172), Rostovtzeff (1926: 21, n. 15, 22, n. 17) and others, that

¹¹ Contrast Badian (1968) with Schiavone (2002: 56).

this was proof of the economic motivation behind Rome's foreign policy. Unfortunately, lack of chronological precision and the absence of known parallels for this practice make it difficult to build models of Rome's economic policy upon this passage. The fact remains, however, that it is precisely from this period onwards that the archaeological evidence shows the large-scale importation of Italian wine into southern Gaul.

Indeed, some of the very largest known shipwrecks from the Mediterranean are associated with this early trade, travelling the route from Italy to southern Gaul during the late Republic (Wilson 2009a: 227). The Albenga wreck, estimated at 450-500 tonnes, had been carrying some 10,000 Dressel 1 wine amphorae when it sank around 100-90 BC. The wreck from the Madrague de Giens, a 290-390 tonne ship that sank between 60 and 50 BC, had been carrying 5,800-7,800 Dressel 1. To complement this evidence, there are simply staggering quantities of Dressel 1 amphorae on many sites in southern France. At Châlon, a 19th-century archaeologist studying the dredging operations conducted in the Saône calculated that more than 24,000 amphorae had been extracted from the river bed, and that the site must contain a further 200,000-500,000 of them; the amphorae in question were Dressel 1. At the sites of Toulouse and Veille-Toulouse these amphorae were so numerous that they almost prevented the earth from being fertile, despite agricultural workers removing the sherds by the cartload from the soil for generations.¹² Several *oppida* in the Aude have also yielded thousands of amphorae. On sites which have a longer occupation history, the Marseilles, Ibero-Punic and Graeco-Italic amphorae types are all much less numerous than Dressel 1. Tchernia estimates the volume of Italian wine imports was between 50,000 and 100,000 hectolitres per annum (Tchernia 1983: 92; Woolf 1998: 175, 182-183). There is no doubt that this evidence represents a considerable increase in trade between Italy and Gaul in the late 2nd and 1st centuries BC.

The conclusion that has to be drawn from this evidence is that, whatever the naivety of the Romans towards ship building and trade in the mid-3rd century BC, the

¹² I can still remember the amusement of the French machine driver at my astonishment when, as a young archaeological supervisor I opened the first trench of an evaluation on an adjacent hill to Bibracte, the great *oppidum* of the Aedui, and just beneath the topsoil there was a dense context of broken-down Dressel 1 amphorae. For him this was a commonplace occurrence, as thousands upon thousands of these Italian wine amphorae have come to light during the excavations there.

time of the first Punic War, by the end of the 2nd century BC they were building ships capable of carrying large cargoes, and exporting wine on a scale unknown before this time. Whether we like it or not, Cicero's passage sits very well with the archaeological evidence for the Italo-Gallic wine trade during this period, even if it does not fit well with the Cambridge orthodoxy on the general attitude of the Roman state and upper classes towards trade. It seems clear that any adequate interpretive model for this period needs to take into account the significant and colossal changes that were taking place, in some contexts, at this period.

1.5 THE ITALIAN MARXIST SCHOOL AND THE SLAVE MODE OF PRODUCTION

At the same time as the Cambridge School's characterisation of the ancient economy was reaching its most concrete form, an alternative interpretive paradigm was developing on the Continent, one in which archaeological data were integrated much more closely with the historical sources. This alternative model originated in an intense period of application of Marxist analysis to the ancient world oriented around the concept of the slave mode of production. The largely theoretical results of the first two years of the project, begun by the Istituto Gramsci in 1974, were published in summary form in *Analisi Marxista e Società Antiche* (Capogrossi *et al.* 1978). The book was not reviewed in any English-language periodical (Harris 1983: 418) and de Ste. Croix admitted he had not been able to consult it, as well as much other important Italian Marxist material, at the time of writing *The Class Struggle in the Ancient Greek World* (1981: 542-543, n. 7). It was not, therefore, until the three volumes of *Società Romana e Produzione Schiavistica* appeared, in which the archaeological, literary and theoretical strands of this new Italian School were fully integrated, that an attempt to digest this huge body of scholarship in Britain was made (Giardina and Schiavone 1981).

In *Analisi Marxista e Società Antiche* Carandini had already asserted that the transition to the slave mode of production was characterised by an "unprecedented development of the productive forces that would only be reached and exceeded again in the last phase of the feudal form" (Carandini 1978: 250). In another largely

theoretical work, *L'Anatomia Della Scimmia* (1979), Carandini drew on elements of the old modernist side of the debate, particularly on the theses of Rostovtzeff (1926; 1941), Toynbee (1965) and Hopkins (1978), to expound a schematic Marxist narrative of the stages of Rome's socio-economic development.

Firstly, he argued that during the 3rd century BC the power of the ruling classes was still rooted in a population of small landowners and that the Roman state aimed to support these citizens by installing them in newly conquered lands in north-central Italy (Toynbee 1965: 178-179; Carandini 1979: 185). Secondly, from an early date there had begun a process of commercialisation of Roman life, a consequence of which was the formation of a class of merchants and entrepreneurs, whose interests were increasingly counter to those of the rural populace. Their activities might be seen, for example, between the last quarter of the 4th century BC and the beginning of the 3rd century, to be indicated by Roman pottery workshops, known as the "petites estampilles", which distributed black-painted vases in central Italy, in Corsica, in the Gulf of Lyon, in Punic Sicily and Africa, as well as in north-east Spain (Carandini 1979: 186). This process culminated in the transformation of agriculture and industry, characterised at the beginning of this chapter. Archaeologically, this was visible from the beginning of the 2nd century BC; the fine black-gloss tableware, Campana A, was massively exported in the western Mediterranean, especially in Spain and Gaul (Morel 1981). A little later, Dressel 1 wine amphorae were also exported in huge quantities, particularly to southern Gaul, but also to other regions of the western Mediterranean.

As part of this slave economy, Carandini identified Campana A production with urban manufacturies, staffed with large quantities of slaves, available due to the importation of perhaps 250,000 war captives in the first half of the 2nd century BC (Morel 1981; Rathbone 1983: 163-167).¹³ In terms of the level of industrialisation of the city, Carandini argued that the ideas of Toynbee, dismissed by the primitivists,¹⁴ were now beginning to be supported by archaeological data (Carandini 1979: 191). Following Toynbee (Toynbee 1965, II, 159), Carandini argued for an "economic revolution" taking place on the Italian peninsula at the end of the 3rd century BC

¹³ Stamps on Arretine *terra sigillata* manufactured from the mid-1st century BC clearly indicate the use of slaves, although the idea that the organisation of production was in large manufacturies has been challenged (Fülle 1997).

¹⁴ A label often applied to the Finley/Jones school.

(Carandini 1979: 187). The increase in Italian wine production was also linked to a shift from farm to villa production: in other words, to the development of slave estates, the ruination of small landholders, and to a growing separation between the ruling oligarchy and the people (Carandini 1979: 187). Carandini says that “the period considered is characterised by a great development in productivity, obtained through the most drastic separation of producers from their means and products ever met” prior to the modern expropriation that paved the way for the emergence of the capitalist system (Carandini 1981b: 250). The processes involved in this expropriation involved the emigration of between one and two million Italians during the last two centuries BC, balanced by the importation of around two million slaves, which he estimates at between a fifth and a quarter of the Italian population. All this will sound familiar from the arguments of the late 19th and early 20th centuries outlined briefly above (Carandini 1981b: 250). Drawing strongly on the decline and crisis models of Rostovtzeff (1926) and Shtaerman (1964), Carandini’s general model was that economic development in the provinces led the provincial markets for Italian goods to disappear, causing an eventual collapse of the slave mode of production in Italy and Sicily by about AD 200.

More recently, other forms of evidence have been used to support broadly similar arguments. Wickham (2005: 264-265) has asserted that both the slave mode of production and the demesne are signs of the intensification of control over agrarian production by landowners. In the latter case, accounting procedures, or the visible reorganisation of estates, could be seen as direct evidence that landlords began to try to influence the productivity of their tenants’ farming. Much discussion has been generated on these themes due to recent examinations of Egyptian papyri. Those from the Appianus estate, for example, which date to the 3rd century AD, have been used to argue for more rational accounting practices than Finley had allowed for (Rathbone 1991), while contractual relations regarding pottery production in 2nd- and 3rd-century Egypt have been used as a model for other ceramic industries, such as 1st-century BC Italy, and 1st-century AD Gaul (Cockle 1981; Fülle 1997: 121-127). While we should be wary of expanding from specific examples in Egypt to other contexts, with regard to accounting practices, there is a reasonable indication from inscribed *ostraca* from several regions that analogous systems were used in Africa (Albertini 1932; Barker *et*

al. 1996; Bonnal and Février 1966; Fentress *et al.* 2009: 343-344; Wickham 2005: 266). Furthermore, these finds also indicate that, if more sites were to be excavated, we might gain far more knowledge about African agricultural accounting practices in general.

The weakness in the slave mode of production model, however, is that, in spite of successfully combining evidence from the literary sources and from archaeology, these data were fitted into a preconceived and often formulaic theoretical model, involving the unfolding sequence of different historical modes of production. Finley himself seemed little troubled by competing theoretical frameworks provided by Marxist scholars, continental or otherwise.

In the next section I want to try to describe how these seemingly entrenched and irreconcilable positions that existed in the 1970s have gradually become subsumed under a newly emergent neoliberal paradigm. In order to do this, it will be necessary to briefly explore the changing political backdrop influencing these developments.

1.6 THE INCREASING INFLUENCE OF NEOLIBERALISM

One of the major consequences of the great inter-war depression was that it pushed liberal economic theory out of serious political consideration for almost half a century (Hobsbawm 1994: 94). Over the last three decades, however, neoliberalism has not only achieved a major recovery, but managed to become nothing short of the dominant political ideology within governments across the majority of the globe. How this was achieved has been well documented in a series of recent books, two of which I will highlight here. Naomi Klein's bestselling book, *The Shock Doctrine* (2007), traces in journalistic style how a radical group of free-market economists, based at the University of Chicago and led by Milton Friedman, managed to make the remarkable transition from the alienated fringe to the political centre in the US during the late 1970s. Another author, David Harvey, in his book *A Brief History of Neoliberalism* (2007), summarises the details of the crucial turning point in more academic fashion. He argues that while neoliberalism was initially limited to a number of right-wing think

tanks and fringe university economics departments it "gained in academic respectability by the award of the Nobel Prize in economics to Hayek in 1974 and Friedman in 1976" (Harvey 2007: 22). Harvey is quick to note that "this particular prize, though it assumed the aura of Nobel, had nothing to do with the other prizes and was under the tight control of Sweden's banking elite" (Harvey 2007: 22). He goes on to explain how deregulation of the economy emerged as one of the answers to the chronic state of stagflation that had prevailed in the US throughout the 1970s, while experimentation with the privatization of state assets first occurred on a grand scale in Chile under Pinochet. The crucial turning point for Harvey, however, came in the period 1979-80, years that saw "the dramatic consolidation of neoliberalism as a new economic orthodoxy regulating public policy at the state level in the advanced capitalist world" (Harvey 2007: 22). Under the leadership of Thatcher in the UK and Reagan in the US, this period saw the abandonment of policies that had predominated during the immediate post-war period, Keynesian economic theory and the promises that had been enshrined under Roosevelt's New Deal. The global spread of this ideology has since been aided further by the gradual liberalisation of the Chinese economy and the eventual collapse of the economy of the Soviet Union.

Both Klein and Harvey use the term neoliberalism to denote a cynical appropriation of the kind of liberal economic theory expounded by Adam Smith and David Ricardo, for use as an ideological cover for large-scale capital accumulation by multinational corporations. This extremist free-market rhetoric, for a long time advocated only by an alienated minority, is now exactly that spouted by the chief economic advisers to the recent Bush and Obama administrations.¹⁵ What interests us here, is that this newly dominant political ideology has also managed to permeate the social sciences extraordinarily deeply.

With the benefit of hindsight, it is noticeable that precisely at the same time as these changes in global politics occurred, corresponding alterations took place in approaches towards the study of the ancient economy. In fact, nothing short of a revolution has taken place, in which a neoliberal viewpoint has become not only

¹⁵ I should point out here that one of the major controversies of Obama's term in office has been the lack of a change around in financial advisors and general economic policy. Paul Volcker, former chairman of the Federal Reserve mentioned above, was chosen to head his advisory team.

dominant amongst scholars studying the ancient economy, but completely unchallenged. I want to demonstrate here how and why this new approach to the study of the ancient economy emerged, how it differs from the orthodox view that predominated during the 1970s, and to outline in a little more detail some of its major problems and deficiencies.

As we have seen, during the 1970s, before neoliberal economic theory made its unprecedented recovery, there was a very strong resistance to the idea that modern economic concepts could be applied to the ancient economy in any meaningful way at all. This resistance was of course mounted chiefly by the Cambridge School, headed by A.H.M. Jones and Sir Moses Finley. A substantial portion of Finley's most influential book, *The Ancient Economy* (1985: 17-34), put forward a polemical argument against the applicability of modern economic theory to the ancient world. The ancient economy, Finley proposed, was far less integrated and the ancient mind-set too different, for such anachronistic modern analysis to be of any relevance at all. Finley put it simply: examining such a qualitatively different object required the development of "different concepts and different models, appropriate to the ancient economy, not (or not necessarily) to ours" (Finley 1985: 27).

A crucial turning point, however, came with the publication of Keith Hopkins's Taxes and Trade article of 1980, and was quickly followed up with his introduction to an edited volume entitled *Trade in the Ancient Economy* published three years later (Garnsey et al. 1983). At that time, Hopkins was careful to stress that he regarded the Finley/Jones model as by far the best that had so far been outlined. However, for him, having a single model to cover such a long and diverse period posed an obvious problem: the model risked being "too uniform, almost static in composition" (Hopkins 1983: xiv). Finley had been in no way ignorant of this fact, but nonetheless, by interrogating the ancient economy thematically as a whole, his book had largely ignored the question of chronological and regional variation within the period (Morley 2006: 42). Noticing this lack of a dynamic element to the model, Hopkins felt he could improve it, and in doing so, he began what became a hugely influential debate about the processes of economic growth in the ancient world (Hopkins 1980, 2002; Saller 2002; Scheidel et al. 2007b).

Hopkins had already indicated in his book *Conquerors and Slaves* (1978) that, in contrast to Finley, he believed that the “achievements of the Roman world need to be interpreted with empathetic understanding of what the Romans themselves thought and with concepts which we ourselves use” (Hopkins 1978: ix). In other words, as far as Hopkins was concerned, at least some modern economic theory might be applicable. In particular Hopkins championed the use of modern sociological methods in ancient history and attacked other ancient historians for being closed to what he considered to be new and important avenues for exploration.¹⁶ From this moment onward, Hopkins began to construct a new approach to the study of the ancient economy, drawing on methods borrowed from other disciplines. It is in his work during the early 1980s in which we first find estimates of the Gross Domestic Product (GDP) of the Roman Empire and the beginnings of a debate about the potential for economic growth across the empire as a whole. Basing his arguments on certain types of quantifiable proxy data, such as the frequency of ancient shipwrecks, for example, and on certain *a priori* postulates, Hopkins suggested that the “imposition of taxes paid in money greatly increased the volume of trade in the Roman Empire” in the period between 200 BC and AD 400 (Hopkins 1980: 101), and that this period could be seen to have experienced gradual *per capita* economic growth (Hopkins 1983).

In 1987, in reaction to Hopkins’s first contributions, Finley’s so-called primitivist position on the ancient economy was given an added slant by Peter Garnsey and Richard Saller in a book chapter dealing with the Roman imperial economy (Garnsey and Saller 1987: 43-63). Within this chapter, a range of Finley’s arguments regarding technological stagnation, cellular self-sufficiency, lack of trade, differences in economic rationality and so on, designed to stress the qualitatively different nature of the ancient economy, were re-appropriated. A crucial re-branding took place: the Roman economy was no-longer to be seen as merely qualitatively different, but as “underdeveloped” (Garnsey and Saller 1987).¹⁷ The use of this terminology might seem relatively innocent, but it directly linked thinking about the ancient economy with exactly the terminology being used in the conduct of economic intervention in

¹⁶ The reception of his book *Conquerors and Slaves* (1978) was therefore rather critical. See, for example, the review written by Badian (1982).

¹⁷ The chapter was given the provocative title “An Underdeveloped Economy”.

Third World countries at that time. Garnsey and Saller attacked the evidence Hopkins had mustered in support of considerable economic expansion, as well as models that envisioned crisis and decline during the late Roman period, proffered by Carandini and others already mentioned above. In place of these, they reasserted a picture of relative stagnation. For them, very little fundamental economic change had occurred during the Roman period.

The current neoliberal paradigm has its most concrete expression in the recently published *Cambridge Economic History of the Graeco-Roman World* (2007a), edited by Walter Scheidel, Ian Morris and Richard Saller (all professors of classics at the University of Stanford), in which these two major lines of development have now converged. In the same manner as Hopkins, a number of the contributors to this volume adopt a suite of modern economic concepts, such as *per capita* income, *per capita* growth, gross domestic product (GDP), and so on. Debate also revolves chiefly around the subject of quantifying economic growth, but with the added developmental connotations now provided by Garnsey and Saller.

The foregrounding of the issue of economic growth is no doubt partly symptomatic of our fanatical obsession with its importance in the present day, but a crucial admission by the editors of this recent volume makes the origins of this current agenda far more clear. In their introduction, they advocate following the general approach of the New Institutional Economics of Douglas North (1990), winner in 1993 of the same Nobel prize that was awarded by the Bank of Sweden to Hayek and Freidman, and which was criticised by David Harvey for its strong neoliberal associations.

GROWTH AND NEOLIBERAL ECONOMIC HISTORY

“Nothing is more different from man enslaved to the operations of growth than the relatively free man of stable societies.”

(Bataille 1988: 45)

In his Marshall lectures of 1979-80, Eric Hobsbawm claimed there were basically two types of economic history: the sort practised by historians, on the one hand, and the

sort practised by economists, on the other. The latter sort, cliometrics, he denounced as being “mainly neo-classical theory – projected backwards” (Hobsbawm 1997: 127). North was one of the central figures in the “cliometrics” revolution of the 1960s, which pioneered the application of formal mathematical techniques to the study of history. Much of the statistical analysis was levelled at measuring past economic growth, and North’s work was no exception (it was for the introduction of quantitative methods to economic history that he was awarded the aforementioned economic prize).¹⁸ Not surprisingly, this new brand of economic history was received much more sceptically in Britain than in the US. Not only was it widely felt that much historical data was too fragmentary and sometimes too unreliable to be subject to “true statistical rigour”, but there was also a general distaste for the underlying normative assumptions of free market modelling (Hudson 2009: 780). The New Institutional Economics sees North trying to re-label an essentially unaltered methodological framework that, for good reasons, came under heavy attack in its previous guise (North 1990; North 1997). As a rhetorical device, he openly criticises others for their attachment to neoclassical economic principles, whilst maintaining his focus on economic growth and especially the institutional conditions which either encourage or constrain it. North’s brand of economic history is undoubtedly of Hobsbawm’s second variety.

Finley was no doubt aware of this new trend in economic history in the US and his book, *The Ancient Economy* (1985), can be viewed as his single-handed attempt resist the infiltration of cliometric approaches into the ancient history of his day. The trouble with Hopkins’s work, brilliant though it was, is that it re-opened the door to these sorts of anachronistic approaches that Finley had been at such pains shut. The most troubling element in all this is the recent attempt by several ancient historians to establish an unproblematic link between past economic growth and improvements in living standards (Scheidel 2007, 2009; Silver 2007).¹⁹ This has even entailed the adoption, by some scholars, of the entire mind-set and terminology of international institutions such as the World Bank and the International Monetary Fund. Institutions

¹⁸ See Shaffer’s review of one of North’s early works, *The Economic Growth of the United States, 1790-1860* (1961), in which he describes him as “one of this country’s best known ‘cliometricians’” (Shaffer 1961: 708-709).

¹⁹ The bibliography on this is large and fast expanding, but most of the articles follow an extremely similar line of argument.

which, it has been argued, are heavily implicated in the current system of imperialist economic exploitation, disguised under neoliberal rhetorical claims that the altruistic promotion of economic growth (and therefore human welfare) is the primary aim (Chomsky 1999; Spivak 1999).

Walter Scheidel has taken the boldest step in this direction, recently adopting the use of Human Development Indices (or HDIs), a form of statistical analysis of living standards introduced by the World Bank (Scheidel 2010a, b).²⁰ Scheidel has been engaging in debate with Willem Jongman over which period of Roman history can be seen as the most happy and prosperous, since Jongman argued in a recent article that “Gibbon was right” (Jongman 2007b). That is, in a Hopkinsian manner Jongman used proxy data for economic growth to find support for Gibbon’s claim that, of any period in world history, the 2nd century AD was the time when the condition of the human race was the most happy and prosperous. Scheidel quickly followed with his own slightly altered interpretation of the same sorts of data, placing the greatest period of economic growth and prosperity instead during the late Republic (Scheidel 2009). Whatever his conclusions about when this prosperity was, I hope it is plain to see that the connection between the rhetoric being used in ancient history and in the political sphere has become uncomfortably close.

The key issue here is that the issue of economic growth is highly controversial and contested in the modern world, let alone when it is being applied to other historical periods. Its use as an index of progress, for example, is highly value-laden and subjective, even if there is no intention for it to be so. How we approach “economic growth” in a modern context and whether or not it has positive or negative implications for the future happiness of mankind, is a subject on which there is still no sign of universal agreement. In modern industrial states, lack of economic growth in the short term means falling standards of living, rising unemployment and all the other symptoms of a general economic depression that we are familiar with at the current time. With long term or rapid economic growth, on the other hand, come the worries of unsustainability, the exhaustion of resources, pollution, overpopulation, climate

²⁰ North has been one of the economists involved with the Copenhagen Consensus, a project which seeks to establish priorities in advancing “global welfare”, with the appropriate measurements and indices indicated here put to good use.

change, and potential economic crisis and collapse. But this is dealing with growth solely as a quantified object, when in reality there are a whole range of qualitative factors which it is fundamentally important to take into account.

Post-development and De-Growth (*décroissance*) movements have begun to argue this exact point. The problem with neoliberal theory, they emphasise, is that it concentrates too heavily on the positive aspects of economic growth, without differentiating the good from the bad. The sort of reductionism that simplistically links growth in GDP with an increase in human happiness and wellbeing is extremely difficult to defend academically. This argument was blasted out of serious consideration more than forty years ago it was back in 1970, for example, when Baudrillard wrote:

“Every society produces differentiation, social discrimination, and that structural organisation is based on the use and distribution of wealth (among other things). The fact that a society enters upon a phase of growth, as our industrial society has done, changes nothing in this process. Quite the contrary ... The spirals of growth are arrayed around the same structural axis. As soon as the fiction of GDP is abandoned as the criterion of affluence, we have to admit that growth neither takes us further from, nor brings us closer to, affluence. It is logically separated from it by the whole social structure which is, here, the determining instance. A certain type of ‘inequality’, which used to perpetuate itself in the absence of economic progress, is today reproduced in and through growth.”

(Baudrillard 1998: 53. Italics in original)

I quote this passage simply to demonstrate that what can be gleaned from an analysis of GDP or GNP and other tools used by modern economists, is limited by this restricted outlook. As Baudrillard asserts, it is the social structure itself that is the crucial element in need of analysis and not statistics that abstract from the whole. All evaluations agree on this. Between 1950 and 1987, according to the World Bank’s own statistics the gap between the richest and poorest fifths of the world’s population grew from 30:1 to 60:1, while overall revenues multiplied by two-and-a-half times. In the US, during the period dominated most strongly by neoliberal ideology, the incomes of the Chief Executive Officers of the largest US companies rose from 42 times that of the average employee in 1980, to more than 500 times in 2003 (Howard and King 2008: 174; Wilkinson and Pickett 2011). For Harvey, these sorts of figures demonstrate the development of a new powerful ruling class during the last 30 years. What we see in

this new trend in economic history, rather than academic analysis of any sort, is a kind of sycophantic political propaganda popular with this newly ascendant class.

The cynical rhetoric employed, is that to solve inequality one must start by increasing inequality. It is the necessary pre-condition of the accumulation that will finally result in bringing poverty to an end (Latouche 1997: 141). In the words of Latouche:

“We are confronted with an insane drive forward which has no other aim or motivation than a desperate escape from the present.”

(Latouche 1997: 142)

Growth is presented as the miraculous remedy for all inequalities, but an overwhelming amount of evidence is stacking up indicating that this is radically incorrect (Latouche 1997: 140). In spite of this, the ideological position has been maintained for decades without shifting one iota. We are faced with attempting to confront something akin to a strongly ingrained faith or religion (Latouche 2009: 8).

It should be self-evident therefore, that when the editors of the recent *Cambridge Economic History of the Graeco-Roman World* state that *per capita* economic growth may have “averaged around 0.1 percent per annum in the western Roman empire between 200 BC and AD 100, raising per capita consumption 25 percent or more higher than it had been before 200 BC – trivial by modern standards . . . but surely a tremendous boon for people who experienced it” (Scheidel *et al.* 2007b: 5), that this is a highly ideological statement, imbued with the value system of neoliberalism. As a result, crucial historical questions are ignored. For whom was economic growth a “tremendous boon”? In this, methodology and ideology are inextricably linked. Aside from the lack of statistical data which make estimates and calculations almost an irrelevance, and aside from the basic inapplicability of modern concepts of growth to such a qualitatively different object, generalised concepts such as GDP, GNP, *per capita* growth, *per capita* income or HDIs are analytically inert if we really want to understand how the functioning of the societal structure benefits some and harms others. Simply examining possible proxies for the overall size of the system is not economic analysis at all, especially when it is blindly restricted to a narrow conception which sees any quantitative growth as good, without taking into account

its qualitative elements. Mattingly asserts that, in terms of scale, the Roman imperial economy “was extraordinary by the standards of a pre-industrial world . . . it did achieve growth and it created a level of regional integration, or at least interconnectedness, that marks it out from other ancient economies” (Mattingly 2006a: 297). But what does this tell us about the character of the Roman Empire? Presumably a slave economy could exhibit significant levels of growth, long-distance movement of goods and so on, and still be hailed as a great achievement if measured by these same purely quantitative standards.

China provides the modern paradigmatic model for this sort of problem. In this time of economic recession its levels of growth in *per capita* income and GDP are constantly trumpeted by the BBC, and other media organisations, as an example for Europe and the US to follow. In order for this to be accepted, however, basic and fundamental facts have to be ignored. To give one example, there is the issue of state-organised ethnic-cleansing achieved through the forced migration of mainly Uyghur women between the ages of 16 and 25 from Xinjiang in north-west China to eastern mainland China.²¹ Once moved, they are forced to work in more or less abject slavery, providing cheap labour in manufacturies. It is also speculated that they are also intended to provide wives for Han-Chinese men, in a country where the limiting of a single child per family has resulted in a population where men outnumber women by as many as 50 million. Further migration of Han workers into Xinjiang is encouraged by the state, in order to water down the Uyghur culture and attempt to weaken the separatist aspirations of the region (Bovingdon 2010; Kaltman 2007).

Let us return for a moment to the subject of Douglas North and his New Institutional Economics. The primary aim of North’s recent work has been to explain the inability of “developing” nations to achieve the economic goals set for them by organisations like the World Bank and International Monetary Fund. This apparently makes the sort of economic analysis currently being applied to the “transitional

²¹ See, for example, the *Country Reports on Human Rights Practices for 2008, Volume 1* (2008: 779). This report is issued annually by the US Department of State. Incidentally, a must read are China’s reports on the Human Rights of the United States, also published annually.

economies” of eastern Europe, or the “developing economies”²² of the “Third World”, highly relevant to the study of pre-industrial economies. This approach, while accepting that cultural and historical differences obviously exist, nonetheless tries to find parameters, such as GDP or HDIs, which can be quantitatively measured rather than qualitatively evaluated. Just as in the field of politics the neoliberal economist subordinates all contemporary countries to the same economic logic of growth and development, the same is true in the field of New Institutional Economic history, where the past must succumb to this same imperialist gaze. Although never explicitly stated, the implications of this new direction are fairly clear: the economy of the Roman Empire is to be viewed as analogous to that of a developing nation, and its failures are to be sought in the lack of sophistication and structural obstacles provided by its institutions and its cultural mind-set. Like any other foreign country, with institutions and industry apparently less efficient than in our own, and populated with people labelled as less rational and less powerful than ourselves, the past can be snugly fitted into the established semantic order, which is at its root imperialist in nature.

With regard to the study of the ancient economy, even more terrifying is the emerging realisation that both sides, primitivists and modernists, now share the same basic neoliberal assumptions about what economic history is for and what it can tell us about the past. I see this shift in the study of economic history as the chief reason behind recent assertions that the old primitivist/modernist debate has become an irrelevance (Bowman and Wilson 2009: 7). Aside from a few hard-line free market extremists based in economics departments, such as Peter Temin (2001) and Morris Silver, who dislike “the identification of ancient society with a subset of ‘traditional’ societies whose institutional structures wreck incentives and strangle economic growth” (Silver 2007: 191) and can find the free market and rational economic behaviour amongst almost any ancient civilization (see, for example, Silver 1995), the old formalist position has now successfully absorbed and re-appropriated the

²² Formerly described as “underdeveloped economies”, hence Garnsey and Saller’s terminology. Needless to say, the use of the word “developing” itself is imbued with the same ideology that revolves around growth.

arguments of its opposition towards its own ends. In simple terms the economic formalists have now embraced a primitivist argument, but one that jettisons the entirety of Finley's theoretical framework, substituting for it instead the ideology and jargon of the World Bank and IMF, of Human Development Indices and institutional change. It is not difficult to see how the development towards this new position runs parallel to the growing popularity of neoliberalism as the dominant economic ideology of the governments of the developed world from the beginning of the 1980s onwards. In a real sense the binary opposition between "primitivists" and "modernists" no longer describes a meaningful distinction between positions, as the neoliberal viewpoint subsumes both polarities of the old debate: free market fundamentalist approaches on the one side, and development and growth-led approaches on the other. Either the Romans "were profit- and achievement-motivated" with a state that "recognized bargaining and freedom of contract" and that "was concerned with the security of commerce", which resulted in at least moderate economic growth (Silver 2007: 191), or, their economy was primitive and underdeveloped by modern standards, mainly due to the inefficiency of their institutions. Both viewpoints associate the emergence of a free market with rational thought.

Furthermore, the claimed interest in assessing the quality of life in the past is only an ostensible one. The very concepts that are being borrowed from modern economic analysis are those that tend to conceal and brush over real inequalities and relations of exploitation rather than elucidate them. An examination of growth in *per capita* income, for example, successfully hides the real story of inequality in incomes - the same is true for the growth in GDP, and so on and so forth. Growth in GDP was for a long time used to put a positive spin on huge profits for a few and misery and exploitation for the majority. It is plain to see how the interest in, and reliance upon, proxy indicators for the abstract idea of economic growth, such as alterations in ice-core pollution, or in the total number of shipwrecks per decade, which has become popular since the work of Hopkins, is symptomatic of a full-scale retreat from the sorts of questions being tackled in the 1970s concerning the origins of inequality and exploitation. The broader reason for this retreat I argue is obvious. The currently ascendant neoliberal order has no interest whatsoever in actively addressing or

tackling issues of inequality, whether in the present or the past. The question is, what we do as ancient historians and archaeologists to change this?

1.7 POSTCOLONIAL NARRATIVES

“By neo-colonialism I always mean the largely economic rather than the largely territorial enterprise of imperialism.”

(Spivak 1999: 3)

From the above discussion it should be becoming apparent that I regard a healthy critique of the present situation as an essential foundation from which to probe a new way forward. So far I have introduced problems or concerns regarding the Cambridge orthodoxy or “primitivist” interpretation of the ancient economy, the former modernising tendency, the take of Italian Marxism, and most importantly of all, the growing influence of neoliberalism. In the current climate neocolonialism and neoliberalism are seen as more or less synonymous terms, and it seems only natural therefore, to explore the potential contribution of postcolonial theory to these problems. Indeed, others in Roman archaeology have already begun to tackle aspects of current economic imperialism, such as globalisation and mass consumption in a ostensibly postcolonial way (Given 2004; Gosden 2004; Hingley 2005).

POSTCOLONIAL THEORY AND NEOCOLONIALISM

British and French imperialist ventures had sought justification in terms of the humanist and universalist principles of the Enlightenment and of the French Revolution. As a result, the full force of the post-Enlightenment critique, which really began with the adoption of an evolutionary perspective by the philosophers such as Friedrich Nietzsche toward the end of the 19th century, failed to really hit home until these colonial projects began to fail during the course of the 20th century. This can most clearly be seen in the case of France following the Algerian War of Independence, when both poststructuralist and postcolonial theorists conducted an unremitting assault on all former claims to universality. As a result, the overarching

epistemologies of political economy and Marxism, both of which had based themselves on this same cosmological structure, have now been rejected (Baudrillard 1975, 1981; Derrida 1976; Foucault 1970, 1977). Two troubling issues associated with this postmodern “turn” concern us here. The first is how quickly the postcolonial perspective came to be adopted as a conservative project. By this, I mean that a neocolonial and neoliberal agenda is still implicit in many works that profess to adopt a postcolonial approach. Spivak, for example, has noted that as early as the mid 1990s much American academic postcolonialism was “bogus”, often used as much to distinguish a scholarly elite from a radical underclass as to speak in its name (Spivak 1999: 358). Given this obvious problem, the second issue is whether or not postmodern approaches have offered any indication of a valid new way forward, which could be practically applied to the study of the ancient world. Faulkner, for example, has recently argued in an article about the current state of Roman archaeology that the whole postmodern project has been “both deeply reactionary and intellectually vacuous” (Faulkner 2008: 69; cf. Barrett 1997).

Although Faulkner is probably correct to point out that a certain kind of postmodern malady has infected Roman archaeologists, as it has many others within the social sciences, the adoption of this new paradigm has often been implicit. Of the various strands within this new postmodern framework, postcolonialism has proved one of the most productive and challenging, but within Roman studies only a limited number of works have explicitly professed to be postcolonial in outlook. Even fewer have successfully jettisoned the ideological baggage of previous systems of thought which for so long dominated the academic landscape. Nonetheless, effective critiques of a number of outmoded attitudes and models that were complicit in the European imperial project have been clearly outlined, and have also begun to be at least grudgingly accepted (Bénabou 1976; Hingley 2000; Mattingly 1996b, 2006b, 2011b; Modéran 2003). Mattingly in particular has adopted some of the conceptual machinery of the postcolonial theorist Edward Saïd in his approach to the Roman Empire (Mattingly 2006b: 17; 2011b: 29; Saïd 1978, 1993), most notably in implementing the concept of “discrepant experience” and a more sceptical view of the once self-evident benefits of Roman imperialism.

One aspect of this postcolonial adjustment is a concern for giving voice to the subaltern, the wretched and exploited of imperial systems whose plight has remained voiceless within the dominant historical narrative constructed by the imperial powers. This agenda has been championed by a number of archaeologists and historians who focus on Roman North Africa (Fenwick 2008; Février 1989: 23-66; Mattingly 1996b; 2011b: 26-30; Modéran 2003: 1-23). A clear conclusion resulting from this has been that the apologetics of empire, which stressed its civilising mission, were often projected back into the past, marginalising the role that indigenous peoples were given in the picture. Fenwick stresses in a recent article that, within the narrative of North Africa in the Roman period constructed by French colonials, there was an active attempt to disassociate contemporary Berber and Arab populations from the Roman past. According to this account, the achievements of Roman North Africa had been due to the Romans, an external civilising force with which the French closely identified (Fenwick 2008: 77-79).

A further achievement of this postcolonial line of argument has been a greater scepticism being shown towards the descriptions Roman writers gave of the foreign peoples they encountered (Bénabou 1976: 427; Mattingly 2011b: 215). In line with this is a realisation that Roman prejudices provided inspiration for crude racial stereotyping during the colonial period that continued to exert far too great an influence on historical narratives until quite recently (Modéran 2003: 1-23, with many examples). It is clear that there is considerable scope for rehabilitating North Africans as capable and knowledgeable historical actors (Fenwick 2008; Laroui 1977; Mattingly 1996b). We also have to be careful, however, that in our desire to acknowledge the agency of indigenous peoples in creating their own history, we do not minimise the brutality and real inequalities of power that existed under Roman imperial rule.

Mattingly, for example, stresses that he does not see his current project as simply shifting the focus from empowered elites to disempowered indigenous subjects (Mattingly 2011b: 216), or as concentrating on themes such as resistance rather than emulation, as some works of the preceding decades had done (Bénabou 1976; Hoff and Rotroff 1997). He has taken his inspiration from the emphasis laid in postcolonial theory on revealing the hidden ethico-political agenda that drives the differentiation between certain binary oppositions (Spivak 1999: 331-332). In Roman archaeology this

has fixated particularly on the attempt to deconstruct the paradigm of Romanisation (based on the binary opposition of Roman and native). One of Mattingly's stated aims is to break down this binary opposition and to discard this "intellectually lazy" concept of Romanisation, which in his view clearly resulted from a tendency to view British, French and Roman imperialist ventures through rose-tinted spectacles (Mattingly 2006b: 3-20; 2011b: 75-93). Mattingly argues that the Romanisation model of the 1990s was simply the flip side of its early 20th-century counterpart: both focused "almost exclusively on the elite group in society, but in the former the indigenous elites were the active agents, in the latter they were passive recipients" (Mattingly 2006b: 15).

However, despite Mattingly's repeated assertions that "individual and group identities in the Roman period were multifaceted and dynamic" (Mattingly 2006b: 213), there have been repeated attempts to replace this outmoded paradigm with another equally dubious model that preserves the essentialist categories of "Roman" and "native" and the binary opposition between them. Greene, for example, still seems to want to continue to describe a process of acculturation between two polarities in putting forward the suggestion of substituting "crystallization" (2008: 67) in place of Romanisation. Webster (2001), whilst seemingly wholeheartedly applauding the critique of Romanisation, has strangely championed "creolisation"; a term that, despite its obvious postcolonial affiliations, does nothing to deconstruct the underlying hegemonic structure of the discourse. Either one has to conclude that the lure of this semantic structure is too great to break away from, or that there is little real desire to truly dispense with it.

As a result, Mattingly's work remains an isolated example of trying to think through the lived experience of Roman domination in a different and more nuanced way. In his work we find the acknowledgment that there would have been "discrepant experience" of empire (Mattingly 2011b: 213-218). The problem for Romanists, as Mattingly points out, is that often the remaining evidence often privileges the more positive narrative penned by those in power and it is not always the easiest task to use archaeology to re-balance the picture (Mattingly 2011b: 29).

Faulkner accepts that the concepts "discrepant experience" and "discrepant identity" are a "welcome riposte to the naïve and sanitised versions of the past implicit

in most accounts of ‘Romanisation’”, but he is critical that, in shifting focus to the plurality of individual identity and experience, the concrete reality of the power structure of Roman imperialism is neither characterised nor explained (Faulkner 2008: 67-69). For him, therefore, Mattingly’s recent study of Roman Britain remains “hollow in the middle” (Faulkner 2008: 69).

One can understand Faulkner’s criticisms of this approach, particularly as the focus on the processes affecting the plurality of identity formation has often been used in a far more cynical way by those with quite the opposite political agenda to Mattingly.²³ Whether intentionally or not, the foregrounding of identity as an issue has contributed further to the sidelining of structural analyses that discuss the issues of class relations, exploitation and the different causes of inequality that have existed historically. Indeed, this is precisely Faulkner’s point (which echoes exactly the sentiment of Baudrillard contained in the above quoted passage). He argues that, in focusing too much on the agency of individuals, the current paradigm almost completely ignores the constraining and enabling influences of the societal structure.

However, Faulkner’s attempt to regenerate a self-consciously Marxist paradigm to combat the weakness he sees in Mattingly’s “postmodern” approach will quickly run in to problems of its own if it fails to confront the hugely insightful poststructural critique of Marx’s key concepts, expounded most fully by Baudrillard in his book *The Mirror of Production* (1975). The characterisation of social divisions and the operation of the structure of society have to be generated from a close examination of the specific historical relations under consideration. All of this Marx does say in many passages within his work, but he then frequently undermines the same point elsewhere by universalising certain contexts. The *1857 Introduction* (Marx 1993: 83-111), for example, is particularly contradictory on this issue (see, in particular, the discussion of Baudrillard on this issue 1975: 84-85). Faulkner’s main references in his 2008 article are to Marx himself (one quotation) and to Callinicos, who bases a critique of postmodernism on the work of Habermas, a self-professed defender of the

²³ See, for example, the use of similar language and rhetoric by Miller (1987: 215; 2010) put to very different political use. A good critique of the notion that everyone in the social sciences should be studying consumption and consumer behaviour, advocated recently in Roman archaeology by Greene (2008), and which appears to have been pursued by Holleran (forthcoming), and by Dossey (2010) for North Africa, is given by Graeber (2011).

Enlightenment (Callinicos 1989). Therefore, while I am in broad agreement with Faulkner's main points, I feel that any resurrection of Marxist epistemology would have to confront the profoundly troubling observation that, in many ways, Marx's conceptual framework simply mirrored that of the Enlightenment (Baudrillard 1975: 47-48).²⁴ We have to bring our approaches to these issues into the 21st century. An adapted form of Marxist analysis could well serve as inspiration for future work. Indeed, it would be a refreshing contrast to much current apathetic or actively neoliberal scholarship, but it would have to avoid the dogmatic assertion that historical materialism somehow constitutes a scientific method superior to all others, along with many other unsupportable claims made by Marxist authors of the 20th century.

1.8 CONCLUSION

If there has been a claimed concern from the 1970s onwards to “de-colonialise” the discipline of Roman archaeology, a far more pressing need, that grows ever more desperate with each passing year and passes almost completely without comment, is to “de-neoliberalise” it. Colonialism was but one stage of a modern imperialism which continues to operate to this day (Duménil and Lévy 2004). The sort of economic history practised using the jargon and methods of current neoliberal economic theory, is as implicated with the current world system of domination and exploitation as the models of the 19th and early 20th century were with the former colonial period, which we congratulate ourselves on rejecting. The fact that this has not been identified earlier, when it is plainly flaunted in much current scholarship, demonstrates adequately the scale of the problem.

As I hinted at above, “postcolonial” perspectives often seem to work within a value structure that assumes the basic efficacy of the current system, and sometimes

²⁴ Baudrillard argued that Marxism reduces “man to an economic abstraction” (1975: 57), concluding that, in “pretending to illuminate earlier societies in the light of the present structure of the capitalist economy, it fails to see that, abolishing their difference, it projects onto them the spectral light of political economy” (1975: 66). Thus, in universalising their main principles, both Marxism and political economy (neoliberalism included) become analytically useless in the face of real historical difference. To spell it out: the concept “relations of production” universalises the modern concept of “production”.

tend to focus solely on jettisoning outmoded conceptual relics of a colonial past. The idea that somehow imperialism has changed for the better and that we can acknowledge the mistakes of the past in the comfortable knowledge that “we don’t think like that now” is somewhat absurd given the above analysis. The task for current scholarship is to bring the critical bite of postcolonial deconstruction to bear on the full spectrum of our discipline. The logical corollary of the critique of past colonial and imperialist paradigms is the critique of their neocolonial and neoliberal descendants. What I hope I have shown in the above discussion is that postcolonial approaches and neocolonial/neoliberal approaches are fundamentally incompatible and should remain so. There are serious internal contradictions in works that proclaim to adopt a postcolonial perspective, but at the same time celebrate all the indications of inequality and exploitation in watered-down or sanitised terms: growth, *per capita* income, consumer demand, and so on. It is logically inconsistent to accept the postcolonial deconstruction of Romanisation in the cultural sphere, for example, whilst accepting a neoliberal and imperialist framework for the study of the economic sphere.

Today, advocates of neoliberal ideas occupy considerable positions of influence in education, particularly universities and “think tanks” (Callinicos 2006), they dominate the media, financial institutions and corporate board-rooms, as well as international institutions such as the International Monetary Fund (IMF), the World Bank and the World Trade Organisation (WTO). Although military intervention has continued to characterise American imperialism, in recent decades it is the employment of these latter institutions which has come to the fore as a tool for foreign intervention (Chomsky 1999; Duménil and Lévy 2004).

Ahluwalia describes how there is an obvious contradiction between the pro-democratisation rhetoric of the US Agency for International Development and the actual supposed solutions to Africa’s social and economic problems that are implemented by the institutions to which it gives its support. Structural adjustment programmes (SAPs), now co-ordinated under the strict regimen of the World Bank and the IMF, “require a repressive regime to be implemented and reflect imperial rather than citizens’ interests” (Ahluwalia 2001: 90-91). These international institutions do not therefore promote democracy, and the economic systems that they seek to

stimulate are not constituted mainly by consumer agency, but by state-supported, profit-seeking big business.

What are the limits of this new hegemonic discourse? Somewhat ironically a recent study of the subject, in print before the summer of 2008, argued that the “greatest immediate threat to neoliberalism in advanced capitalism is a serious financial crisis” (Howard and King 2008: 243). Unfortunately, however, no reconfiguration of policy similar to that which followed the Great Depression seems likely to be triggered by the current crisis. In fact, precisely the opposite, calls for a return to economic growth are almost unanimous, while neoliberal opportunists seize the occasion of an economic downturn to push through cuts to public spending and to reduce the size and influence of the state. Whether or not the continuing problems within the Eurozone may generate any ideological alternatives, which are both workable and sustainable, remains to be seen. In the current political climate, neoclassical ideas in economics and “cliometric” or “New institutional” approaches to economic history are here to stay, but that does not mean we should adopt their same motivations, the questions they ask and the methodological approaches they advocate. This sort of extreme myopia that can only comprehend the past and the future in its own terms has no appropriate place as a historical methodology.

A great many challenges therefore face this rather humble attempt to understand the economic and social changes which took place in Roman Africa from the fall of Carthage to the Vandal conquest. There is a desperate need for future work to preserve the sensitivity to qualitative differences between the ancient economy and that of our own times, found in the approaches of Finley and the Cambridge School. At the same time, archaeological research over the last few decades has made it clear that a greater level of trade needs to be allowed for, as well as a more significant level of change through time. A new dynamic element in the narratives we construct must be found, but in the process of attempting to provide that element one must also be careful not to lapse into the use of the *a priori* postulates of the current neoliberal paradigm regarding the benefits of economic growth. In order to understand how the African, and perhaps by extension the imperial, economy changed through time, all the different forms of evidence, literary, epigraphic and archaeological must be examined. Politically in vogue statements regarding the agency and identity of

different social groups must not be allowed to detract from an examination of the structural factors influencing historical change. At the same time, one must attempt to avoid the use of universalised or transhistorical concepts and categories (a particularly difficult task, as this habit is not always a conscious one). The appropriate analytical concepts must be allowed to develop from analysis of the particular subject matter in hand.

In beginning to search for an adequate explanation for African economic development during the Roman period in the next chapter, I am conscious that the “how” and the “who” questions regarding economic growth must be in the foreground. What was the nature of power relations between different social groups, and was it this that drove Africa down its particular path to increased production? Who were the main beneficiaries of the system and how severely were others exploited in order for these gains to be enjoyed?

2 ROMAN COLONIALISM: THE ACCUMULATION OF LAND AND THE FORMATION OF GREAT ESTATES

With the theoretical caveats of the last section in mind, the aim of this chapter is to examine the factors which allowed Africa to maintain such a high level of exported agricultural products during the High Empire, whilst seeming also to prosper and to grow demographically throughout this period. The first section of this chapter therefore examines the extent of colonisation, centuriation and appropriation of land by Rome in the core area of the province during the hundred-year period following 146 BC. These are fundamental for understanding changes to the organisation of production. A minimalist interpretation of this period has recently been offered by Quinn (2003). However, a revisionist school, that argues against the traditional “manpower crisis” of the “Beloch-Brunt model” (explained below), envisages a greater population in late Republican Italy. With the strong questioning of the “manpower crisis” of the 2nd century BC, one of the pillars of the minimalist argument, particularly with regard to Italian emigration during this period, is severely shaken. Here, I argue that it is difficult to understand the subsequent developments in Roman North Africa without accepting a greater degree of imperial activity within the new province during this early period. A higher level of Italian emigration would add further support in this direction.

Central to the argument of the first part of this chapter is a re-examination of the nature of the Gracchan colony and the circumstances that led to its founding, as well as those that conditioned the subsequent implementation of the agrarian laws that followed the repeal of the *Lex Rubria* (such as the *Lex agraria* of 111 BC, for example). A fundamental point of disagreement is the date of the centuriation schemes visible from aerial photography, and the resulting conclusion of whether or not they relate to the Gracchan colony of the late 2nd century BC. If, as I argue, they do date to this period, and relate to the appropriation of land in the decades following the foundation of the Gracchan colony, then this has a huge impact on our understanding of the processes which the former Carthaginian territory underwent during this period.

The second part of the chapter looks briefly at the historical processes that may have shaped the character the other regions of Africa that came under Roman domination later, and in a somewhat different fashion. Many of these also became important producers and exporters of agricultural produce. In particular, there appears to have been a contrast between the violent incorporation of the regions of central Tunisia and a much less catastrophic transition for those of the Libyan Gebel in the hinterlands of Sabratha, Oea, and Lepcis Magna, both of which are characterised by the really large-scale production of olive oil and perhaps also wine from the 2nd century AD onwards. The following chapter will examine whether or not important qualitative differences resulting from their divergent historical development can be identified.

2.1 THE FATE OF CARTHAGINIAN TERRITORY (146-46 BC): *AFRICA VETUS*

In 124 BC, a little over two decades after the destruction of the city of Carthage, Gaius Sempronius Gracchus was elected as *tribunus plebis*. Upon his election he immediately started an ambitious programme of reform enacted through a series of tribunician laws (Appian *BC* 1.3). One of these laws, passed by Rubrius (another tribune of the *plebs*), proposed the founding of a new colony within former Carthaginian territory. As is well known, after Gracchus's violent death a few years later, the Rubrian law was repealed, and the colony, which had been named Iunonia, therefore ceased to legally exist. The holdings that were assigned to poor Roman citizens under the *Lex Sempronia agraria* of 133 BC, enacted by Gaius's older brother Tiberius, had been made inalienable by sale. This was to prevent the rich from simply buying up the allotted land once again and is usually interpreted as being intended to create a class of well-off, but not overly wealthy, farmers. It has quite reasonably been suggested that, since similar concerns motivated Gaius's legislation, it is likely that the colonists of Iunonia received their allotments under the same restriction (de Ligt 2003: 91). Unfortunately, according to Appian, the interests of the rich and politically powerful eventually prevailed. He tells us that not long after Gracchus's death "a law was passed permitting holders to sell the land" (*BC* 1.4.27). Appian tells us that land

allotments in Africa had been prepared for six thousand settlers recruited “from all over Italy”, and that this was more than had been laid down in the law (BC 1.3.24). What then became of these colonists, the indigenous population of the former territory and the organisation of the conquered lands after the repeal of the *Lex Rubria*?

In a recent article focusing on the hundred year period that followed the destruction of Carthage, Quinn has argued that the Roman conquest appears to have had very little impact on Africa. She dismisses the Gracchan colony as a “failure” (Quinn 2003: 30), and goes on to state that whilst “immigration still surfaces as an explanation for cultural change,” there were “few Romans in republican Africa.” Her argument in any case is that very little cultural change occurred during this period. This position is based on several forms of evidence, or rather the lack of these categories of evidence: lack of Latin epigraphy, lack of minting of Roman coins, of Roman forms of architecture, and so on and so forth.²⁵ All this is more or less reasonable, but additionally she argues against the received opinion – ever since the work of Caillemer and Chevalier (Caillemer and Chevalier 1957, 1959; Chevalier 1958) - that much of the centuriation known from modern aerial photographs of Tunisia dates to the 2nd century BC. She asserts, rather oddly in my opinion, that the bulk of it “could easily be Augustan” (Quinn 2003: 30), concluding that, for the period before 46 BC, “it is a fundamental misrepresentation to define the region in terms of Rome at all” (2003: 8 n. 6, 9 n. 13, 32).

In what follows I will attempt to undertake a more in depth investigation of the evidence in order to construct a rather different picture of this early period. The subsequent fate of the colonial plots, for example, is illuminated by the fragmentary remains of the epigraphic *Lex agraria* of 111 BC. Recent reinterpretations of this law present a much clearer picture of what became of these colonial allotments (Crawford 1996; de Ligt 2001, 2003, 2007a, b, 2008; Lintott 1992), which, as we shall see, formed a very substantial proportion of the land available from Carthage’s former territory. Recent discussion on the subject of population pressure at this period also contributes

²⁵ The languages of epigraphy in Africa at this time remain predominantly Punic and Libyan. As Quinn points out, there are only five Latin inscriptions from Africa that date to before 46 BC, all of which come from a confined area between Cap Bon and Utica (Quinn 2003; Zucca 1996).

to the narrative, but the key element in my argument is work that has established the strong probability that the majority of the centuriation dates to the late 2nd century BC (Ouni and Peyras 2002). In my opinion it is a fundamental misrepresentation of the evidence to disassociate the large centuriation schemes known from aerial photography from the historical processes of this period. It is my belief that a strong connection can be made between events described in the narrative accounts of Appian and Plutarch regarding the founding of Iunonia, the apparent situation in Africa in 111 BC glimpsed at in the epigraphic *Lex agraria*, and the evidence for large-scale land reorganisation and centuriation visible from aerial photographs of modern day Tunisia.

2.1.1 CENTURIATION

The territory of Carthage that fell into Roman hands in 146 BC covered an area of around 25,000 km², which today corresponds to an area of north-east Tunisia (Figure 2.1). Three main alignments of centuriation have been identified from aerial photographs in this region. A northern group, by far the largest, covers an area of approximately 12,500 km², stretching from Cap Bon to TebourSouk east to west, and from Bizerte to Enfida north to south. A smaller centre-east group, which can be seen to cut the earlier northern group, occupies an area of about 2,500 km² in a region just east of El-Djem. Immediately south of this, another even less extensive south-eastern group is located, covering less than 1000 km², which happens to be aligned to the winter solstice sunrise (Caillemer and Chevalier 1957: 275). This total centuriated area of 16,000 km² is far in excess of what is known of centuriation schemes in other provinces of the empire, which underlines the fact that the expropriation of Carthaginian land was a uniquely severe act in Rome's imperial history. Although there is no proven date for any of these groups, there is a certain amount of supporting evidence which has been used to develop hypotheses about their chronology.

To begin with, a series of marker stones relating to a huge scheme of *limitatio* found in the region of the Chott el Fejej are known to date to the reign of Tiberius (AD 29-30), and, as Troussset has remarked, it would be surprising if the centuriation

systems in the heart of Carthaginian territory did not pre-date the demarcation of this more remote area, which in any case came into Roman hands much later (Trousset 1977: 176; 1978, 1997). More importantly though, the visible extent of the three main alignments of centuriation fits extremely well with the geographical limits of the province during the Gracchan period, the western extent of which, according to Pliny the Elder (*NH* 5.25), was marked by a ditch. Constructed at the order of Scipio Africanus and the Numidian kings, this boundary originally separated Roman territory from the Numidian kingdom, but after Caesar's annexation of Juba's kingdom following the battle of Thapsus in 46 BC it came to mark the division between Africa Vetus and Africa Nova.

No archaeological trace of the ditch has yet been identified, but a series of nine boundary stones found in northern Tunisia, which were used to re-mark the line of the ditch during the reign of Vespasian, provide some indication of its inland route. Some of the nine inscriptions state the former name of the boundary as the "*Fossa Regia*" (Royal Ditch).²⁶ That the southern portion did not intrude quite as far inland as the northern section is indicated by the fact that, in 46 BC, Considius had to cross Numidian territory when marching around the western shore of the sebkhet Sidi-el-Hani (Caesar *Bell. Afr.* 43). The observable centuriation seems to correspond well with this picture, as it does not extend west beyond these known limits. In fact, it fits so well that Haywood was probably right to hypothesize that the original boundary was not as far west as the mouth of the river Tusca, at Thrabraca (Haywood 1938: 3), which Pliny stated was the point at which Numidia began (*NH* 5.25). It seems far more likely that the initial boundary was located further east, the original course of the *Fossa Regia* continuing roughly due north from the location of the Vespasianic boundary markers. This has two added advantages: firstly, the proposed course would then tie in better with the observable remains of the northern centuriation group; secondly, the imperial estates of the Bagradas Valley would then all fall outside of the original province. That these lands originated as private property, while most of the original province was stipendiary, vectigal and decuman, naturally played a central role

²⁶ For example: *fines provinciae Novae et Veteris directi qua Fossa Regia fuit* (CIL 8, 25967 = ILS 5955). For an up to date bibliography and discussion of the possible route of the *Fossa Regia* see the entry in the *Encyclopédie Berbère* (Ferchiou 1998: 2897-2911). For an English discussion see Frank (1926, 58-66).

in their later confiscation, and would also perhaps explain Vespasian's concern to mark out this boundary once again whilst consolidating the newly acquired imperial estates in this zone.²⁷ We can, however, accept Pliny's more definite assertion that the southern terminus was at Thenae.

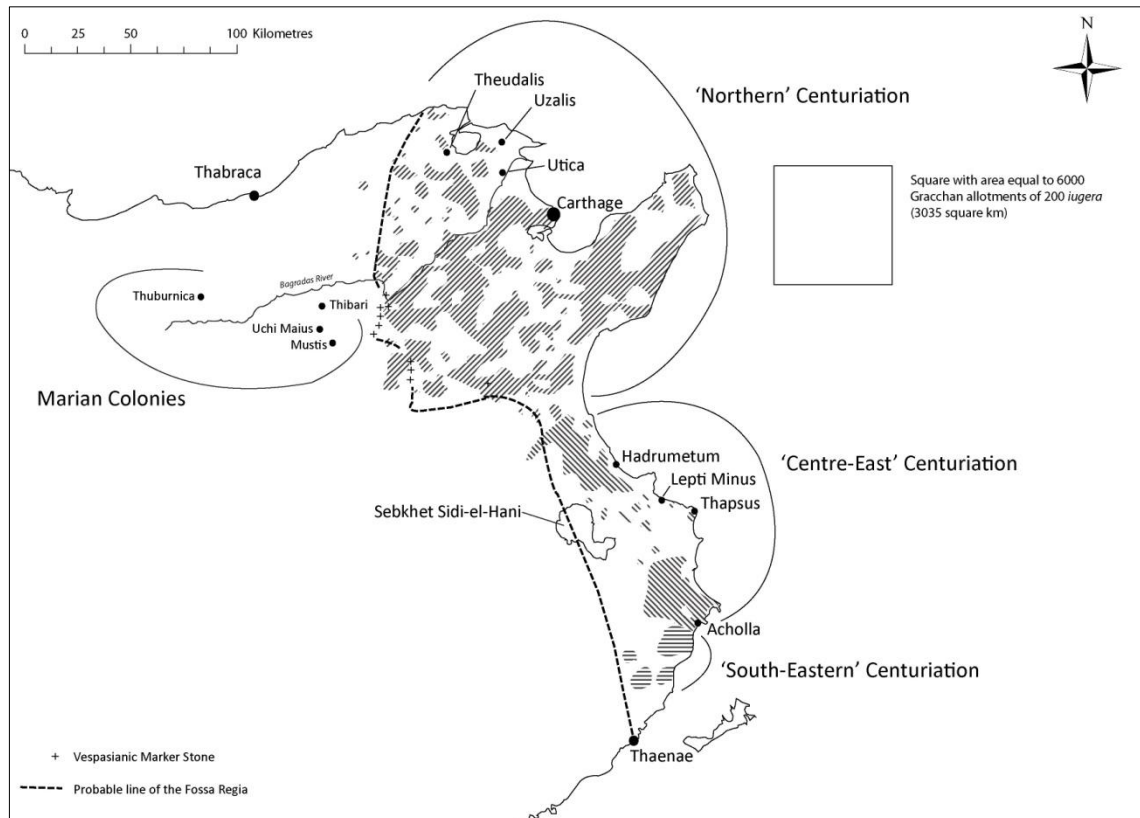


Figure 2.1 The main regions of centuriation identified from aerial photography, the location of the seven free communities mentioned in the *Lex agraria* of 111 BC, and the four possible Marian foundations that lie west of the *Fossa Regia*.

To summarise, the fact that the western limit of the centuriation matches the original line of the *Fossa Regia*, where its course is proven, and that very little centuriation extends further west than its probable course,²⁸ indicates quite strongly

²⁷ See Frank's similar comments on this issue (1926b, 58 n. 10).

²⁸ The fact that some of the Vespasianic boundary stones appear to be situated slightly within the centuriated area does not detract from the general validity of these observations. In broad terms there is a very good match between these landscape features. Even if some patches of possible centuriation exist west of the probable route of the *Fossa Regia*, they may not be definite identifications. Equally, Rome's imperial ambitions may have led to some overstepping of the boundary. The fact that *subseciva* existed on the imperial estates west of the *Fossa Regia* implies that some territory had undergone at least some initial survey.

that the bulk of the centuriation was carried out before the creation of Africa Nova by Caesar in 46 BC. Furthermore, that some centuriation was already in existence by 111 BC is proven by the text of the *Lex agraria*, which mentions centuriation twice: first at line 66, “*ager locus in ea centuria*”, and then at line 90, “*limitesque inter centurias*” (Chevalier 1958: 66 n. 3).

Within the observable centuriation, however, there is an observable chronological development. The centre-east group, for example, can be seen to cut the northern set, and this has led to a certain number of attempts in the scholarship to try to link this scheme with a later historical period. Troussel, for instance, preferred an Augustan date for the centre-east group, although he admitted that it could also easily be anterior to the law of 111 BC (Troussel 1977: 189-190). Caillemer and Chevalier argued that the large northern scheme should be dated to the decades immediately following the destruction of Carthage, but that the central-eastern group should be dated to the period following Caesar’s victory over Pompey’s forces at the battle of Thapsus, since it seemed to them improbable that the territories of the free cities, mentioned in line 79 of the *Lex agraria*, would have been centuriated before this time (Caillemer and Chevalier 1957: 275; Chevalier 1958: 66-67).²⁹ However, the centre-east and south-eastern areas of centuriation have recently been re-analysed by Peyras and Ouni (2002). They note that in the immediate vicinity of Thapsus and Lepti Minus there may be as many as five different independent cadastres alongside the centuriation and based on the Punic cubit (as opposed to the Roman system of measurement observed for the bulk of the centre-east group by Saumagne). Similarly, in the region of Acholla, within the south-eastern area of centuriation three separate systems of cadastration can in fact be observed, one of which is made up of parallelograms. These different methods of cadastration within the immediate vicinity of these “free cities”, are taken by the authors to indicate that initially these cities did indeed retain autonomy over the organisation of their territories in the period

²⁹ What is presumably a full list of seven deserting, and consequently free, communities are listed under the aforementioned exclusions from the *Lex agraria* of 111 BC (line 79). The peoples listed are identified as the inhabitants of Theudalis, Utica, (the capital of the new province), Hadrumetum (Sousse), Thapsus (Ras Dimass), Acholla (Hir Botria), Lepti minus (Lamta) and Uzal. See Lintott (1992), Crawford (1996) and Hugoniot and Briand-Ponsart (2005).

immediately following 146 BC. This removes the main arguments for dating the centre-east and south-eastern centuriation systems later than the late 2nd century BC:

“Il y a lieu pour cette raison de remettre en cause l’hypothèse d’une opération qui se serait déroulée dans le cadre de la mise en place du cens provincial sous Auguste. Il est plus probable que, tout comme ce fut le cas dans le Nord, le Centre-Est ait été centurié dans la seconde moitié du II^e siècle avant notre ère.”

(Ouni and Peyras 2002)

The full extent of the 16,000 km² observable centuriation probably in fact does date to the end of the 2nd century BC.

As early as 1929 Saumagne had noted that the plots of 2400 square feet visible on some of the photographs from the area east of El Jem corresponded to centuries of 200 *iugera* mentioned at line 60 of the *Lex agraria* of 111 BC, and usually associated with the *Lex Rubria*, the law responsible for setting up the Gracchan allotments (Saumagne 1929: 308-309). Figure 2.1 shows a square with an area equal to 6000 allotments of 200 *iugera* next to the known regions of centuriated land. What strikes one immediately is the huge size of lunonian territory, especially as the dimensions of this crude illustration would no doubt have to be increased to take account of unusable land: the wooded, marshy, mountainous or barren areas that would have been designated as *subseciva*.³⁰ When the evidence is presented in this way, it becomes far easier to see how these large areas of centuriation are very likely to be related to the Gracchan allotment. This possibility was previously suggested, although also almost immediately dismissed, by Wightman, because she felt that the area represented by the northern centuriation was too large (Wightman 1980). On the contrary, the northern centuriation is very likely to have been that associated with the Gracchan colony, its primary aim being not the refounding of an urban centre, but the effective exploitation of the best agricultural land. As Broughton noted, the colonists allotted 200 *iugera* (125 acres) would almost certainly have begun as landlords, as a single colonist could hardly have cultivated more than 15 acres for himself (Broughton 1929: 24). This clearly indicates to me that the indigenous population that still

³⁰ *Subseciva* was either land at the edges of a *centuria* that could not be completed, or land within completed *centuriae* that for some reason or other had not been allocated. This type of land took its name from the term used for the line that marked off this unallocated land (Front. *De agrorum qualitate* C 3.31-39).

remained would have been intended to provide agricultural labour, either as tenants or as slaves. Indeed, the spoken language of Africa remained Punic well into the 5th century, and not just in the rural countryside (Shaw 2011: 426-432, with extensive references; Wilson forthcoming).

Ultimately, as with all features identified by aerial photography, an undisputed date cannot at this time be settled upon, but the weight of current evidence would suggest that the vast majority of the centuriation belongs to the 2nd century BC. The fact that the free communities, mentioned in the *Lex agraria* of 111 BC, do in fact seem to have had their immediate territory excluded from the large centuriation scheme to the east of El Jem would logically suggest that this scheme belongs to this period and may well have been some of the land that was still being sold off by the state in 111 BC (see below). It seems possible that the northern centuriation could correspond to Carthage's immediate territory, whereas the centre-east and south-eastern groups may indicate territory that once belonged to the coastal emporia, despite the settlement following the Third Punic War leaving the "free cities" with some coastal territory (Mattingly, personal comment). As we shall see, there is little doubt that large tracts of land quickly came to be used for both state and private exploitation, centuriation going hand in hand with this process from the beginning.³¹ It must be emphasised that this was a truly massive and unprecedented addition to Rome's assets in terms of newly available land. One crucially valuable piece of evidence provides a glimpse of how this new territory became absorbed and exploited.

2.1.2 THE *LEX AGRARIA* OF 111 BC

Inscribed on one side of a fragmentary bronze tablet found near Urbino in the late-15th century, the *Lex agraria* of 111 BC is usually identified as one of the post-Gracchan reforms mentioned by Appian in Book one of his *Civil Wars*. The law was

³¹ While it is not possible to totally discount the possibility, suggested by Quinn (2003), that the bulk of the centuriation could be Augustan, her argument must be seen in the context of an article attempting to argue for a lack of Roman cultural impact prior to 46 BC in general. In this case, I feel the worthy motive of wanting to quash an old worn-out paradigm such as Romanisation perhaps interferes with the most logical interpretation of the evidence.

divided into three sections, on Italy, Africa and Greece, and contained clauses relating to the allocation, sale and taxation of land in those regions. The full implications of the law are still being debated, but there is little doubt that it is one of the most important documents in the legal and agrarian history of the Roman Republic (Roselaar 2010: 271). Some of the particular difficulties in interpreting the lacunose sections of the law resulted from disagreement over the original size of the tablet. Controversy continued for some time between Harold Mattingly (1971), who argued for a smaller size, with fewer characters being required to fill the lacunae, and Andrew Lintott, who argued for a larger tablet size. Progress in this debate was made when one of the joins between surviving fragments suggested by Mattingly was proven to be correct by Michael Crawford, who inspected the fragments during preparation for a re-edition of the law (Crawford 1996). The estimated size of the lacunae between fragments A and B, which contain a substantial part of the first 62 lines of the law, has now been reduced from a maximum of 140 characters to approximately 54. This information was not available in time to affect Lintott's earlier publication (Lintott 1992: 287), and as a result, many of his suggestions for some of the lacunose sections are now unsustainable. Crawford's version of the African section of the law, which retains several of Lintott's interpretations of clauses situated below line 62, has been criticised in a series of articles by de Ligt (2001, 2003, 2007a, b, 2008). While many points of contention still remain, all this has contributed to a better understanding of the general context and purpose of this legislation.

As stated above, the law provides information on what became of the lunonian colonial plots following the repeal of the *Lex Rubria*. It also appears to confirm Appian's general outline of events given in Book one (Crawford 1996: 55-57). In a very brief discussion of the *Lex agraria*, Quinn has asserted that the impression given by the various clauses of the African section is that "there had been very little organisation or exploitation of African land until this point" (2004: 1601). This is not my reading of the evidence. We know, for example, that some land had been sold before 111 BC (lines 46, 48, 80), and that some of it had been offered for lease. The first censorial lease for which we have any evidence dates to 115 BC (lines 85-89), but there may have been other lease agreements before this time (Haywood 1938: 6). Admittedly, the numerous clauses contained in the African section of the law appear to demonstrate a

certain amount of administrative chaos, but in my opinion this largely resulted from the fact that control of land in Africa was at the centre of a highly divisive political struggle back in Rome. If the repeal of the *Lex Rubria* caused a certain amount of administrative disorder, then this was merely a reflection of the increasingly violent and chaotic political drama that was being played out. If we follow Appian's account of events, then we have to accept that tensions over the availability of land were extremely high in Italy in the period immediately following the fall of Carthage (Morley 2001). Indeed, the whole narrative of the settling of the colony of Iunonia in 122 BC is set within the context of the civil strife surrounding the agrarian laws of the Gracchi.

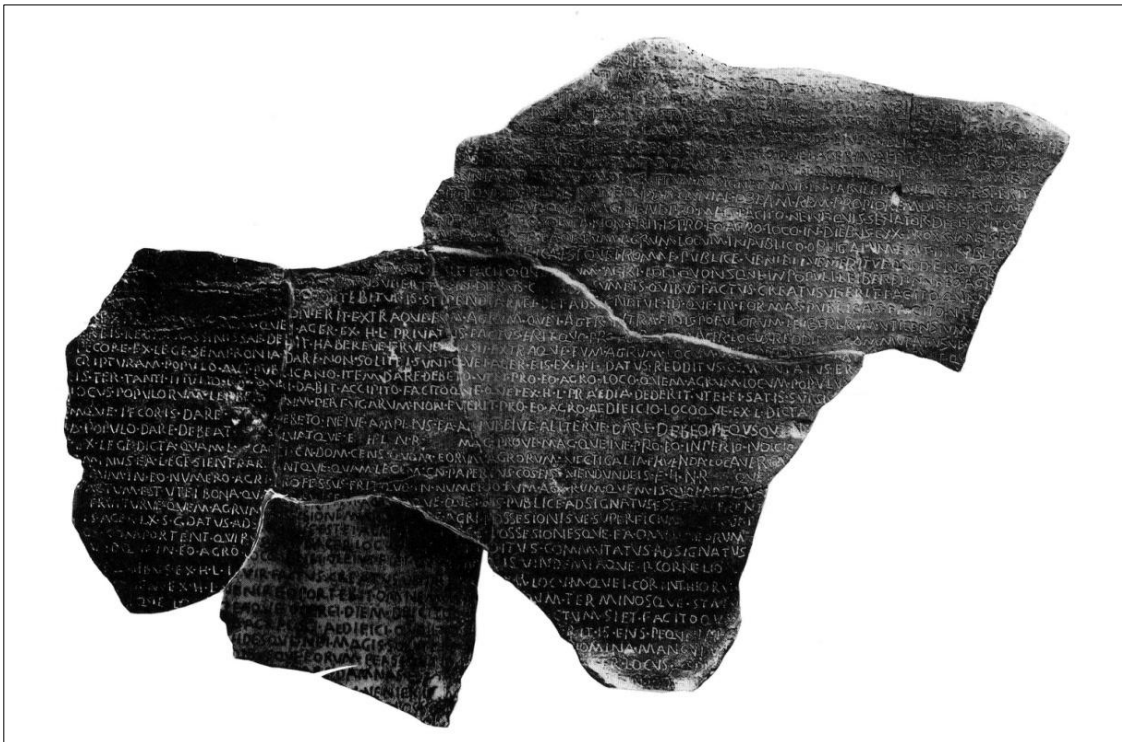


Figure 2.2 Fragments of the *Lex agraria* (after Lintott 1992).

The exact nature of the agrarian law passed by Tiberius Sempronius Gracchus as tribune of the plebs in 133 BC is a matter of some controversy, but it seems likely that it recalled an old law, probably by the *Lex Licinia* of the second quarter of the 4th century BC, which had fallen out of observation (Appian *BC* 1.1.8, 1.1.9; Plutarch *TG* 8.2, 9.2). A 500 *iugera* limit had evidently once been set on the ownership of land, a

measure that was designed to limit the accumulation of land by the rich.³² The *Lex Sempronia agraria*, Tiberius's law, seems to have brought this regulation back into force, at least in the case of public land (Rich 2008). A commission was set up to confiscate land from those found to be in possession of more than the official limit, and to redistribute it to the poorer citizens.³³

As seen in Figure 2.1, the Gracchan colony constituted a very significant percentage of the newly acquired territory. The legal status of the colony, and more crucially the inalienability of the colonists' land, meant that the *Lex Rubria* seriously frustrated the aspirations of rich investors back in Rome, who wanted to take possession of large estates. The repeal of the *Lex Rubria*, however, seems to have resulted in a legal grey area. Although Appian states that a further law had to be passed before the colonists were allowed to sell their plots, the *Lex agraria* clearly demonstrates that many sales had already taken place by the time it was passed; within its various clauses, buyers of this land appear to have had a weaker claim than original colonists, or those who had bought land directly from the state (de Ligt 2003: 157). Indeed, it seems that many such buyers would have lost possession of these former colonial plots, but would have been compensated with an equal amount of unsold public land. It seems likely that the original colonial allotments, the lands given in compensation and those sold off later by the state, were subject to a vectigal (de Ligt 2007b: 98).

Rather than indicating a lack of activity or planned intervention, the *Lex agraria* appears to be an attempt to put in order the busy and fast-moving pace at which African land was being divided into different categories of ownership. Whatever conclusions we draw about the failure of the Gracchan colony, the *Lex agraria* confirms that many colonists had taken up their land, and that others had sold up their

³² See the extensive coverage of the historiography relating to the interpretation of this law by Rich (2008).

³³ A number of boundary markers (*termini*) provide direct evidence for this operation in Italy. Twelve markers provide the most tangible evidence as they are inscribed with the *praenomen*, *nomen* and affiliation of the Gracchan commissioners along with their title, although it should be noted that they only really demonstrate where the commissioners undertook survey, rather than confirming where actual confiscations and distributions took place. The frequent turnover of commissioners in the first years of the reform has allowed the inscribed stones to be dated fairly accurately (Gargola 1995, 158), and they also fit the general description of the Gracchan markers as they are described in the *Liber Coloniarum*, which also lists the regions of Italy where confiscations presumably took place (Campbell 2000, 191).

plots in the intervening period (illegally, if the *Lex agraria* is to be identified with this law mentioned by Appian).

The impression the *Lex agraria* gives is certainly not that interest in acquiring land in Africa had dwindled. Rather, after the repeal of the *Lex Rubria*, certain colonists preferred the option of selling up their plots, presumably which became possible because the law restricting such transactions had been cancelled. A decade later, there were still accounts relating to allotments to be settled, and presumably that there was still an active interest, on the part of Romans and Italians, in acquiring land in the new province. The distinction really seems to have been between whether or not poor colonists were going to own their individual plots, or, whether they would be tempted to raise capital by selling up to rich *equites* and senators who, by exerting political pressure had been able to change the law in order for them to accumulate large estates in the new territory. We should not therefore conclude that few colonists arrived, or that nothing was done to exploit or profit from land in Africa. Rather, the nature of the allotments changed whilst the process of colonisation was still underway. Having raised capital by selling their plots, many colonists may have remained as tenant farmers to large absentee landowners. Gaius Gracchus's programme of agrarian reform and the founding of *Iunonia* were no doubt conceived in the same vein as Tiberius's law, but the death of Gaius marked the tragic end of this attempt to stem the greed of the rich and their monopolisation of the land. As Rostovtzeff put it, "the foundation of the future *latifundia* was laid" (Rostovtzeff 1926: 279).

2.1.3 GROWING FAT OFF THE LAND

The subject of the development of landowning in Africa from the late Republic to the early Imperial period has been tackled at some length by Kolendo (1985, 1991), and before him it was covered by Rostovtzeff (1926), Broughton (1929), Haywood (1938) and others in some detail. The references to Republican landowning in Africa in the literary sources are few, but they are clear enough to demonstrate that Africa was not by any means as untouched in the first hundred years after the conquest as Quinn

would have us believe. Admittedly most of the literary evidence comes from around the middle of the 1st century BC, but reference to large landowners by this time is likely to be indicative of a process of land appropriation already well underway several generations earlier.

The best literary example of a rich Italian family with estates in Africa during the Republican period is that of the Caelii. In Cicero's defence of the senator M. Caelius Rufus we learn that his father, a man of equestrian rank, both owned lands and conducted business in Africa (*Pro Caelio* 73). Another example is the equestrian, Julius Calidus, who we hear of being added to the list of those proscribed by Publius Volumnius in 43 BC on account of his vast landholdings in Africa (Nepos, *Atticus* 12.4). Additionally, in three separate letters to the governor of Africa in the 40s BC, Cicero asks him on several separate occasions to aid friends of his who are travelling to Africa to conduct their private affairs: firstly, a senator, Gaius Anicius, and on two other occasions, knights, Sextus Afidius and L. Aelius Lamia (Cic. *Ad fam.* XII 21, 27 & 29). All of these high class men could well have been absentee landowners visiting Africa to put their estates in order (see Kolendo 1985). Indeed, it has been suggested that the *saltus Lamianus* referred to in the Aïn-el-Djemala and Aïn Ouassel inscriptions probably belonged to L. Aelius Lamia, the consul of AD 3 and grandson of Cicero's friend mentioned in his letter (Campbell 2000: 350).

By the middle of the 1st century AD it seems vast wealth had become synonymous with the possession of large landholdings in Africa. In Petronius's *Satiricon*, for example, the fictional but fabulously rich Trimalchio stated that he would like to buy lands in Sicily, so that he could travel between Italy and Africa without ever having to leave his own estates (48). His guest, Eumolpus, at one stage poses as a rich African whose slaves were supposedly so numerous that they alone could have sacked Carthage (117). Although fictional, these characters were presumably believable to a Roman audience, and indicate that by this time extremely wealthy figures, who owed their fortunes in large part to their landholdings in Africa, were probably a common feature of the era. Another source of interest from this period is Seneca, who, in his moral letters to Lucilius, refers to the colossal size which some estates have reached: "what you now have as a farm was once called a kingdom" (*Ep.* 89). In a later letter he specifically refers to thousands of farm workers in Sicily and Africa working for just a

single man (*Ep.* 114). The huge size that some estates had reached in Africa by this period seems to be confirmed in two further texts, one by Pliny the Elder and the other by the Roman agrimensor Agennius Urbicus. In his *De controversiis agrorum*, which is probably based on a late 1st-century AD work on the same subject by Sex. Iulius Frontinus, Agennius states that:

“It is not easy for disputes between communities and private individuals to arise in Italy. But they often occur in the provinces, especially in Africa, where private individuals have estates no less extensive than the territory belonging to communities. Indeed many estates are far bigger than territories. Moreover, private individuals have on their estates a not insubstantial population from the lower orders, and villages scattered around their country house (villa) rather like municipia.”

(Agen. Urb. In Campbell 2000, 42-43)

The frequently cited passage in Pliny’s *Natural History* is worth quoting in full:

“The ancients were of the opinion, that before everything, moderation should be observed in the extent of a farm; for it was a favourite maxim of theirs, that we ought to sow the less, and plough the more: such too, I find, was the opinion entertained by Virgil, and indeed, if we must confess the truth, it is the wide-spread domains that have been the ruin of Italy, and soon will be that of the provinces as well. Six proprietors were in possession of one half of Africa, at the period when the Emperor Nero had them put to death.”

(Pliny NH XVIII, 35)

This statement of Pliny’s, although no doubt subject to a certain degree of rhetorical embellishment, and therefore of little use for drawing statistical numerical conclusions, displays adequately the increasing association in the Roman mind of very large estates with the province of Africa. Kolendo concludes that “the universality of this tradition permits the conclusion that the great estates played a determinant role in the agrarian structure of Africa” and also “that the degree of land concentration there must have been greater than in other provinces” (Kolendo 1991: 7). Of course, this process alone is not enough to account for Africa’s economic dominance in later centuries. Finley asserted, for example, that “Much of the increasing accumulation of land in single hands was a mere aggregation, leaving the units of exploitation, the individual farms, within the aggregate unaffected” (Finley 1980: 133). Other qualitative factors were therefore important, but it is necessary to note this process of large-scale land accumulation happened at an early stage in the core of the province.

It was Frank's contention that the development of the large domains, some of which became imperial estates under Nero and later emperors, had a long history of development going back to the earliest days of the conquest (1926), and indeed, why should we believe that this process of disposal of the land only began under Caesar or Augustus? It was Lintott's opinion that the *Lex agraria* was "positively encouraging land-purchases" and "showed a Roman commitment to settlement and investment in Africa" (Lintott 1992: 54-55). There is little doubt that the wealthy landowners attested in the literary sources of the 1st centuries BC and AD were descendants of those who bought up land after the destruction of Carthage, or at least had gained ownership of African lands after the event, say in the proscriptions of the 80s. The huge size of some of these possessions bore little resemblance to the Gracchi's perception of the "just" allocation of land.

2.1.4 DEMOGRAPHY AND COLONISATION

"Accounts of the last centuries of the Republic are far more intelligible when one is aware of the degree of competition for land, both from peasants seeking to support themselves and from wealthier landowners seeking to profit from the expanding urban market."

(Morley 2001: 60)

Having made these preliminary comments we can now turn to the more complex issue of the level of Italian emigration to Africa in the period between 146 and 46 BC. The debate has a long and distinguished history. In 1918, Heitland argued against the idea, popular at the time, that there had been a great agricultural emigration from Italy to Africa following the destruction of Carthage (Heitland 1918). Some years later, Frank responded by asserting that evidence from the *Res Gestae* of Augustus and from Vergil's first *Eclogue* implied that many Italian farmers had in fact been resettled in Africa to make way for allotments to Octavian's veterans in Italy (Frank 1926c). Furthermore, he cited the evidence of the Augustan list of African settlements used by Pliny and inscriptions proving the Augustan origin of several African towns (1926c).³⁴

³⁴ He was followed in this interpretation by Broughton (1929, 78). For a more up to date discussion of Caesarian and Augustan foundations see Whittaker (1996, 603 f.).

Frank also mentioned that several thousand Gracchan and Marian colonists had been settled during the 2nd century BC.

Frank's understanding of the demographics of the Roman Republic was somewhat complex. He argued that, in general, "neither men nor funds were forthcoming" to develop the enormous increase of land that accrued in Roman hands during the first half of the 2nd century BC (Frank 1921: 286), but that by the beginning of the 1st century BC :

"Many Romans, Latins, and allies had for a century been migrating to the Po Valley, Narbonese Gaul, Spain, Africa, Greece, and Asia; in fact, Mithridates found 80,000 Italians to murder in the Asiatic province alone. The fact that the citizen census between 170 and 130 and again between 125 and 115 was quite stationary at a time of peace when the birth-rate was still normal and when large numbers of slaves were being emancipated proves that emigration was exceedingly vigorous."

(Frank 1924: 333).

Half a century later, following in essence Beloch's interpretation of the census figures, Brunt went against this line of argument in his book *Italian Manpower* (1971a), in which he made low estimates for the scale of Italian emigration during the period up to AD 14 (1971a: 204-265). To do this, amongst other things, he discredited the figure of 80,000 Italian emigrants supposedly massacred by Mithradates in Asia in 88 BC, and, in contrast to Frank, he dismissed the evidence for Marian distributions of land to veterans at the very end of the 2nd century BC (1971a: 577-583). In contrast, in his huge onomastic and demographic study, Lassère insisted that a constant flow of thousands of colonists into Africa, coupled with a rising local population, created a booming territory of free peasant proprietors and urban bourgeoisie by the time of the High Empire (1977).³⁵

One key point of contention, which has not and does not look likely to be resolved, is the matter of whether or not the system of recording the census changed under Augustus. Frank (1924) had his own interpretation of the census statistics, which went against the interpretation of Beloch that has since been widely influential. Both Beloch, and later Brunt, believed the recording system had changed to include all free citizens of both sexes, resulting in the interpretation that, between the end of the

³⁵ Although Whittaker was quite critical of the lack of concrete evidence mustered to support these assertions (Whittaker 1980a).

3rd and the end of the 1st century BC, the population of Italy had declined from about 4,500,000 to about 4,000,000. The growth of urban areas, due at least in part to migration from the countryside, meant that the rural population had declined from over 4,000,000 to less than 3,000,000 (Hopkins 1978: 1-98; Morley 2001). The level of supposition reached by Hopkins in his narrative account of the demographic changes and their associated socio-economic impact led Badian to state that, "although it is eternally fascinating it has nothing to do with scholarship" (Badian 1982: 166).

Nonetheless, as Morley has argued in the article quoted from above (2001), a consensus developed that saw the main symptom of the "2nd-century crises" as serious depletion of the free peasantry. Such a model, he argued, was based upon what he called the "Beloch-Brunt" model of the demographic history of Italy for this period, and that this account of the decline of the free Italian population was "so widely accepted by historians that it may come as a surprise to realize how poorly it is founded in the evidence" (Morley 2001: 50). More recently, advocates of the high count have been increasing in number (Bandinelli 1999: 208; Lo Cascio 2008; Paterson 2001: 275-277). Others, while still accepting the low count interpretation of the census figures, have begun to challenge the orthodox interpretation on other grounds and argue for a degree of demographic growth (de Ligt 2004). Attempts to use archaeological survey data to decide between the high and low estimates (Fentress 2009; Witcher 2005, 2006, 2008) have remained unconvincing (Mattingly 2011a; Wilson 2008). Mattingly insists that survey data are best used to explore upward or downward trends rather than arrive at absolute figures (Mattingly 2009b, 2011a). Morley and Scheidel still sit cautiously upon the fence (Morley 2001; Scheidel 2008), while still others argue for a fundamentally different interpretation of the supposed manpower crisis and of the nature and intention of the Gracchan reforms (Rich 1983, 2007; Rosenstein 2004; Tweedie 2011). The old argument made by Tiblatti (1950: 239) that assignments of land allotments may have continued in the period 167-134 BC has recently been resurrected by Tweedie (2011). This argument sees a continual pressure during the late Republic to find lands for retiring veterans, and therefore rests upon a more positive assessment of Italy's demographic situation.

Clearly the issues of land assignation and migration to Africa are closely linked to the high-low population debate. Traditionally the period under Caesar and Augustus

has been seen as marking the real beginning of imperial interest in colonising Africa (Le Glay 1968: 202), but the above analysis regarding the scale and probable date of African centuriation suggests to me that this issue needs reconsideration. The dramatic and permanent reorganisation of this huge swathe of newly acquired land must indicate that the manpower was available to direct its operation, at the same time as emigration from Italy to other provinces was happening.

Additionally, one can easily adopt a more positive position regarding the evidence for Marian colonisation than Brunt (1971a:580). After all, there is both literary and epigraphic evidence attesting to the settlement of some of Marius's veterans in Africa at the end of the 2nd century BC. Aurelius Victor, a 4th-century writer, tells us that the tribune, L. Appuleius Saturninus, proposed a law to grant plots of 100 *iugera* to Marius's veterans (probably in 103 BC).³⁶ Unfortunately, two passages from Cicero's writings complicate the issue: in the *Pro Balbo* (48) Cicero states that the colonies had still not been established a considerable time after the law had been passed, and, in *De Legibus* (2.6), that the Appuleian law was later repealed altogether. However, the matter does not rest there, as yet further literary evidence seems to suggest that the settlement of a number of veterans did in fact occur. The author of *De Bello Africo* recounts that in 46 BC, before the battle of Thapsus, a number of Gaetulians deserted to Caesar's camp.³⁷ These men owed their Roman citizenship to Marius,³⁸ who had also previously granted them large estates in Africa.³⁹

The texts are not explicit about the possible location of these veteran colonies, but a number of inscriptions give a far more precise indication of their whereabouts. Firstly, Frank's (1937) suggested restoration of an inscription found in the Roman forum recording the elogium of Julius Caesar's father, which would indicate that he founded a colony on the island of Cercinna (modern Kerkenna) about the time of the Appuleian law, seems to have gained general approval - although the assertion is manifestly tenuous.⁴⁰ Secondly, a cluster of settlements positioned in what would have been Numidian territory claimed Marian descent when they later achieved

³⁶ *De vir. Illust.* 73.1.

³⁷ *Bell. Afr.* 32.

³⁸ *Bell. Afr.* 35.

³⁹ *Bell. Afr.* 56.

⁴⁰ *Inscr. Ital.* XIII.3 no. 7. This view is supported by Brunt (1971).

colonial or municipal status during the imperial period. An inscription probably of the early 2nd century AD found at Thuburnica (modern Sidi Ali Belkacem) records Marius, seven times consul, as founder of the colony (*conditor coloniae*).⁴¹ Also under the Principate, Uchi Maius (modern Henchir Douamis) was styled “*colonia Mariana*”,⁴² and Thibaris “*municipium Marianum*”.⁴³ Mustis (modern Henchir Mest) has also been argued to have been either a Marian or a Caesarian foundation due to epigraphic evidence indicating that the tribe Cornelia was local there,⁴⁴ and, although we have to bear in mind the questionable security of hypotheses based on onomastics, the fact that epigraphy has also shown that the gentile names Marius and Iulius were common in these communities adds some support to the case for Marian and Julian foundations.⁴⁵ Most authors advise a degree of caution, however, as these inscriptions were all erected centuries after the passing of the *Lex Appuleia*. Brunt, in particular, took the view that the later inscriptions had more to do with attempts to enhance the prestige of the settlements with claims to antiquity (1971a: 579), while Teutsch (1962), on the other hand, believed these to be authentic Marian foundations. Whittaker, although not wishing to speculate upon the numbers involved due to the thinness of the evidence, concluded that “some immigrants probably did arrive” (Whittaker 1996: 596).

Further evidence that Marian colonisation may have taken place is provided by the curious presence of a dual administration of a native *civitas* and a *pagus* of Roman citizens coexisting together at a number of the towns within this very same region. Frank originally argued that the only explanation for this phenomenon could be the previous viriata settlement of Roman citizens (1926b: 62-64), and it is hard to deny that Marian veterans settled under the *Lex Appuleia* offer the simplest explanation.⁴⁶ The discovery of an inscription at Thugga mentioning the *pertica Carthaginiensium*, clarifies the probability that these *pagi* were administrative divisions of the *territorium*

⁴¹ For the discovery of the inscription at Thuburnica see Quoniam (1950: 332-336), *AE* 1951, 81.

⁴² *CIL* 8, 15450, 15454 (= 26270 = *ILS* 1334), 15455, 26275, 26281. See now Khanoussi and Mastino (2000).

⁴³ *CIL* 8, 26181 = *ILS* 6790.

⁴⁴ Beschtaouch (1968), Lassère (1977, 125), Brunt (1971a, 604).

⁴⁵ For a discussion of the onomastic evidence from these settlements see Lassère (1977, 115-132).

⁴⁶ Frank appears to support the idea that as many as 6000 veterans may have settled in the area (his figure of 600,000 *iugera* for the region divided by 100 *iugera* per veteran).

of the colony of Carthage.⁴⁷ Further *pagi* are known from inside the old province of Vetus as well and their distribution has been used to roughly plot the extent of greater Carthage, which was probably created not long after Caesar's assassination in 44 BC. Two settlements, Saturnuca and Medeli, in the immediate vicinity of the *pagi* of *Fortunalis* and *Mercurialis*, not far from Uthina, both have inscriptions stating that they were veteran settlements (Whittaker 1996: 606).⁴⁸ It is difficult to resist the conclusion that most, if not all, of the *pagi* were villages of Gaetulian auxiliaries or other veterans, awarded land and perhaps citizenship by Marius and later by Iulius Caesar and subsequently incorporated with their families as citizens of the new colony of Carthage (Whittaker 1996: 608).

One might argue then, against Quinn, that although colonisation and immigration at first sight appear quite stunted and abortive processes before the imperial period, this is in fact because they were issues central to the power struggles and machinations of the late Republic. Although official and organised support often did not last long, as displayed by the later repeal of both the *Lex Rubria* and *Lex Appuleia*, they were at least significant contributing factors to the organisation and development of the new province. The epigraphic *Lex agraria* is an important indication that our evidence for the full range of laws relating to colonisation is radically incomplete. What is more, the historical impact and significance of the Roman domination of this part of North Africa during this period does not hinge solely on the number of Italian colonists arriving, or on the number of Latin inscriptions they left behind. That fundamental changes (beyond the sudden removal of Carthaginian power) were taking place is quite apparent, particularly in the reorganisation of land for allotment and taxation, traces of which still survive today and are most visible from the air. A full understanding of this period can only be achieved by extrapolating from the sometimes very meagre sources at our disposal. At the current time, the extent to which scholars support or deny high levels of Italian emigration to Africa rests on widely differing interpretations of the census statistics given by Livy. Whilst

⁴⁷ The inscription was first published by Poinssot (1962). Discussion of the implications for the organisation of Carthage's territory are contained in Pflaum (1970), Fishwick and Shaw (1977) and Gasco (1982).

⁴⁸ Ferchiou (1995).

undergoing significant reappraisal in recent years (Launaro 2011), this subject is far from being settled.

2.1.5 CONCLUSION

In conclusion we can say that although at first sight many of the obvious indications of the Roman impact in North Africa between 146 and 46 BC might be absent, Latin inscriptions, Roman coinage and architectural forms for example, a careful reading of the evidence demonstrates that huge changes were taking place in the organisation of the rural countryside. If one instead focuses on the historical context, the agrarian legislation of the period, and the spatial distribution of the centuriation visible from aerial photography, the processes of land delimitation and appropriation that were taking place at this time come into a sharp focus. I use the term appropriation because we have to try to imagine what became of the indigenous population who had previously occupied this region while these processes of land division and allocation were taking place. Of course data quantifying the exact degree of Italian emigration is never going to materialise, but there are sufficient clues to indicate that it should hold a significant place in the historical narrative for this period. At the same time, there is little doubt that the indigenous North African population will always have outnumbered Italian *émigrés*.

What is abundantly clear is that, in spite of the best efforts of *populares* politicians such as C. Gracchus and Marius, the interests of the equestrian and senatorial orders won out over the common people and land allotments to the less wealthy were fewer than they might have been. The economic benefits of conquest went overwhelmingly to those who already possessed significant riches: contracts of tax farming and the opportunity of investing in land in the new province went almost exclusively to the equestrian and senatorial orders. The Gracchan allotments should be interpreted as an attempt to control the productivity and organisation of the agricultural land within the whole of Carthage's former territory, a process which, if anything, continued more aggressively after the repeal of the *Lex Rubria*. The aim of the colony should not be seen as an attempt to found the city of Carthage anew,

which, although later achieved during the Augustan period, had nothing to do with the centuriation of the Carthage's former territory. The very upper echelons of Roman society, both the senatorial and equestrian orders, were fundamentally interested in profiting from this newly conquered territory.

2.2 EXPANSION AFTER 46 BC: THE BIRTH OF *AFRICA PROCONSULARIS*

As noted in the previous section, the period under Caesar and then Augustus is often seen as the real beginnings of Roman Africa, a view which, in the last few pages, I have been trying to undermine. The creation of Africa Nova by Caesar following the battle of Thapsus in 46 BC once again provided the empire's elite with huge new swathes of lands for exploitation. The conclusion of the civil wars sounded the death knell for the Republic, and the tyrannical rule of a single man emerged in the figure of Augustus. This new form of government did little to check the extension of Roman power into the interior, which continued apace under Augustus and subsequent emperors. Unfortunately the literary evidence tells us little of consequence about how Roman expansion in the region progressed.

The development of landed estates in the region of south-east Tunisia and north-west Libya, the area which eventually came to be administered as *Tripolitana* under Diocletian, is perhaps the easiest to expound by virtue of the fact that we know so little about it. The major emporia in the region, Sabratha, Oea and Lepcis, had originated as Phoenician trading settlements, perhaps established as Carthaginian colonies. The incorporation of this region into the Roman Empire, however, was evidently much less violent and dramatic than the absorption of Carthage's former territory. Indeed, coming under the jurisdiction of the Numidian king Massinissa in 162-161 BC, the *emporia* found themselves on the right side during the third Punic war. A century later, precisely the opposite circumstance prevailed, as the region had supported the defeated armies of Pompey. However, despite suffering a fine and a certain loss of status in the aftermath of the civil war, the region seems to have maintained a high level of autonomy well into the 1st century AD (di Vita-Evrard 1979; Mattingly 1995: 50-51). This region probably therefore escaped the large-scale

appropriation of land that the former Carthaginian territory was subjected to. To a large extent the local elite enjoyed a continuity of power and the significance of this will become clear when we come to examine the archaeological evidence for the organisation of their estates, particularly those in the Libyan Gebel (Chapter 3.3).

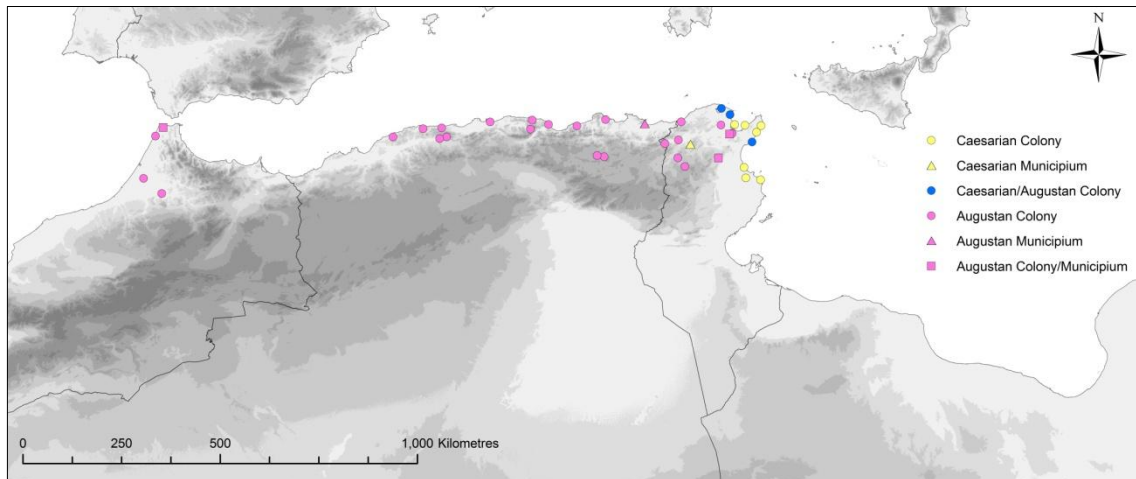


Figure 2.3 Colonies and municipia created under Caesar and Augustus.

Other regions of Africa were not to be so lucky. Under Augustus wars in Africa are recorded in 21 BC, 19 BC, 15 BC, c. AD 3 and AD 6, with a permanent winter camp being established at Ammaedara (modern Haidra) at the source of the Bagradas River, and a road dropping down from these uplands via Capsa (Gafsa) to Tacape (Gabès) (Whittaker 1996: 591). The colonies that were established in Africa Vetus by Caesar as a provision for his veterans were primarily coastal, while a large colony was established at Carthage, in this case the colonists being drawn from the poor population at Rome (Frank 1926c; MacMullen 2000: 30). Three significant foundations were made by Augustus inland within the original province, indicating that some land was still available for distribution there. However, Figure 2.3 illustrates that the focus of Augustan policy was now drawn to a much broader region, stretching west beyond the Pillars of Hercules. I will state here again, the centuriation in north-eastern Tunisia, constrained by the *Fossa Regia*, belongs emphatically to an earlier period of colonisation.

We know, however, that a huge scheme of survey and delimitation was conducted during the reign of Tiberius that established a baseline of extraordinary length from the inland military base at Ammaedara to the region of the Gulf of Gabès (Mattingly 1998: 165). It was Laroui's contention that "all the revolts of the Numidians and Mauretanians were caused by the confiscation of enormous tracts of land for the benefit of Romans" (Laroui 1977: 33-34). It requires little imagination to link this previously mentioned Tiberian scheme of *limitatio*, attested by the marker stones of the Chott el Fejej, and the uprising led by Tacfarinas of the same period (AD 15-24). The events of this war are described in brief sections by Tacitus, but for the most part we are reliant solely upon the evidence of inscriptions, and the archaeological remains of forts and defensive boundaries found in Africa, to understand military and imperial policies followed under the Principate. The Massinissan dynasty, which, with the troublesome exception of Jugurtha, had provided valuable client kings for Numidia and later Mauretania since the mid-2nd century BC, evidently served little further purpose by the mid-1st century AD, as the emperor Caligula had the last of them, Ptolemy, murdered late in AD 40. After the ensuing revolt in Mauretania had been put down, Claudius divided the territory into two provinces, *Mauretania Tingitana* and *Mauretania Caesariensis*, thus completing the assimilation of the entire North African coastal strip into the Roman Empire.⁴⁹

Broughton interpreted the appearance under Trajan of several groups of boundary stones in the High Steppe delimiting land belonging to the tribe of the *Musulamii* and other interested parties in the former kingdom of Numidia, as evidence for the indigenous nomadic peoples being contained on reservations. He described the remaining nomadic peoples as being "hemmed in on the poorer land" (Broughton 1929: 121-122).⁵⁰ Rostovtzeff's opinion was that the certain sections of the tribes people would also have been forced to settle on the land and provide a workforce for the great estates (Rostovtzeff 1926: 283-289). The assumed antipathy between sedentary farmers and nomads, which pervade the early accounts, is adequately demonstrated in this passage by Syme:

⁴⁹ Suetonius *Caligula* 35; Dio LIX.25; Tacitus *Annals* IV.23

⁵⁰ Benabou (1976: 429-438) provides a list of the known boundary markers with a discussion. See also, Naddari (2008), for a recently discovered addition. Whittaker (1978: 344-345) comments briefly.

“The legion now established far to the west at Lambaesis outflanks the Musulamii, while the road leading from Theveste to the new camp along the northern skirts of the Aurès by way of Mascula and Thamugadi cuts them off from the south. The Musulamii are now hemmed in and constricted. The best of their land has been confiscated for Roman colonies or imperial domains or private estates. With what remains they must make shift and indeed, no longer able to raid Numidian farmers, they must turn themselves to agriculture for sustenance.”

(Syme 1951: 123)

In some cases this has been extended to embrace the hypothesis that Trajan actively followed a policy of enforced sedentarisation of the nomadic peoples (Gasco 1972: 232).

The tendency of scholars of the colonial period to rely too heavily on bipolar oppositions such as sedentary agriculture versus nomadic pastoralism, mountains/plains, Roman/native, and so on, has been difficult to shake off (Mattingly 1996b). Bénabou was one of the first to point out that scholars of Roman North Africa had long described the indigenous way of life as tribal, without really being sure if this term was “the most pertinent”, especially as the sum total of what we know about African life from the literary sources is derived from Roman authors - i.e. the imperial power (Bénabou 1976: 427). Even so, Benabou still relied (as many scholars of the colonial period had done)⁵¹ rather too heavily on a simplistic idea of African tribes as completely nomadic at the point of their first contact with Rome. Whittaker quite rightly stated that the *Musulamii*, for example, who probably represent a large amorphous alliance of smaller groups, covered a hugely varied geographical area that obviously included some agricultural settlements before the Romans arrived (Whittaker 1978: 345). He was far more sceptical than most about the degree to which Rome might have impacted on the traditional mode of life at all. Indeed, at the beginning of the postcolonial reassessment, these were some of the very criticisms levelled at Benabou’s attempt at a more balanced approach.⁵²

It is true that from these inscribed boundary stones we know that the *Musulamii* lost territory to the colony at *Ammaedara*, to an imperial estate near Thala, the *Saltus Massipianus*, and that the large private estate of the *Saltus Beguensis* is

⁵¹ See Leschi (1957) and Rachet (1970), for an example of the earlier theories concerning a ‘nomadic-blockade’ and a policy of sedentarisation.

⁵² For example, see Thebert (1978): most of his criticisms of Benabou's book *La Résistance Africaine à la Romanisation* (1976) are as relevant to the debate on the Romanisation paradigm today as they were 30 years ago.

actually described as being within Musulamian territory in AD 138.⁵³ So it seems clear that in this region large estates, both imperial and private, arose through a process of expropriation of the land from the indigenous peoples, but to my mind the character of the evidence seems to indicate the staking out of private or colonial property within a really vast swathe of land that had been designated as Musulamian. It appears that this more arid region was less densely populated than the fertile regions of northern *Proconsularis*, but we should be careful not to let the poor state of our knowledge mask the true complexity of the situation. Many members of the indigenous population would have continued their lives as before, whether in towns, smaller rural villages, or in more mobile pastoral camps.

What were the important factors influencing the development of estates in this new territory in comparison to those conquered in the mid-2nd century BC? Two important differences are essential to underline: Firstly, these new territories were substantially different in terms of their climate and geography, as well as in terms of their levels of pre-existing population density, urbanisation, and farming practices (see Chapter 3.1.1). Secondly, the fact that they came under Roman dominion much later also means that they were subject to a different historical development. We also know that after a war the territorial settlement was determined by the behaviour of the local population during the war: whether or not they gave or refused *deditio* (unconditional surrender) for example (Flurl 1969; Nörr 1991: 13-27). What applies to the regions of Africa Vetus, does not necessarily apply, therefore, to Africa Nova and other African regions conquered later under the emperors.

2.2.1 CIVIC PROMOTIONS

As previously mentioned, the history of Africa under the emperors is reliant chiefly on the interpretation of inscriptions found within North Africa itself. Civic promotion, the point at which an urban settlement was allowed a degree of local autonomy through the granting of the right to maintain a small local council of magistrates, is one of the trends that can be illuminated in this way. According to Broughton the granting of

⁵³ Naddari (2000, 2008), M'Charek (2006).

local autonomy to various indigenous centres “was not a policy of urbanisation, but a recognition of the stage of development they had reached. While the exploitation, if we may so call it, of the province continued to depend largely upon private enterprise” (1929: 86-87).

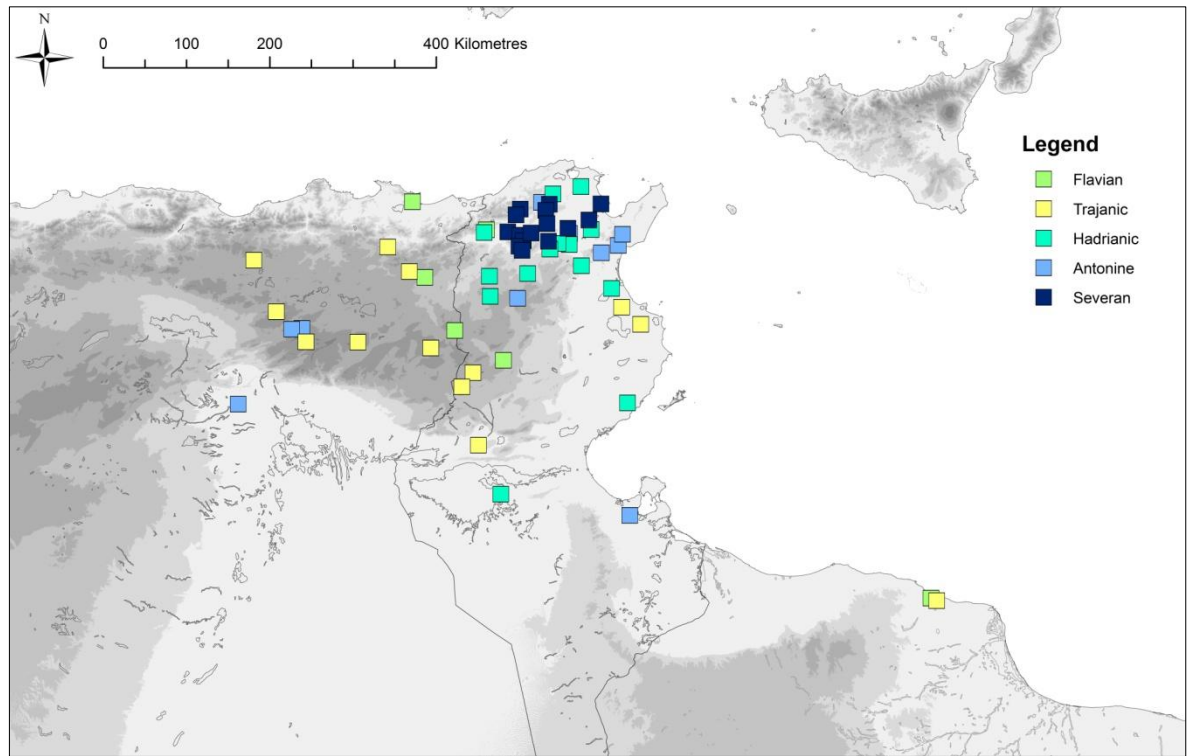


Figure 2.4 Civic promotions from the Flavian to Severan dynasties (after Gascou 1972).

There is within the epigraphic record of North Africa, however, a distinct chronological and spatial pattern to the granting of these civic rights. From Flavian to Trajanic times the dominant pattern to civic promotions was that they occurred in places where the legion was in occupation, or in others at the point when it vacated them to move elsewhere. In other words, during this period these rights were granted particularly where deductions of veterans were being settled, where a military presence was still reasonably close at hand, and perhaps most significantly of all, in places away from the core region of the African provinces that had once been Carthaginian territory. This trend is a concrete indication that the indigenous peoples of these regions were still politically disenfranchised. As we have already seen, the settlements of this region

within the *pertica* of Carthage were often split into a privileged *pagus* of Roman citizens, and a presumably disadvantaged *civitas* of indigenous inhabitants.

All this changed quite dramatically with the accession of Hadrian. All of a sudden a plethora of civic promotions took place back in the northern part of the original province, a process which continued up to and throughout the Severan period. This sharp geographical and temporal distinction can be demonstrated explicitly by plotting the inscriptions discussed by Gasco (1972) in Figure 2.4. During the course of the 2nd century it appears that the communities of *pagi* and *civitates* became increasingly integrated, and after a time the distinction lost its meaning entirely.⁵⁴ It is tempting to connect this observation with the increasing affluence and political influence of African elites at the centre of the Empire's control structure. Cordovana has recently argued this quite strongly:

"The economic restructuring of North Africa, although encouraged and supported by the imperial Roman government, could take place only under the leadership and control of local elites . . . This trend was transformed into actual sharing of power during the second century AD. Thus the transformation of the legal status of urban communities, far from being imposed and planned by the emperors, was the outcome of spontaneous and endogenous political pressure originating at the local level."

(Cordovana forthcoming)

From the mid-2nd century onwards African communities, presumably represented by extremely wealthy elites, were able to communicate with and influence the imperial centre (see further comment on this in Chapter 5).

The spread of formally recognised self-government and municipal promotion came to an end, however, during the military anarchy of the 3rd century. There were few, if any, municipal promotions between the reigns of Constantine the Great and Justinian (Dossey 2010: 114), and it is in this period (particularly the 4th century) that local communities increasingly looked to the Church for leadership in the form of a bishop. There are, however, yet another set of crucially important inscriptions that tell us a great deal about the organisation of the rural landscape prior to this period.

⁵⁴ This process is particularly visible in the inscriptions of Thugga.

2.2.2 THE GREAT AGRARIAN INSCRIPTIONS AND IMPERIAL ESTATES

As we have seen, it seems likely that many of the larger African estates began their life under the private ownership of equestrians and senators, or were rented from the state by the wealthier elements among the Italian allies. Clearly there will also have been indigenous landholdings, as acknowledged by the *Lex agraria* of 111 BC (those lands granted to the “free cities” and the 2200 deserters under the command of Himilco). Further epigraphic evidence, this time relating to tenurial relationships between chief tenants and sub-tenants of large estates, however, indicates that by the early 2nd century AD a great many of these vast private estates had come into the possession of the emperor.⁵⁵ Pliny’s reference to the six African senators who were done away with is an obvious indication that the process began with confiscations under Nero. Whether this was because he wanted to curb the power of an increasingly rich and influential element in the senate, or simply to improve the conditions of the imperial treasury is impossible to know. Heitland argued, for example, that:

“... emperors could not overlook the danger liable to arise from the consolidation of what were virtually little principalities in the hands of Roman nobles more or less disaffected to the new empire . . . It is, in short, evidence of a previous process at length recognized as alarming.”

(Heitland 1918: 39)

One very curious fact is that the same region in which Marius appears to have chosen to settle his Gaetulian veterans, and that later became part of Africa Nova following 46 BC, is very possibly that which was affected by Nero’s confiscations, becoming home to vast imperial estates during the High Empire.

Seven extremely important agrarian inscriptions from this region, spanning the years from Trajan to Septimius Severus’s reign, give us information about the conditions of tenure on these imperial estates. The first six of these were found between 1879 and 1906 and now have an extensive bibliography relating to them (Carlsen 1990; de Ligt 1999; Kehoe 1988, 2007; Ørsted 1994; Whittaker 1978, 2000).⁵⁶

⁵⁵ A list of known African imperial estates can be found in Crawford (1976: 57-59). Private estates did survive in this region, the *Praedia Pullaeonorum* near Aïn Ouassel and the estates of *Rufus Volusianus* and of *Tigius* near Teboursouk (Frank 1926b: 67, n. 21).

⁵⁶ For the inscriptions themselves see Smallwood (1966: no. 463-4) and *CIL* 8, 10570; for translations see van Nostrand (1925); Frank (1938) and Flach *Chiron* 1978, *ANRW* 1982, which is used by Kehoe (1988).

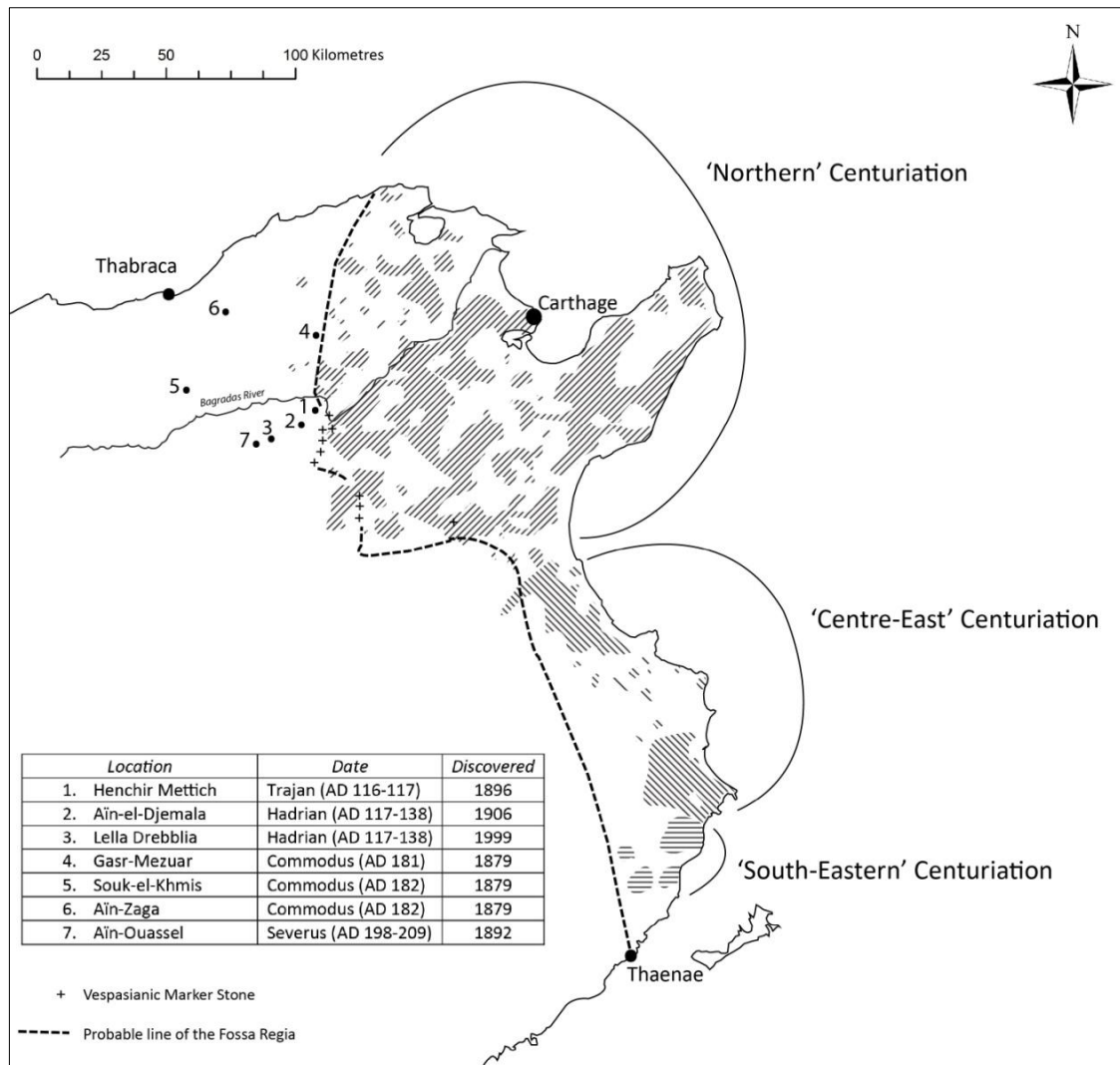


Figure 2.5 The location of the seven agrarian inscriptions in relation to the probable route of the *Fossa Regia*.

The seventh was found by a survey team headed by Marietta De Vos in 1999, in the foothills of the Djebel Gorraa, at the farm site of Lella Drebbliia (De Vos 2000: 34-35; 2007: 4). That all the inscriptions, and therefore the estates in question, were located to the west of the probable line of the *Fossa Regia* (in so-called “Marian territory”) is no doubt significant (Whittaker 2000: 531). It may well be that these lands had a different status to those of the original province, outlined in, and distributed under, the conditions of the *Lex agraria* of 111 BC. A distinction in legal status of these lands must have still had some significance because, as we have seen, Vespasian felt the need to remark the line of the *Fossa Regia* in precisely this region:

an action which presumably related to the organisation and delimitation of the newly acquired imperial estates. We shall follow up on this point presently.

The inscriptions fall into two main categories, which are distinct both geographically and in terms of subject matter. The Souk-el-Khmis, Gasr-Mezuar and Aïn-Zaga inscriptions, which were the first to be found, represent a joint action by the *coloni* (tenant farmers) from several imperial estates to complain to the emperor Commodus that the imperial procurator had been colluding with the *conductores* (chief tenants) in order to extract extra labour from them and to increase their share rent. The three inscriptions of this type were all found north of the Bagradas River, quite a distance apart from one another. Of these, the Souk-el-Khmis inscription is by far the best preserved. It is inscribed on a large tablet in four columns, the first of which is almost completely destroyed, while the second has been badly weathered. It names the estate to which the *coloni* belong as the *saltus Burunitanus*, and indicates that military force had been used in order to subject tenants to the will of their *conductor*.

“... having sent soldiers onto the same Burunitan estate he has ordered some of us to be arrested and harassed, some to be bound in chains, and some, even Roman citizens, to be beaten with rods and clubs...”

(CIL 8, 10570: 2.12-2.16)

The Souk-el-Khmis inscription closes with a favourable rescript from Commodus restating the fixed amounts of share rent and *corvée* labour required under the law. The Gasr-Mezuar and Aïn-Zaga inscriptions are only fragmentary, although the former is considerably longer than the latter. It also contains elements of a similar petition from the *coloni* of another imperial *saltus*, as well as an additional copy of the emperor's rescript. The fragment from Aïn-Zaga was inscribed on a considerably smaller tablet, and, as far as it is decipherable, it is identical to the first five lines of the fourth column of the Souk-el-Khmis inscription. That is, once again, the section containing the emperor's reply.

The Henchir Mettich, Aïn el-Djemala, Lella Drebbilia and Aïn-Ouassel inscriptions, by contrast, were found in closer proximity to one another, south of the Bagradas River, just west of the Vespasianic marker stones that served to delimit the course of the *Fossa Regia*. The Henchir Mettich inscription dates to the reign of Trajan

while the Aïn el-Djemala and Lella Drebbilia inscriptions were engraved during Hadrian's reign. The Aïn-Ouassel inscription is somewhat curious as it was set up much later, under Septimius Severus. All of these inscriptions, however, concern the bringing of unused land under cultivation. In particular, the latter three inscriptions refer to the *Lex Hadriana de rudibus agris*, or "the law of Hadrian concerning vacant lands." The inscriptions not only allow unused lands (*subseciva*)⁵⁷ on the estates to be brought under cultivation, but they also specify a period of exemption from the share rent for newly planted crops in accordance with a law of unknown date, the *Lex Manciana*. This law is often contended to have originated on a privately owned estate (possibly belonging to the wealthy senator T. Curtilius Mancianus) sometime in the mid-1st century AD, but is perhaps more likely to have been a general law dating to the period of the late Republic, when vast swathes of *ager publicus* first became available for private ownership (Clausing 1965: 177-178, 228).

This was the opinion of Cuq (1901: 145) and Schulten (1897). Contrary to this, Rostovtzeff argued that the *Lex Manciana* had been drawn up by an imperial legate during the reign of Vespasian, and its purpose was to clarify the situation of tenants on the estates after the large-scale confiscations of Nero. However, as Frank (1926a: 155-156) and Clausing (1965: 178 n. 3) contested, it is odd that it did not bear the imperial name. That is, why was it not then called the *Lex Vespasiana*, and why, still at the time of the setting up of Aïn-el-Djemala inscription during the reign of Hadrian, had it still not been applied to all of the imperial estates of this region? The fact that the law seems to have had a piecemeal application to the imperial estates is usually seen as evidence that it originated on a single private estate. However, since the region of the imperial saltus and of the agrarian inscriptions fell to the west of the *Fossa Regia* it is easy to see why a Republican law, which applied to land of a different legal status inside the original province, would not have applied to the private estates that originated in this region, and why gradually the emperor would have conceded to its application on his domains in a fairly unsystematic manner thereafter: that is, only in response to specific requests by *coloni*.

⁵⁷ The use of the term *subseciva* in this context may be complicated by the fact that these imperial estates existed at the limits of the original centuriated area, described as the northern group in the first section of this chapter.

There is a 3rd-century inscription found east of the *Fossa Regia* in which a man refers to himself as a “*manciane cultor*” (ILTun 628-9). Bearing in mind the complementary arguments put forward in Chapter 2, I would therefore prefer to see the *Lex Manciana* as a law governing *ager publicus* dating to the 2nd or 1st centuries BC. It is, furthermore, possible that the *saltus Neronianus* had come to encompass lands on both sides of the old provincial boundary and thus included tenants who were used to the right of farming under the *Lex Manciana*. Perhaps Vespasian was not inclined to grant this right to the tenants on the other imperial estates, hence his demarcation of the route of the *Fossa Regia* in this region to underline the status of the land. Of course, unless new evidence comes to light all this remains speculation. An alternative interpretation would be that the *Fossa Regia* simply marked the edge of the estates, but then why was it necessary only to remark that boundary?⁵⁸

The Henchir Mettich inscription, this time engraved on four faces of a large rectangular stone, specifies five years’ exemption for newly planted fig trees and vines, and 10 years’ for newly planted olive groves (*CIL* 8, 25902: 2.13-3.12).⁵⁹ After this period had elapsed, in accordance with the *Lex Manciana* the share croppers had to give a third of their harvest to the chief tenant, the *conductor*, and they also commonly owed the estate 6-12 “*operae*” (usually interpreted as “days”) of free labour each year.

The Aïn el-Djemala inscription, for example, begins with a petition sent by a group of peasants to the imperial *procuratores*, asking that they be granted the same privilege of reclaiming swampy and wooded ground that was enjoyed by the *coloni* of the neighbouring *saltus Neronianus*. It was only after this that the *procuratores* took the opportunity, while granting the request, to apply the new regulation of Hadrian to five imperial domains: the *saltus Blandianus*, *Udensis*, *Lamianus*, *Tuzritanus* and *Domitianus*.⁶⁰ These conditions were presumably still being observed three quarters of a century later, when, under Septimius Severus (AD 193-206), an almost identical version of the *sermo procuratorum* was carved on an altar erected to the memory of

⁵⁸ For the relationship between T. Curtilius Mancianus and the brothers Domitius Tullus and Domitius Lucanus, both proconsular governors of Africa, see Whittaker (2000: 517). I personally cannot see why this idea has been so uniformly endorsed in recent decades.

⁵⁹ As does the Aïn-el-Djemala inscription *CIL* 8, 25943: 3.

⁶⁰ Heitland (1921: 352) notes the interesting coincidence that six estates are mentioned in this inscription, corresponding perhaps to the six senators done away with by Nero?

Hadrian at Aïn-Ouassel. Although somewhat damaged on both the Aïn el-Djemala and Aïn-Ouassel inscriptions, the surviving portions of each can be used to restore the missing sections of the other, and thus result in a fairly complete copy of the *Lex Hadriana de rudibus agris*, as it was interpreted to apply to these four imperial domains (Clausing 1965: 180-181).

2.2.3 INTERPRETATION

This group of inscriptions provides extremely valuable information about the tenurial relationships of Roman North Africa during the High Empire. From the time when the first of the inscriptions was discovered it was quickly realised that they filled an important gap between Columella, Frontinus and both the elder and younger Pliny in the 1st century and the jurors of the Digest (which refer almost exclusively to the 3rd century) for elucidating agricultural conditions within the provinces. However, as we shall discuss, they have also become something of an obstacle to further investigation. Since the work of Rostovtzeff and Broughton, many authors have continued to attribute the “African boom” of the 2nd and 3rd centuries to the laws referred to by these inscriptions, *Lex Manciana*, and in particular to the *Lex Hadriana de rudibus agris* (Camps-Fabrer 1953: 16-17; Carandini 1983b: 148, 156-158; Gasco 1972: 42, 73).⁶¹ In some respects the legislation has become nothing less than a *deus ex machina* to account for the economic prosperity of the entire province.

As part of the colonial narrative of Roman North Africa, growth in agricultural development in the late 19th- and early 20th-century under French rule, which most significantly included investment in large-scale olive plantations, was directly compared to the situation experienced under the Roman occupation two millenia earlier.

⁶¹ "The *Lex Manciana* once used to be interpreted as a measure designed to stimulate agricultural production in certain areas of North Africa, by the creation of a broad stratum of free peasant farmers. A contrary view has now gained weight, which tends to deny any transformation of the mode of production in the African provinces during the imperial period...how [then] are we to explain the African 'boom' (the term is deliberately provocative), which is shown incontrovertibly in the material remains, precisely from the period to which (incidentally) the *Lex Manciana* is dated?" (Carandini 1983b: 156-157).

“Fifty years ago the region [Sfax] was in fact a desert except near the coast ... Yet encouraged by the remains of Roman farm villas the Arabs experimented with fruit trees till the secret of success was discovered. Since the French occupation, large planters with capital have adopted the methods of the natives and have now extended the splendid olive orchards fifty miles inland in one uninterrupted garden.”

(Frank 1926b: 70)

When, at the turn of the last century, the great agrarian inscriptions relating to the imperial estates of the Bagradas Valley were discovered, they were immediately seized upon as a demonstration of the economic foresight of the Roman administration, undertaking legislation that aimed to improve the conditions of poor tenants and to raise the productivity of the region:

“I feel convinced that the rapid spread of olive-growing all over Africa was due to a large extent to the privileges granted by Hadrian to the prospective olive planter.”

(Rostovtzeff 1926: 322-323)

“Hadrian had a definite policy but it was designed to encourage rather than to force exploitation; it was a piece of economic opportunism which sought to benefit the situation in a natural way and bring unused land unsuited to cereals yet suitable for olives and fruit into cultivation.”

(Broughton 1929: 171-172)

Thus, the conclusion was drawn that the Romans were driven by essentially the same motives as the French, and that the results of imperial intervention were naturally “progress” towards civilisation and economic growth and development. Just as in the modern day imperial intervention (usually in the form of conditional loans) is expected to achieve economic growth and development, so it was the case with colonial occupation. As argued in the previous chapter, it may be problematic to identify the Roman imperial agenda too closely with that of the French.

Kehoe (who has recently identified himself with the New Institutional Economics) has continued to argue that the inscriptions indicate the deliberate offering of incentives to *coloni* in an attempt to increase productivity and therefore revenue for the state (1988: 224-228). If one follows this argument, however, it is curious to note that the occasion for each of the inscriptions is the petition of the *coloni* rather than the *procuratores* or *conductores* responsible for the estate (Whittaker 2000: 533). In short, the causal movement was bottom-up and not top-down.

The emphasis of the set of inscriptions located south of the Bagra das on *subseciva* is noteworthy, as we know from many different sources that Vespasian attempted to raise money by selling off this category of land, demanding money from several colonies that had been exploiting the land without having had it granted to them officially. The appropriation of *subseciva* caused widespread disruption and the protestations of Italian land-owners finally led to Vespasian discontinuing the policy within Italy, although without giving up his ownership of the land. Although Domitian did relinquish the imperial claim to these lands in Italy by edict, granting lands previously designated *subseciva* to those who currently occupied them, it is not clear what became of *subseciva* in the provinces (Broughton 1929: 115).⁶² Evidently unexploited *subseciva* belonging to the state still existed on the imperial *saltus* in Africa in the early 2nd century, and it was eventually allowed to be exploited by the *coloni* (although in the known cases, only at their request).

Hitchner has argued that the *Lex Manciana* may have acted as the initial stimulus for the expansion of irrigated olive cultivation into the upper elevations of the High Steppe, “the main reason,” he contends, “for the emergence of the region as a major olive oil exporter in the Later Empire” (Hitchner 1995: 157). How far these laws had an impact outside the immediate vicinity of these remarkable inscriptions is, however, difficult to gauge. No inscription referring to these agrarian laws has been found in the region of the large pressing sites to which Hitchner is referring. Indeed, it is possible that the *Lex Manciana* was a Republican law relating to lands within *Africa Vetusta* (see note 51). It is hard to conceive how these centralised estates could have functioned in precisely the same manner as the decentralised private and imperial estates in the north of the country. In fact, the same system of tenure, or of leasing to tenants at all, may not have existed there. Let us examine the matter more closely.

The use of tenants does not feature in Cato’s agricultural treatise of the mid-2nd century BC, and the idea was only given very slight notice by Varro more than a century later. By the time of Columella’s writings on agriculture, however, we find a remarkable change (Heitland 1921: 252). Although agricultural slaves under the charge of a *vilicus* were seen to be the ideal, he discussed at some length the advantages of

⁶² The numerous relevant references are given in Campbell (2000: 344, n. 47), with discussion.

letting to tenants rather than using slaves under a farm manager, if the farm or estate was too distant for the owner to visit it frequently and to keep an eye on his chosen steward. The ideal tenants were those who were natives of the place, and in a real sense were hereditary occupiers:

“Furthermore, I myself remember having heard Publius Volusius, an old man who had been consul and was very wealthy, declare that estate most fortunate which had as tenants natives of the place, and held them, by reason of long association, even from the cradle, as if born on their own father’s property.”

(Columella *RR* 1.7)

Of course many Italian landlords would have been unable to visit their far flung provincial estates on a regular basis (Heitland 1918: 36), so these statements by Columella would have been particularly relevant to the situation in Africa following the Third Punic War. What we finally get a glimpse of in the inscriptions of the imperial estates of the 2nd century AD, is an elaborate system of two-tiered tenancy that had probably developed on private estates to solve this very problem. In Italy the terms *colonus* and *conductor* appear to have been practically synonymous (Clausing 1965: 139), but in Africa the need for many absentee landowners to ensure adequate, if not ideal, management of their farms appears to have led to the creation of this new class of chief tenants, the *conductores*, who were presumably quite wealthy individuals within their community (Rostovtzeff 1926: 289). An inscription from *Hippo Regius* (*ILAlg* 1, 3992), not far away in north-east Algeria, indicates that there was often a friendly relationship between *conductores* and the imperial *procuratores* (Saller 1982: 167).

T. Flauio T. j. Quir. Macro, Iluir(o), flamini perp(etuo) Ammaederensium, prae(fecto) gentis Musulamiorum curatori frumen[ti] comparandi in annona Urbis facto a diuo Nerua Traian(o) Aug(usto), proc(uratori) Aug(usti) a[d pr]aedia saltus Hipponi [en(sis)] et Theue[st]ini, proc(uratori) provinc[i]ae S[ic]iliae, collegium Larum Caesaris n[ostri] et liberti et familia, item conductores qui in regione Hipponi[ens]i consistent.

A dedication to A. Gabinius from the region of Dougga (*IL Afr* 568) also suggests *conductores* in this region formed informal associations with one another (Crawford 1976: 49; Rostovtzeff 1926: 291 n. 74).⁶³ What we of course cannot know is how much

⁶³ For further discussion of a particular *conductor* known from an inscription naming the *Fundus Aufidianus*, see Peyras (1975). For an argument regarding wealthy and agriculturally aware North Africans, see Stone (1998).

this method of agricultural organisation differed from the Carthaginian and Numidian systems that existed there before, but it seems likely to me that this system developed as a result of the conquest.⁶⁴

As we will see in Chapter 3, we have good archaeological evidence to suggest that different forms of agricultural production and organisation operated in the Tunisian High Steppe and in the Libyan Gebel. Apart from the enigmatic reference to Mancian tenure in the Albertini Tablets, we have no concrete evidence that the legislation referred to in the Bagradas Valley inscriptions had any relevance to the situation in other parts of the province, which also have a different soil, climate, historical development, and so on (Kehoe 1988: 197-198). A considerable number of mausolea in the High Steppe indicate that perhaps there was a higher number of estate owners who held their permanent abode in the area, rather than abroad. However, distinguishing between wealthy chief tenants and wealthy landowners in the archaeological record may be a step too far.

There are some cases where we have concrete evidence for privately owned estates. Perhaps the most relevant example is the estate which belonged to Lucilius Africanus. Two copies of an epigraphic *Senatus Consultum* of AD 138 indicating that this senator was owner of the *Saltus Beguensis*, record the granting of his petition to hold a bi-monthly market on the estate (the earliest dated inscription concerning periodic markets in North Africa).⁶⁵ The decision was passed by senate on the Ides of October, AD 138, after having been submitted through the agency of Lucilius's influential friends at Rome (lines 12-13). This at least suggests that Lucilius was resident in Africa, but whether he spent most of his time on this or another of his estates or in a nearby town is impossible to guess. The archaeological remains on the estate suggest that it became, or perhaps by this time was already, a significant producer of olive oil for export. Lucilius thus forms the perfect example of a member of the African elite who profited from the colonial situation to set up a large estate geared towards the export of agricultural produce.

⁶⁴ Whittaker (1978) felt that the inscriptions simply codified systems of land tenure that pre-dated the conquest, but the argument is overstated. It seems more likely that this was an organisation that had been developed to the specific conditions of this region. This was the opinion of Frank (1926a, 1926b) and Heitland (1921: 353).

⁶⁵ *CIL* 8, 270 = 11.451 = Bruns, *Fontes*⁷, 205 no. 61 = *FIRA* 1², no. 47 = Abbott & Johnson, *MARE*, no. 96; cf A.E., 1907: 17 and *ILTun* 396; Merlin 1906.

We know from the archaeological remains that other similar large estates existed in this region (Chapter 3). M'Charek has also argued that Quintus Anicius Faustus, legate of Legio III Augusta in the late 2nd and early 3rd century, owned a neighbouring estate to the south-west (M'Charek 2006). The basis for this is that several inscribed boundary markers possibly bear his initials. The first of these, found at Henchir Belgacem Belhaj, around 20 km east of Thala, bore the letters: Q.A.F.C.V., the last two initials interpreted as *C(larissimus) V(ir)* (indicating senatorial rank) preceded by the *tria nomina* of a senator. The second was found about two kilometres south-west of Henchir el-Begar, the site at which the epigraphic *Senatus Consultum* was discovered, and was inscribed on one face Q.A.F. and another C.M.P. A third, which very possibly has the same inscribed initials, Q.A.F. and C.M.P., was found three kilometres south of Henchir el-Begar. The implication is that by the late 2nd century there were two large senatorial estates in this region, one possibly owned by Quintus Anicius Faustus, imperial legate, and the other by an individual with the initials C.M.P., presumably the owner of the *Saltus Beguensis* after Lucilius Africanus.

Another inscription also indicates that a legate of the Numidian army, L. Municius Natalis, who was responsible for a number of the boundary settlements “on the authority of the emperor” Trajan, also had an estate in southern Tunisia where he operated as legate.⁶⁶ As we shall see in the following chapter, with regard to the organisation of labour on such estates we have to take into account the manifest differences in cultivation between the mixed agriculture of the Tell and the tendency towards specialisation in olive oil and possibly wine production in the regions of the Tunisian High Steppe and Libyan Gebel.

CONCLUSION

A central argument of this chapter has been that the agrarian structure of the African provinces, what we might call the relations of production, the general functioning and organisation of estates, and so on, had its roots in the settlement that directly followed the destruction of Carthage in the mid-2nd century BC. Over and above this,

⁶⁶ *CIL* 8, 10962

these events set out a framework upon which later achievements could develop. This is not to disagree strongly with Le Glay (1968) or Carandini (1970: 99), when they argue that during the Flavian period Africa underwent a crucial period of consolidation.⁶⁷ Nor was Rostovtzeff (1926: 322-323) entirely inaccurate when he asserted that the cultivation of the olive was actively encouraged by the early-2nd-century emperors. Indeed, a qualitative change in imperial policy does really seem to have taken place from the early 2nd century onwards. The point at stake, however, is the degree to which this phenomenon is symptomatic rather than causal. Sweeping statements that attribute the rapid spread of large olive farms across the African provinces and the growth in agricultural exports to Rome during the course of the 2nd century AD to the promulgation of two simple pieces of legislation, the *Lex Manciana* and the *Lex Hadriana de rudibus agris*, seem to me to be rather too schematic and simplistic.

The causes of Africa's later economic development are more complex, and are deeply rooted in the individual histories of its diverse regions. Although often repeated as a definitive explanation (Camps-Fabrer 1953: 16-17; Carandini 1983a: 148, 156-158; Gasco 1972: 42, 73; Hitchner 1995: 157),⁶⁸ we have no clear evidence that the laws known from the handful of agrarian inscriptions from the Bagradas Valley had a wider application to the rest of Africa.⁶⁹ As we have seen, the date at which the *Lex Manciana* was enacted, and which estates and regions it originally applied to, is unknown. It was the opinion of both Frank (1926b) and Haywood (1938: 88-89), however, that the principles laid down in these inscriptions were designed to meet specific needs and problems peculiar to the estates in the Marian region. The laws and practices referred to within them probably did not apply to other parts of the Roman

⁶⁷ This was, they argue, a result of the imperial peace finally established in the AD 70s. Le Glay states that, between 27 BC and the mid-1st century AD Africa had not experienced a twenty-year period without war.

⁶⁸ "The *Lex Manciana* once used to be interpreted as a measure designed to stimulate agricultural production in certain areas of North Africa, by the creation of a broad stratum of free peasant farmers. A contrary view has now gained weight, which tends to deny any transformation of the mode of production in the African provinces during the imperial period . . . how [then] are we to explain the African 'boom' (the term is deliberately provocative), which is shown incontrovertibly in the material remains, precisely from the period to which (incidentally) the *Lex Manciana* is dated?" (Carandini 1983, 156-157). Of course, as I have argued, the *Lex Manciana* is not dated and may well be of the republican period.

⁶⁹ See Whittaker (1978: 358) for comment on this issue with regard to the Albertini Tablets.

Empire, which not only had different soils, a different climate and agricultural regimes, but also were the result of their own specific historical development. As Whittaker pointed out, if it were not for the additional discovery of the 5th-century Albertini Tablets, probably somewhere along the Oued-el-Horchane close to the Tuniso-Algerian border,⁷⁰ few authors would have been so bold about the widespread application of Mancian tenure (Whittaker 1978: 358). The success of agricultural production in Africa's many and varied regions would have depended in large part on how landowners managed to put to work the indigenous population. Since many contrasting and different, both culturally and economically, modes of life, existed amongst Africa's different indigenous peoples, a "one method suits all" approach is unlikely to have been appropriate. The evidence we do have of Rome's use of violence to secure the type of wealth extraction it desired from the province is probably only a small fraction of the real truth. The extent of slavery and other forms of mass exploitation throughout these centuries of radical upheaval will be explored in more detail in the final chapter.

What we can say, is that the eventual granting of the right to farm the *subseciva*, the granting of municipal or colonial status to many communities that had previously been overlooked, and the gradually receding significance of the division between the *pagi* and *civitates*, all indicate an increased cohesion (not to be confused with increased equality) of African society by the middle of the 2nd century AD. Even when one examines the foundation of sectarian violence in 4th-century Africa, there appears to be little real difference between practitioners of the dissident and legitimate Catholic church: "the small critical matters of difference were founded on a mountain of sameness" (Shaw 2011: 420). There seems little doubt that a significant degree of private enterprise, particularly amongst the senatorial and equestrian orders, contributed to the development of the export trade in agricultural products. The increasing inclusion of indigenous African elites into these orders at precisely this period was no doubt fundamental for increasing the volume of products being moved. There was probably a considerable degree of variation in conditions of tenure,

⁷⁰ The exact location of the find-spot is unknown, but see Mattingly (2011: 165, fig 6.5) for a map which narrows down the probable area. The tablets are published by Courtois *et al.* (1952). Further discussion of the tablets can be found in Percival (1975); Mattingly (1989b); Hitchner (1995); Ørsted (1994); Conant (2004) and Merrills and Miles (2010).

organisation of production and so on in different regions. The important question is, can we see which regions became the most important for export, and can this help to explain in any more detail why this occurred and whether or not the organisation of production varied from region to region? The next chapter, therefore, examines the archaeological evidence for the production of olive oil and wine within the study area.

3 OLIVE OIL AND WINE PRODUCTION IN AFRICA PROCONSULARIS. THE SURVEY EVIDENCE

The archaeological remains of production sites can go some way to illuminating differences in the organisation of production as well as its overall scale. In this chapter I will try to highlight which of the regions of modern day Tunisia and Libya emerged as centrally important in the production of olive oil and wine and how this altered over time. Very few pressing sites in Africa have so far been subjected to excavation, and this limits to some degree the extent of possible chronological precision. The majority of evidence examined here derives from surface survey, and it is this that we are chiefly reliant upon in order to make regional comparisons of the nature, location and number of production sites in these two countries.

From the 1980s onwards, European teams working in conjunction with the Libyan or Tunisian departments of antiquities in the regions of Kasserine (Hitchner 1988, 1990), Jerba (Fentress 2000, 2001; Fentress *et al.* 2009), Segermes (Dietz *et al.* 1995; Ørsted *et al.* 2000), Dougga (De Vos 2000, 2007), Leptiminus (Ben Lazreg *et al.* 1992; Stirling *et al.* 2001; Stone *et al.* 2011a) and Carthage (Greene 1983, 1984, 1986, 1992; Greene and Kehoe 1995) in Tunisia, and in the pre-desert zone in Libya, have conducted high quality archaeological surveys providing this kind of information. However, the vast majority of the evidence presented in this chapter for Tunisia comes from the published reports of the *Carte Archéologique*, a vast programme of surveys begun by the Tunisian government in 1987. The section dealing with Libya is also supplemented hugely by the recent survey work conducted by Muftah Ahmed in the region of the Gebel Tarhuna.

The chapter is split into three sections. The first of these introduces some methodological issues associated with studying archaeological evidence of ancient agricultural practices in North Africa from survey data, while the following two sections focus on Tunisia and Libya respectively. I have chosen to use the modern country boundaries as divisions, rather than ancient provincial borders, mainly because of the different level of data analysis which is possible due to the varying degree of recent fieldwork.

3.1 OLIVE PRESS ELEMENTS

Nearly all ancient presses in North Africa were of the lever and counterweight type. In the case of the production of olive oil, the olives were first crushed by a heavy millstone rotating on a stone base (millmortar), before the resulting pulp was inserted into a series of flattish, usually circular, sacks. These sacks were then stacked one on top of the other on top of the pressbed, before a downward pressure was exerted on the stack by means of a wooden press beam.

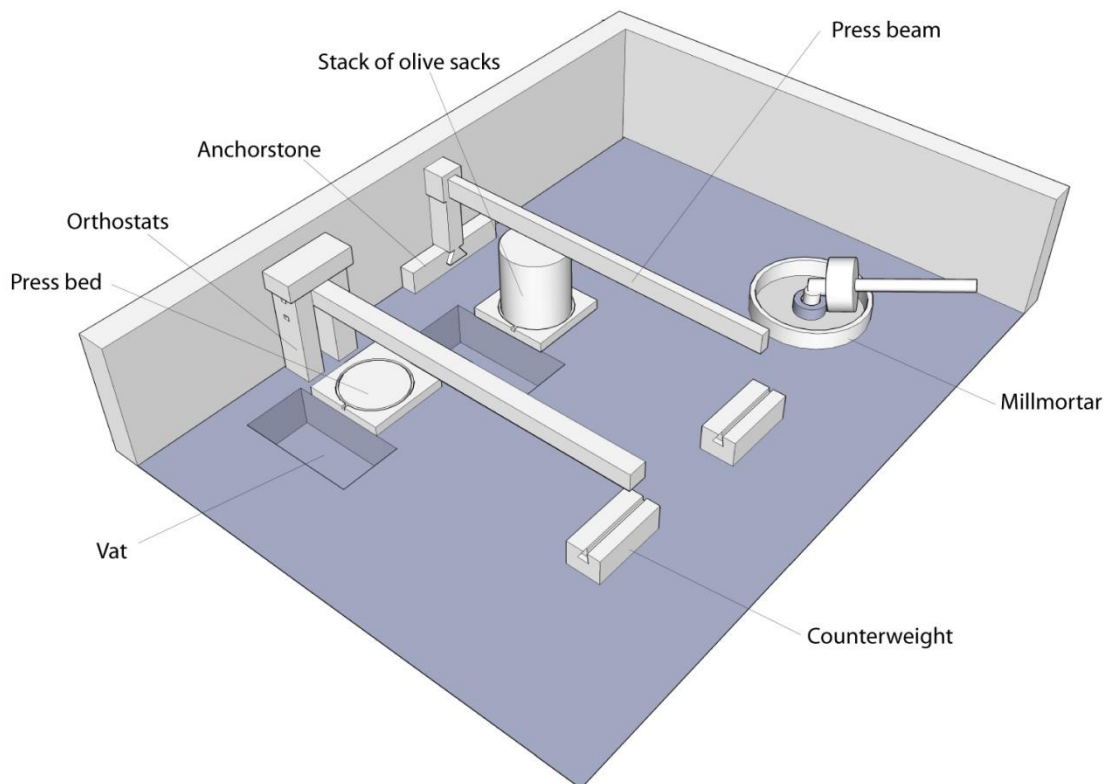
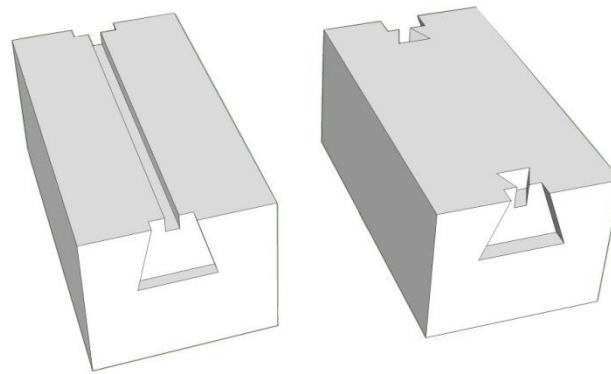


Figure 3.1 Diagram showing the relevant parts of two different types of olive press.

In order to increase the pressure, one end of the press beam was firmly anchored by the fabric of the press building, while a heavy weight was employed at the free end of the beam by cranking a stone counterweight up off the ground by means of a windlass. The oil squeezed from the olive pulp in the sacks would then drain down onto the pressbed, where it was channeled off into a nearby vat. After a period of time a large stack might reduce in height by up to 50% (Mattingly and Hitchner 1993: 446), and, as the most efficient pressing was achieved with a horizontal beam, the beam

would then have been lowered before reapplying the weight of the counterweight. In some cases we have evidence to suggest that this process was repeated a further two times, as some orthostats in Tripolitania appear to have had pairs of holes, indicating that there were four different heights at which the press beam operated.

Needless to say the wooden parts of the press do not generally survive, but archaeological survey can often identify the stone elements that formed parts of these presses. The main types are the following:



COUNTERWEIGHTS

Downward pressure was exerted on the free end of the press beam by means of a windlass mounted on a large rectangular block of stone known as a counterweight. Counterweights are by far the most common press element found by surveys in Tunisia, although they are a less common find in Libya. Three typological systems have previously been outlined for counterweights. Brun, in his study of the olive oil and wine production in the region of the Var, distinguished two main groups: counterweights using a screw, and counterweights using a windlass or winch (Brun 1986: 120-124). Counterweights of the screw type are almost unknown in North Africa (Mattingly 1996c: 585; Mattingly and Hitchner 1993: 454).⁷¹ Within the windlass

⁷¹ Mattingly describes a few rare examples as “the exceptions that prove the rule”. Since his 1996 article, Drine (1999) has pointed to one further example of a counterweight which may have used a screw mechanism from southern Tunisia. In France there is generally more evidence of windlass-using

category Brun had five main groups, with the first four comprising several sub-types. In Africa his types 1.0, 1.1, 3.0, 3.1 and 4.0 are the most numerous; types 1.0 and 1.1 seem to have been the most utilised in ancient Africa (Brun 1986: 120-121; Sehili 2009b: 163). The two other typological systems arose from programs of survey work undertaken in Tunisia itself. The first, undertaken by Ben Baaziz in the region of the *Oued El Htab* (Ben Baaziz 1985), includes seven main types (A-G), and the second, conducted by Hitchner around Kasserine (Mattingly and Hitchner 1993), has four types (1a, 1b, 2a and 2b). Samira Sehili, in her recent work in the region of the Jebel Semmama, has rationalised these typologies in the following table:

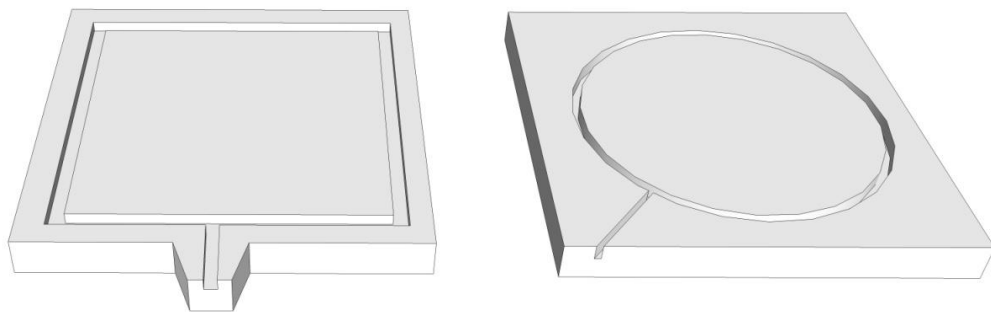
Brun (1986)	Ben Baaziz (1985)	Mattingly and Hitchner
0.0		
0.1		
1.0	B	
1.1	A	1a
1.2		
1.3	C	1b
1.4		
1.5		
1.6		
2.0		
2.1		
3.0	D	2a
3.1	E	2b
3.2		
4.0		
	F	
	G	

Table 3.1 Concordance of counterweight typologies.

Certain geographical patterns are beginning to emerge. Sehili has commented on the predominance of types A-C in conjunction with stone orthostat-using presses in the western Dorsal and High Steppe regions (Sehili 2009b: 169-171). Almost without exception they were designed as rectangular stone blocks with a dovetail notch on each side in order to apply extra pressure to the beam by means of a windlass.

counterweights being converted, before a more general conversion to a cylindrical type. Such a process is not observable in North Africa.

In general, whilst a significant amount of local variability exists within the counterweight typology, allowing regional distributions to be observed, in their basic functioning African counterweights are an incredibly homogenous group. As Sehili has commented, while in theory the different methods for affixing the windlass might represent a chronological development, it is difficult to apply this with any precision at this time, given the general lack of dating material recovered from most sites (Sehili 2009b: 166). At Volubilis, Akerraz and Lenoir were able to point to type 1.1/A/1a counterweights being reused in the construction of 3rd-century buildings (1981). However, it seems unlikely that one can use this development, which may be quite localised, to generalise across the whole of North Africa. The outstanding characteristic of North African counterweights is the similarity of their design across a broad region, and the lack of cylindrical counterweights, which would indicate experimentation with the screw press.



PRESSBEDS

This element constitutes the base of the press, usually engraved with a run-off groove to divert the liquid into one or more adjacent decantation vats. The most common types are made from a single circular or square base stone, which can be of varying thickness, usually sporting a run-off channel over a metre in diameter. There are also examples of run-off grooves carved through several stone slabs. In Tunisia examples of circular run-off channels almost completely predominate, whereas in Libya, about 50

per cent of the run-off grooves are square. There have now been a handful of pressbeds found with square run-off grooves in south-eastern Tunisia and these can be seen as representing the western limit of the Tripolitanian distribution. One such example was found within the map sheet of Gabès and one on the map sheet of Kettana (Mrabet 1997: 76). Further south, Drine, in his article on olive oil and wine presses in the regions of Gigthis and Zarzis, also mentions two pressbeds with rectilinear run-off grooves (Drine 1999: 56-57). There is also one anomalous example of a small rectangular pressbed from the Segermes survey, which falls outside the distribution I am discussing here (Dietz *et al.* 1995: 214).

Sehili has presented a typology of the six types of pressbed (labelled A to F) found during her work in the region of the Jebel Semmama. This can be used as the basis of a fuller typology and I have added the square type discussed above as an additional “Type G”.

Type A

A circular pressbed with a circular run-off groove.

Type B

A square pressbed with a circular run-off groove

Type C

A square pressbed with no visible run-off groove

Type D

A circular pressbed with circular run-off groove, the interior of the channel is marked by several carved notches.

Type E

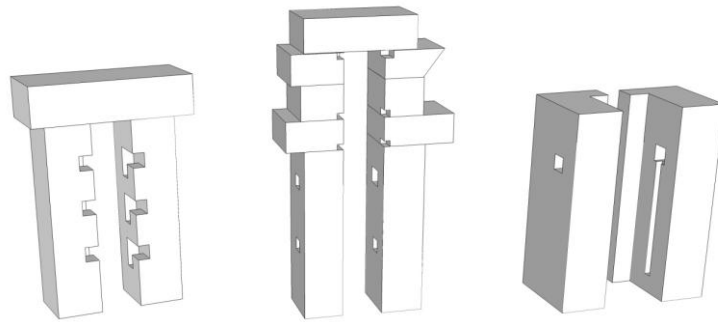
A square pressbed with circular run-off groove, the interior of the channel is marked by several carved notches (Sehili 2009b: 156, notes that this is definitely not caused by acid erosion).

Type F

A square pressbed with two circular run-off grooves of different sizes.

Type G

A square pressbed with a square run-off channel



ORTHOSTATS

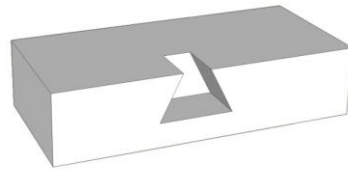
These massive stone piers were erected in pairs on a low sill, often being set into specially recessed base blocks. The orthostats were also capped with stone lintels, sometimes of some architectural pretension (Mattingly and Hitchner 1993: 446, fig. 4). Orthostats from both Libya and Tunisia display a whole range of different combinations of holes, slots and grooves, which served to fix the beam at its various operating heights. Orthostats were used in the Libyan Gebel, where they were some of the largest put to use in the Roman world, many of them possessing three or four sets of holes for repositioning the press beam.



Figure 3.2 Left: press orthostats from site TUT09 in the Libyan Gebel (after Ahmed 2010: fig 4.12). Right: 18th-century wine press, Speyer museum, Germany.

In other cases, where the orthostats are very tall but where there are, for example, only two sets of holes (and therefore the distance between the top set of holes and

the lintel is greater) it seems obvious that a larger beam was implemented. This perhaps would have consisted of several pieces of timber pinned together, in a similar manner to some preserved European wine presses (Figure 3.2). Ahmed has recently created a typology of the press orthostats from the Tarhuna plateau (Ahmed 2010: 188-197).



ANCHORSTONES

As stated above, these elements represent a different method for attaching the fixed end of the press beam to the fabric of the press building. I have chosen to refer to these elements as anchorstones, derived from the French term *pierre d'ancrage*. This method involved a large stone block placed at the base of the wall. A large, central dovetail notch evidently allowed some sort of wooden upright to be fitted, which in turn must have been attached to the press beam in some manner (Figure 3.1).⁷²

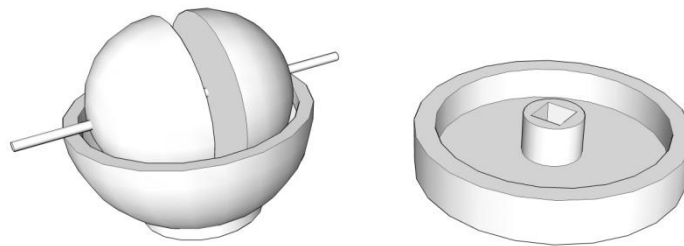
The use of the orthostat or anchorstone method constitutes the most profound typological distribution pattern concerning press design across ancient North Africa. In Tunisia the anchorstone method predominated in the north, restricted mainly to the Tell. A transitional zone in the Dorsal gives way to an almost exclusive use of the orthostat method in the High Steppe and further south, and these distribution patterns appear to continue into neighbouring Algeria and Libya.⁷³ Anchorstones are used at the pressing site at Madaurus in north-east Algeria, while further south the distribution of orthostat-using presses continues from Tunisia west into the Aurès,

⁷² For an interpretation of this morticed wooden upright see Christofle (1930) and De Vos (2000).

⁷³ Several orthostats have in fact been found in the far north, in the report for Oued Sejnane 005 (Ghalia 1998). Unfortunately, no photographs or drawings of these are included to allow comparison with those found in the south. I have nonetheless included them in my Figure 3.9.

while the orthostat method appears to have been the only known method in the Libyan Gebel (Mattingly 1988b: 44; 1996c: 579).

As just stated, the western Dorsal regions of Thala 067 and Ksar Tlili 068 constitute a transitional zone, with some sites possessing both types (Ben Baaziz 2003; Brun 2004a: 209-210). Just to the south of this region in the Jebal Semmama, anchorstones, presumably from a press building of earlier construction, were reused in the construction of the orthostat-using press building at Henchir El Begar 2 (Sehili 2008a: 90). It is perhaps significant that these typological and geographical distinctions also correspond to the organisation and scale of the production process. Central Tunisia and the Libyan Gebel are also the regions where we find the large multi-press establishments, which in general seem to be absent from the north-Tunisian Tell (see section 0).



MILLING EQUIPMENT

In general mill mortars and rotary millstones are a much less common category of find. Mill mortars fall into two main groups, the *trapeta* (above left) and *mola olearia* (above right) types, of which the *mola olearia* is more numerous and widespread. Find spots for the *trapeta* type in Tunisia are limited to just two locations, Cap Bon and its immediate vicinity and the Gulf of Gabès (although Figure 3.3 demonstrates that our knowledge is still somewhat lacking). The *trapetum* was also used in Libya, and these distributions therefore represent a further example, along with the square channelled pressbeds, of a typological link between these regions. This type is known to be of earlier invention within the Mediterranean, but it seems that typological differences

are more likely to be of geographical rather than chronological import, and we should probably not be surprised to find typological similarities persisting between coastal regions, which were presumably more easily accessible and therefore interconnected.

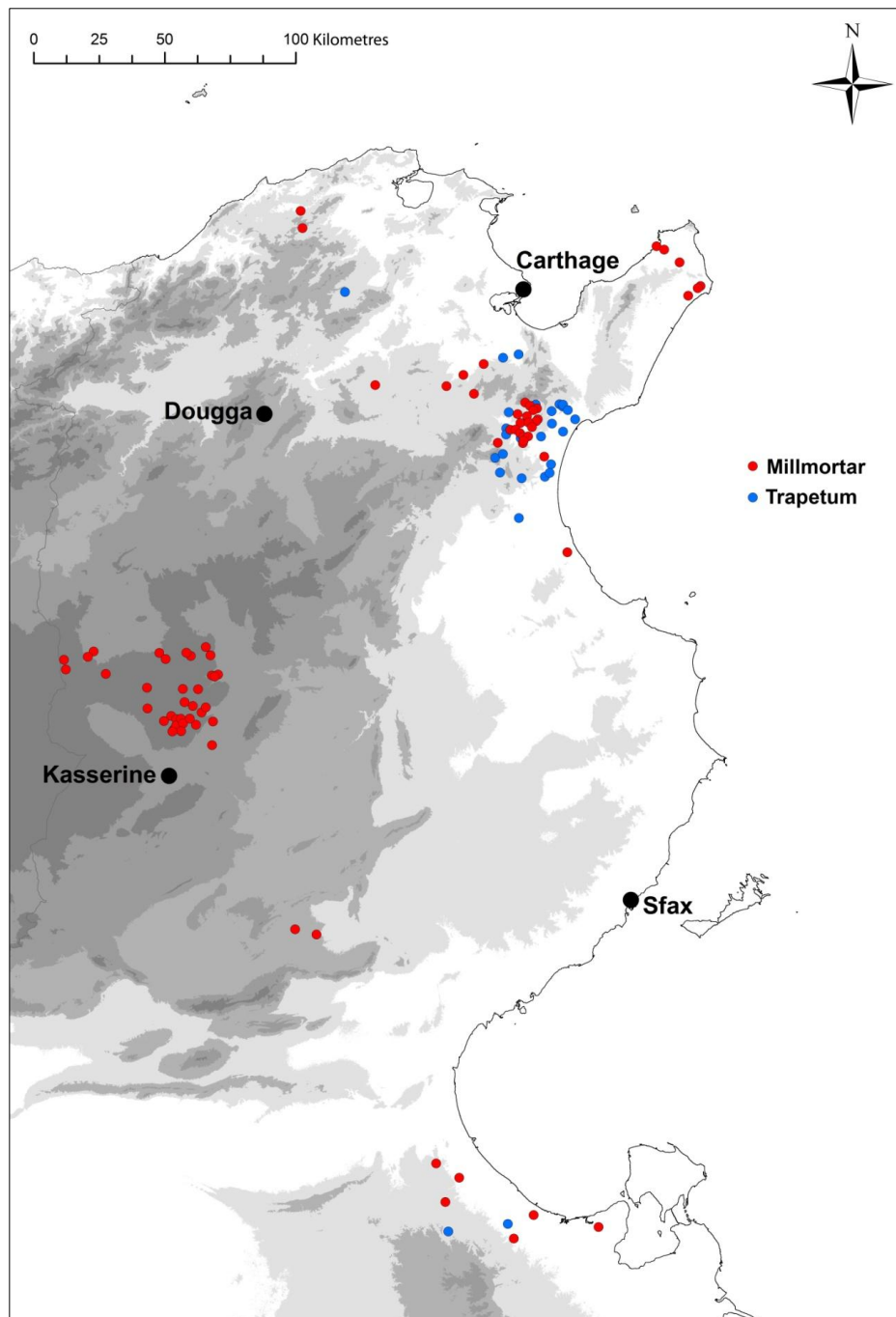


Figure 3.3 Distribution of *trapeta* (blue) and *mola olearia* (red) found by the *Carte Archéologique*.

The *trapeta* have half-moon shaped millstones for crushing the olives in a curved, bowl-shaped depression. The millstones for the *mola oleara* type, on the other hand, crush the olives upon a flat surface, and are therefore either cylindrical or conical in shape. Mill mortars of this type were no doubt easier to manufacture, which possibly accounts for their greater geographical distribution. There are six different sub-types of *mola olearia* found in Tunisia. Four were initially distinguished by Ben Baaziz, and two further sub-types were added to this total after the publication of the typology from the Kasserine survey (Ben Baaziz 1991; Mattingly and Hitchner 1993: 443-445). Ben Baaziz's type 1 includes a shallow base, with a notched central pivot. The type 2 also has a notched pivot but has a far deeper base. Types 3 and 4 follow these two types, again having a shallow and deep base respectively, but these two do not have the notch on their central pivot. Mattingly and Hitchner's first additional type (their type 2) has a sizeable central hole instead of the raised section for the pivot. In similar fashion, their type 3 has a shallow circular indentation rather than a hole pierced all the way through.

These latter two types have not only been found in the region of Kasserine, but also in the regions surveyed by the *Carte* just to the north, Thala 067, Kasr Tlili 068 and the Jebel Semmama 076. Ben Baaziz seems to regard these as being more likely to have been used for milling grain, which is perhaps the reason why he left them out of his original typology. Sehili, however, with Mattingly and Hitchner, sees these types as likely to have been for milling olives (Sehili 2009b: 144-145).

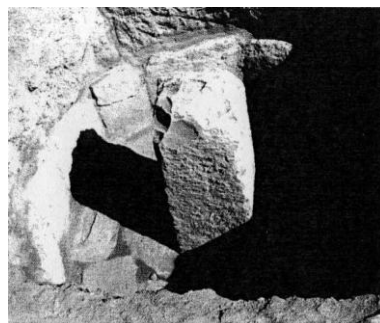


Figure 3.4 Subterranean olive mill excavated at the villa Demna (after Ghalia 2005).

It should be further noted that a subterranean version of the *mola olearia* type was also found at the excavations of the villa Demna (Figure 3.4). Consisting of stone slabs inserted into a sunken pit, this milling equipment would have functioned in an identical fashion to the more conspicuous monolithic type. This kind of homemade affair is likely to have been far more accessible to the individual farmer than the skilled carving of the monolithic types of mill. Indeed it is likely to have been the most numerous mill type in operation in antiquity, and therefore goes some way to explaining the rarity of mills in the archaeological surveys. Remaining buried below the surface, this type of mill can only hope to be identified during excavation.

3.2 WINE PRESS ELEMENTS

Essentially the same pressing equipment that was used for the crushing of olives could have been used for pressing grapes in wine production. An important interpretive problem facing the survey archaeologist is therefore the possibility of distinguishing between farms which practised both olive oil and wine production, and those which were specialised solely in the production of one or the other. The recent reinterpretation by Brun of even an excavated press building at the Lm 4 farm in the Libyan pre-desert, as probably producing wine rather than oil, adequately displays the difficulties in identification that can be difficult to overcome (Brun 2004a: 196).

Brun, reiterating the arguments of Lequément (1980), has recently noted that, while in the written sources on Roman Africa there is at least as much evidence for the production of wine as there is for the production of olive oil, so far most of the archaeological remains of press sites have been interpreted as being predominantly for olive oil production (Brun 2004a: 202). Or, at least, the emphasis of the discussion has been more towards olive oil than wine. There are several reasons for this. Although the same pressing equipment can be used for the production of both olive oil and wine, the presence of a mill mortar, although generally a rare find, sometimes gives a positive indication of olive oil production. The equivalent stage of the process in wine-making, however, is the treading of the grapes on a treading floor. Such features tend to become buried and therefore positive indicators for wine production

are harder to come by, and often can only be identified after a site has been extensively cleared or excavated.

A second reason is that African amphorae for a long time were mainly assumed to have been primarily for carrying olive oil. In the last few decades, excavations at Monte Testaccio, a huge mound known from painted inscriptions (*tituli picti*) on Spanish amphorae to consist mainly of oil amphorae, and particularly at Ostia have indicated the important scale of African imports to Rome. Nearly half the amphorae at Ostia were from Africa. It is only relatively recently that the work of Bonifay has demonstrated that a higher proportion of exported African amphorae probably contained wine and other products besides oil than first thought (Bonifay 2004: 487-489). We will look at the amphora evidence in more detail in the following chapter, but for now it is enough to examine the evidence for the production sites themselves.

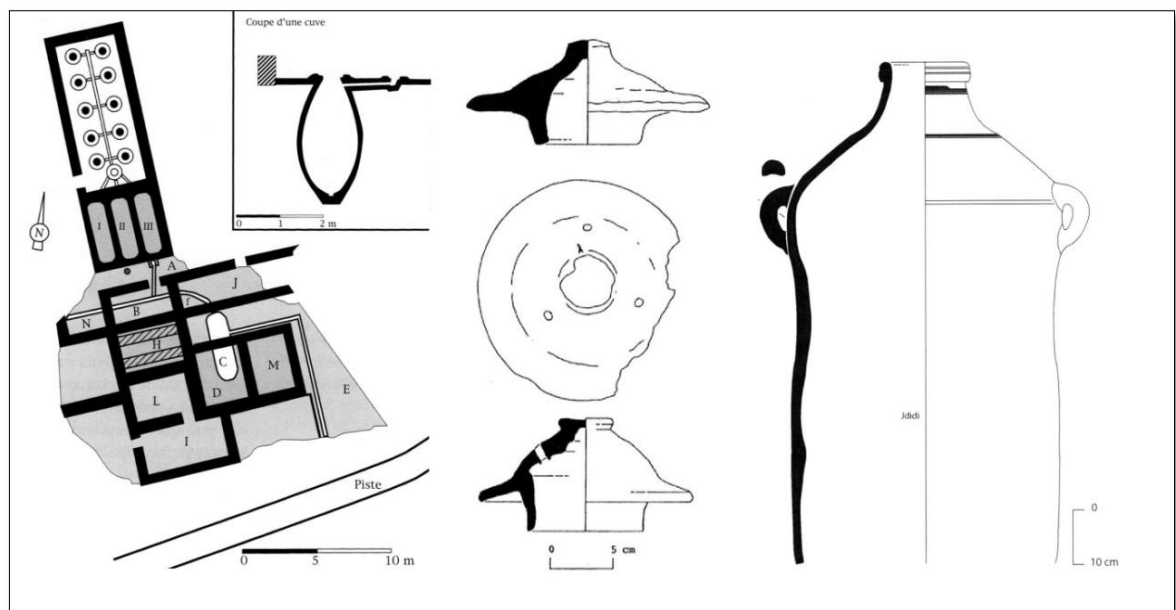


Figure 3.5 Left: The Propriété Belgica (after Brun 2004, 203). Centre: perforated amphora lids from excavations at the villa Demna (after Ghalia 2005: 82). Right: a Hammamet-type amphora (after Bonifay 2004).

There are a few rare cases where quite large-scale wine production had unequivocally been taking place. At the “Propriété Belgica”, 26km distance from Sfax, a series of elongated basins were connected via lead pipes to a battery of 10 fermenting vats (Poinssot and Feuille 1936). Each vat was 2.7m deep and 1.4m in

diameter and could contain 25 hl of liquid. The total storage capacity was thus 250 hl of wine, which Brun estimates corresponded to a vineyard of 4-7 ha (Brun 2004a).

Another similar example is the villa Henchir Bou Garnin, located on the shores of Lake Bibèn, opposite the Isle of Jerba. Excavations there in 1913-14 dated its operation to the 4th century AD, and the discovery of two *ostraca* allowed the property to be identified as the *fundus* Villa Magna (Brun 2004a: 197; Saladin 1914). With the exception of these two examples, however, it is possible that many African wineries did not use interred *dolia*, but fermented the wine, as in Phoenicia, Judaea and Egypt, in large pots or amphorae which could then also be used for their transportation (Brun 2004a: 203). This hypothesis seems to be confirmed by the excavation at the villa Demna, which resulted from the damming of the Wadi Arremel.⁷⁴ Here African Red Slip ware (ARS) forms of the 5th-7th centuries were found, along with examples of late amphora forms Keay 50 and Hammamet type 3D. The latter of these has a volume of more than 120 litres and it seems likely they were used for fermenting or storage, rather than as transport amphorae. Bonifay has commented that the presence of a number of perforated lids found at the site also support this hypothesis, as vessels used for the fermenting process would have had to be breathable (Bonifay 2005a: 80). The villa was equipped with both a press room, for the production of olive oil, and a separate room with a white mosaic treading floor served by its own decantation vat, for the production of wine (Ghalia 2005: 70). This demonstrates that many large farm sites in this region of Tunisia may have been involved in producing both olive oil and wine.

Brun has also highlighted two sites on the Cap Bon peninsula where the separation of pressing and treading operations is not so clear: the sites at Kerkouane and at Henchir Dhouhek (Ghalia 2004: sites 7 & 18). The first, situated immediately north of the Punic town of Kerkouane, has a raised vat serving a lever press; Brun has noted that the depth of the vat makes it look like a treading floor (Brun 2004a: 204). The site at Dhouhek, near Takelsa, is part of a late Roman villa and has a very similar arrangement to that at Kerkouane. Mattingly has also recently commented that he would be happy to interpret the facilities excavated at Uchi Maius as perhaps

⁷⁴ This is within the same region that was examined by the Segermes Valley Survey.

producing both wine and olive oil (Mattingly 2009a). Well-used examples of pressbeds often display considerable damage from acid erosion caused by olive oil, and many have had their run-off channels rescored several times to counteract the erosion damage that eventually inhibits the proper functioning of the press. However, this sort of acid erosion is rarely noted in survey reports, and can be difficult to discern from photographs if they are provided. The most that can be stated at this time is that a significant number of African pressbeds do not show obvious signs of this type of acid erosion.

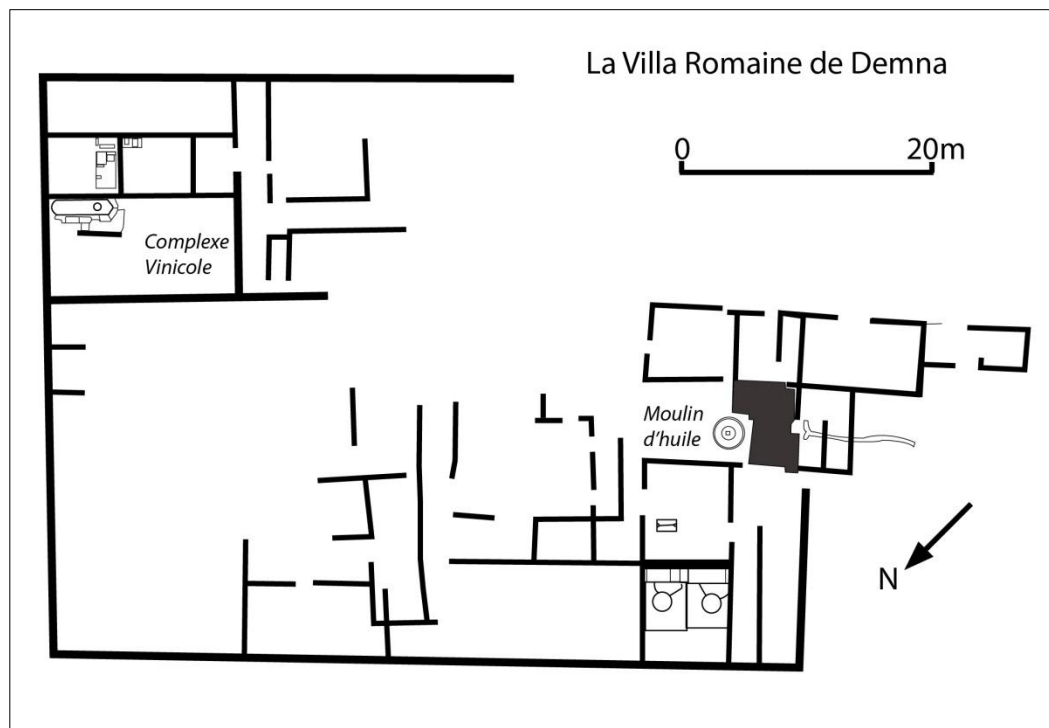


Figure 3.6. Separate olive oil and wine production areas at the Villa Demna, Tunisia (after Ghalia 2005: fig. 17).

With regard to Libya, Brun (2004a: 190) has recently argued that there may have been significant amounts of wine produced there. He notes that, according to Apuleius, vines were cultivated in the hinterland of Oea (*Apology* 44, 6), and that often wine-processing installations have not been recognised by archaeologists. In addition to his reinterpretation of the press building at the Lm 4 farm, he cites the example of a wine press found during the Italian colonisation close to Oea, which was originally identified as having been used for olive oil (Brun 2004a: 190). In the coastal region there are many luxury maritime villas. To the east of Lepcis Magna, close to Silin, one

of them, decorated with mosaics and paintings, seems to have been situated in order to exploit four separate outlying farms (Brun 2004a: 190). One of these farms was equipped with oil presses, but another had two basins, which may have been vats for the collection of the rape (the fleshy parts of the grapes left after extracting the juice for winemaking).

3.3 TUNISIA

Only three published excavations of rural farm sites can be cited for Tunisia, all of which have proven to be Vandal or Byzantine in date. Two of these were excavated in the context of foreign research projects and are located very close to one another in the immediate hinterland of Dougga: the first at the small town of Uchi Maius (Khanoussi and Mastino 1997, 2006; Vismara 2007) and the second at the farm site of Aïn Wassel (De Vos 2000). The third took place in the rather different circumstances of a rescue excavation, funded by the Tunisian government in advance of the construction of a dam across the Oued Arremel in the governorat of Zaghouan (Ghalia 2000, 2005).

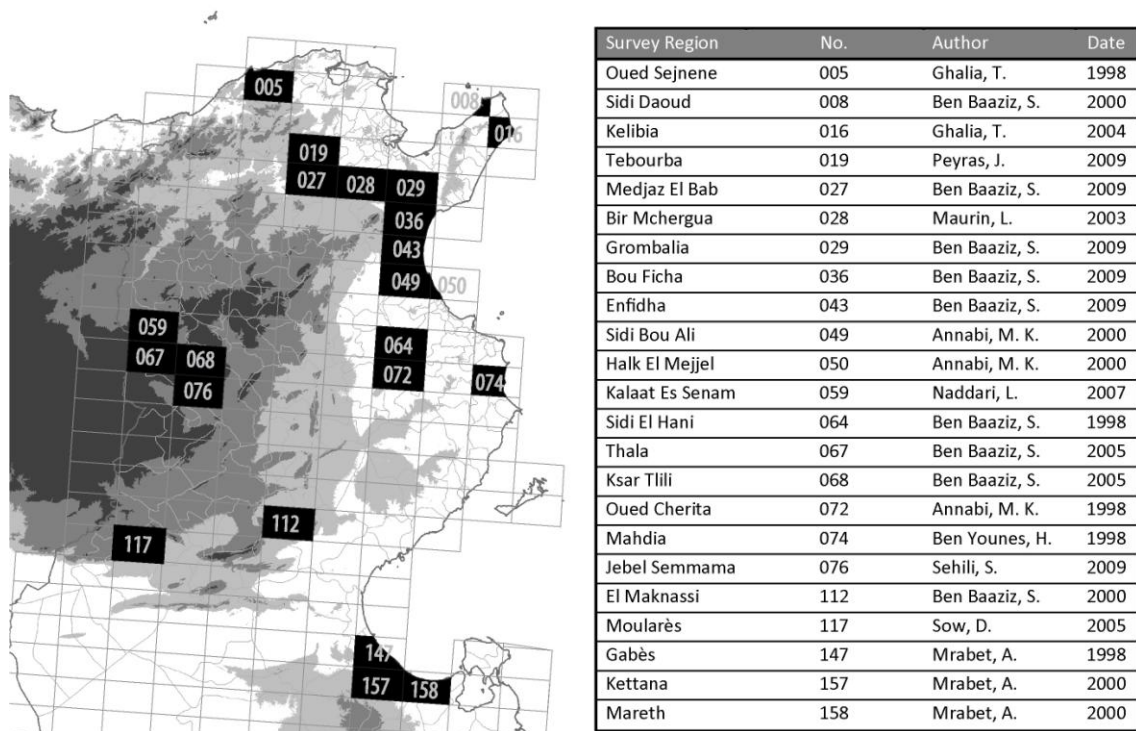


Figure 3.7 The 22 published survey regions of the *Carte Archéologique* (I have also included Kalaat Es Senam, as, although not fully published, an article by Naddari includes information on several sites).

The *Carte Nationale des Sites Archéologiques et des Monuments Historiques*, aimed at protecting the country's archaeological heritage, is now beginning to bear real fruit. A series of 22 archaeological reports has been published over the course of the last 10 years, providing a wealth of new data that considerably improves the depth and extent of our knowledge of pressing sites within the country (Ben Baaziz 1992;

Stone 2004). For the purposes of this survey the country has been divided up into 290 separate survey regions. Each survey report is published with an accompanying 1:50,000 map sheet. Region 001 lies in the far north-west of the country, with the numbers of the map sheets ascending along horizontal lines until region 290 is reached, in the far south-east. The survey zones are theoretically 660km² in area, but there are several reasons why in practice the searchable area can be reduced, unfortunately hindering numerical comparison when we begin to look at the number of sites recorded for each region.



Figure 3.8 The location of sites found by the *Carte Archéologique* in the regions of Sidi El Hani (064), Oued Cherita (072) and Mahdia (074).

One reason is that for many of the coastal regions a proportion of the map sheet falls within the Mediterranean Sea. If we take the example of Mareth, region 158, 190km² of its area can be discounted because of the Mediterranean, but the area is limited still further by inland marshes and lagoons, which are common in Tunisia, and are known locally as *sebkhas* (Mrabet 1997: 65). This is the case, for example with the survey region of Mahdia, bounded by the sea on its eastern side, and with Sidi El Hani and Oued Cherita, which are impacted quite heavily by the presence of the Sebkhet Sidi El Hani (Figure 3.8).

Each site recorded by the survey has a six-figure identification code: the first three digits correspond to the survey region and the final three identify the site (e.g. 158.062). Twenty-two of these regions have been published at the time of writing this chapter, but it is likely that many more are on the way, the survey work for them having already been carried out.

Of course, the evidence of the *Carte* does not stand alone, but the number of other significant survey projects that have taken place in Tunisia can still be counted on the fingers of one hand. They include the Dougga, Jerba, Kasserine, Leptiminus and Segermes surveys (Ben Lazreg *et al.* 1992; De Vos 2000; Dietz *et al.* 1995; Fentress *et al.* 2009; Hitchner 1988, 1990; Ørsted *et al.* 2000; Stirling *et al.* 2001; Stone *et al.* 2011a). There are several advantages that the results of these projects have over the *Carte*; namely that their teams conducted a really intensive survey (i.e. with fieldwalkers positioned 25m apart, or less), and that they systematically collected ceramics. Needless to say, however, if one were limited to information from these surveys alone, the geographical scope of this chapter would be severely reduced. The *Carte* publications, although not carried out in such an intensive manner, hugely increase the breadth of our archaeological knowledge. It is also notable that in zones where these survey projects overlap with the work undertaken by the *Carte*, the number of sites recorded by this project compare quite favourably with the results of the more intensive surveys. There is however, due to the need for targeting areas most threatened by modern development, a distinct bias in the location of the survey regions of the *Carte* towards the northern and coastal parts of the country, with few published regions being located further inland, and with no published reports being available south of Mareth on the Gulf of Gabès. A major benefit of the *Carte* publications is that they include a great deal of the raw survey data. With the exception of the excellent *Africa Proconsularis* publications on the archaeology of the Segermes valley, this is not the case with any of the other more intensive surveys. Thus, in spite of their methodological superiority (see discussion in Stone 2004), they contribute less than they otherwise might have done because of their form of publication. Without available access to their raw data, it has been impossible to include them fully in the quantitative regional comparison which follows.

The focus in this chapter will be on the wealth of evidence these reports have recorded for ancient pressing equipment. A total of 4196 archaeological sites have been recorded in the 22 individual survey reports of the *Carte*; of these, 615 have revealed the remains of ancient presses or ancient pressing related equipment. In some cases areas not yet systematically surveyed can still be included in the discussion thanks to summary articles written for those regions. One example is Drine's 1999 article on the regions of Gigthis and Zarzis (Drine 1999), which nicely complements the information we have for the Isle of Jerba. On these occasions I will discuss the evidence without including it in the statistical analysis. Other surveys, such as Kasserine, Dougga, Segermes and an interim article on the *Carte* region of Kalaat Es Senam, can be included in the statistical analysis, contributing a further 179 press sites, taking the total to 794.

One real advantage of the stone elements introduced above is that, even when found *ex situ*, either strewn about in rubble spreads or reused in the fabric of later buildings (Byzantine forts, for example), they are still recognisable due to their distinctive features. These include the dovetail notches on counterweights and anchorstones, the holes, notches and slots carved into press orthostats, and the circular or rectilinear grooves scoured into pressbeds to direct the run-off, which exclude the possibility for these elements being mistaken for any other kind of architectural fragment.

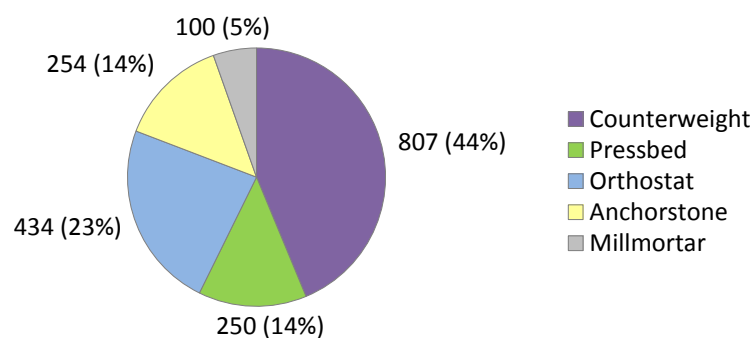


Figure 3.9 The frequency of stone elements of different types found in 26 different archaeological surveys in Tunisia (1845 elements from 794 sites).

As Figure 3.9 shows, some elements are far more common than others in the surveys. There are all sorts of reasons why this might be the case. Some elements are more frequently re-used in later buildings, making them more readily identifiable, whereas others have a tendency to become buried and as a result are less visible to the surveyors. An obvious example is the case of press orthostats in central and southern Tunisia. Their large size and upright position means they often remain more or less *in situ*, in a prominent position within the landscape, easily identifiable to surveyors. Anchorstones, by contrast, which sit at the base of the wall, often tend to become buried. The same is true of pressbeds, all of which leads to counterweights being the most common find in northern Tunisia, where stone orthostats were not used in general. If we compare the stone elements found by the *Carte Archéologique* with the Tarhuna Archaeological Survey, we find that this is not the case in the Gebel Tarhuna (Figure 3.10), where counterweights were a comparatively rare find.

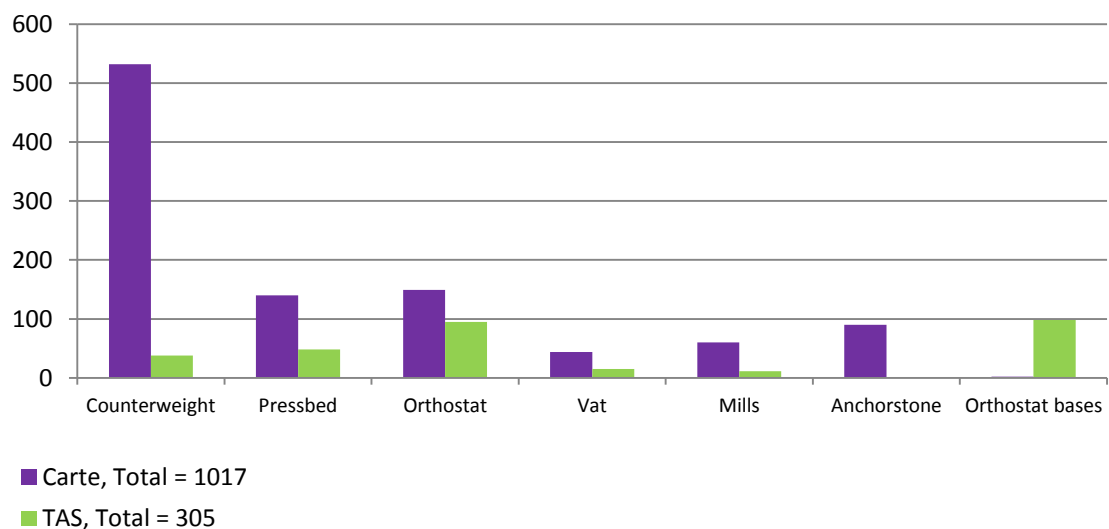


Figure 3.10 Comparison of the frequency of each press element type in the *Carte Archéologique* and Tarhuna Archaeological Surveys.

3.3.1 PROCESSING CAPACITY

Clearly the dimensions of the different press elements identifiable from surface survey can give an indication of the overall size of the presses and therefore their past

processing capacity. Much of Mattingly's earlier work on African presses concentrated on estimating their processing capacity or on establishing potential figures for the production and consumption of African olive oil more generally (Mattingly 1988a, b, c, d, 1994; 1996a: 36-37; Mattingly and Hitchner 1993; Mattingly and Zenati 1984). The rough production capacity of an individual press can be arrived at firstly by estimating the height of the beam from the position of the holes cut into the stone orthostats. For the anchorstone type of press this is usually not possible as the walls holding the presumably wooden parts used to fix the end of the beam mostly no longer survive. Thus, the height of the beam cannot be known for over half the known examples of ancient presses in Tunisia. Secondly, measuring the diameter of the run-off groove in the press bed then allows an estimation of the size of baskets of pulp and thus the volume of the stack of baskets. In addition to this, the size and weight of the counterweights and their distance from the orthostats or anchorstone allows an estimation of the sorts of pressures that these presses may have been able to generate (i.e. taking into account the combined weight of the beam and counterweight together).⁷⁵

In this chapter, however, I have made the conscious decision not to make the range of possible production capacities of different presses the primary focus of discussion. This is partly because the most striking fact revealed by the large body of data relating to the dimensions of the different press elements across Tunisia, is the remarkable regularity of their size and design. In addition to this, the vast geographical scope of the data means that it is possible to approach the data in a more nuanced way, which is sensitive to the general character of production within specific regions. For example, in many parts of North Africa these elements can sometimes be found *in situ*, and discoveries of this nature can help to identify whether or not presses were operated alone, in pairs, or in larger batteries. When this is the case, a great deal about the organisation and scale of production on a particular site, or within a particular building can be inferred. When survey is conducted over a large area, this evidence can provide a good indication of the differing nature and scale of production within and between regions. Before proceeding though, I will make some preliminary

⁷⁵ These points are discussed in greater detail by Mattingly (1988a: 186-194).

observations regarding the regional variation in the dimensions of these different press elements in both Tunisia and Libya.

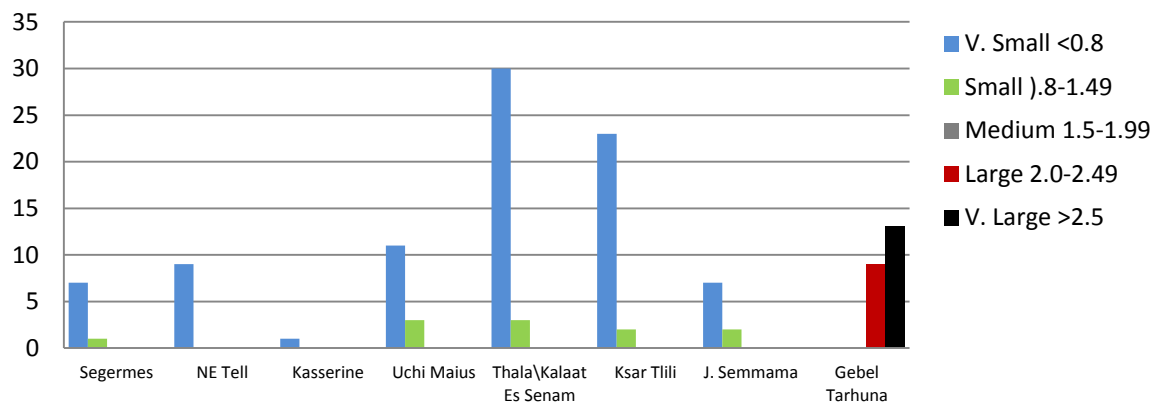


Figure 3.11 A comparison of 121 counterweight volumes from different regions of Tunisia and Libya (values in m³).

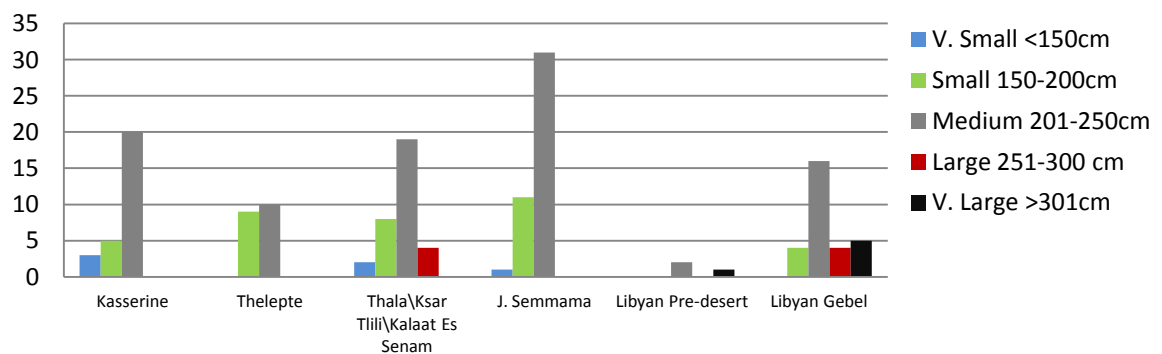


Figure 3.12 A comparison of 155 press orthostat heights from different regions of Tunisia and Libya.

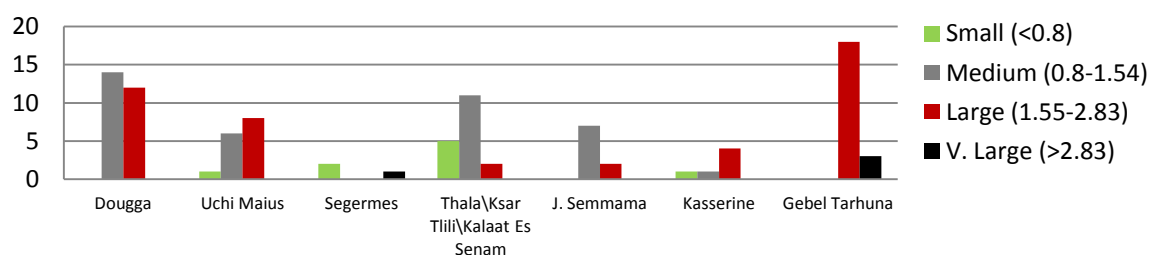


Figure 3.13 A comparison of the interior area of the run-off grooves of 98 pressbeds from different regions of Tunisia and Libya (units in m²).

Analysis of the dimensions of several hundred counterweight blocks recorded by survey projects across Tunisia and Libya allows for some interesting observations.⁷⁶ On Tunisian sites a broad range of sizes of counterweight block are usually present, weighing from less than half a tonne to about three tonnes. Perhaps this variation in counterweight size could indicate that different sizes of press were in operation, or indeed different sorts of load, which needed processing in a different manner. Even in a region known for its large battery-type press buildings, such as the Gebel Semmama, this same variation in counterweight size seems to be attested (24 examples recorded in Sehili 2009b, 167-168, only 4 examples were recorded by the Kasserine survey, Mattingly and Hitchner 1993, 453). This is in stark contrast, however, to a set of 22 counterweight blocks measured from the large press buildings of the Gebel Tarhuna, all of which weigh between 5.5 and 7.5 tonnes (much weightier than their Tunisian counterparts) and whose dimensions are, by contrast, remarkably uniform (all ranging from between 1.85 and 2.1m in length).

With regard to orthostat heights, there seems to be a greater uniformity between Tunisian and Libyan examples, although the very largest examples again are found in the Libyan Gebel. In each case the majority are over two metres in height, indicating that they were intended to process large loads. In terms of the area demarcated by the run-off channel carved in the pressbeds, Tunisian pressbeds again indicated a greater range of sizes, with the Libyan examples again grouped at the larger end of the scale. However, in terms of absolute size, the many examples from the region of Dougga were comparable to those of the Libyan Gebel.

Analysis of these three variables, counterweight weight, orthostat height and run-off groove interior area, allows the conclusion that the largest, most efficient presses, able to generate the greatest amount of downward pressure, were those of the Libyan Gebel. Having said this, many Tunisian presses were also large and capable of producing large surpluses of olive oil and wine. There are still many other characteristics to examine, however, which can help us to estimate the relative importance of different regions and individual sites with regard to exports.

⁷⁶ I have taken into account the dimensions of 277 counterweight blocks. I have also taken into account the 119 measurable blocks from Dougga (De Vos 2000: 27), although as only ranges of their longest side are published (and not their width or depth), I have not included them in the Appendix, which estimates a weight for each block.

Starting from the general premise that the use of even a small olive press indicates the processing of a surplus for sale or exchange, Mattingly has suggested load capacities for various sizes of presses from the Tripolitanian Gebel and then scaled up these figures for a 30-90 day pressing season. He estimates that the largest presses of the Tripolitanian Gebel would have been able to process in the order of 1,000 kg of olives in a single load. For the smaller presses, such as those found in the pre-desert region, he estimates as little as 250 kg. The resulting extracted oil is estimated at 20%, which results in the figures provided in the following table.

Load size(kg Olives)	Daily Yield in Oil	60 Days Yield	90 Days Yield
250 (small press)	50 kg (54l)	3,000 kg (3,260l)	4,500 kg (4,891l)
600 (medium press)	120 kg (130l)	7,200 kg (7,826l)	10,800 kg (11,739l)
1,000 (large press)	200 kg (217l)	12,000 kg (13,043l)	18,000 kg (19,565l)

Table 3.2 Estimated seasonal yields from single presses of varying size (adapted from Mattingly 1993: Table 3)

If we take a conservative figure, say the 7,826 litres potentially gained from a medium length processing season of a medium sized press, and compare that to the volume of a known oil-carrying amphora such as Africana 1 (max vol. 42 litres), we can see that even this modest volume would be enough to fill c. 186 of these amphorae. The implication is that after bumper harvests, the larger farms equipped with several of the larger presses probably had a marketable surplus that required several thousand amphorae, if it was to be transported overseas. But how common was this type of site?

REGIONAL ANALYSIS

To return to Tunisia, in spite of the problems of comparison between surveys represented by differences in size, methodology, intensity and so on, when we plot the frequency of stone production elements by region we begin to get a reasonable indication of the distribution of production sites for wine and olive oil of different sizes within Tunisia.

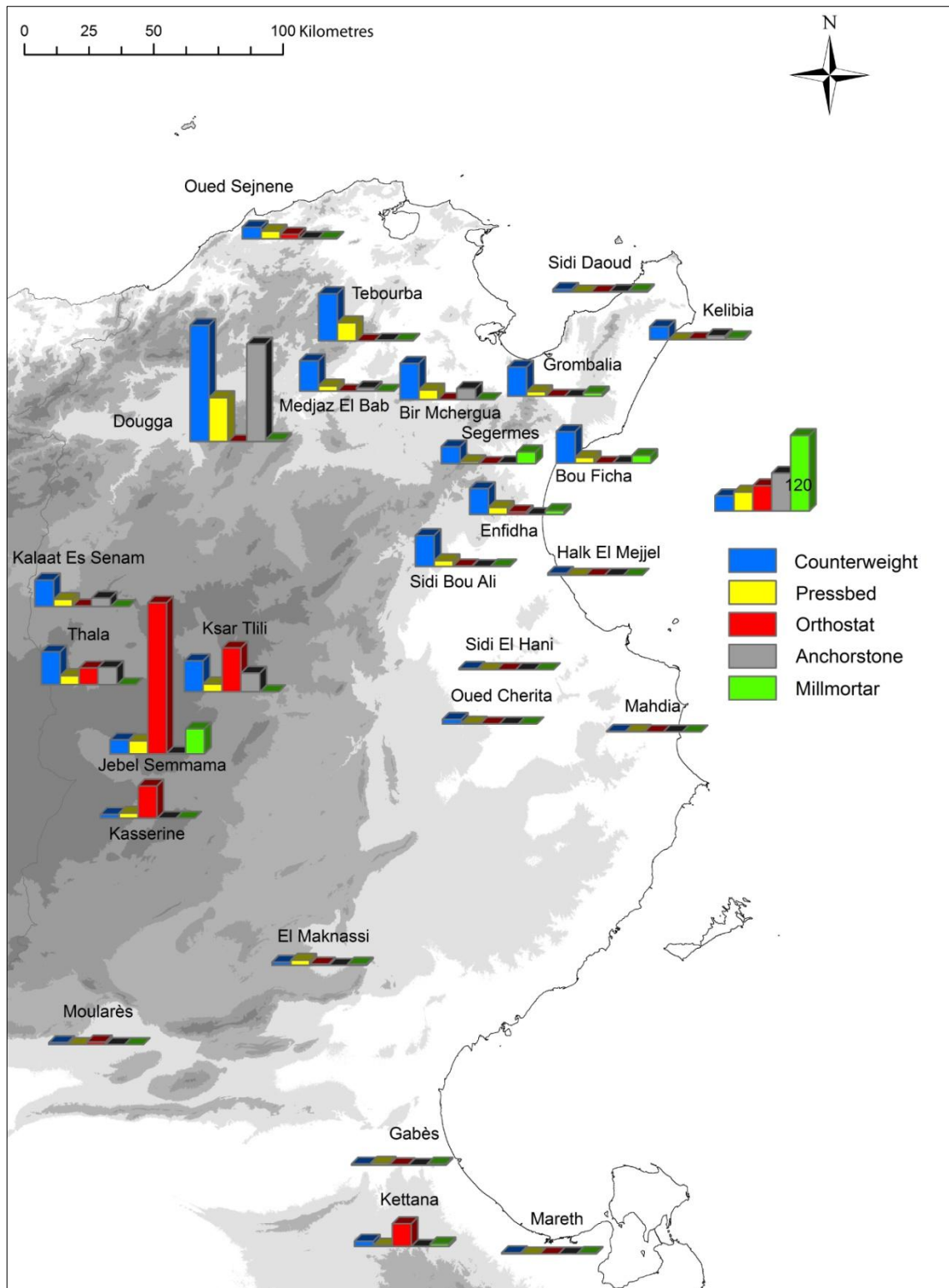


Figure 3.14 Stone elements related to pressing found by survey in Tunisia (refer to Table 3.3).

Region	Counterweight	Pressbed	Orthostat	Anchorstone	Millmortar	Orthostat Base
Oued Sejnene	18	12	7	1	1	0
Sidi Daoud	4	0	0	1	2	0
Kelibia	20	0	1	6	3	0
Tebourba	73	28	0	1	1	0
Medjaz El Bab	47	8	0	5	0	0
Bir Mchergua	56	15	0	17	0	0
Grombalia	45	7	0	0	5	0
Bou Ficha	49	9	0	1	12	0
Enfidha	40	11	4	0	6	1
Sidi Bou Ali	48	9	1	0	1	2
Halk El Mejjel	3	0	0	0	0	0
Sidi El Hani	2	0	0	0	0	0
Thala	51	14	26	27	0	0
Ksar Tlili	48	12	68	29	0	0
Oued Cherita	7	1	0	0	0	0
Mahdia	1	1	0	0	0	0
J. Semmama	22	20	234	1	39	9
El Maknassi	5	8	2	0	2	0
Moularès	3	0	4	0	0	0
Gabès	2	3	1	0	2	0
Kettana	8	2	35	0	4	0
Mareth	2	0	0	0	1	0
Segermes	26	3	0	1	18	0
Kasserine	6	8	50	0	0	0
Kalaat Es Senam	41	11	1	13	0	0
Dougga	180	68	0	151	3	0

Table 3.3 Numbers of stone elements found during surface survey, by region (refer to Figure 3.14).

Every survey region has produced at least some evidence of olive oil or wine production, although the number of elements of all types are significantly reduced in the more arid coastal and inland regions south of the Dorsal, below the 400mm *per annum* isohyets (Figure 1.3). These are the regions of Halk El Mejjel, Sidi El Hani, Oued Cherita, Mahdia, El Meknassi and Moularès. Surprisingly, the regions surveyed within the Sahel, despite being home to many of the amphora workshops that were important for the exportation of both wine and olive oil, have also revealed very little evidence.

Thanks to the inclusion of accurate coordinates for each of the sites, these data can also be represented in terms of the minimum number of presses (henceforth MNP) recorded for each individual site (Figure 3.15).⁷⁷ The calculation of MNP is based on the presence and frequency of the various press elements: counterweights, pressbeds, press orthostats, anchorstones, or blocs d'assises (a stone block upon which the orthostats would sit). Two counterweights recorded on a site would give an MNP value of 2, whereas a counterweight, pressbed and anchorstone, although representing a higher number of elements, would only give an MNP value of 1.

It should be noted that the MNP does not necessarily imply a number of presses in contemporary use; in some cases a high number probably indicates a greater longevity of a site's existence. One would perhaps have expected that two orthostats, if they are of different design, might be sufficient to infer the presence of at least two presses, but in fact Sehili has given enough examples of orthostats of different designs functioning together in the Jebel Semmama, that this idea must be discounted (Sehili 2009b: 272). The number of sites would be far greater if I were to include those which yielded millstones or grinders. However, it is not always clear from the records exactly what type of millstone had been found, and I decided, as such objects may easily have been moved from their point of origin, to include only the elements which are likely to have remained close to their point of origin and are definitely associated with the production of oil or wine.

As we might expect, sites in the grain-producing north of the country tend to have evidence of just one or two presses. The sites of the Dougga region that have revealed higher numbers of press elements appear to be those which had a greater degree of longevity, rather than being indicative of large-scale production sites. Excavations at Uchi Maius, however, show that one particular press complex did gradually grow to include as many as seven presses by the Byzantine period, but this is still of a significantly different character to the large battery-type press buildings of central-west Tunisia (indicated by the blue and purple dots on Figure 3.15), which appear to have been constructed as very large concerns from the beginning. Having said this, a fact which is often overlooked is that the aggregate production of northern

⁷⁷ This figure also includes the sites displayed in Mattingly's figure for the High Steppe region, mapped by the Brigade Topographique (Mattingly 1988b: fig. 4).

Tunisia was clearly hugely significant. Many of the northern regions can rival those of central Tunisia in terms of minimum numbers of presses recorded by survey region (bar chart). But the fact remains that in central Tunisia and parts of Libya (as we shall see) the numbers of presses recorded there are more significant, because they represent contemporary use of large numbers of presses all within a single agricultural building.

Nonetheless, the surveys of the *Carte* vastly improve our knowledge of the varying regional density of ancient pressing sites across Tunisia. The dates of the sites range from the Punic to the Byzantine era, although the vast majority of the sites are likely to belong to the mid-late Imperial period. Unfortunately, systematic surface collection of ceramics has not as a rule been undertaken at these sites. However, African Red Slip ware has been noted on a large proportion of the sites, and in some areas the surveyors have commented on the regional chronology of the pressing sites. For example, for the region of Kelibia (016) on Cape Bon, Ghalia has commented that most of the farms equipped with presses belong to the late Roman period (Ghalia 2004: 7). It is risky, however, to rely on the presence of fineware alone. As we shall discuss below, the production of African Red Slip ware was much more prolific in the late Roman period, which no doubt has an impact on the interpretation of the chronology of many of these sites.

Generally the amount of evidence is dramatic. Presses have been recorded in every one of the survey regions, although some regions have many more press sites than others. It should be recalled that not all of the survey regions are of the same size, as, due to the arbitrary nature of the grid system, several regions include substantial parts of the Mediterranean Sea (005, 008, 016, 050, 074, 147 & 158), and therefore the site numbers from each region are not always directly comparable. To compensate for this, in Table 3.4 I have included a calculation of the number of presses per square kilometre and then ranked the surveys in order from the highest density to the lowest. In order to compensate for the problems of the impact of natural features such as the sebkhet Sidi el Hani, discussed above, I have included only the searchable area of the survey regions, thus making the statistics more comparable. In doing this, however, it becomes obvious that the survey intensity has a significant impact, as the more intensive Dougga, Segermes and Kasserine surveys, which covered

smaller areas, appear at the top of the table. In spite of this, the complementary surveys conducted in nearby, or in the case of the Segermes Survey, the same regions by the *Carte*, indicate that these were indeed important regions of olive oil and possibly also wine production.

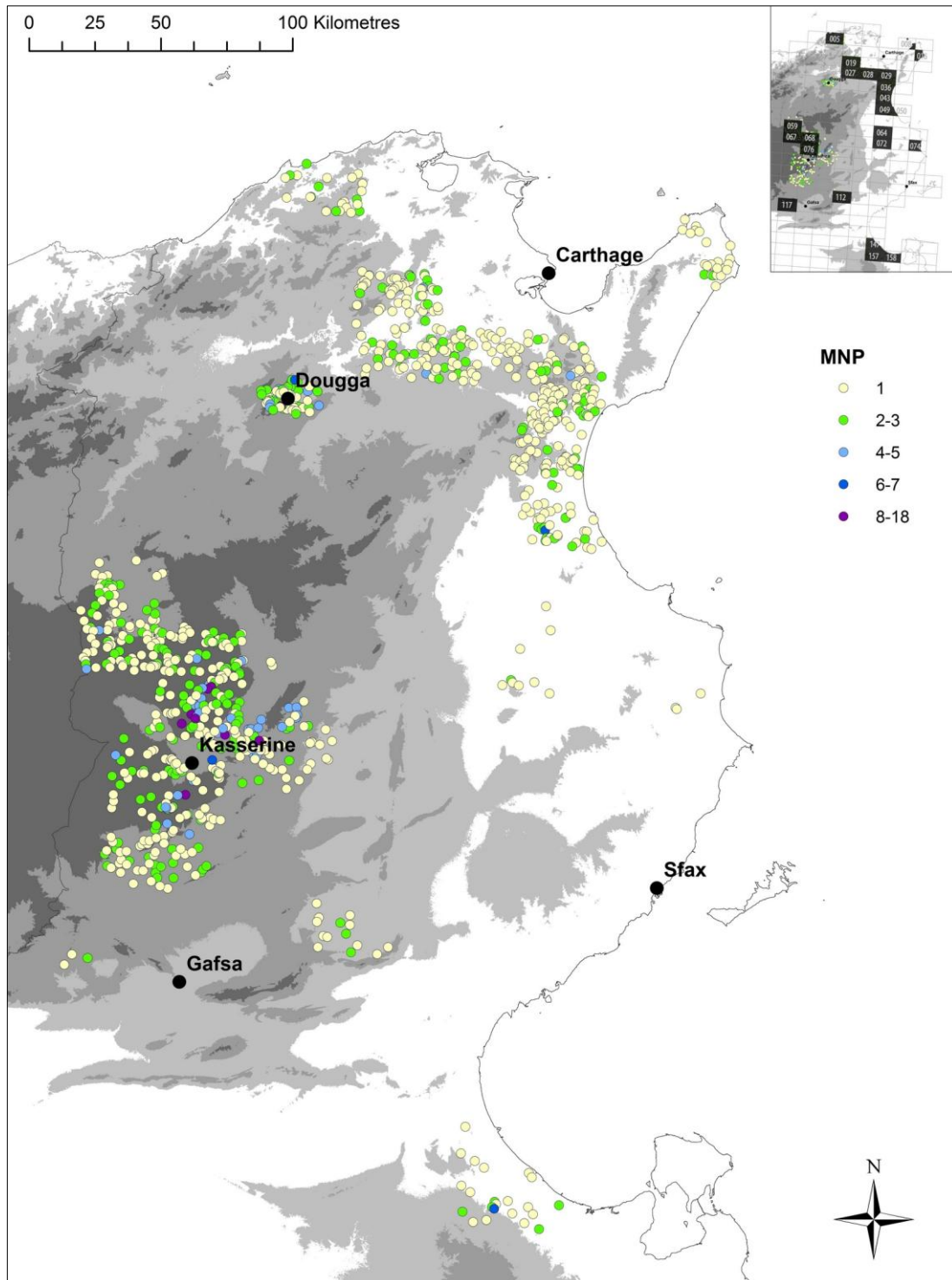


Figure 3.15 Minimum number of presses per site in Tunisia.

Region	No.	Approximate Area	Total sites	Sites per sq km	Press sites	MNP	Presses per square km
Dougga	-	198 km ²	500+	2.53	95	211	1.07
Kasserine	-	75 km ²	-	-	18	50	0.67
Segermes	-	150 km ²	-	-	32	40	0.27
J. Semmama	076	597 km ²	163	0.27	30 (18.4%)	157	0.26
Ksar Tlili	068	617 km ²	317	0.51	62 (19.5%)	99	0.16
Tebourba	019	566 km ²	259	0.46	72 (27.8%)	89	0.16
Thala	067	570 km ²	266	0.47	65 (24.4%)	89	0.16
Bir Mchergua	028	604 km ²	370	0.61	63 (17%)	75	0.12
Kelibia	016	233 km ²	164	0.70	24 (14.6%)	26	0.11
Bou Ficha	036	560 km ²	311	0.56	48 (15.4%)	62	0.11
Enfidha	043	485 km ²	203	0.42	44 (21.6%)	52	0.11
Medjaz El Bab	027	601 km ²	269	0.45	41 (15.2%)	55	0.09
Kalaat Es Senam	059	550 km ²	-	-	34+	50	0.09
Grombalia	029	621 km ²	284	0.46	44 (15.4%)	56	0.09
Sidi Bou Ali	049	611 km ²	363	0.59	37 (10.1%)	52	0.09
Sidi Daoud	008	71 km ²	44	0.62	6 (13.6%)	6	0.08
Oued Sejnene	005	557 km ²	198	0.36	25 (12.6%)	32	0.06
Halk El Mejjel	050	68 km ²	28	0.41	3 (10.7%)	3	0.04
Kettana	157	620 km ²	139	0.22	15 (10.7%)	25	0.04
El Maknassi	112	576 km ²	85	0.15	14 (16.4%)	17	0.03
Oued Cherita	072	430 km ²	176	0.41	6 (3.4%)	8	0.02
Gabès	147	375 km ²	103	0.27	6 (5.8%)	6	0.02
Sidi El Hani	064	358 km ²	125	0.35	3 (2.4%)	3	0.01
Mahdia	074	423 km ²	236	0.56	3 (1.3%)	3	0.01
Moularès	117	601 km ²	49	0.08	3 (6.1%)	4	0.01
Mareth	158	358 km ²	44	0.12	1 (2.2%)	2	0.01

Table 3.4 Recent surveys of Tunisia (ranked by presses per sq. km).

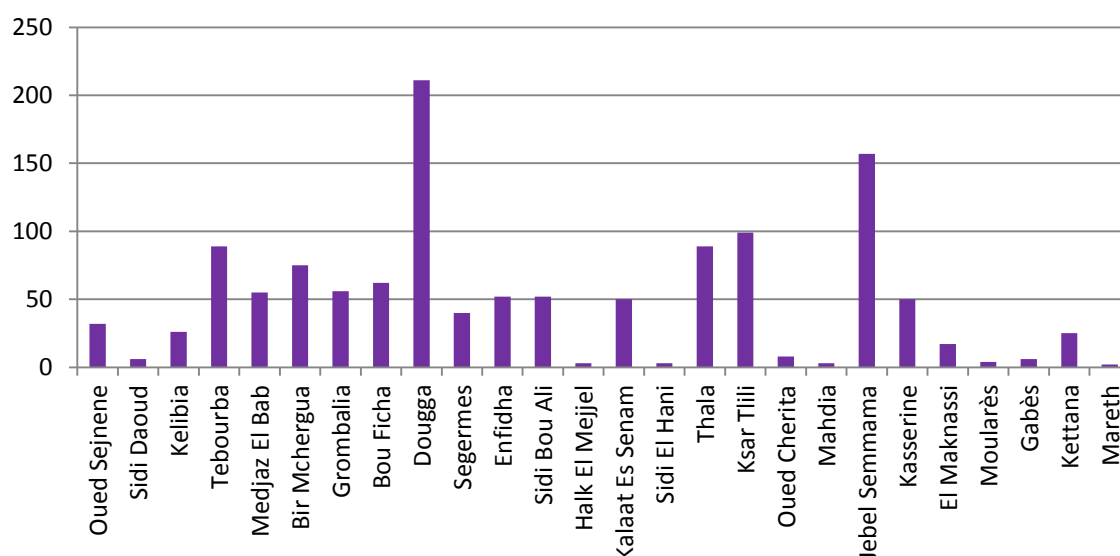


Figure 3.16 The minimum number of presses recorded within each survey region (total number of sites = 794).

We now begin to get an idea of which were the major producing regions. Eight of the regions have over 40 press sites, but another 10 have fewer than 20. A group of three adjacent regions, spanning the transition from the Dorsal to the High Steppe, represent some of the largest MNP values in the country. These are the regions of Thala 067, Ksar Tilili 068 and Jebel Semmama 076. Just under a hundred presses have been recorded for Thala and Ksar Tilili each, while the Jebel Semmama, situated fully in the zone known for its large huileries, boasts over 150. This region also has by far the largest MNP per site, at 5.2 presses per site, whilst the figure for most other regions is below 2 presses per site. Presses are also very strongly represented in regions not often considered for their contribution to oil and wine production: regions 019-049 in the north of the country, in the Tell, and in the hinterland of Carthage. Each of these seven regions has produced evidence for over 50 presses (75 in the case of Bir Mcherga 028 and 89 in the region of Tebourba 019). One question still hangs over this statistical evidence: how much is it a reflection of uneven preservation? That is, are the more densely populated and heavily developed regions of the country underrepresented due to the destruction or poor visibility of the evidence?

This question will be examined in more detail in the next section, which examines the arguably under-represented Sahel region. Nonetheless, plotting the data

for the minimum number of presses per site forces the conclusion that the aggregate production capacity for Tunisia as a whole must have been immense. Few communities in the Dorsal and further north missed the opportunity to plant olive groves or vineyards, and to make the maximum use of their yields to produce olive oil and/or wine. It is of course possible, however, that the social relations behind this production varied from region to region. It is one danger of representing the data in this manner that it can conceal fundamental differences in the character of the sites. In what follows, I shall consider the evidence from four main regions of the country: the Sahel, the Gulf of Gabès and the Isle of Jerba, the fertile Medjerda and Miliane valleys, and finally the more arid region of the western Dorsal and High Steppe.

3.3.2 THE SAHEL

Despite being one of the most comprehensively surveyed regions,⁷⁸ the Sahel is without doubt one of the most difficult to interpret archaeologically. In contrast to the north-west of the country, the Sahel was much less urbanised in antiquity, the two largest urban centres being Thysdrus and Hadrumentum, with many of the other towns being situated on the coast rather than in the interior. To judge from the areas surveyed, the rural landscape was unevenly inhabited in antiquity, with greater numbers of sites being identified in the far north and south of the region than in the interior. Some obvious reasons for this pattern can be stated. For one thing, the existence of large inland sebkhas, such as the sebkhet Sidi El Hani, constituted large areas which were necessarily free of settlement. In addition to this, the soils adjacent to these marshes were of poor quality due to their salinity, and were probably therefore unattractive to ancient farmers (Ben Baaziz 1999: 36). The commercial and

⁷⁸ The Sahel is divided into 15 map sheets by the *Carte Archéologique*. Ben Baaziz concentrates on six of these in his 1999 article (In the north Sidi Bou Ali 049, Sousse 057 and Sidi El Hani 064, and Mahdia 074, Oued Cherita 075 and El Hencha 089 in the south). I am not aware of the publication of the results from the Sousse or El Hencha regions in any other location. In his 1991 article he says that the Sahel was extensively surveyed between June 1987 and November 1988 and mentions four other regions that were surveyed, but which to my knowledge are still unpublished: Sabkha Kelbia 056, Jemmel 065, Moknin 066 and Djebnina 090 (Ben Baaziz 1991: 55-56). Since these two articles, reports on the regions of Bou Ficha 036 and Enfidha 043 were published in 2009 (Ben Baaziz 2009a, 2009b).

maritime opportunities offered by the coastal zones perhaps further attracted people away from the interior.

Scholars who still argue for extensive olive cultivation in the Sahel are fighting something of a rearguard action in the absence of obvious stone press elements recorded by surface survey (Stone *et al.* 2011a: 214-218). Could it be possible that the assumption that this region was important for olive oil in the past is based on an anachronism? As one can see from Table 3.4, a region such as Mahdia has roughly the same density of archaeological sites per square kilometre as a region such as Ksar Tlili, but of its 236 sites, only 3 had any evidence of press elements, compared with 62 from 317 sites in the latter region.

One of the key factors affecting the archaeological interpretation of the Sahel is no doubt its singular lack of good building stone. The majority of buildings in the countryside were constructed of earthen or mud brick walls, and as a result the character of the archaeological sites (and therefore also the process of their identification) is very different from that of other regions of Tunisia. Even where sites built of durable materials did exist, it is quite possible that they have since been quarried for building materials in later times, and are now less easily identifiable to the passing surveyor.

This of course causes a particular problem for the identification of ancient pressing facilities in the Sahel, as all the usually identifiable traces of pressing and milling activities are made of stone. Unfortunately for the archaeologist, the evidence for stone press elements and mill mortars diminishes as the distance from accessible sources of building stone increases, making it difficult to gauge whether the lack of evidence reflects a true pattern, which would correspond also to diminishing average rainfall, or whether it is due to the destruction of sites being robbed for their stone. Only the northern areas of the Sahel, those along the Gulf of Hammamet (Enfidha, Bou Ficha, Sidi Bou Ali), have significant evidence of press elements, displaying much in common with the other surveyed zones of northern Tunisia. No multi-press sites or sites using press orthostats have been found in the Sahel (Ben Baaziz 1991: 49). Indeed, for the main body of the Sahelian zone, almost a complete lack of evidence has been recovered (only 12 sites with recorded press elements from three regions Sidi El Hani 064, Oued Cherita 072 and Mahdia 074). As we have seen, this is certainly

not due to fewer sites being identified in general: Mahdia has 236 sites, Oued Cherita 176. Sidi El Hani has fewer at 125, but as I have explained, this is partly due to the existence of the large sebkha in this area. Nor do the sites lack other categories of finds. When comparing the numbers of sites with evidence of marble architectural elements, mosaics and inscriptions, the regions of the Sahel compare very well with the regions that also have many pressing sites (Thala and Ksar Tlili in the table below). It is the building stone and the evidence for pressing and milling activities that the Sahel lacks.

Name	Region	Mosaic	Marble	Arch	Baths	Inscription	Column	Capitol	No. of Sites
Sidi El Hani	064	12	4	10	6	0	1	1	125
Oued Cherita	072	13	2	12	3	0	9	1	176
Mahdia	074	7	17	18	6	0	15	2	236
Thala	067	0	14	5	3	14	22	12	266
Ksar Tlili	068	5	7	5	2	6	14	7	317

Table 3.5 Comparison of the frequency of architectural fragments from the Sahel and from Central Tunisia.

We could be observing a real absence of olive oil and wine production in this region, especially as the lack of large upland areas or hill ranges would have limited the ancient farmer's ability to harness run-off water, so crucial in arid environments. This raises the question of whether or not the modern techniques of raking the morning dew into the soil and so on were known in antiquity. Such an interpretation does not sit easily with the long-standing ideas about the economic basis of the Sahel in antiquity. During the 1980s, survey conducted by the Sahel Pottery Project⁷⁹ proved conclusively that the Sahel was a region of extensive amphora production, and this was naturally assumed to be supporting the export of olive oil, wine and other products produced in the immediate hinterland of the coastal ports. For several decades it has made sense to interpret the huge areas covered by tree pits known from aerial photographs, particularly around El Jem, as evidence for extensive ancient olive groves. On the other hand then, we are left with at least two other possible

⁷⁹ The Sahel Pottery Project, Peacock (1989; 1990).

explanations. First, the extensive degradation of sites in order to extract building stone in later epochs and the setting out of the huge modern olive groves may have almost entirely erased the surface evidence for pressing facilities. Second, the character of presses in this region may have been entirely different, using mainly wooden parts.

Without the indicators usually relied upon by survey teams to divine their presence, it is likely that it will take excavation to really get to the bottom of this problem of the presence or absence of presses in the Sahel. At this time opinion remains divided. Ben Baaziz has argued that olive oil production held an important place in the Sahel, although he concedes that it is now unlikely that the Sahel was the principal olive oil producing region. He imagines that the presses were of a different type to other areas, probably screw presses (1999: 45), although there is no evidence to support this hypothesis. Sehili has argued that the spacing of trees on the aerial photographs from the Sahel is quite large, 40-50 trees per hectare, and probably therefore allowed the intercropping of vines (2008b: 789), although this spacing is also used in modern times due to the aridity of the environment. She draws the conclusion from Bonifay's work on the possible contents of African amphorae that wine and cured meat products made up a greater proportional volume of exports from the Sahel than olive oil (2008b: 787-789). Later, concluding that wine and grain were the main agricultural exports of this region, she uses this fact to explain the absence of large multi-press sites here (2008b: 789). However, even if we follow this argument, we still have the problem of identifying the evidence for wine pressing or treading.

It is possible that the extensive planting of olive groves in the modern era may have destroyed some of the archaeological remains, but the distinct lack of press elements is difficult to explain. Mattingly, and others involved in the publication of *Leptiminius 3*, have recently argued that excavation would probably reveal evidence of larger pressing facilities which they believe existed in this region. Pollen data from an undated geological core taken from the Sebkha M'ta Moknine, they argue, probably indicates "large-scale Roman activity" (Stone *et al.* 2011a: 215), but more systematic treatment of the environmental evidence is needed. The abundant evidence for the presence of amphora kiln sites in the Sahel makes it unlikely that they did not serve local production to some degree - and indeed there is evidence for dried olive pits being used as fuel for the kilns in some cases - but it also seems clear that much of the

production from the interior would have been arriving here in skins to be transferred into amphorae for exportation (Marlière and Costa 2007). As much as three-quarters of the olive oil referred to in the late-4th-century *ostraca* found on the Îlot de l'Amirauté (at the centre of Carthage's Circular Harbour), arrived at the weighing facilities in skins (Peña 1998: 212).

3.3.3 CENTRAL TUNISIA

In the Roman period this region was served not only by urban aqueducts that provided potable water for the populations of Cillium, Sufetula and Ammaedara, but also by smaller rural aqueducts. These rural aqueducts were not of the great scale of the urban aqueducts known from the north of the country. They generally did not bridge any great valleys, but they often ran for long distances from the upland into the plain, contributing to the success of rural agriculture in the region. Examples can be seen at Hr. Torbkhana, Hr. Ezzenaidia, Ksar El-Guellal and at many other sites along the edges of the Djebel Selloum, Djebel Semmama and so on (Mrabet 2001: 154; Sehili 2009b: 299-349). In the region of the Djebel Semmama nine aqueducts have been identified (Sehili 2009b: 303). They tend to be better preserved in the hills than on the plain. One of the best preserved examples, at Aïn M'sahel, ran for about 2km and was built from ashlar blocks. Where it has been truncated by a modern track, the channel (*specus*) can be seen in section. It was lined with *opus signinum* and covered with stone slabs. Its maximum preserved height is about 0.75m and it fed a large basin at the site of Henchir El-Ferah (076.048) which had several structures, including at least one press building and a fort.

Farms in this region clustered close to the wadi channels where they could exploit both the alluvial soils deposited there, and the water run-off from the large expanses of the upland Djebels. In addition to aqueducts, a whole range of other catchment technologies were employed to increase the hydration of the soil. Terraces and low walls arranged in staggered rows acted against erosion and helped to make sure run-off water soaked into the ground in the desired place (Mrabet 2001; Sehili 2009b: 346-349).

Cylindrical cisterns, rectangular basins and reservoirs, now known in their hundreds from archaeological surveys, also helped farmers to continue to irrigate their crops and to water their animals through the driest parts of the year. Some sites were equipped with more than one such water-capturing device. Many of these were of truly impressive size, although this was partly in order to counteract the increased negative effects of evaporation and sedimentation experienced in arid environments (Laity 2008: 92). Many examples of cisterns also had vaulted roofs in order to limit evaporation, and separate settling and storage tanks to limit sedimentation. To give a few examples: a basin at site 076.053 was 39.5m in diameter, with buttresses 0.7m thick spaced every 3.7m, with a visible depth of 4.5m. A cylindrical cistern at site 076.006 measured 3.4m diameter and was at least 5.5m deep (almost 50,000l capacity). A long rectangular cistern at site 076.042 measured 15.2m by 2.5m and was at least 4.7m deep (almost 80,000l capacity).

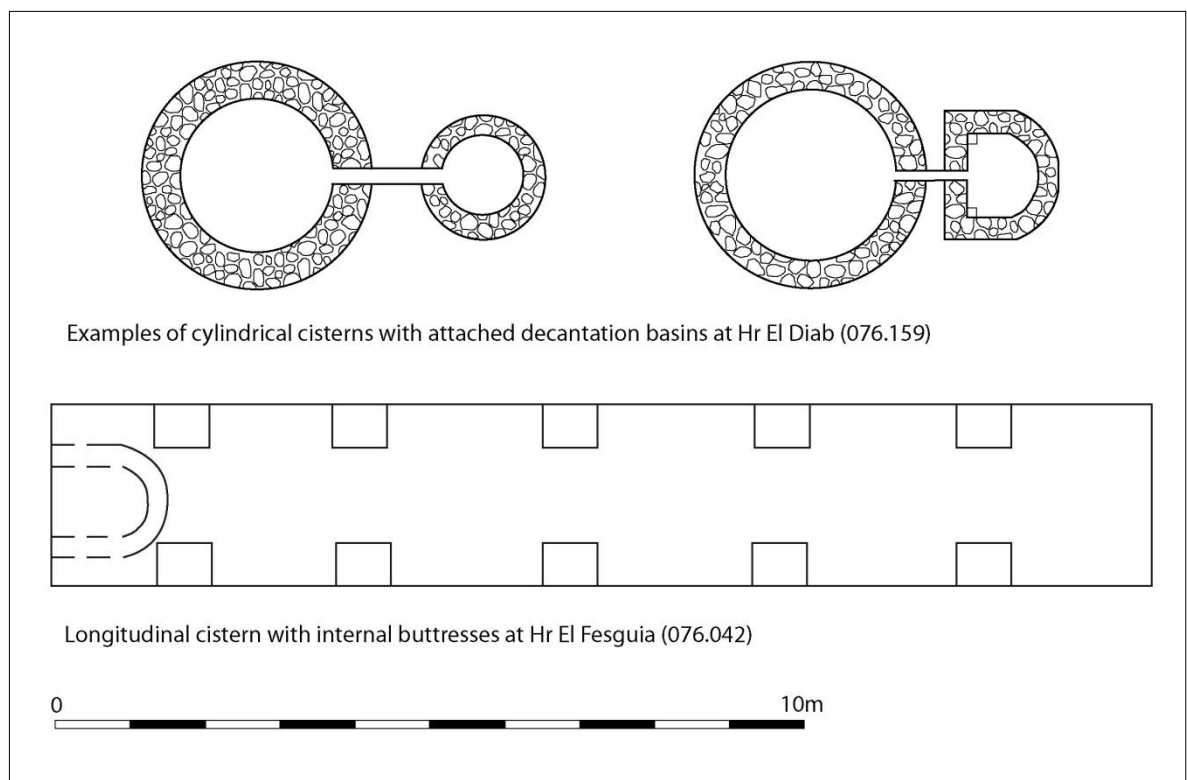


Figure 3.17 Examples of cisterns in the region of the Jebel Semmama (after Sehili 2009b: 318, 326).

As well as archaeological evidence for these water catchment technologies there is literary evidence: Agennius Urbicus' work *De controversiis agrorum* probably depended on a late-1st-century AD work by Sex. Iulius Frontinus, on the same subject. He states:

"Many different cases occur, which relate to the normal legal process, because of the diversity of the provinces. For instance, in Italy no small dispute is provoked over keeping out rain water, whereas in Africa a dispute on the same matter takes a quite different direction; because it is a very dry region, a person has no greater reason for complaint than if someone prevents rain water from flowing onto his property. Indeed they build dykes and catch and keep the water, so that it can be used there rather than flow away."

(Agen. Urb. In Campbell 2000, 20-21)

And in another section:

"In Italy or in certain provinces, it is a serious offence if you divert water onto someone else's land, but in the province of Africa, if you prevent water from crossing their land."

(Agen. Urb. In Campbell 2000, 46-47)

Large cisterns and wells made the best use of both ground and run-off water, and were no doubt used in order to be able to continue irrigating crops and orchards and watering animals throughout the months when very little rain fell at all.

As we have seen from previous discussion and from Figure 3.15, there are many well preserved and very large press buildings in this region. Also in many cases the later forts have a considerable number of press elements re-used in their walls, implying that a greater number of sites once existed than can be observed today.

For a long time the Kasserine survey constituted the only high quality survey data available for this region, supplemented in some fashion by the earlier work of P.V.A. Addyman around Sbeitla (Addyman 1962, 1966). A starting point for both these surveys was provided by the *Atlas Archéologique de la Tunisie*, which consists of archaeological maps and accompanying notes based on information collected during the late 19th and early 20th centuries by the Brigades Topographiques (Cagnat *et al.* 1914). Recently, extensive survey work conducted for the *Carte Archéologique* in the regions of Kalaat Es Senam 059 (Naddari 2007), Thala 067 (Ben Baaziz 2005b), Ksar Tlili 068 (Ben Baaziz 2005a) and the Jebel Semmama (Sehili 2009b) has hugely increased the amount of available data. Important mention must be made of the latter publication by Sehili, *Les Huileries Antiques de Djebel Semmama*, which has been

published in book form with considerable additional analysis of hydraulic technology, chronological problems, and so on. This now makes up something of a more impressive body of evidence concerning the context of olive oil and wine production in the inland area which spans the zone from the mountainous regions of the Dorsal to the High Steppe. Although, for many parts of this region accurate site plans are yet to be published and chronological information is still piteously thin on the ground.

The surface collection of ceramics has, however, now been undertaken on several of the most important pressing sites of the Jebel Semmama: Henchir El Begar 1 and 2 (076.015, 076.020) as well as three other sites, Henchir Torbkhana (076.100), Henchir El Fara (076.113) and Henchir Sidi Zerrouk (076.133). These sites possess locally produced African sigillata dating from the 3rd to the early 6th century AD. Ceramics from the Kasserine survey also indicate that the number of settlements in the Kasserine region did not really peak until the mid-3rd or 4th century (Neuru 1987). In the light of this evidence, one might argue that the large neighbouring press buildings Kasserine 225 and 223, although possessing ceramics from the late 1st and early 2nd centuries AD, were built in the 3rd or 4th century. Such monumental structures might have been required only when production had reached its maximum, and they may have replaced earlier press buildings of more modest dimensions.⁸⁰ Equally, large sites could have existed from the beginning, with a gradual infilling of the landscape over time. However, there is some evidence to support this kind of development at the site of Henchir El Begar 2. The final phase of this agricultural processing site possessed an impressive example of the orthostat-using type of press building with at least eight presses arranged in battery. However, anchorstones, used for affixing the press beam in a different fashion, and presumably from an earlier press building, were reused in its construction (Sehili 2008a: 90), suggesting that the estate may have taken some time to grow to the impressive levels of production it eventually achieved.

In the case of the site at Henchir El Begar 1, we also know that it was important already in the first half of the 2nd century AD from two copies of a *senatus consultum* granting the right to the senator who owned the estate to hold a bimonthly market

⁸⁰ See the dating of the production and consumption of African ceramics more generally in Chapter 4 to understand the full context of this argument.

there. The fact that the sites on this estate, as well as other important sites within the region, only produced sigillata of the 3rd-6th centuries is therefore curious, and indicates that using fineware to date the sites in this region may be problematic. We have to accept the real possibility that even large and important inland estates may not have been receiving fineware in any great quantity before the 3rd century. In fact, the dating of the survey sites in Africa on the Dougga, Kasserine and Segermes surveys, for example, is hugely problematic precisely because it is usually based exclusively on the fineware. Virtually all the surveys show a similar pattern of an increasing number of sites from the early imperial period, peaking or levelling out in the 4th or 5th century. There seems little doubt that this is indicative of the growth of the African sigillata industries rather than the true pattern of settlement growth in each of these regions.⁸¹

There is other evidence to suggest that significant agricultural development was taking place here well before the 3rd century. The early-2nd-century mausoleum of the Flavii at Cillium (modern day Kasserine) is inscribed with an extraordinary pair of poems. One of these tells us that the father of Tiberius Flavius Secundus, the man for which the tomb was erected, had been the first to plant and irrigate vines in the region, suggesting that some production had begun by the end of the 1st century AD. We might suggest, therefore, a model which envisages a growing number of sites during the period from the late 1st century to the mid-3rd century. By this time several of the sites had achieved extremely large-scale production and had accordingly been equipped with the monumental press buildings so familiar to us in the archaeology of this region. It is of course not possible to exclude the fact that this region saw very large investment and monumentality of press buildings from a very early stage, but without excavation it is impossible to flesh out the chronological picture more fully.

Around the towns of Sbeitla, Feriana and Kasserine, the Atlas Archéologique recorded over 400 presses, but few of these sites were described in more than the briefest of detail (Mattingly 1988b). This situation was rectified to some extent in the years 1982-1987, when five survey sectors in the hinterland of Kasserine were examined in more detail by a team headed by Bruce Hitchner. The survey recorded over 40 newly discovered presses, 18 of which were found at the previously unknown

⁸¹ The problems of ARS dating are discussed in more detail in Chapter 4.

aggroville site of Ksar El Guelal. Other sites not of the classic “huilerie” type also yielded presses. The village site KS081 had two press installations and certain small hamlets also possessed presses and granaries (KS084-085). There are also several examples of small units adjacent to farms which generally had only one press, such as KS029, KS046 and KS080. A photo of one large press building at Kasserine site 225 gives one an impression of the vast scale of these buildings (Figure 3.18).

THE “OILERY” SITES

The clearest examples of very large specialised battery-type installations in this region are Henchir El Begar 1 and 2 and Henchir Torbkhana, in the Jebel Semmama, and Kasserine 225 and Henchir el Goussett, situated between modern day Kasserine and Feriana.



Figure 3.18 The large press building at Kasserine site 225 (Yours truly and Farès Moussa providing scale. Photograph taken by Melissa Ratliff).

Kasserine 225, and the less well preserved 223, were located only 350m apart from each other, each having at least four presses (see Mattingly in Hitchner 1990). These were purpose built ranges, rather than insertions into existing buildings, and they represent both a considerable investment of capital and the anticipation of processing very large quantities, most probably of olives. Mattingly calculated that, if worked to full capacity, the combined production from KS 223 and 225 could have been as high as 40,000-80,000 litres in peak years. This implies processing 200 metric tons of olives, a harvest corresponding to some 4000-8000 mature trees. With a

planting density of 50-100 trees per hectare, this would indicate an orchard area of 40-160 ha or perhaps even larger, up to 100-400 ha (see Mattingly in Hitchner 1990: 255). In contrast to the production present on isolated farms or in hamlets, these press buildings were obviously acting as processing centres for major agricultural estates (Hitchner 1995: 156).

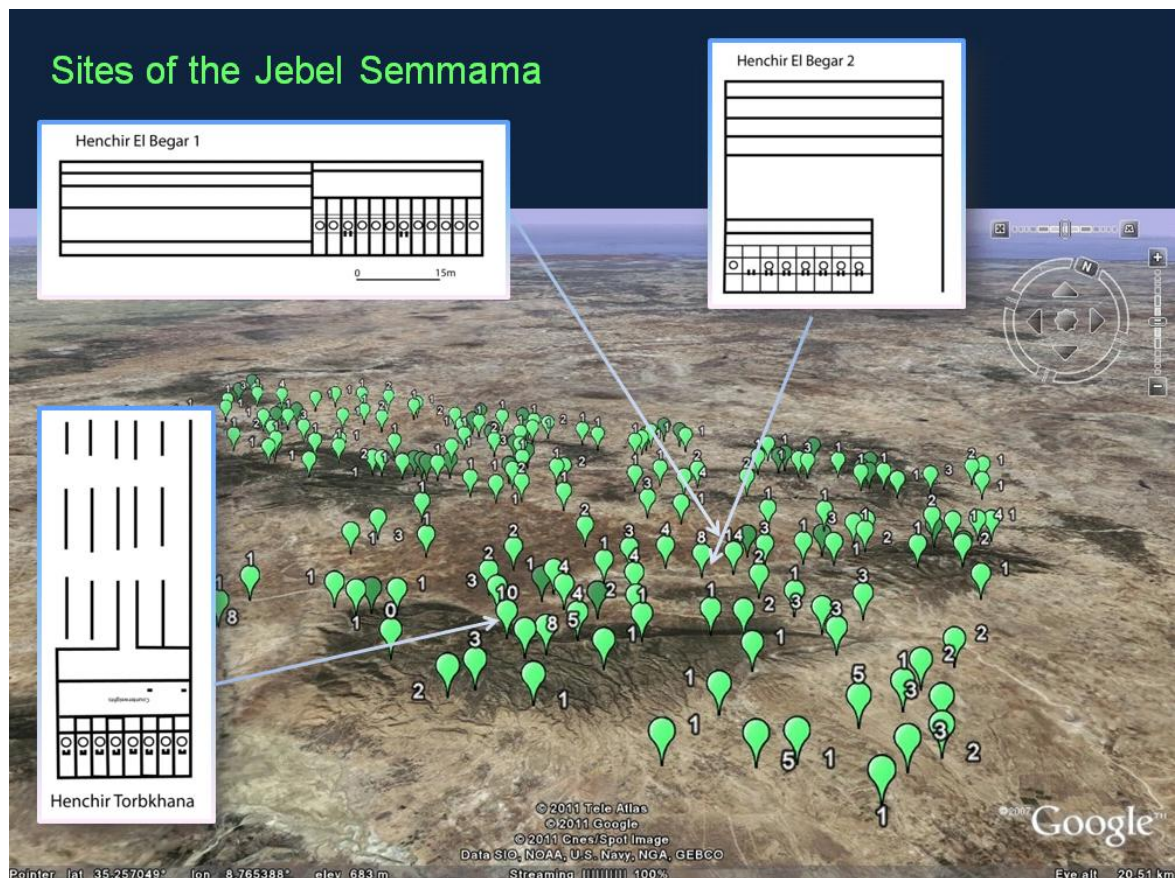


Figure 3.19 The largest press buildings of the Jebel Semmama 076 and their surrounding sites (including survey regions of Thala 067 and Ksar Tlili 068 in the background). Numbers indicate the estimated minimum number of presses on each site.

Addyman explored a number of similar sites in a 10km radius around Sbeitla. The sites usually consisted of ranges of buildings of *opus africanum*, arranged around a central courtyard. Most sites boasted about 6 presses (Addyman 1962: 64), although Addyman noted two larger sites: Site 61, Henchir el Oust, had between 12 and 20 olive presses, and another large establishment was Site 23, Henchir el Hasek, although the number of presses is not specified. Addyman ventured that the larger establishments

were probably state-owned rather than private concerns (1962: 64). However, as we saw in the previous chapter, this conclusion conflicts with the evidence we have from perhaps the best published example of this type of production site. The archaeological remains from the previously mentioned *Saltus Beguensis*, which lies between Sbeitla and Thala, have recently been published by Sehili (Sehili 2008a, 2009a; b: 218-238). The site possesses two enormous agricultural buildings located a kilometre and a half from one another. The two sites are known locally by the same name, Henchir El Begar, and have thus been labelled 1 and 2 by Sehili and as sites 076.015 and 076.020 by the Carte Archéologique. The first, Henchir El Begar 1, had no fewer than 12 presses arranged in battery in a building 31m long by 17.5m wide. The second, Henchir El Begar 2, had eight presses housed in a single building. Both press buildings were attached to equally large hall-type structures, which no doubt were used for the storage of agricultural produce, amongst other functions (Figure 3.19).

From the acidic erosion on the pressbeds found at Henchir El Begar 2, some of which had clearly had to have their run-off channels re-scored several times, it seems clear that this site specialised in the production of olive oil rather than wine. It is not clear which aspect of the estate came first: the institution of the rural market or the extreme specialisation in the production of olive oil. It seems likely, from what we know from the dating of the sites just to the south around Kasserine, that the large press buildings with their multiple sets of orthostats were constructed after the date of the *Senatus Consultum*.

As well as sites dominated by large centralised pressing buildings there are those, still with a considerable number of presses, which display a different character. At 076.018, an 8 ha site, four pairs of orthostats have been identified, but belonging to different buildings. This site is not far from Henchir El Begar 1, but the organisation of the buildings would seem to imply a village rather than an estate centre (Sehili 2009b: 32-33). At site 076-113 there are at least four different press buildings, one with five visible presses and three others with one or more presses. At site 076.133 there are eight presses recorded from seven different press buildings. Even at Henchir El Begar 1, three other much smaller press sites are known to encircle the larger press building (Sehili 2009b: 31). These two estate foci are large in comparison to other estate centres. The nearby imperial estate centre of the *Saltus Massipianus* is estimated at

only eight hectares in size (Ben Baaziz 2005b: site 067.074), and the known centres of the imperial estates in the Bagraas Valley rarely exceed two hectares (Sehili 2008a: 88).

These extremely large “oilery” sites sit at the top of the settlement hierarchy. They indicate the existence of extremely vast estates, often apparently owned by senators. However, below this level, there existed a wealth of other sites of varying size. In some cases village production is represented; other sites, of considerable but more modest size, were probably the smaller scale estates of local decurions. The general picture is of a region specialised towards olive oil production.

KALAAAT ES SENAM 059, THALA 067 AND KSAR TLILI 068

The regions of Thala and Ksar Tlili, which lie slightly further north in the Dorsal, have been briefly discussed by Ben Baaziz (2003) and Brun (2004a: 209-211). Not only do these regions represent the densest evidence for pressing installations recorded to date by the *Carte Archéologique*, but they are also remarkable for their use of both orthostats and anchorstones, sometimes at the same site. Orthostats seem to completely dominate at the eastern extent of this area, making it possible that the zone of transition to press sites solely using orthostats is located here. This predominance of orthostats in the eastern part of this area is also mirrored in Naddari’s results from the region of Kalaat Es Senam, immediately adjacent to the north (Naddari 2007: 79, fig. 18), although as already mentioned, we know that anchorstones were used as far east as the *Saltus Beguensis* before the press buildings there were rebuilt using orthostats.

With the shift towards the predominance of the anchorstone we move into the Dorsal, and the general character of the pressing establishments also shifts slightly. Instead of the imposing buildings housing between 6-12 presses, these sites generally yield evidence of no more than three presses being in contemporary use in one building, and the general impression must be that one or two presses per building was the norm.

We also have epigraphic and archaeological evidence for an Imperial estate in this zone, the *Saltus Massipianus*, which lies just to the west of the *Saltus Beguensis*. The extent of this large estate is known from several inscriptions found north of Thala, particularly an inscribed archway (CIL 8, 587: ILS 5567) which still stands at site 067.073 (Henchir El Goussa). What is known of the press buildings housed on the estate conforms to the general pattern observed for the regions of Thala, Ksar Tlili and Kallat Es Senam in general. Since the differences between the *Saltus Massipianus* and the *Saltus Beguensis* correspond to broader geographical trends observed in the archaeological survey data, it seems more likely that these represent regional norms rather than a basic distinction between imperial and private estates. However, we might add that the possible absence of really huge processing buildings, such as those present at the centre of the *Saltus Beguensis*, might imply a lack of centralised control on the imperial estate. Whether here we are also observing the geographical limits of the *Lex Manciana* and the beginning of a different kind of tenorial relationship south of the Dorsal is impossible to know.

3.3.4 NORTHERN TUNISIA

The 150km² survey of the Dougga region, undertaken by a team headed by Marietta De Vos of the University of Trento from 1994-2000, now provides the opportunity to examine a region in the heartland of the great imperial estates in the light of new evidence. According to De Vos, the Dougga survey has recorded 186 farms and 12 villages, with a total of 247 presses recorded from 123 sites (De Vos 2000: 26). Approximately half the sites had a single press, a quarter had two, and a few had eight or more, the highest number being 12 (although we need to be cautious about how we interpret this data, as I shall presently explain). Of the sites which have archaeological remains of presses, 44 have dating evidence presented in the *Rus Africum* publication (De Vos 2000: 72-75). From the following graph (Figure 3.20), which represents that data, it would appear that the production of oil and wine grew steadily through the Imperial period. There are, however, significant difficulties with the interpretation of the collected ceramics (Wilson 2001: 187). As stated above,

reliance upon the fineware may create a significant distortion. In this case, the allocation of the bulk of the handmade wares to the pre-Roman period adds to the confusion. Handmade wares, continue to be produced in Africa throughout the Roman Imperial period and into late antiquity. The fineware suggests that the vast majority of these sites were occupied during the late Imperial period, which could indicate that this was the time when production output in this region reached its peak. However, further analysis of the handmade wares may re-balance the picture towards the early Imperial period. The number of pressing sites falls slightly in the Vandal and Byzantine periods, but is still higher than in the early-middle Imperial period. An obvious problem is that the ceramics from a site do not necessarily date the period in which its press buildings were in operation. This might only have been a fraction of this chronological bracket.

With regard to the nature of the individual sites, a note of caution is again advisable. It seems clear that sites with a larger number of presses (3 or more) are those that demonstrate a significant degree of longevity. These sites often possess ceramics from pre-Roman times through into the Byzantine period (the absence of material dating to the early Imperial period is probably attributable to the incorrect dating of the handmade wares). Rather than indicating investment in large multi-press buildings of a single phase, they are more probably sites which operated one or two presses during the course of several centuries, with the presses undergoing periodic replacement or renovation. A good example to demonstrate this point is site No. 282, recorded by de Vos as having evidence for 8 presses (2000: 82). Upon visiting the site in November 2009, it seemed likely to me that the press count was chiefly derived from the number of counterweight blocks and anchorstones at the site. All of which appeared to be *ex situ*, either scattered about on the surface or reused in the walls of later buildings. Importantly, all the counterweights were of greatly differing size and dimensions, making it unlikely that they ever formed part of a contemporary battery of presses. The dating evidence from site 282, beginning in the middle Imperial period and continuing into the Byzantine period, adds further weight to the argument that this is a site which operated one or two presses over the course of several centuries. In general, it seems that none of the sites of the Dougga region have anything of the character of the large battery type “huileries” familiar from other parts of North Africa.

Throughout the area, press buildings of a much more modest character are typical, and surprisingly numerous.

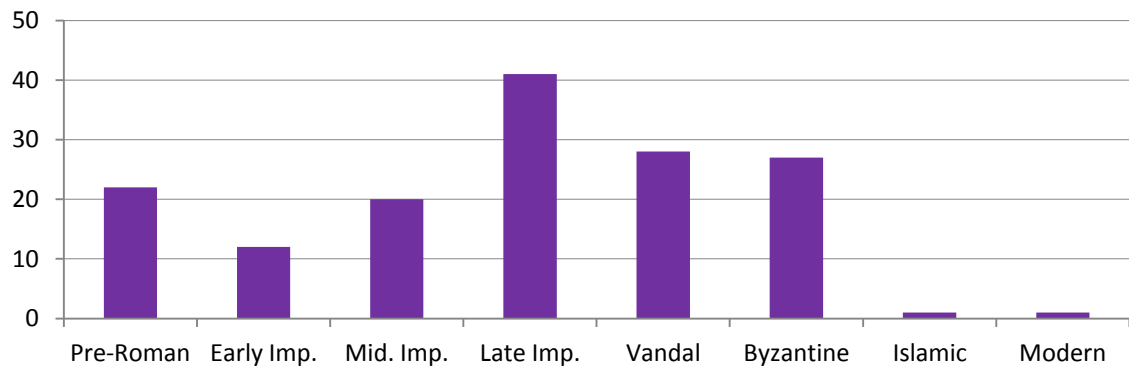


Figure 3.20 Number of press sites with ceramics dating from the above periods from the Dougga survey.

Having said this, there is now evidence from the nearby town of Uchi Maius, that some urban pressing installations may have reached a larger scale of production during the 5th-6th centuries. In 1995, a joint Italian and Tunisian team began research on this town, originally a Marian colony, which was transformed during the 5th century by the construction of a number of pressing installations. The excavations have targeted four areas where presses were known to be present: areas 22.000, 24.000 and 25.000 on the eastern side of the town, and area 2.200, which had been the original site of the Forum. Two of the excavated areas, 24.000 and 25.000, located at the top of the steeper slopes that lead down to the Wadi Arkou, investigated installations with a greater intensity and organisation of production, with presses contained in purpose-built structures. Even here though, the press buildings were not built with many presses from their inception, but grew gradually over time. Area 24.000 developed from an initial building with a pair of presses of perhaps 4th-5th century date into a much larger complex with a bank of seven presses of probable late 5th-6th century date.

Area 25.000 was positioned against the north wall of the town. There were several phases of the press building spanning the 4th-5th c. AD, and each of the three main phases had at least two presses in operation. In a similar fashion to area 24.000,

this installation may have grown to include as many as six presses functioning together in a line by its final phase of use. There appears to have been no space that could have been used for storage or habitation within the excavation area, indicating that the buildings were used exclusively for production, and that the produce must have been stored elsewhere within the town (Vismara 2007: 140).

The evidence from Uchi Maius serves to show that significant levels of specialisation in production were achieved in some areas by the Vandal period. It is difficult, however, to gauge how typical this urban example is of wider trends happening in the countryside. What the archaeological evidence seems to suggest is that the Dougga region was typified by pressing installations of a more modest character, and never saw the really impressive levels of high investment in specialisation known from other regions such as that of the High Steppe. One obvious reason for this is that the feasibility of cereal cultivation in this region meant that specialisation was less attractive. Making the estates pay was less of a logistical challenge for the owners, whether imperial or private. A probable result of this was that the *coloni* were left to a greater degree to their own devices, but it probably also meant that they bore many of the costs, such as setting up a press building, themselves.

The number of these smaller establishments is nonetheless impressive, all the more so because, with the additional evidence recorded by the *Carte Archéologique*, we can see that similar densities of pressing establishments existed over an incredibly wide area. Equally high numbers of presses have been recorded in the regions to the north: Tebourba 019, Medjaz El Bab 027, Bir Mchergua 028 and Grombalia 029, and also to the east in the regions skirting the Gulf of Hammamet: those of Bou Ficha 036, Enfidha 043 and Sidi Bou Ali 049. The impressive number of these smaller establishments might well suggest that the north of the country produced at least as much oil and wine as the south, where the impressive remains of large press buildings are well known. Although the dating resolution for the sites recorded by the *Carte Archéologique* is less sophisticated than for the sites investigated by the Dougga survey, in the absence of contrary evidence, we might assume that these regions followed similar trajectories, reaching very high levels of production by the 3rd and 4th centuries AD.

3.3.5 THE TRIPOLITANIAN REGION OF TUNISIA: GABÈS, KETTANA, MARETH AND THE ISLE OF JERBA

In the south of Tunisia, in the region that eventually became Tripolitania, we have very few surveys to help characterise the archaeology, only three in fact, and they are unfortunately adjacent regions around the Gulf of Gabès (Gabès 147, Kettana 157 and Mareth 158). Here there is a low but significant density of pressing facilities. A fourth zone, Koutine 169, has been surveyed, but not yet published, and Mrabet gives details of finds from several of its sites (1997: 64, n. 5). With the exception of the site at Zarath (3km from the coast), no sites have been found along the coast, most of them clustering inland on the map-sheet of Kettana and increasing in density south-west towards the mountain slopes of Matmata. Again, this is an indication that increased rainfall and run-off was a crucial factor affecting the importance of ancient agricultural production (Figure 3.14). In this region, as with much of the Sahel, the amount of evidence visible on the surface is likely to have been reduced by the frequent reorganisation of land that has taken place here. Other obvious factors impacting the preservation of pressing sites specifically include the reuse of ancient millstones in the traditional olive oil producing establishments and the reemployment of counterweights and press orthostats as construction materials (Mrabet 1997: 65).

The presses found in these four regions so far are all of the orthostat, rather than the anchorstone, type. Mrabet mentions that these orthostats only have one set of holes, and therefore only had one position from which the press beam operated. He sees this as evidence that this region could not rival the production of the Tunisian High Steppe or the Libyan Gebel, and that the inhabitants had no need to perfect their pressing operations in the same manner (1997: 75). In terms of milling equipment there is evidence for both the *mola olearia* and the *trapetum* types. As mentioned in the section on press elements (3.1) above, the handful of square pressbeds found here, paralleled by examples in the Libyan Gebel, means that this region sits not just geographically, but also typologically within Tripolitania.⁸²

⁸² We will see in Chapter 4 how in terms of amphora production it is also distinctively Tripolitanian.

Although identifying numerous farm and villa sites from the pre-Roman and Roman periods, the Jerba survey does not appear to have identified any stone elements associated with pressing. However, extensive amphora production in the south-east part of the island gives a clear indication that wine, and perhaps olive oil, were being produced in some quantity (see Chapter 4). This may therefore stand as an argument in support of a similarly artificially low level of evidence of press elements in the Sahel, discussed earlier.

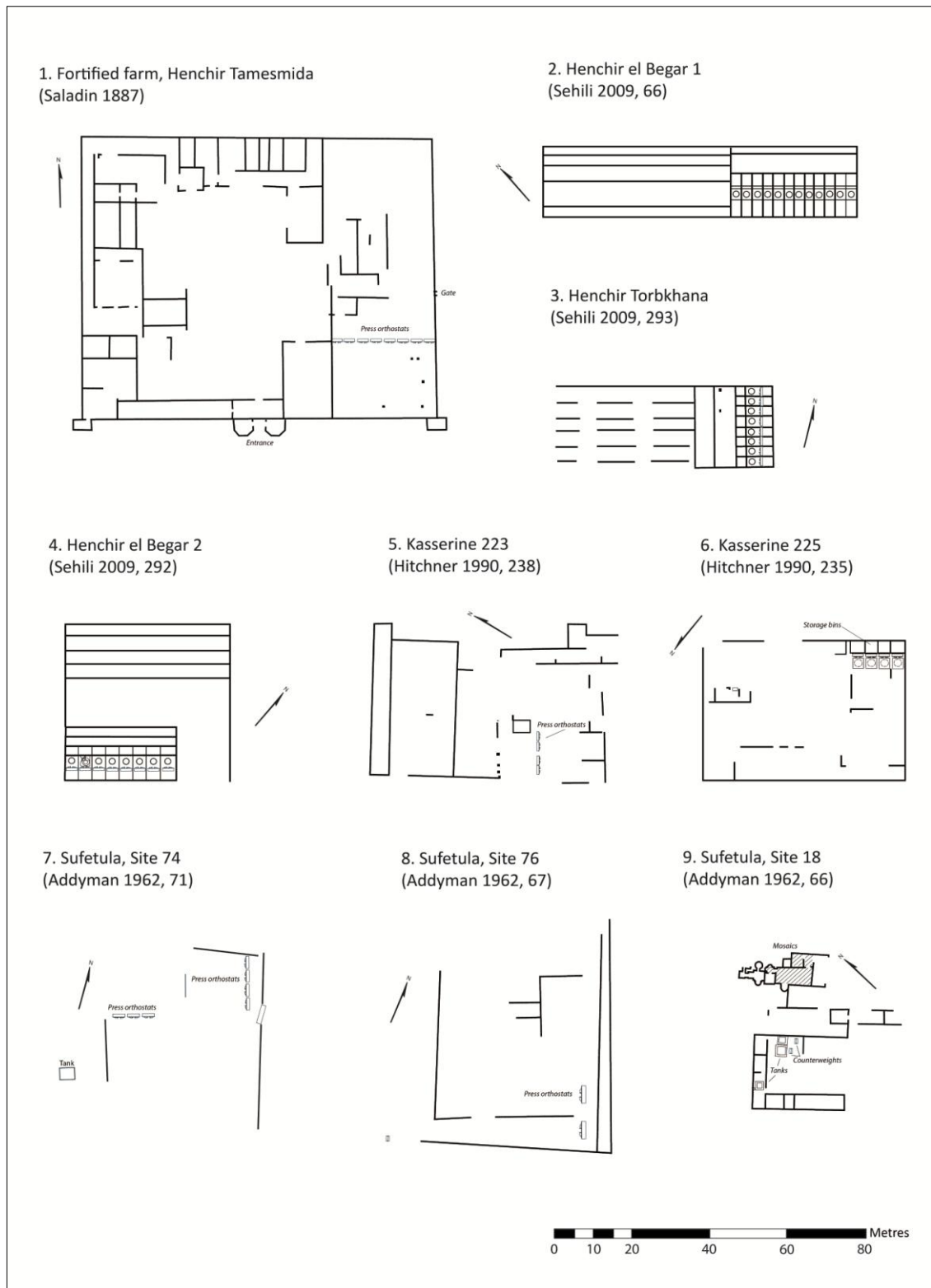


Figure 3.21 Comparison of the size and layout of buildings containing presses in Tunisia.

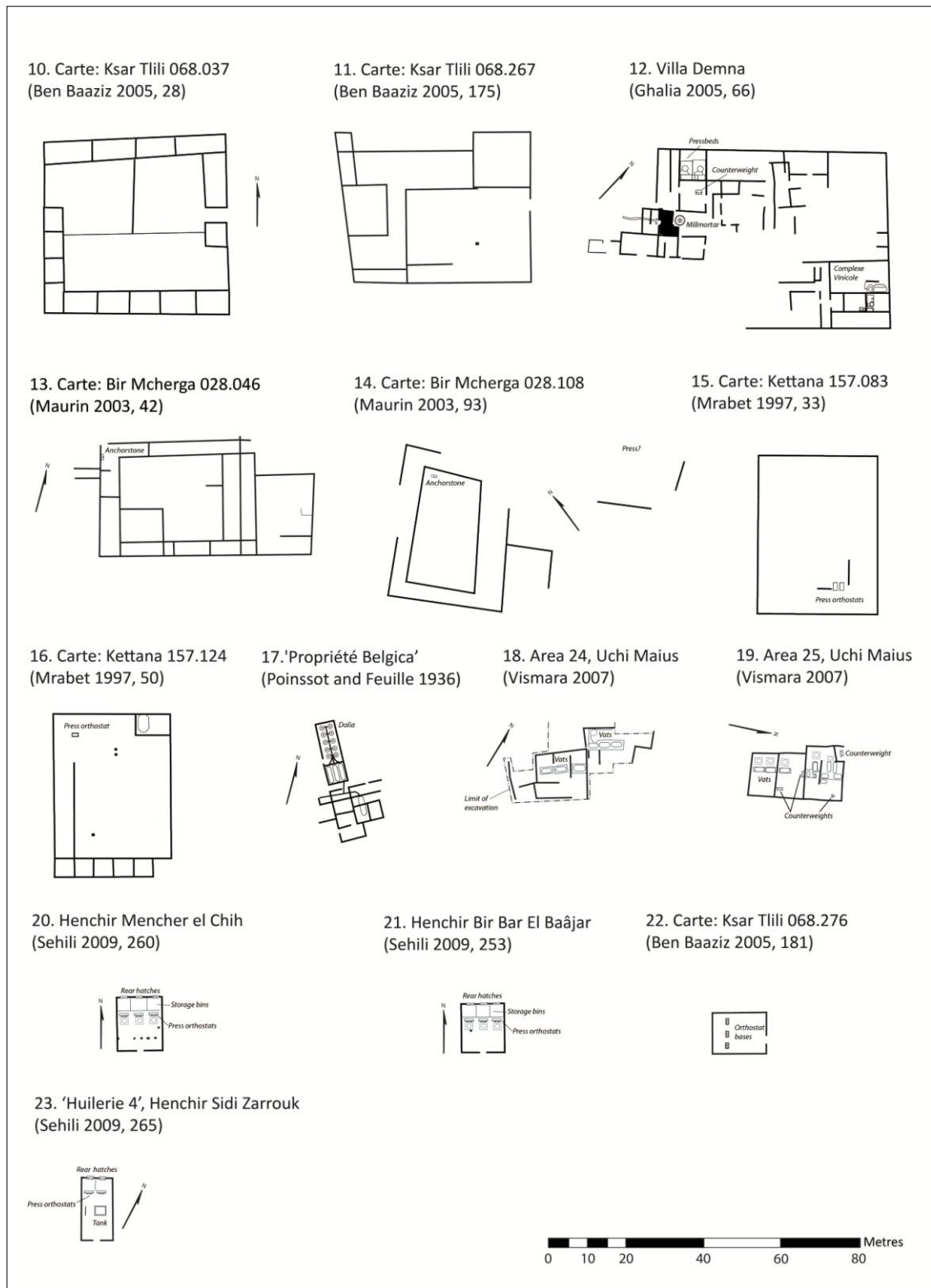


Figure 3.22 Comparison of the size and layout of buildings containing presses in Tunisia.

3.4 LIBYA

In Libya there have been even fewer excavations of pressing installations than in Tunisia. A press building was excavated at farm Lm 4 during the UNESCO Libyan Valleys Survey (Mattingly and Zenati 1984). This, with the exception of the recent publication of excavations in Cyrenaica (Buzaian 2009), forms the only published example of an excavated press building from Libya.⁸³ Production at the Lm 4 farm and other sites in the pre-desert would have been on a smaller scale than in the less arid regions of the Gebel, which was territory that belonged to the cities of Oea and Lepcis Magna. In the northern part of the Gebel the average annual rainfall is between 200 and 300mm (Figure 3.1, Oates 1953: 83), and from the late 19th century onwards the area has been well known for its abundance of large olive farms that date back to the Roman period (Barth 1857; Cowper 1897, 1899).⁸⁴

Benefitting from more accurate maps, as well as from military air photographs, which had such a generally positive impact on archaeological discovery in North Africa in the post-war period (Baradez 1949; Saumagne 1952), R.G. Goodchild was able to revisit many of the large olive farm sites previously recorded by Cowper's survey work in the region of Tarhuna. In addition to this, in 1947 he excavated part of a villa estate in the Tarhuna region close to a spring source at Ain Scersciara. Here he exposed a portico and mosaics damaged by the construction of a road and newly planted with eucalyptus trees, and, not far away, several kilns (Goodchild 1976: 84-88). From 1949-51 David Oates also undertook survey work in the Gebel, this time in the eastern region of Msellata in the hinterland of Lepcis Magna, where he recorded the plans of several very large press buildings (Oates 1953). After the appearance of Camps-Fabrer's general study, interest in olive oil production in North Africa seemed to dwindle until a series of articles published by Mattingly from 1984 to 1996 brought Tripolitanian olive oil production in particular back into the centre of debate on the

⁸³ In Cyrenaica in the late Roman period some sites had numerous olive presses (c. 50 at the village of Lamluda, east of Cyrene), but no amphora production for export has yet been identified (Wilson 2009a: 216-217).

⁸⁴ At least, once the mistaken interpretation that the upstanding stone press orthostats, or *senams*, had been prehistoric religious monuments had been disposed of.

Roman economy (Mattingly 1985, 1988a, b, c, d, 1989a, b, 1996a; Mattingly and Zenati 1984).

Not a great deal of survey work has been carried out since the work of Oates, and certainly no government project on the same scale as the Tunisian *Carte* has been undertaken in Libya. A two-volume work was published in 1996 after the fieldwork carried out in the Libyan pre-desert between 1979 and 1989 by the Anglo-Libyan team as part of the UNESCO Libyan Valleys Archaeological Survey, funded by the Libyan Government (Barker *et al.* 1996). The Franco-Libyan part of the project, working in the central part of the Gulf of Sirte, unfortunately had to be curtailed after completing only two field seasons (Reddé 1988). It had been hoped that a third team, of Italian and Libyan archaeologists, would undertake survey work in Cyrenaica, but this sadly never came about (Barker *et al.* 1996: 1).

3.4.1 THE GEBEL AND COASTAL PLAIN

However, there has been some recent Italo-Libyan survey work. Under the direction of Professor Luisa Musso, several new areas have been surveyed in the region of Lepcis Magna. In 1995 survey took place in the region of the Wadi Bendar, 10 km south-east of Lepcis Magna, in an area that was to be affected by the construction of the Great Man-made River. Within an area of 5km² the survey identified 11 sites, 10 of which were farms, the other site being a sandstone quarry. Of the 10 farms, 8 had evidence for at least one press (Fontana *et al.* 1996: 67).⁸⁵ This shows a high density of farms practising olive oil or wine production in this region, although on a more modest scale to some of the more important sites of the Gebel. It may be the case that such farms were not specialised in olive oil production, but practised a mixed farming regime. The ceramics collected dated from the 2nd century BC to the 5th century AD, with the majority of the farms spanning the imperial period. The authors argue for a significant increase in population during the 1st century AD, with a continuing increase into the 2nd and 3rd centuries (Fontana *et al.* 1996: 71-72).

⁸⁵ The evidence is from press orthostats: 18 were recorded, representing a minimum of 11 presses.

Intensive survey was also carried out in the coastal region west of Khoms and around the Roman villa at Sīlīn: a 20km² area west of the Wadi al-Tura and east of the Wadi Jabrun. A single site of the 4th-3rd centuries BC was discovered, whereas 11 sites were found with material from the second half of the 2nd century BC and 16 of the 1st century BC. The dating material from these sites, as with other parts of the central Mediterranean from this period, is mostly constituted by Campana A pot-sherds, often associated with fragments of Dressel 1 (Munzi *et al.* 2004: 19). In agreement with the findings in the Wadi Bendar, the authors argue for a huge settlement boom in the 1st century AD, for which 47 sites were recorded, identifiable by the presence of Italian and Eastern sigillata (Munzi *et al.* 2004: 21). The number of sites seems to be stable until a decrease is observable in the first half of the 3rd century (that is, there is an absence of ARS C and D on just under half of the sites occupied in the 1st century AD). A further 211 sites were found in the regions of the Wadi Caam and Wadi Taraglat. Of particular interest are four sites that yielded evidence of ceramic production; these are discussed further in Chapter 4 (Felici and Pentiricci 2002: 1877-1883).

Muftah Ahmed has recently conducted survey in the Gebel Tarhuna as part of his PhD research (Ahmed 2010). Concentrating specifically on an area including parts of the Wadi Turgut and Wadi Doga, he has recorded 111 sites, 61 of which have evidence for ancient pressing, representing approximately 210 presses in total (Ahmed 2010: 14). In addition to extensive and intensive survey conducted within this study area, Ahmed was able to use satellite imagery, made available through Google Earth, to identify sites. In particular, fortified farms were found to be highly visible because of their large external ditches. When these sites were visited, they often revealed evidence of earlier open farms beneath or close to them (Ahmed 2010: 72).

Ahmed's work complements the previous work of Oates (who recorded sites in an immediately adjacent zone to the south-east) and Cowper (whose area of investigation overlaps considerably with that of Ahmed's). Several of Cowper's sites were revisited during the Tarhuna Archaeological Survey as well as one or two which Oates had recorded, but over 50 press sites were newly discovered.

Because Cowper, Oates and Ahmed have recorded the same sites in some cases, the total number of sites and presses known are slightly less than the totals shown in Table 3.6. Attempting to take this into account, I have calculated the total

number of sites recorded in these surveys as 160, including a total of 440 presses, which is 2.75 presses per site.⁸⁶ Figure 3.23 shows these data in the format of minimum number of presses (MNP) recorded for each site. I have also included a number of sites, published in the briefest of detail, from survey work west of Khoms (Munzi *et al.* 2004), although unfortunately I have had to assume that on the two occasions where the gazetteer simply records “some” presses that this means no more than three. These could of course be larger sites.

	Cowper	Oates	Ahmed	Munzi <i>et al.</i>
No. of Press Sites	49	47	65	9
No. of Presses	149	104	215	17+?

Table 3.6 Number of press sites and presses recorded by surveys in the Gebel and Coastal Plain.

This figure clearly shows that there are many more sites with just one, two or three presses than there are with four or above. In the largest category there are only four sites: the aforementioned uncharacteristically huge site of Senam Semana, with 17 presses arranged in battery; the site of Henscir Sidi Hamdan recorded by Oates (Oates 1953: 97-101), with a total of 9 presses; the site of Sidi Buagila, first noted by Cowper and resurveyed during the TAS, with eight presses arranged in battery; and finally, the site of Henscir el-Mohammed, recorded first by Cowper and then by Oates as having 6-8 presses.

There are six sites with between 6 and 7 presses: Sidi Madi (TUT52) with 7 presses; (TUT38) with 7 presses (Ahmed 2010: 132), (TUT43) with 6 presses (Ahmed 2010: 81); (TUT20) with 6 presses; (DOG60) with 6 presses (Ahmed 2010: 146) and DOG66 with 6 presses (Ahmed 2010: 146). Around 20 sites are known with 4 or 5 presses (Oates has 4, Cowper, 8, TAS 13).

⁸⁶ This figure is significantly higher than the 262 presses Mattingly was able to count in 1988 (Mattingly 1988b: 37).

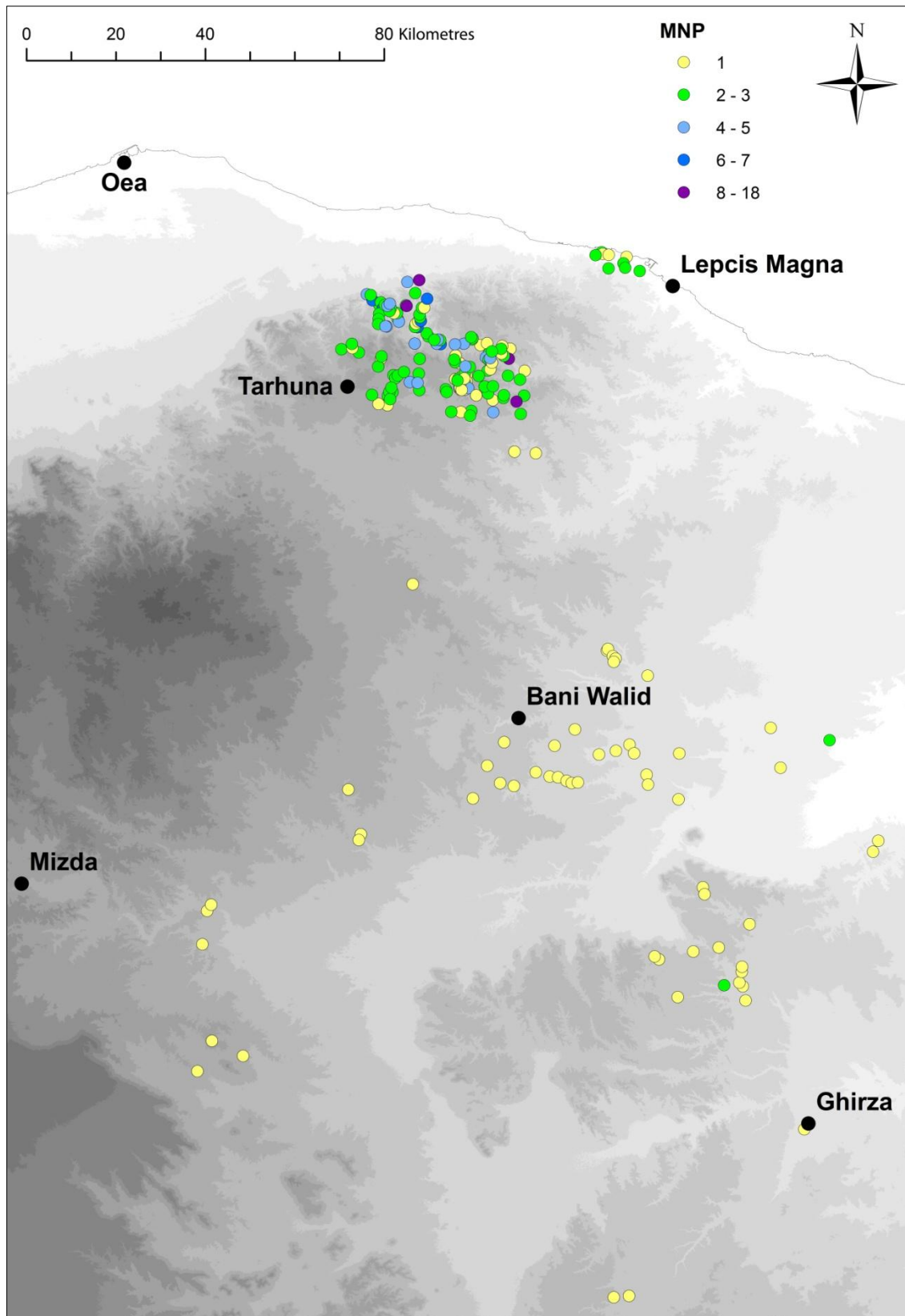


Figure 3.23 The minimum number of presses per site in the Libyan Gebel and Pre-desert.

Nonetheless, Ahmed has shown that if one splits the pressing sites into three categories, those with 1 or 2 presses in one group, those with 3 or 4 presses in another and those with 5 or more presses in a final category, the number of sites in each of these classes is roughly similar. However, the aggregate number of presses present on the largest sites, and therefore the potential level of production, is more than that of the other two classes put together.

It is clear that sites such as Senam Semana (17 presses), Sidi Buagila (8 presses) and Henscir Sidi Hamdan (9 presses) are somewhat atypical in their very large number of presses. One gets the impression of a few very specialised sites sitting at the top of the settlement hierarchy. The dates provided for the sites by surface collection of pottery appear to fit well with what we know of the exportation of Tripolitanian amphorae to Rome.⁸⁷ Most of the larger sites (3 presses or more) fall within the chronological bracket of the 1st to 4th centuries AD. A few have evidence of production in the 1st century BC, which we would expect from the fact that Caesar evidently fined Lepcis Magna 3,000,000 pounds of olive oil at the end of the civil war with Pompey (Plutarch *Caes.* 55). Some appear to have had continued occupation into the 5th, 6th and 7th centuries, although it is very difficult without excavation to prove that the press buildings were still functioning during this period. There are several sites that are partially buried or truncated by later fortified farms that were built on top of them.

3.4.2 THE PRE-DESERT

Mattingly has compared the olive oil and wine production of pre-desert areas with the Gebel (Mattingly 1985; Mattingly and Hitchner 1993). The pre-desert sites tend to have a maximum of a single press, and it seems in most cases they were only designed for this scale of activity (see Figure 3.23). The site at Snemat in the Wadi Merdum (Md00018) has two large presses, but is exceptional (Mattingly 1985: 40; Mattingly and Barker 1996: 181; Mattingly and Hitchner 1993: 458). The UNESCO Libyan Valleys

⁸⁷ See chapter 4 for a full discussion.

Survey found that more press sites were distributed in the northerly wadies due to their higher rainfall (Mattingly 1985: 39).

Figure 3.24, which shows the floor plans of Libyan press buildings, mainly in the Gebel but also in the pre-desert, demonstrates the huge variation in scale of these buildings. The potential production capacity of the largest sites is really brought home when one considers that the smallest site illustrated, no. 23, had enough storage space to house at least 30 amphorae and a possible annual production in the region of 2000 litres of olive oil (Mattingly and Zenati 1984: 17-18). We will remember here though that Brun has recently put forward the argument that this building in fact produced wine. Among the larger establishments, those with a simple battery arrangement of presses, positioned on the same orientation along a single wall, are outnumbered by those with a more haphazard layout. Perhaps this indicates that they gradually adapted their organisation, adding presses in new annexes, as production and demand grew. Most visible in the largest buildings are also areas that appear to have been dedicated to storage, whether of harvested fruit awaiting processing, or of liquid produce being stored before being transported away.

CONCLUSIONS

Archaeological surveys conducted in Tunisia and Libya have identified significant differences in the organisation of production on estates between geographical zones. There is still no clear way of distinguishing wine production from surface survey alone, although to some extent this is immaterial to the argument that the intensification of agricultural production of these products occurred during the Roman period. From survey evidence alone we cannot judge their relative importance, although there may be a greater indication of this in the amphora evidence examined in the next chapter.

The largest, and apparently most specialised, sites existed in the Tunisian High Steppe and the Libyan Gebel, and it seems clear that the aridity of the environment (200-300mm *per annum* rainfall) made the cultivation of cereals unproductive, which

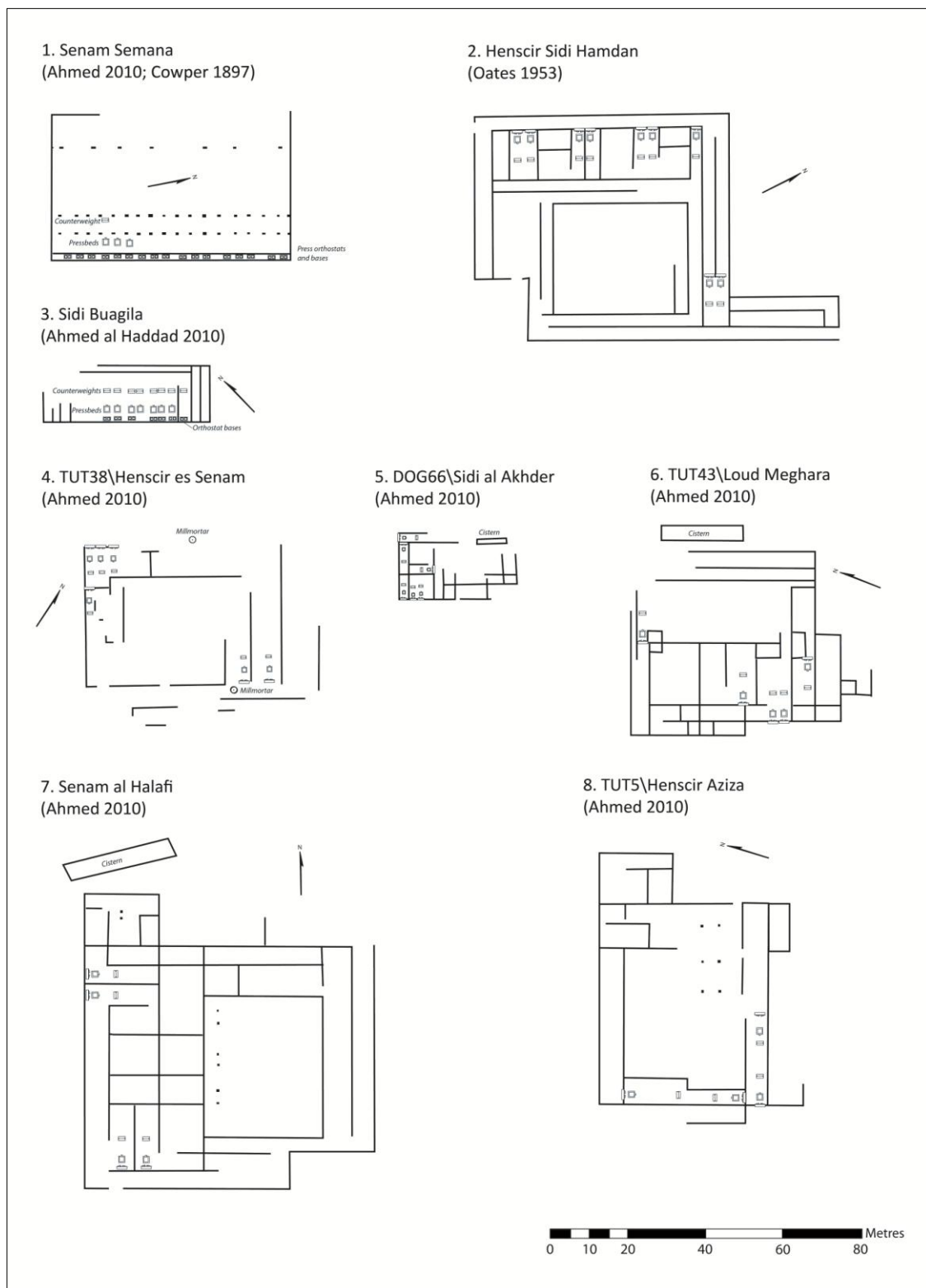


Figure 3.24 Comparison of the size and layout of buildings containing presses in Libya.

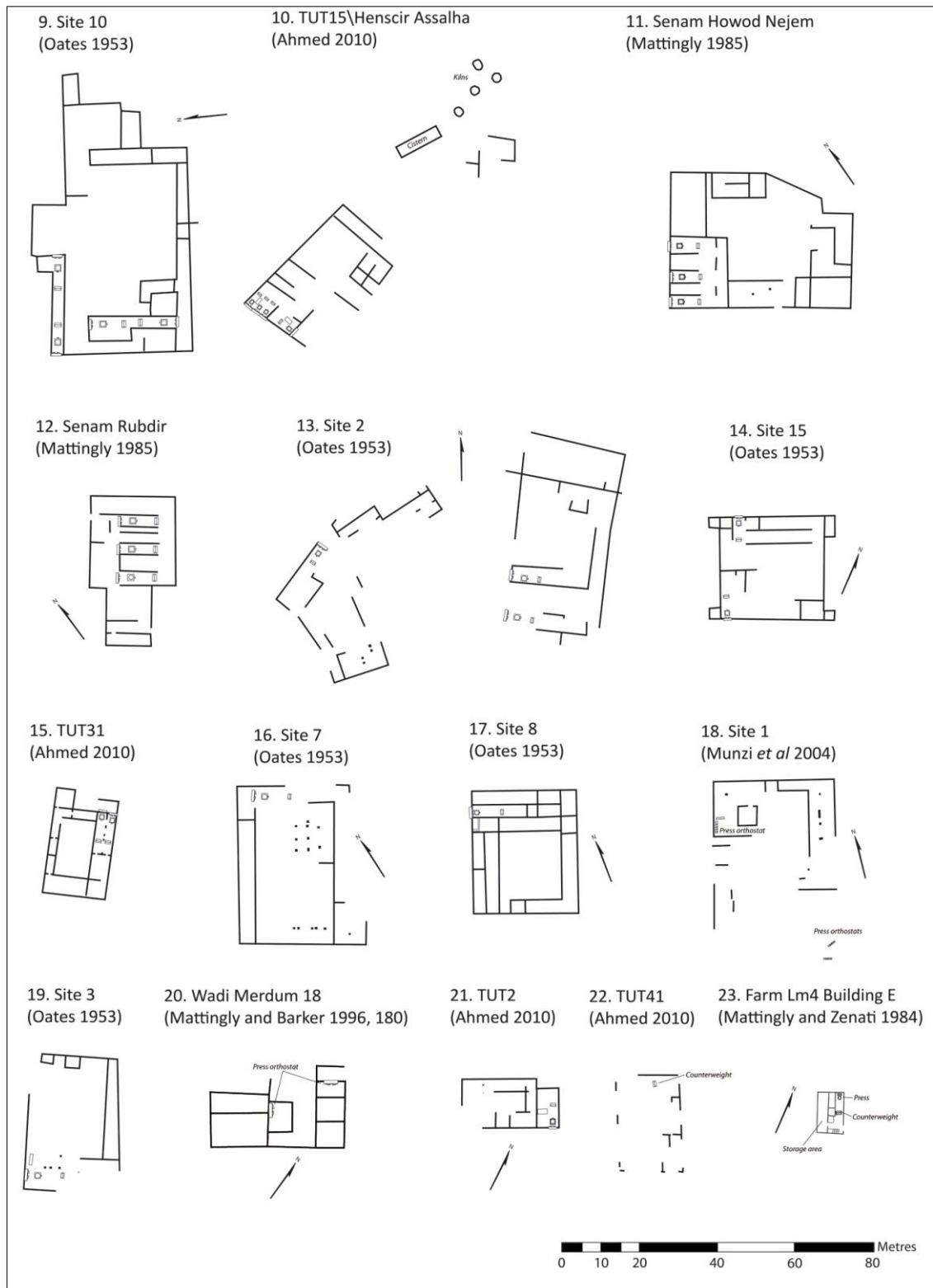


Figure 3.25 Comparison of the size and layout of buildings containing presses in Libya.

would have tended to encourage the farmer interested in the profits of agriculture towards specialisation in arboriculture. When compared to the density of presses in the pre-desert zone, the extraordinary nature of the specialisation and capital-intensive production in the Gebel becomes all the clearer (Figure 3.23). Additionally, it seems likely that these highly specialised establishments would have concentrated solely on the production of either olive oil or wine, rather than both (Brun, personal comment). The variation in geographical relief in these zones made them ideal for harnessing run-off waters, which made them more advantageous for intensive agricultural exploitation than areas of greater isotropy but with similar precipitation levels, such as the Sahel. This factor meant that a significant level of production was still practicable in the Libyan pre-desert thanks to the deep-cut wadi channels that received the even lighter levels of *per annum* precipitation, although not anywhere near the same scale as the Libyan Gebel or the Tunisian High Steppe.

A significant finding of the surveys is that olive oil and wine production were still extremely important in regions receiving above c. 300mm *per annum* rainfall, such as the Tunisian Dorsal and Tunisian Tell. Here though, very large specialised press-buildings located at estate centres seem to be absent. Clearly there were some sites of considerable size, but none as large as the largest sites of the High Steppe and Libyan Gebel. One argument which has been put forward is that large sites with multiple contemporary presses are simply more difficult to identify in northern Tunisia, because of the absence of press orthostats, which are generally more easy to identify during survey (Brun, pers. comm.). Whilst this is no doubt true, the archaeological evidence for decentred estates with smaller individual press buildings seems to correspond very well with what we know of the organisation of estates from the agrarian inscriptions of the Bagradas Valley. Excavated sites which did reach a considerable size (5 or 6 presses) seem to have emerged gradually, in contrast to the colossal planned constructions of the High Steppe. Is this an indication that the press buildings were usually the work of the *coloni* rather than the *conductores* or estate owners? If this were true, it would be a clear indication of a difference in mentality and investment between elites of these different zones. The Libyan Gebel is a different case again, as, although 2 or 3 sites have the battery-type layout, many of these seem to have developed in a more ad hoc manner.

Significant investment in large centralised estates where production was directed towards and specialised in the production of olive oil and wine for profit-making purposes appears to be indicated by this evidence. Clearly this challenges some of the key tenets of the Finley/Jones orthodoxy on the ancient economy. However, this does not justify in itself a return to the sort of market-oriented approaches advocated by some ancient historians. In order to move towards more nuanced interpretive models that go beyond reciprocity, redistribution and market exchange, the organisation of packaging and the various distribution patterns which characterise the nature of trade and consumption of these products needs to be taken into account (Fulford 2009: 257).

4 AFRICAN CERAMICS: PRODUCTION AND DISTRIBUTION

“If the field of ancient economy is a battlefield, arguments based on pottery research certainly belong with the best of the weapons.”

(Fülle 1997: 111)

Ceramics are one of the key commodities through which scholars have tried to understand the development of the economy during the Roman period (Woolf 1992). This is particularly the case since the excavations of the Terme del Nuotatore at Ostia, upon which a sweeping narrative of African economic hegemony was built by Carandini. Analysing the various categories that make up our evidence for trade, as well as taking into account the variability and character of their distribution can no doubt help us to develop more robust and relevant models of interpretation than reciprocity, redistribution and market mechanisms, which have dominated discussion since the work of Polanyi (Fulford 2009: 257). Amongst the different classes of objects produced, amphorae have often been regarded as of higher importance because they serve as a direct indication of the valuable products travelling within them, be it fish products, olive oil, wine, or some other commodity (Carandini 1970: 105; Fulford 1983: 5). Fine table wares, cooking wares and lamps, on the other hand, have been seen as low value secondary items, travelling alongside more valuable cargoes. Nonetheless, the frequently changing forms and designs of the fine table wares make them far more accurate chronological indicators. Over and above this, there is a strong possibility that they can serve as proxies for other perishable commodities, the trade in which is rarely visible in the archaeological record. Organic commodities, such as animal products, foodstuffs, wooden artefacts and textiles survive extremely poorly in most archaeological deposits. Additionally, more durable materials such as glass or metals, although valuable, could be recycled and are thus under-represented in rubbish deposits (Mattingly 2006a: 284). Ultimately we have to accept that there was a far greater volume of ancient trade than we can ever prove. The method we are forced to follow is to trace a small part of the whole and then attempt to reconstruct and characterise the larger picture (Wilson 2009a: 213).

There has also been a growing realisation that the different categories of African ceramics do not have the same geographical distribution: each class of ceramic has an individual story to tell, and the coarse-ware and cooking-ware distributions provide vital balancing evidence against the fine wares and amphorae. In order to relate these distributions back to the local economic histories of individual regions, an understanding of the exact provenance of individual forms is of the utmost importance.

Historically there have been several problematic issues in using African ceramics to examine the nature of the Roman economy. The first of these is that African products such as the red slip wares, lamps and amphorae, were known from sites where they were consumed, such as at Ostia and Rome, a long time before their exact points of origin were known (Bonifay 2004: 87). While some progress on this front has been made in the last three decades, with the greatest headway being made in Tunisia but also with recent finds in Libya and Morocco, our knowledge of ceramic production in North Africa remains desperately incomplete.⁸⁸

With the above statements in mind, this chapter is split into three sections. The first section deals with the evidence for the production of African amphorae and the second with the distribution of the different African amphora forms on sites around the Mediterranean and at submerged Mediterranean shipwreck sites. This is not because I wish to analyse production and consumption practices separately, or to dialecticise between them as different moments within the same economic process: at this time, it is simply a convenient way to present the relevant information. An attempt is made to summarise the current state of knowledge on African amphora contents, an essential element in assessing the relative different products. A third and final section then tries to understand how the production and trade of other African products articulated with the production and trade of olive oil, wine, *garum* and *salsamenta* traded in African amphorae. The African Red Slip wares, cooking wares and lamps provide an obvious starting point for comparison, as, being ceramic and

⁸⁸ See Bonifay 2007a, 15 for a useful diagram showing the current state of knowledge on the location and production of Tunisian kilns (reproduced in J. H. Humphrey ed. (2009: 6). With regard to Morocco, it is only very recently that the site of Thamusida has been proven to have a local production of Beltrán IIB and Dressel 7/11, proving the theory that empty containers were provided from Baetica for the purpose of exporting fish products from *Mauretania Tingitana* (Ponsich and Taradell 1965) most likely to be incorrect. For newly discovered kiln sites in Libya see Ahmed (2010).

durable, they also have distributions that can be studied archaeologically, but perishable commodities such as grain and textiles are also included in the discussion.

4.1 AMPHORA PRODUCTION

Unfortunately for those wishing to provenance specific amphorae forms, African amphorae were infrequently stamped, and, it seems mainly for reasons of poor preservation, only a handful of painted inscriptions (*tituli picti*) are known (Aguilera 2007). This latter practice, however, must have been common, as the few chance cases of survival of the pigment indicate. Thirteen examples from Pompeii bear red painted inscriptions (Panella 1977). A handful of examples from Monte Testaccio also were in black or red ink and occurred on both Tripolitanian and Tunisian amphorae (Aguilera 2007). So far all of the inscriptions seem to have been in Latin, with four examples on Tunisian amphorae bearing tria nomina of individuals of senatorial rank as well as the capacity of the amphora measured in *herminae*.

These problems have made the development of other methods for locating the origin of amphorae essential for establishing links between regions of production and consumption. It was originally maintained that it was not possible to provenance African amphorae precisely on the basis of fabric alone, even using thin section analysis,⁸⁹ because of the homogeneous nature of the sedimentary geology of parts of the region (Peacock and Tomber 1989: 292). As a result, Keay, and others, simply distinguished between a north-Tunisian and a southern-Tunisian fabric in their classifications. However, although the differences are subtle, Bonifay and Capelli have begun to distinguish between the different major production centres of North African amphorae simply on the basis of fabric (Bonifay 2004: 26-29). Several cargoes, or parts of cargoes, from shipwrecks containing African amphorae have been attributed by them to particular workshops on the basis of thin section analysis (Bonifay *et al.* 2002a; Capelli *et al.* 2006). Peña has also distinguished between the workshops of Byzacena in his analysis of the late 3rd to early-4th-century pottery deposit from the Palatine East excavations (Peña 1999: 185). An archaeometric technique, Instrumental

⁸⁹ Thin section is the laboratory preparation of a thin sliver of pottery for microscopic petrographic analysis, which can source clays on the basis of their sedimentology.

Neutron Activation Analysis (INAA), has also been used to suggest that the amphorae from the Plemmirio B shipwreck came from Sullethum (Gibbins 2001; Taylor *et al.* 1997), but has as yet rarely been used to provenance other African amphorae. It has also been used to investigate the ceramics produced at Leptiminus, suggesting that the same clay source was probably used for the amphorae and cookwares as well as the finewares (Sherriff *et al.* 2002). At this time these sorts of methods have not been widely applied, therefore the study of amphorae stamps still provide the most reliable distribution maps for individual workshops (Stone 2009: 129; Stone *et al.* 2011a). However, in both cases, information on the kiln sites themselves, the forms produced and the clays used is the crucial starting point.

4.1.1 TUNISIAN AMPHORA KILNS

Some Tunisian amphorae of the 3rd century were stamped with the name of their port of origin, and it was this that led to their first categorisation by Zevi and Tchernia (1969). Since this study, in which the authors were able to show that stamps relating to the major port towns of the Sahel, Hadrumetum, Leptiminus and Sullethum were found on a series of amphorae, well distributed throughout the western Mediterranean, most of the early refinements to the typology came from work based on assemblages found outside of Africa.

During the 1970s excavations at the Terme del Nuotatore at Ostia showed the growing importance of the forms outlined by Zevi and Tchernia from the late 2nd century AD onwards. These were the Africana 1 (or “Africano Piccolo”) and Africana 2 (or “Africano Grande”) types, both of which appeared to have a similar date range, from the 2nd to 4th centuries AD, and to have been produced at the same production site. The international campaign of excavations at Carthage during the 1970s provided further information on the economic significance of African ceramics. The results indicated that for the 2nd-4th century Carthage was supplied almost totally by African amphorae, with eastern amphorae beginning a degree of importation only in late antiquity. Unfortunately, the Carthage assemblages helped little with the improvement of the amphora typology as much of the material was fragmentary,

making it impossible to associate handles and rims with bases (Peacock 1984: 116, 130). This shortfall was remedied very soon afterwards, however, by Keay's work on amphorae from sites in Catalonia, Spain (1984). The advantage of Keay's work was that he examined material from several cemetery sites where complete, or near complete, amphorae had been used in funerary contexts that spanned the poorly understood late-Roman and late-Antique periods. Later, Reynolds (1995: 355-356) usefully cross-referenced the forms illustrated in the publication of the British excavations at Carthage (Fulford and Peacock 1984) with the typology published by Keay (1984), completing the crucial first steps in constructing a complete typology for African amphorae. As a result of this work, the huge quantitative importance of Keay's amphorae type 25, also produced in Tunisia, for late antiquity became apparent.



Figure 4.1 Tunisian amphora stamps: FANFORT/COLHADR; LEPMI; TOP/HLV (After Zevi and Tchernia 1969, fig. 14).

Fundamental to the refinement of the chronology of the amphorae forms of the 2nd-6th centuries was the publication of John Hayes' *Late Roman Pottery* (1972) and its supplement volume, which appeared some years later (1980). Using the refinements in the dating of contexts provided by the African Red Slip ware, Keay was able to delineate three main periods of African amphora production (Keay 1998; Keay

1984): Period 1 (late 2nd-early 4th century AD) included types Keay 3, 4, 5Bis, 6, 7, 8 (more commonly known as Africana 1 and Africana 2A-D) and 63. Period 2 (early 4th-mid-5th century AD) was marked by a very large increase in the range of forms being produced, the most important types being Keay 25 and 27. Period 3 (mid 5th-late 6th century AD) sees the discontinuation of types Keay 25 and 27, the most common form being Keay 62.⁹⁰

The majority of the African amphorae Keay noted from his Catalan sites were of a north-Tunisian fabric (Keay 1984: 410), and at that time he assumed that north-Tunisian amphorae would have been produced on the imperial estates of the Medjerda valley (1984, 410). In fact, only one amphora workshop is known from the Medjerda valley, and not in the region of the imperial estates. Current evidence suggests that the vast majority of amphorae workshops in Proconsularis appear to have clustered near the coastal towns, and that the productive inland estates must have transported their liquid products to the coast in animal skins (Marlière and Costa 2007). As previously mentioned, as much as three-quarters of the olive oil referred to in the late-4th-century *ostraca* found on the Îlot de l'Amirauté (at the centre of Carthage's Circular Harbour) arrived at the weighing facilities in skins (Peña 1998: 212).

As the example of Tripolitania in the next section will show, progress in divining the exact location of African amphora kiln sites has been slower than one might have hoped or expected (Bonifay 2004: 9). With growing interest in the value of African ceramics, particularly amphorae, as an economic indicator, the study of production sites was lagging far behind, with only a handful of poorly studied red slip ware kiln sites known in Tunisia. The urgent need to gather more information about the provenance of African ceramics was becoming increasingly apparent, and it was with this aim in mind that the Sahel Pottery Project was carried out during the 1980s (Peacock *et al.* 1989, 1990; Peacock and Tomber 1989), concentrating on the region that the Tunisian amphora stamps indicated as their point of origin. The survey met with considerable success in attempting to locate kiln sites on the Sahel's coast as well as further inland, but frustratingly, has not been repeated for other regions of Africa.

⁹⁰ This form is now also known to have reached the Fazzan in Libya. See DMP X (Mattingly *et al.* 2010, 122).

Many other amphorae workshops have been revealed by the work of much larger, more general survey projects, but research into ceramic workshops has never been the primary aim of these surveys. The current state of knowledge on Roman period amphora kilns in Tunisia is thanks chiefly to the survey work of the previously mentioned Sahel Pottery Project, the *Carte*, the coastal project (Bonifay *et al.* 2002b), and excavations undertaken at Carthage (Panella 1982: 173).

Following on from the discoveries of the Sahel Pottery Project, intensive survey and excavation has been carried out at Leptiminus, vastly improving our understanding of the role of this port city (Mattingly 1992; Stirling *et al.* 2001; Stone *et al.* 2011a). Remarkable discoveries have also recently been made at Nabeul on the south-eastern shoreline of Cap Bon (Mrabet and Ben Moussa 2007). An unprecedented contribution has been made by Michel Bonifay, who has made a current survey of all of the kiln sites known in Tunisia complete with a summary of what is known about their productions (Bonifay 2004). His work examining the fabric and forms at several key sites continues (Bonifay *et al.* 2010). Much of the important recent work is represented in a monograph edited by Mrabet and Remesal Rodríguez (2007).

NEAPOLIS

The presence of amphorae workshops at Nabeul, ancient Neapolis, on the south side of the Cap Bon peninsula has been accepted since Panella (1973) proposed the reading *C(olonia) I(ulia) N(eapolis)* for the amphora stamp “*C.I.N*”. It has been known for some time as an important production site for *garum* and *salsamenta* (Curtis 1991; Slim *et al.* 2007; Sternberg 2000), however, it is only really in the last decade that progress in understanding the nature of the kiln sites there has been made. In 2001 two large workshops were discovered within the territory of ancient *Neapolis*: Sidi Aoun (2nd-5th c. AD) and Sidi Zahrani (5th-7th c. AD), of which the first archaeometric study was published in 2005 (Ghalia *et al.* 2005).

	El Kalaa	Sidi Frej	Choggafia	Barnoussa	Ain Amroun	Ain Chokaff	Labayedh
Dr. 30							
Ham. 1							
Ham. 2							
Af. 1							
Af. 2A							
Af. 2B							
Af. 2C							
Af. 2D							
Af. 3A							
Af. 3B							
Af. 3C							
Ostia IV							
Keay 3B							
Keay 35							
Keay 35A							
Keay 39							
Keay 57							
Bonifay 55							
Spatheion							
Globulaire							

Table 4.1 Amphora Types Produced at *Neapolis*/Nabeul Kiln Sites (after Mrabet and Ben Moussa 2007, fig. 32).

Since then, a major contribution has been made by Mrabet and Ben Moussa who have documented a further seven kiln sites in the area along with their productions (Mrabet and Ben Moussa 2007). This indicates that very significant quantities of exports were leaving from the port of Neapolis. We shall deal with the subject of amphorae

contents in detail presently, but for now we can say that, as well as catering for the important centre of *garum* and *salsamenta* production, which has long been known from the excavation of the fish-salting site there (Sternberg 2000) with the production of Africana 2A, the kiln sites at Neapolis were also packaging wine (Dressel 30) and olive oil (Africana 1), probably produced from a much wider hinterland during the Roman period. This continued into the later Roman period and late antiquity as it seems also to have been an important producer of the Keay 25/Africana 3 types, which, as we shall see below, are particularly numerous on sites in the western Mediterranean during the 4th century AD (Table 4.1).

LEPTIMINUS

Another important production centre for amphorae, again known first from its amphora stamps, is the port town of Leptiminus (Mattingly *et al.* 2000; Stone *et al.* 2011a). Here a project undertaken to investigate the town has documented several areas of pottery production during both surface survey and excavation (Stone *et al.* 2011a: 49-120, 223-253). The main concentrations of kilns can be separated into a western and an eastern zone. In the western zone 48 circular anomalies have been detected by magnetometer survey over the suburban spreads of kiln debris, and clearly represent kilns.

Most of the early Roman production appears to have happened in the eastern zone, although one location in the western zone was clearly of this period also. The ceramic industry reached its height during the 2nd-4th centuries when substantial expansion of production in both western and eastern parts of the town is evident. At this time, manufacture concentrated on several variants of the amphora types Africana 1 and 2A-D (although probably not Africana 2B, Figure 4.3), as well as a range of cooking wares and coarse wares.

A kiln complex operating between the late-1st and late-3rd centuries AD at S290 in the eastern zone has been subjected to excavation (Stone *et al.* 2011a: 228-239). Six kilns along with associated workshop and clay processing facilities were recorded. The disuse of the kilns was dated by refuse deposits accumulated after they

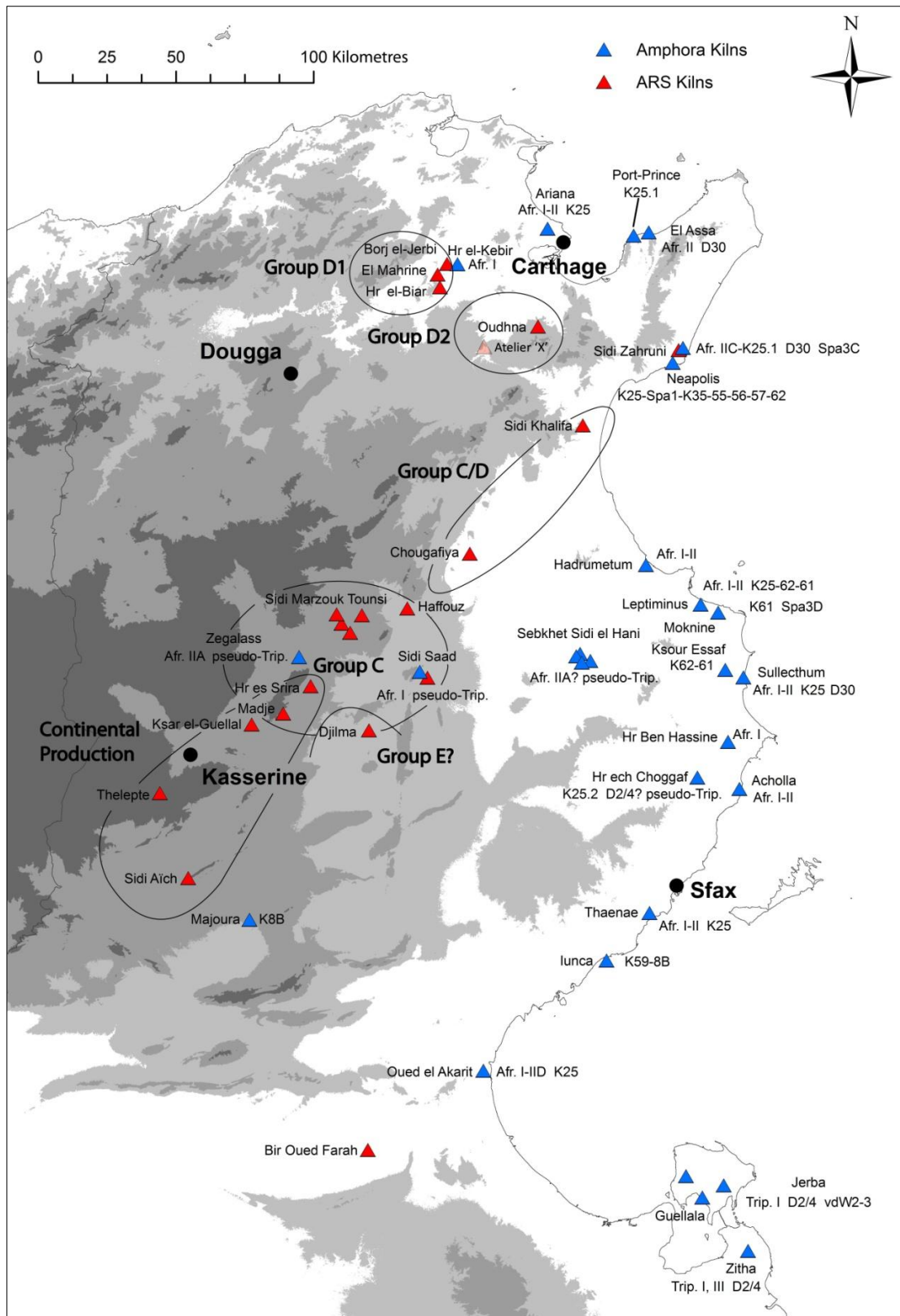


Figure 4.2 The African Sigillata and Amphora kilns (after Bonifay 2004 fig. 2 and 22, with additions from recent findings).

ceased to function, and the material did not relate to wares produced during the kilns' use-life. The earliest types of amphora to be produced at S290 dated from the 1st century AD to the mid-2nd, and appear to have been types associated with carrying fish products. During the 2nd and 3rd centuries the dominant types were Africana 1 and 2. There was also some unusual but significant production of Leptiminius 1, and some other less common types.

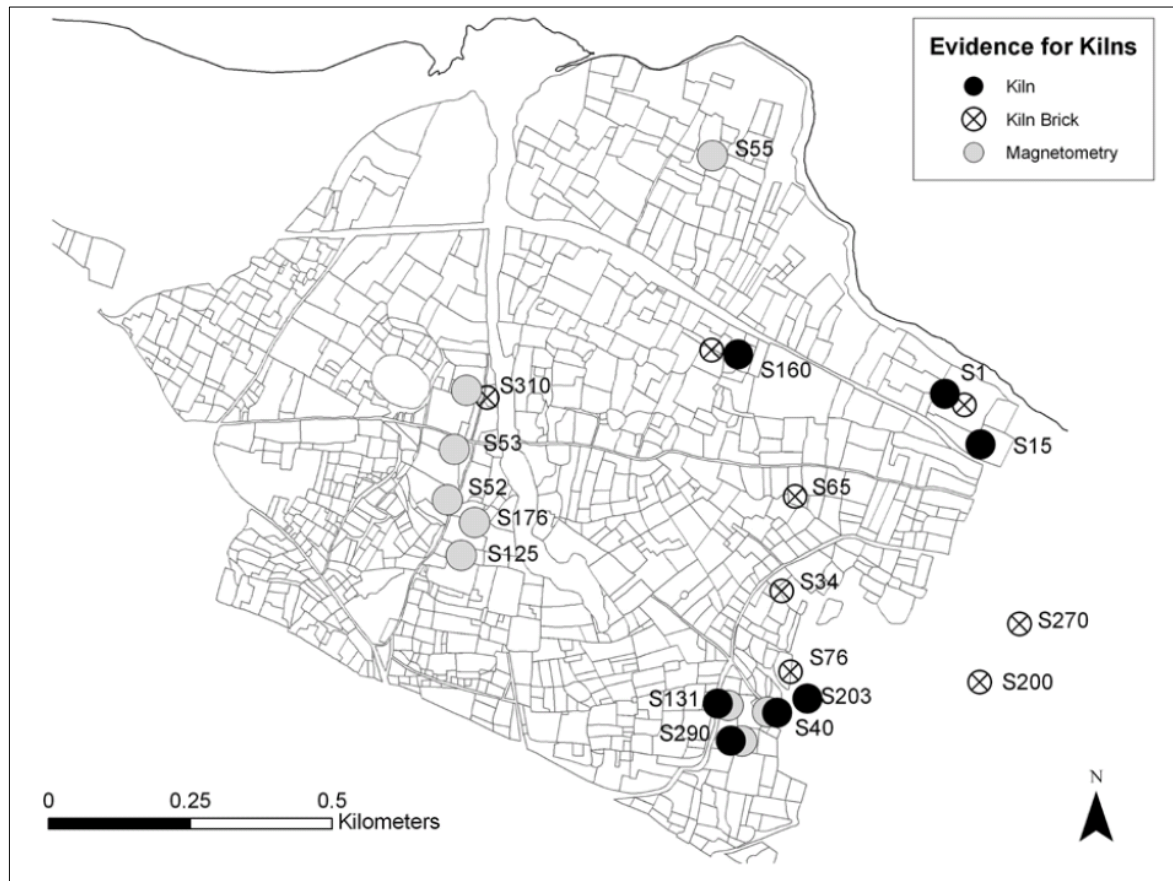


Figure 4.3 Kiln sites at Leptiminius.

From pottery sherds collected from the extensive survey of the town, which included the vast heaps of kiln waste, by far the most numerous forms were Africana 1, 2C, 2D and Keay 62. Africana 1 was the most abundant form of amphora (36.2%). Of the Africana 2 types, Africana 2A (4%), Africana 2C (7%) and 2D (15%) were abundant, but only very small amounts of Africana 2B (0.03%) were recorded, making it unlikely that this form was produced, at least in any significant quantity, at Leptiminius. The early Africana 1 variant, Ostia XXIII (0.9%), although present, is also rare, though the

authors concluded from its fabric and distribution at the site that it probably was produced at Leptiminus.

No work has done more to bring together and synthesise the current knowledge on African ceramic production than the recent study, *Etudes sur la Céramique Romaine Tardive d'Afrique* (2004), by Michel Bonifay. The unique achievement of Bonifay has been the re-balancing of the ceramic data back towards North Africa itself, with the analysis of several important collections of African material from both survey and excavation. Other work has continued in LRCW I and II (Bonifay 2005b). Figure 4.2 shows the known production sites for both African Red Slip ware (red) and amphorae (blue), adapted from Bonifay's figures 2 and 22, and with some minor additions which include recent finds. What is immediately apparent from this figure is that the amphora kiln sites are almost exclusively located on or near to the coast, whereas the ARS production centres are nearly all situated further inland.

4.1.2 TRIPOLITANIAN AMPHORA KILNS

Knowledge of the ceramic industries of Tripolitania is still painfully thin. The first published ceramic workshop was found in 1925 under the Centrale Elettrica of Tripoli and consisted of four circular kilns (Bartoccini 1928: 93-95; Goodchild 1976: 96). Associated pottery and one *in situ* kiln load of African cookware kettles was dated by Bartoccini to the second half of the 4th century. Further progress was made in the post-war period by Goodchild and then by Oates. Goodchild excavated a kiln close to the coast at Kilo 102 (near Homs, just west of Leptis Magna), and a group of three more at Ain Scersciara in the Gebel Tarhuna in late 1947-8 (Goodchild 1976: 85-88, 96-99). Also in the Gebel Tarhuna he observed a site adjacent to the *gasr* at Sidi es-Sid, 5km west of Tazzoli, where the road cut through a large heap of kiln waste. Oates also observed a kiln site during his survey around Gasr ed-Dauun at Udei el-Me, which he believed to be of similar dimensions to the two large kilns at Ain Scersciara (Oates 1953: 90-91).

In the publication of the amphorae from Ostia Panella distinguished three main types of Tripolitanian amphorae and termed them Tripolitana 1, 2 and 3. She

suggested that these types could well have been produced by the kilns known at Tazzoli, Ain Scersciara and Homs (Panella 1973). Arthur, visiting the Tazzoli site (Sidi-es-Sid) in 1978 confirmed this hypothesis, noting the presence of all three Tripolitanian variants. He also examined a small amount of ceramic material from Goodchild's excavations at Ain Scersciara in the Castle Museum in Tripoli (1982). Here the absence of the earliest form, Tripolitanian 1, which began production in the 1st century AD, led him to suggest a 2nd-4th century date range for the operation of the kilns. Ahmed has also commented that the Tazzoli kilns were producing coarse wares probably as well as tile and brick (Ahmed 2010).

After the promising start made by Goodchild and Oates, it was nearly half a century before further discoveries of kiln sites were made. I will discuss the new evidence that has come to light in two main geographical regions: first, the coastal plain, stretching from the region of Lepcis Magna and Oea to Gigthis in modern-day Tunisia, and second, the Gebel Tarhuna in the hinterland of Lepcis Magna.

THE COASTAL PLAIN

During the late 1990s archaeological survey conducted by the University of Roma Tre in the region of the Wadis Caam and Taraglat, in the immediate hinterland of Lepcis Magna, identified four sites that yielded evidence of ceramic production (Felici and Pentiricci 2002: 1877-1883). Three of these were for Tripolitanian amphorae (sites 47, 67 and 106). The fourth produced Tripolitanian Red Slip ware (site 91), a fine table ware, known from its regional distribution within Tripolitania but not widely exported. There have also been further discoveries of kilns in Tripoli, at Hai al-Andalus (Shakshuki and Shebani 1998), and in its hinterland, at Sidi Andulasi (Tagiura) (Ahmed 2010: 247; Gatanash, forthcoming). The Hai al-Andalus kilns had diameters exceeding 3m and were for firing amphorae and possibly African cookwares as well (Leitch 2010: 173).

New kiln sites are also now known from the western reaches of Tripolitania, thanks to survey work in Tunisia on the island of Jerba (Fentress 2000, 2001; Fentress *et al.* 2009) and also just to the south-east, on the mainland, at *Zitha* (modern Zian) (Bonifay 2004: 29; Bonifay *et al.* 2010: 325). Kiln sites identified by the Jerba Project

produced four main types of amphorae: the neo-Punic types Van der Werff 2 and 3, which were produced from the 2nd century BC into the 1st century AD, Tripolitanian 1 and Bonifay's type 57/ Schöne Mau 35, which began their production in the 1st century AD. The latter type is identifiable as a wine amphora because its form mimics, in smaller dimensions, the well-known Dressel 2-4, whereas it is well established that the Tripolitanian 1 form was for oil. The main concentration of kilns, on the south side of Jerba close to the beach of Gallala, mainly produced Schöne Mau 35 as well as cooking wares of the 1st-3rd century (Hayes 183, Culinaire type 17). Some of the other kiln sites are further inland, and Fentress has used this as an argument against the Van der Werff 2 and 3 forms being used for fish products (Fentress *et al.* 2009: 92). As several examples of Van der Werff 2 are known to have been pitched, the tentative suggestion has been made that this form was for wine and that the Van der Werff 3 was perhaps for oil. This would make for a neat transition during the 1st century AD to the succeeding types Schöne Mau 35 and Tripolitanian 1. In the later Roman period there is evidence of Africana 2 and Keay 25 production at several sites in the south-east of the island (Fentress *et al.* 2009: 193-197; Fontana *et al.* 2009: 270).

Facing this region on the mainland, the workshops at Zitha are identifiable as large concentrations of amphorae fragments spread across the ploughed expanses of the modern day olive groves. The kilns here also produced the form Schöne Mau 35, but concentrated almost exclusively on the production of Tripolitanian oil amphorae 1 and 3 and coarse wares of the 1st-4th century.⁹¹ Bonifay observes that the fabrics of these amphorae are of the Tripolitanian "fine" variety, distinguishing them from the production in the region of Lepcis Magna and Oea (Bonifay *et al.* 2010: 325).

THE GEBEL TARHUNA

Further into the heartland of Tripolitania, recent survey work in the Gebel Tarhuna, known to have been the territory of Lepcis Magna, has revealed additional new kiln sites. Previously only three kiln sites were known in the region from the work of Goodchild and Oates, but the Tarhuna survey conducted by Ahmed has added a

⁹¹ Tripolitanian II does not appear to have been produced here.

further 14 to the total (Ahmed 2010: 246-285). Most of these new sites came from intensive survey of two areas within the region of the Wadi Turgut (6 sites) and one of its largest tributaries, the Wadi Guman (4 sites). The clear implication is that further survey in other parts of the Gebel Tarhuna would reveal still more kiln sites.

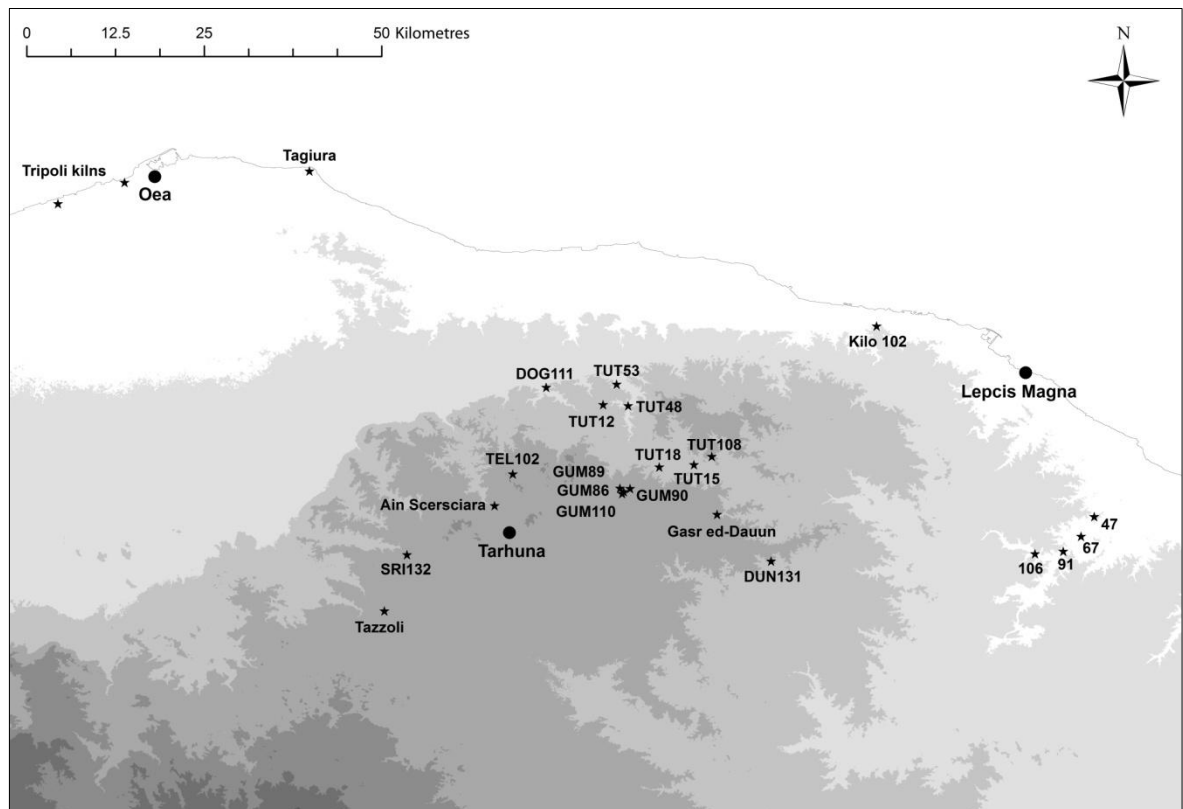


Figure 4.4 Kiln sites in north-west Libya.

The kiln sites identified by Ahmed produced all three main exported Tripolitanian amphora forms: 1 and 3, which appear to have been intended for olive oil, and 2 (in the neo-Punic tradition with handles attached to the shoulder), which was probably for wine or perhaps fish sauce. Wine seems more likely for the Gebel kilns given the distance from the sea, but Tripolitanian 2 producing kilns have also been found during preliminary coastal survey at Lepcis Magna (Capelli and Leitch 2011). Some of these kiln sites were found at, or in close proximity to, the large pressing sites described in the previous chapter, and stamps found on the amphorae themselves can help link these production sites concretely with the areas they were supplying.

In similar fashion to their Tunisian counterparts, Tripolitanian amphora stamps are mainly found on the type 3 amphorae of the early 3rd century AD, probably due to the reorganisation of the *annona* system under Septimius Severus. However, there are some crucial differences in the form the stamps take, which help to distinguish the organisation of production in Tripolitania from Tunisia. In 1988 Mattingly listed a total of 62 stamps, found mostly on amphorae of this type (Mattingly 1988d), based on previous lists published by Manacorda and Di Vita-Evrard (Di Vita-Evrard 1985; Manacorda 1977, 1983). Recent Spanish work at Monte Testaccio has added further examples from the mound as well as incorporating all the known Tripolitanian stamps into an online database (CEIPAC: Centro para el Estudio de la Interdependencia Provincial en la Antigüedad Clásica). Previously only two Tripolitanian amphora stamps had been provenanced to their kiln sites by Goodchild. His first example came from two handles lying on the surface at Kilo 102, and the second stamp was found on the waste heap at Sidi es-Sid near Tazzoli (Goodchild 1976: 97-98), but these have so far not found close parallels elsewhere. Thanks to the new stamps found by the Tarhuna survey several positive associations can now be made. The amphora kiln-sites recorded by the Tarhuna survey have significantly increased the number of provenanced stamps, producing 16 different amphora stamps, with multiple examples in several cases. Many of these stamps parallel those found outside of the Gebel Tarhuna, and as a consequence the Tripolitanian amphorae found on Monte Testaccio and elsewhere can for the first time be linked back to the specific estates which produced them.

We briefly covered in the introductory chapter how members of the Lepcitanian elite have previously been linked to the olive oil export trade through stamps on Tripolitanian amphorae that give the initials of *tria nomina* that appear to correspond to names of important individuals also known from dedicatory inscriptions. By the late 2nd century Africans were strongly entrenched in positions of influence, which provided the crucial support Septimius Severus needed to ascend to the purple in AD 193 (Wells 1992: 257). Additionally, four previously known stamps on Tripolitanian 3 amphorae, bearing the inscriptions “IMPANT/AVG”, “F AVG” or “IMPANT”, have been argued to relate to imperial estates of the emperor Caracalla, Severus’s eldest son (Mattingly 1988d: 32). One of these has now been found at site

TUT48 in the Gebel Tarhuna, indicating that the estate belonged to the emperor. Several other Tripolitanian 3 stamps end with the letters “CV”, which probably stands for *clarissimus vir* and therefore indicates senatorial status. Mattingly (Mattingly 1988b: 32; 1995: 141-142), Manacorda (1977; 1983) and Di Vita-Evrard (1985) linked many of the other amphora stamps with leading Lepcitanian families known from dedicatory inscriptions within the city.⁹² The hypothesis that the elite of Lepcis Magna owned estates in the highly productive region of the Gebel is confirmed by the discovery of several of these amphora stamps at kiln sites located by Ahmed in the region of Tarhuna. For example, two attestations of the stamp LSACV, known otherwise from Monte Testaccio and from sites in Rome (Horti Torlonia) and interpreted as the initials of either L. Septimius Aper or L. Silius Amicus Haterianus (*IRT* 542), have been found by Ahmed at site TUT108. Additionally, the amphora stamp MVC, probably related to either M. Ulpius Cerialis (*IRT* 388) or a member of the family of M. Vibii (*IRT* 578), was produced in kilns found at site GUM110.



Figure 4.5 The Tripolitanian amphora stamps from the sites mentioned in the text. Left: F AVG IMPANT; Middle: LSACV; Right: MVC (after Ahmed 2010, fig. 5.3).

Such stamps clearly indicate the role of the emperor as well as the local and senatorial elite in the organisation of production and export. The fact that Tripolitanian amphora stamps of the Tarhuna region are present on Monte Testaccio obviously helps to confirm the link between this region and the supply of olive oil for the *annona*, but there is also evidence that the estates of the Gebel were supplying the African army. The 3rd-century *ostraca* from the fort of Bu Njem on the Tripolitanian *limes* show that, for a time, military detachments posted on the *limes* provided a

⁹² Such as the *Septimii*, *Fulvii*, *Plautii*, *Marcii*, *Ulpii*, *Vibii*, *Cornelii*, *Servilii*, *Pompeii*, *Cassii*, *Granii*, *Calpurnii* and *Verginii*.

market for local produce. The garrison, in the middle of the 3rd century, bought wheat and oil transported by indigenous camel drivers, indicating that local production supported supplies probably brought from the coastal and pre-desert regions (Marichal 1992: 103-104). This is now further confirmed by stamps found by the Tarhuna survey. Amphora stamps prove that the fort at Bu Njem received amphorae that were being produced at sites TUT108 and DUN131, or at least by sites that were using the same amphora stamps. The production of a further anepigraphic stamp recognised on Tripolitanian amphorae at Bu Njem and also as on board the Laurons II shipwreck (Bonifay 2004: 9-11, fig. 3), is now attested at site TUT15 (Ahmed 2010: 257).

It is clear from the success of recent survey work and the remaining unprovenanced corpus of stamps that many more kiln sites remain to be found. However, Ahmed's work in the Tarhuna region has now characterised the whole process, an achievement which for a long period remained elusive.

CONCLUSIONS

A significant difference between amphora production in Tunisia and Libya is the proximity of the kiln sites to the estates producing the agricultural products. It is clear that in the Libyan Gebel many estates produced amphorae to carry the products, be it wine or oil, that they were also producing. In some cases the kilns were only a short distance away from the press buildings themselves. In Tunisia, however, many of the inland estates specialising in olive oil or wine production were much further inland. We can be confident that these inland estates in the main did not produce amphorae, and that their products travelled to the coast in skins. At the coast, it seems clear that there were specialised amphora workshops surrounding the main port towns (Bonifay 2007b: 154). The workshops are likely to have worked by contract for many of the inland producers. It is of course possible that some rich individuals owned both inland estates and amphora producing concerns on the coast, but we are not likely to find the evidence to prove this.

The basic distinction between Libyan and Tunisian production appears also to be represented in the stamps. We do not know for what reason potters at towns of the eastern coast of Tunisia often included an abbreviation of the town name, but this practice was absent from Tripolitanian amphorae, largely because the potters there were associated with estates rather than with particular port towns. Individuals named on these amphorae seem to indicate the owner of the estate producing the olive oil or wine, whereas in Tunisia it is assumed that the initials included in the stamps were associated with those who produced the amphorae (Manacorda and Panella 1993; Stone *et al.* 2011b: 376).

4.1.3 AMPHORA CONTENTS

Up to this point I have mentioned the probable contents of several amphora forms produced in Roman Africa in the provinces of Proconsularis and Tripolitania, but how is this knowledge arrived at, and how secure is it? I have already stated that there is an extremely poor survival rate for *tituli picti* on African amphorae, which leaves this avenue of investigation closed at the current time. Initial work on African amphorae laid emphasis on olive oil as the most likely contents (Carandini 1970; Keay 1984; Panella 1993; Zevi and Tchernia 1969), but the discovery of many fish salting sites along the Tunisian littoral, some in association with amphora production sites, led to a closer examination of this question (Slim *et al.* 2004). A study conducted in the 1990s argued that the discovery of impermeable pitch lining on many of the African amphorae indicated that in fact fish products and wine were more common contents of these forms than had previously been imagined (Ben Lazreg *et al.* 1995). The basic assumption of the authors (not yet conclusively proven) is that olive oil carrying amphorae would have been unpitched (as the pitch would have affected the taste of the oil), and therefore pitched vessels carried something other than oil. This is not to say, however, as later acknowledged by Bonifay (2007c), that oil intended for other uses such as lighting fuel, would not have travelled in pitched containers.

As pitch only survives well in moist conditions, the study relied on both the published data from shipwrecks as well as the examination of over 200 complete or

fragmentary vessels from underwater or waterlogged excavations, mostly from along the French coastline. The method aimed to establish whether certain African amphora forms were systematically pitched or unpitched, but additional supporting evidence was also recorded. The original authors noted that of the 12 shipwrecks they examined with cargoes of Africana 2, three of them had amphorae which had been found with remains of fish actually still inside some of the amphorae (Ben Lazreg *et al.* 1995: 118).

Further information in support of these conclusions was included in Bonifay's later major study of African ceramics (2004). He also combined this analysis with various other factors, such as opening technique, which may give an indication of whether the amphora had a liquid, or semi-solid, content, or whether or not a particular form has associations with known production sites. Within Tunisia, the association between production of amphorae and their contents only really applies to the fish-salting sites (a connection between amphorae production and fish-salting tanks has been established at Leptiminus and Sullethum), as the majority of the amphorae workshops were not located on the estates that produced the wine and olive oil. In Tripolitania, on the other hand, the close association of press buildings and kilns will be far more convincing. Crucially, the unpitched examples from the shipwrecks and waterlogged excavations seemed to tally well with African amphora forms known from Monte Testaccio, where the presumption is that virtually all amphorae in the dump were used to carry olive oil (as indicated by *tituli picti*, commonly found on the Spanish amphorae which make up the majority of the mound). In spite of the progress made, Bonifay's attributions of one content or another to a particular amphora form in many cases remain tentative. This is especially so because future discoveries may well provide stronger evidence in a number of equivocal cases, but also because we cannot say for certain that African amphorae were not used in a more versatile manner.

In fact, not being certain about the contents of African amphorae remains a key obstacle to being able to judge the relative importance of olive oil and wine, or *garum*, *salsamenta* and other products. Recent work at Leptiminus has somewhat unexpectedly noted some examples of Africana 1 rim types on larger amphorae and Africana 2 rim types on smaller vessels, leading to the question of whether it was in

fact the rim type that gave an indication of the contents, rather than the overall size or form of the amphora (Stone *et al.* 2011a).

Unfortunately, without detailed residue analysis it is by no means certain that unpitched amphorae definitely carried oil, or that pitched amphorae definitely carried something else. This is, however, at this stage, a reasonable working hypothesis. Ultimately, the sample size upon which the conclusions about systematic pitching have been drawn remain very small.

OIL-CARRYING AMPHORAE

African amphorae that may have contained oil are identified by Bonifay as Africana 1, Tripolitanian 1 and 3, Africana 2B, Keay 34, 35A, 59, 61C and 8B, 27, 36 and imitation 3 (2004: 471-472). Africana 1 is described by Bonifay as the African oil container *par excellence*: it is systematically unpitched, and is present on Monte Testaccio where it vastly outnumbers other forms of Tunisian amphorae (Revilla Calvo 1999, 2007). It was widely produced at coastal sites of both northern Tunisia and the Sahel, with production being attested as far south as Oued el Akarit in the northern reaches of the Gulf of Gabès. It is well represented at the many workshops of Neapolis, and at Leptiminus it is the most abundant form found amongst the kiln debris (36.84% of all amphora fragments).

Tripolitanian 1 and 3 also produced no evidence of pitch in Bonifay's study and they are both present on Monte Testaccio. Type 1 may be dated to the first and second centuries AD, whilst type 3 dates from the 2nd century onwards. In deposits of the 3rd century on Monte Testaccio type III completely replaced type I (Revilla Calvo 2007).

The presence of rare examples of Africana 2A at Monte Testaccio indicates that it sometimes could have carried olive oil. Of the various sub-categories of Africana 2, however, only type 2B (pseudo-Tripolitanian) has been found to be absent of pitch. The position of its workshops on the south bank of the *sebkhet* Sidi el Hani make it a possible container for olive oil, as the inland position makes an association with fish products less likely. Africana 2B was not recorded by Keay in Catalonia, which might

strengthen this hypothesis, since that region is likely to have been self sufficient in olive oil.

The cessation of dumping at Monte Testaccio around AD 260 with the building of the Aurelian wall means that we lack clear evidence for what were the late-Roman and late-antique oil amphorae of choice. There appears to be disagreement over the most common form of this period, Keay 25. According to Peña, at least one variant of Keay 25 must have been an oil-carrying amphora. His reasoning is that the capacity of Keay 25 amphorae matches closely the volumes of oil being weighed in the collection of tax recorded in the 4th-century *ostraca* from the circular harbour at Carthage (Peña 1998: 171; 2007: 170). Bonifay classifies types within this category as Africana 3, and prefers to see them as wine amphorae, based on the recording of some pitched examples of all three variants (2004: fig. 261). However, as the sample is small, it is still unclear if unpitched examples could also have been common.

In the 5th century, Keay type 35A appears to be an unpitched version of 35B, possibly transporting oil from Nabeul. Keay 59 and 8B, which are in the Tripolitanian tradition and are never pitched, were possibly used to transport oil from southern Byzacena. Keay 34 carries various inscriptions, one of which mentions oil. Of the latest vessel types, Keay 61C is the only one not to show traces of pitch. Finally, certain types of the 5th century, probably originating west of Carthage, are not systematically pitched (Keay 3 imitation, Keay 27 and 36), but they are not in sufficient quantity to represent significant trade.

SALSAMENTA OR GARUM-CARRYING AMPHORAE

As mentioned above, finds of fish bones in examples of the Africana 2 from three shipwrecks (Cabrera C, Cap Blanc and Lazarretto) support the idea that some of this series contained fish products. An example of a Leptiminius I amphora (a type also produced at Salakta), found at El Jem (Thydrus) in the Maison d'Afrique, still contained the remains of fish, confirming Opait's hypothesis (2000) that this type was used to transport *salsamenta* (Bonifay *et al.* 2002b: fig. 20, n. 289). At least some examples of Africana 2A probably transported fish products: the systematic pitching of these

containers and their method of opening, a large hole at the top of the belly, argues in favour of them having a solid contents. The examples of Africana 2C from the Planier G, Pampelonne and Cap de Garde shipwrecks were pitched. Those from the Cap de Garde shipwreck, found off the coast of Algeria, also possessed lead tags wrapped around their handles mentioning an *officina* that was probably a fish-salting site (Lequément 1975: 678-679). Further evidence is provided by the fish bone residues from the Cap Blanc and Cabrera C shipwrecks, and the presence of these amphorae in the salting site at Nabeul. This amphora is a late variant derived from the precedent type (Africana 2A) produced at Nabeul. Bonifay (2004: 472) suggests that its distant descendants Keay 57, 56 and 55 may have carried the same contents. Keay 35 B was produced, at least partly, in the workshop of Sidi Zahrani, 6km north of Nabeul, and largely exported. All the examples found in waterlogged conditions in the northern Mediterranean are pitched. One example from Aguilas, Spain, contained the remains of mackerel and tuna (Pareja 1972: 107-108). Finally, this type is particularly frequent on sites that border the lagoon of Korba, which have all been identified as fish salting installations. Remains of fish have also been found in a type-one “spatheion” at Tarragona (Morales Muñoz 1989), but several examples from the Dramont E wreck contained olive pips (Santamaria) and Bonifay prefers to see this type as a container for wine (Reynolds 1993: 113). As olives were often kept in some cooked wine, this hypothesis has been advanced by Leguilloux (1988) who cites Cato (*Agr* 7,4) and the examples of preserved olives in the wine-carrying Dressel 1A and 1C (Cavalière shipwreck) and Haltern 70 amphorae (Port-Vendres II shipwreck).

WINE-CARRYING AMPHORAE

For a long time there was a reticence to attribute the transportation of wine to African amphorae. However, there is now no doubt that wine was marketed in African amphorae which imitated non-African types of wine amphorae. As we have seen, there are diverse variations on Dressel 2/4 produced at the workshops on Jerba and at Zitha in western Tripolitania (Bonifay’s type 56-58, they date from mid-1st to mid-2nd century). The Dressel 30 imitations of Gaulish amphorae were produced at many

points in African territory from the mid-3rd century (Bonifay type 60), as were the possible imitations of the eastern amphora form LRA 1. The Tripolitanian 2 amphorae produced in the Gebel is also a likely candidate, and the presence of the imitations in western Tripolitania may explain its absence there. According to Bonifay, Africana 2A may also sometimes have transported wine. Following Lequément (1980: 191), Bonifay argues it is most probable that wine was usually contained in the 4th-century, medium-sized, cylindrical amphora Keay 25, which he now proposes to refer to as Africana 3. Several wrecks found off the French coastline have shown this series to have been pitch-lined, although as we have seen, Peña would still like to see at least one variant of Keay 25 as an oil amphora. The many sub-variants of this type were produced in northern Tunisia at Carthage and the workshops of Neapolis, but also in the Sahel at Sullethum, Thaenae and Henchir ech Choggaf, and on the Gulf of Gabès at Oued el Akarit. The form is present, but quite rare at Leptiminus. As mentioned above, there is some evidence for the production of Keay 25 variants at Meninx on the island of Jerba. The production of Mau XXXV during the early imperial period indicates that wine was a speciality of the island and this may be an indication therefore that some Keay 25 amphorae carried wine (cf. Fentress *et al.* 2009: 193).

As mentioned above, a range of amphorae produced in the Gulf of Hammamet in the Punic tradition are likely to have been used for the fermentation of wine, rather than for its transport and commercialisation. They have been found alongside perforated lids and in general their large size makes them more suited for storage than transportation.

CONCLUSION

As stated above, conclusions regarding the contents of African amphorae are still tentative and only act as a rough guide, but keeping them in mind we can begin to examine the relative importance of these products such as olive oil, wine, *garum* and *salsamenta* within Mediterranean trade. Counter to the previous assumption that the majority of African amphorae carried oil, Bonifay has argued for a more balanced picture taking into account wine and fish products (2004: 487-489). Recently the

authors of the third report on Leptiminius have examined the relative proportions of Africana 1 and Africana 2 in the assemblage from the surface survey of the town. Africana 1 rims outnumber Africana 2 rims by a ratio of 1.17:1. However, as Africana 2 amphorae have a greater volume, a 64 litre average as opposed to a 44 litre average for Africana 1, in volumetric terms Africana 2 contents outweigh those of Africana 1 by a ratio of 1.24:1 (Stone *et al.* 2011a: 249). In other words, the situation is reversed. In a simplification of the contents problem they assume Africana 2 mainly contained fish products, and only rarely wine, and that Africana 1 contained olive oil. They thus conclude that fish products were a marginally more important export from the town than olive oil (Stone *et al.* 2011a: 249). It is probably too early to push for such conclusions this strongly. After all, we must remember that unpitched amphora forms such as Africana 1 may represent only the olive oil that was intended for consumption. An important question to ask is, how great a proportion of exported olive oil was intended as a fuel for lamps, or for other purposes? My contention would be that a very significant proportion would have been consumed as fuel. Further scientific analysis of the pitch lining on amphorae is necessary before firm conclusions can be drawn about the relative importance of African amphora-borne products.

Type	Pitch	Possible contents	Date
Ostia LIX/Bonifay 15	?	Oil?	end of 1 st to mid-2 nd c. AD
Ostia XIII/Bonifay 14/CAM 02 01	None?	Oil	end of 1 st to mid-2 nd c. AD
Africana 1 Piccolo/Keay 3/Bonifay 21/CAM 04 00	None	Oil	mid-2 nd to 4 th c. AD?
Africana 1A/Bonifay 21A/CAM 01 00/Ostia III, 262/Ostia IV, 432-433	None	Oil	Predominant on Testaccio before 3 rd c. AD?
Africana 1B/Bonifay 21B/CAM 06 00/Leptiminius 3B/Ostia I, 526-529	None	Oil	Predominant on Testaccio from early 3 rd c. AD?
Africana 1C/Bonifay 21C/CAM 03 00/Ostia IV, 169	None	Oil	second half of 3 rd c. to 4 th c. AD
Africana 2A Grande/Keay 4-5/Bonifay 22/CAM 11 02	Pitched	salsamenta/wine, sometimes oil?	mid-2 nd to 3 rd c. AD
Africana 2B Grande/Bonifay 23/CAM 12 00/Leptiminius 10	?	?	3 rd c. AD
Africana 2B Pseudo-Tiprolitanian/Keay 5bis/Bonifay 24/CAM 54 00	None	Oil?	3 rd c. AD?
Africana 2C Grande/Bonifay 25/CAM 11 00/Leptiminius 15B	Pitched	salsamenta?	mid-3 rd to 4 th c. AD
Africana 2D/Bonifay 26/ CAM 10 00/Leptiminius 7A	Pitched	salsamenta?	mid-3 rd to 4 th c. AD
Africana 3A/Keay 25.1/Bonifay 27	Pitched	wine? (Bonifay)/oil or fish? (Peña)	4 th c. AD
Africana 3B/Keay 25.3/Bonifay 28	Pitched	wine? (Bonifay)/oil or fish? (Peña)	4 th c. AD
Africana 3C/Keay 25.2/Bonifay 29	Pitched	preserved olives	end of 4 th to mid-5 th c. AD
Dressel 26	None	Oil	end of 2 nd to 1 st c. BC
Tripolitanian 1/Bonifay 19	None	Oil	1 st to mid 2 nd c. AD
Tripolitanian 2/Keay 9/Bonifay 4	Both	salsamenta?/Oil?	end of 1 st to mid-3 rd c. AD
Tripolitanian 3/Keay 11/Bonifay 20	None	Oil	mid-2 nd to 4 th c. AD
Dressel 2-4/Bonifay 56-57	Pitched	wine	1 st to mid-2 nd c. AD
Schöne-Mau XXXV/Bonifay 58	Pitched	wine	1 st to mid-2 nd c. AD
Dressel 30/Bonifay 60	Pitched	wine	3 rd to 4 th c. AD

Table 4.2 The possible contents of the main exported African amphora types.

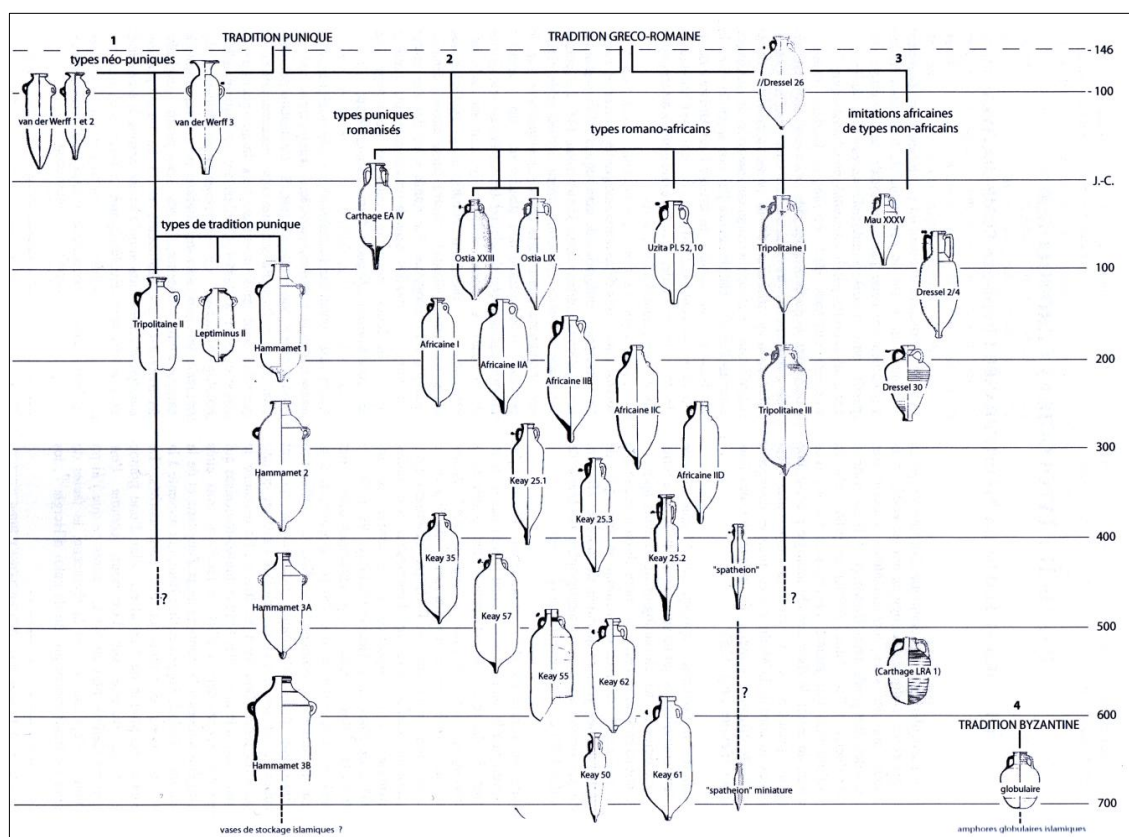


Figure 4.6 The chronological development of African amphorae (after Bonifay 2004: fig. 46).

What the amphora evidence does show is that greater importance should certainly be attached to marine products and also to wine. These products, along with olive oil, were being produced in really significant quantities and exported. There is a danger of getting caught up in the contents argument, but I feel that even if, for example, *garum* and *salsamenta* were shown to make up as much as 50% of the exported amphorae, this would not reduce the importance of the developments in the countryside regarding the production of wine and olive oil in volumetric terms; the rough order of quantities involved have already been established by the survey evidence. While many more fish-salting sites have been discovered by the coastal survey of Tunisia (Slim *et al.* 2004), it is much harder to estimate the size of seasonal tuna and sardine catches at Leptiminus than it is to estimate the potential production capacity of a large rural farm specialised in the production of olive oil. Stone *et al.* (2011) are thus right to focus on the relative proportions of fish product-carrying amphorae against olive oil amphorae, as this might indeed indicate the sort of

quantities involved. The significance in terms of quantity of exported olive oil is thus not reduced, but in terms of our explanations for the economic success of Africa, other important exports have to be taken into account. Fish products are now established, and textiles probably also need to be given greater consideration.

4.2 THE DISTRIBUTION OF EXPORTED AFRICAN AMPHORAE

It is often stated that African imports are remarkably dominant on coastal sites in the western Mediterranean from the mid 3rd-6th century AD (Mattingly and Hitchner 1995; Wickham 2005), but statistics from quantified ceramic reports to support these assertions are few and far between. In an attempt to characterise what has been termed by some as the “African boom”, this section will examine quantified amphora assemblages which demonstrate growing dominance of African products at Rome from the 2nd century onwards. Following on from this, it will attempt to gauge the significance and nature of Africa’s trade links with the rest of the Mediterranean basin.

Despite the importance of quantifying ceramic assemblages being demonstrated for several decades, it is still not widely practised to the extent that inter-site comparisons are always, or indeed often, possible. The authors of two recent studies of coastal southern Spain, for example, (45 sites in *Baetica* in one article, and 21 sites in *Tarraconensis* in another) both complain of a lack of detail in the excavation reports they examined, limiting them to discussions of the presence or absence of various African forms, rather than being able to concentrate on a more revealing quantitative analysis based on their percentage relative to the entire assemblage (Lagóstena Barrios 2007; Molina Vidal 2007: 205). Where quantification has been carried out the problems of interpretation still remain significant. The archaeologist is faced with the problem that contexts from different chronological brackets may have developed under different sets of circumstances (contemporary use vs. waste disposal or abandonment for example), and that in almost every case the volume of the material analysed represents a very small absolute number of vessels. If we take the excavations of the Terme del Nuotatore at Ostia as an example, before the Severan period the frequency of amphorae sherds belonging to each chronological bracket

number in their hundreds rather than thousands, making it a rather small sample of amphorae consumed at Ostia over a 100-year period.

The problem is compounded further when statistics that are given lack a breakdown by typological form. We might be told, for example, as is often the case, that African imports make up a high percentage of all ceramics, say 30% of the assemblage, only to be left without any exact details of the African forms that are present and in what quantity. This becomes particularly important when relative quantities of oil, wine and fish products are given without detailed reference to the individual forms. In spite of these problems the data currently available are starting to reveal the pattern of African exports in broad outline.

MONTE TESTACCIO

A convenient starting point for the examination of olive oil export is provided by the recent excavations at Monte Testaccio, a huge mound estimated to be made up of 55,000,000-60,000,000 broken oil amphorae. Monte Testaccio is located in the Emporium district, the city's principal river port under the empire, immediately south of the Horrea Galbana. This warehouse stored state-owned goods, perhaps predominantly olive oil, and Monte Testaccio therefore presumably represents the emptying of imported amphorae for their contents to be transferred to some other form of storage or retail containers (Remesel Rodríguez 1994; Rodríguez Almeida 1984). The dumping of amphora waste at Monte Testaccio is believed to have begun under Augustus and continued until the building of the Aurelian Wall in the AD 260s. That the dump was used primarily for oil-carrying amphorae is proven by the dominant presence of Baetican Dressel 20 amphorae, which were often painted with detailed inscriptions (*tituli picti*) describing, amongst other things, their contents. The mound is estimated to represent amphorae capable of holding 4,100,000,000 litres of oil (Peña 2007: 303; Rodríguez Almeida 1984: 116-119). If this is divided over the

roughly 270 year period of its use this represents c. 15,000,000 litres of oil per annum. At 25 litres of oil per person, this is enough to feed c. 600,000 people each year.⁹³

The early years of investigation at Testaccio concentrated almost exclusively on the Spanish oil amphorae as the African amphorae were less frequently stamped or painted (Mattingly 1988d: 31). Mattingly argued also that as the African amphorae tend to be of thinner fabric, their increased fragmentation within the mound had meant that their importance tended to be underestimated (Mattingly 1988b: 55). Indeed, there is some evidence to suggest that African amphorae were smashed into small pieces and carried onto the mound inside the Dressel 20s (Peña 2007: 303). Broken down African amphorae sherds also appear to have been used for constructing pathways on top of the mound for those conducting the dumping operations (Peña 2007: 302; Remesal Rodríguez 1994: 103-110; 2004; Revilla Calvo 2001: 373; Rodríguez Almeida 1994: 24-25). The collection of only handles and rims compounded the problem of their representation as these parts of African amphorae rarely bear stamps. In recent years deep-shored excavations at three different locations on the mound by a Spanish team have produced material from the mid-2nd to mid-3rd centuries, which has been systematically recorded, enabling a re-evaluation of the situation. Based on these recent findings, Remesal-Rodríguez's current estimate is that 85% of the mound is made up of Baetican material (2008: 155). African material comprises varying percentages for the different seasons of excavations on the mound: between 6% and 10% in 1989-90, as much as 19% in the 1991-92 season and around 17% in the 1993-94 work (Revilla Calvo 2007). Small samples from such a large set of deposits will always struggle to be fully representative, but there seems little doubt that African amphorae were vastly outnumbered in these dumped deposits by Baetican amphorae. This is the case even for 3rd-century levels where we might expect to see African amphorae start to dominate: they only constitute around 10% of the 3rd-century material excavated so far (Revilla Calvo 2007: 280).

Contemporaneous deposits from Ostia do not show the same preponderance of Dressel 20 in relation to Africana 1 and Tripolitanian 1 and 3 (Mattingly 1988b: 55; Peña 2007: 304). Mattingly originally suggested that the preponderance of Dressel 20

⁹³ For more general calculations on the calorific requirements of the population of the city of Rome see Aldrete and Mattingly (2010).

on Monte Testaccio “may simply reflect the fact that it was the least suitable container for reuse or disposal in some other way” (1988b: 55, n. 116). Peña (2007: 304-306) has recently elaborated this explanation further and concluded that the relative proportions of Baetican and African amphorae found within the mound should “not be assumed to represent a reliable measure of the relative amounts of Spanish, Tunisian, and Tripolitanian oil that were stored and/or distributed at this facility.” Two clear problems are that Monte Testaccio represents a repeated bias in dumping habits, and also goes out of use just at the moment when African production is reaching its peak.

For interpreting the relative amounts of Tripolitanian and Tunisian amphorae within the mound, however, the results are far more problematic. This can be clearly demonstrated by comparing the assemblages of the mid-2nd century from the 1989-90, 1991-92 and 1993-4 excavations. In the 1989-90 excavation Tunisian amphorae represented 64% and Tripolitanian c. 36% of the African amphorae. The 2nd century levels from the 1991-92 excavation consisted almost exclusively of Baetican material, whereas in the 1993-94 deposits Tripolitanian amphorae dominated the African material, making up c. 93% and the Tunisian only c. 7%. One can conclude that the location of an exploratory trench into the mound severely alters the sample of material recovered, although the excavations do seem to confirm that African material is always in a minority.

During the mid-2nd century the forms Africana 1A and Tripolitanian 1 vastly outnumber other African forms present on Monte Testaccio. In deposits from the 1989-90 excavations dating to the mid-2nd century Africana 1A made up 82.55% of the Tunisian amphorae, while Tripolitanian 1 dominated the Tripolitanian assemblage (a single fragment of Tripolitanian 2 was recorded). Ostia XXIII made up a further 11.62% of the Tunisian amphorae with the remaining fragments belonging to Ostia LIX and unclassified forms. In the 1991-92 deposits African material was extremely minimal, representing only 20 containers: 15 were of type Tripolitanian 1, 4 of Africana 1A, 1 of Ostia XXIII and 3 of Tripolitanian 3, which again Revilla Calvo considers to be intrusive. In 1993-94 mid-2nd-century deposits Tripolitanian 1 completely dominated the African material. Of the 7% which was Tunisian, 7 fragments were of Africana 1A, 2 fragments of Africana 1B Revilla Calvo considers as intrusive, 3 fragments of Ostia XXIII, 8 fragments of Ostia LIX and 4 unclassified fragments.

A different set of containers is represented in deposits of the early 3rd century: Tripolitanian 3 completely dominated the Tripolitanian amphorae, whereas Africana 1B now began to outnumber the Africana 1A. In the mid-3rd-century deposits Africana 1B constituted 83.6% of the Tunisian amphorae and Tripolitanian 3 represented 100% of the Tripolitanian amphorae. It should be noted, however, that this period also corresponded to the final phase of the use of the mound. At this point Africana 2 variants A-D also begin to appear in small quantities, although this is possibly due to the function of the mound changing towards being a more generalised dumping ground at the end of its life. The proportions of Tripolitanian or Tunisian amphorae represented in the excavations are understandably erratic, as cycles of dumping will have been influenced by the different peak sailing times and arrivals of different ships. Ultimately, other sites at Rome and within its hinterland (particularly its port sites Ostia and Portus) may be more representative of the fluctuations in the actual volume of imported African products over time.

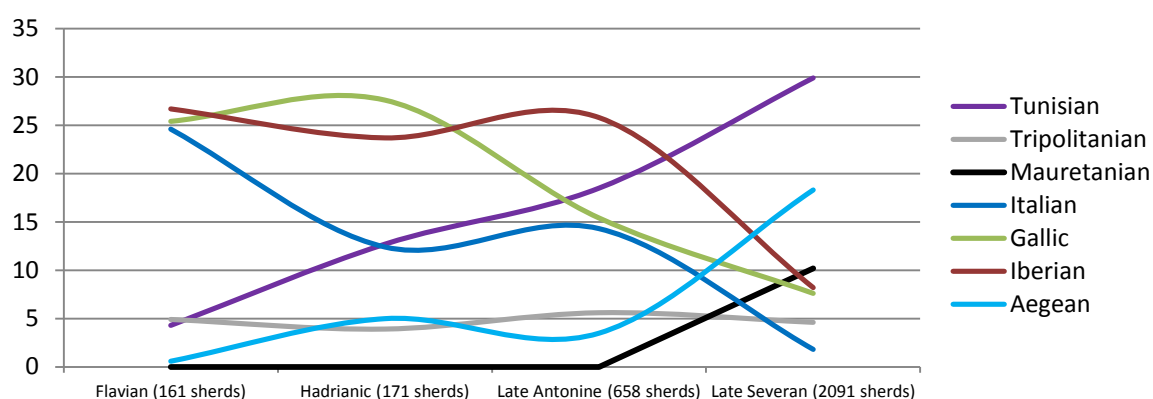


Figure 4.7 The relative percentages of amphorae of different origins in excavated deposits at the Terme del Nuotatore, Ostia (after Anselmino *et al.* 1986: table 2).

OSTIA AND PORTUS

Ostia was Rome's main harbour during the Republican period, but with the construction of the harbour at Portus under Claudius, most bulk goods travelling to Rome would have bypassed the town. Nonetheless, ceramic assemblages from the excavations of the Terme del Nuotatore at Ostia, which display a gradual increase in

the importation of North African amphorae from the 1st to 4th centuries (Figure 4.7), have often been used as an indication of broader patterns of supply (Carandini and Panella 1973). For a long time it was difficult to know how typical the trends present in the deposits from the baths were, and Rickman (1981: 216-217) criticised the report on the excavations contained in Ostia III (658-696) for becoming “a potted economic history of the Empire”, warning that “the Baths of the Swimmer, however significant, is only one site in Ostia, and Ostia itself, however special its relationship to Rome, is only one town in Italy”. However, the ceramic assemblage from the more recent Deutsches Archäologisches Institut (DAI)–American Academy in Rome (AAR) excavations at Ostia does, in fact, support this general trend of increasing African imports (Figure 4.8). In the second half of the 1st century AD African amphorae comprised a relatively low 12% of the recovered amphorae fragments, and 16% in the first half of the 2nd century. They made up 50% of the late-3rd-century assemblage and this rose further in the late 4th to 5th century to 61% (Martin 2008).

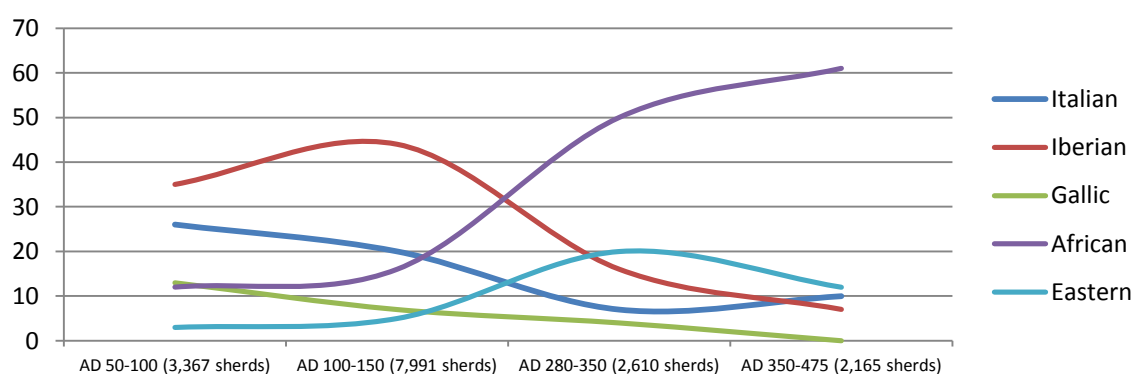


Figure 4.8 Relative percentages of amphorae of different origins from trial excavations undertaken by the DIA-AAR at Ostia (data from Martin 2008).

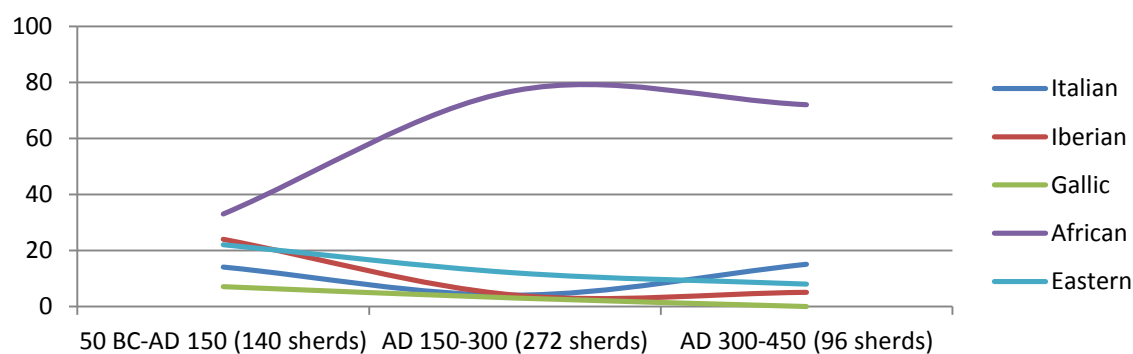


Figure 4.9 Relative percentages of amphorae of different origins through time from surface collection at Portus (data from Keay *et al.* 2005).

The percentages for each of these chronological brackets are derived from assemblages of thousands of sherds, making the figures represented more reliable than many other studies of this type. Other smaller assemblages do, however, tend to confirm the same pattern. In a layer dating to the mid-3rd century from the Terme del Nuotatore representing 2,127 diagnostic sherds, Dressel 30 represented 26.8%, Africana 2 17.8%, Africana 1 19.6% and Tripolitana 2 2.0%, with North African amphorae making up around 66% of all amphorae (Carandini 1970: 106). This deposit also demonstrates that in certain types of deposit African wine imports are extremely well represented (Dressel 30). In another deposit from these excavations, this time of the 4th century, North African amphorae made up at least 55% of all amphorae, making up 623 out of 1,129 diagnostic rims, handles, bases and bodies (Martin 2008: 113-116). Although surface collection of ceramics at the harbour site of Portus resulted in only a small amphora assemblage of a few hundred diagnostic sherds, African amphorae were again found to be the most numerous (Figure 4.9).

ROME

Further comparative material to help evaluate how representative deposits at Ostia, Portus and Monte Testaccio are of supply to the capital is available from excavations at sites in Rome itself. Several of these were examined in an article by Panella (Panella 1992). She compared the relative amounts of amphorae present at the sites of Meta Sudans (AD 64-68, 2566 sherds), Via Nova (AD 64-68, 289 sherds), Crypta Balbi (AD 80-90, 184 sherds) and the three sites of Curia, Forum Iulium and Foro Transitorio (AD 80-98, 302 sherds), with deposits from Via Sacra-Via Nova (AD 90-110, 341 sherds) and Meta Sudans (AD 130-150, 138+ sherds?).⁹⁴ In terms of relative percentages, African amphorae consistently represent between 9 and 15% of all identifiable sherds at these sites during this period. Italian, Iberian and Aegean/Eastern imports have higher percentages, while Gallic imports are generally lower (Figure 4.10).

However, a different picture is presented when we consider published assemblages of the mid-3rd to mid-5th century (Figure 4.11) from excavations on the

⁹⁴ For another brief discussion of this data see Ciotola *et al.* (1989). The data is also tabulated in Reynolds (2010: 198-199).

Palatine hill, at Crypta San Bonaventura (Peña 1999: 153), the Palatine East (Peña 1999), the Temple of Magna Mater, Schola Praeconum I and II, and the Domus de Gaudentius (Remolà I Vallverdú 2000: 281, appendix III 7.6).⁹⁵ Again the numbers of sherds involved here are lower, but the analysis of these deposits seems to confirm that imported African amphorae were consistently more common than those from other provinces or other parts of Italy from the mid-2nd century onwards.

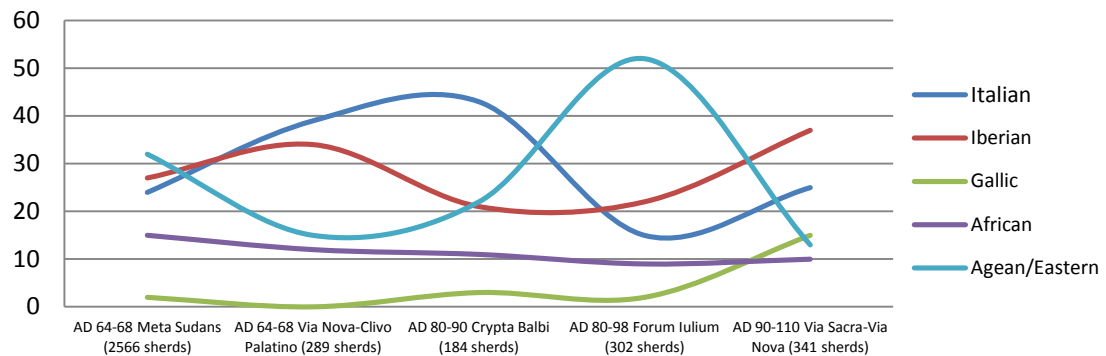


Figure 4.10 Relative percentages of imported amphorae at sites in Rome (Ciotola *et al* 1989; Panella 1992).

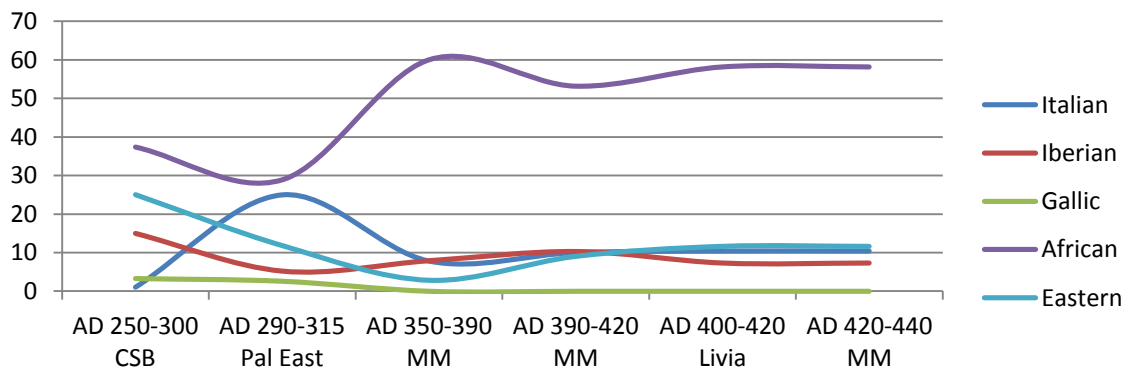


Figure 4.11 Relative quantities of amphorae (percentage of total amphorae) according to origin at Crypta San Bonaventura, Palatine East, Temple of Magna Mater, and the House of Livia, mid-3rd to mid 5th centuries (data in Reynolds 2010: Table 2c).

Additionally, the African amphorae from the Portus survey, the Palatine East A 105 deposit, the excavations of the Terme del Nuotatore and the producer site of Leptiminus have been quantified by form (Figure 4.12). From the relative importance of different African amphora forms we get a corresponding idea of the relative importance of different regions of production within Africa to the supply of the city of

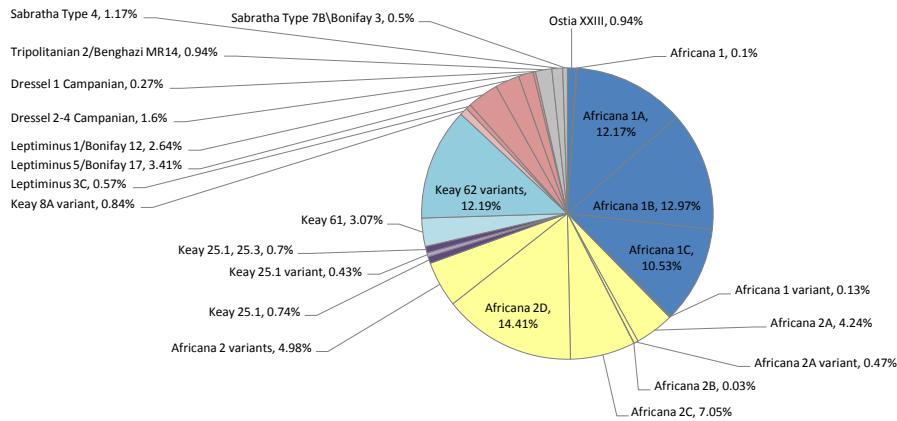
⁹⁵ This data is also tabulated in Reynolds (2010: 201-202).

Rome at different periods. For example, Figure 4.7 indicates that whilst there was a huge and steady increase in the importation of Tunisian amphorae at Ostia during the 2nd and 3rd centuries, Tripolitanian amphorae remain a reasonably steady 5%. The pie charts 2 and 3 shown in Figure 4.12 indicate that this continued well into the 4th century. Bonifay has also pointed out that ARS and Tripolitanian amphorae predominate in Egypt in the early Roman period (2004: 454-456), which could account for a lower degree of reliance on the markets of Rome and central Italy. It is also clear that Leptiminus did not contribute to the very significant quantities of Keay 25 that began to appear in the western half of the Mediterranean, though it probably was a major contributor to the significant numbers of Africana 1 still reaching Ostia in the mid-4th century (Figure 4.12/1).

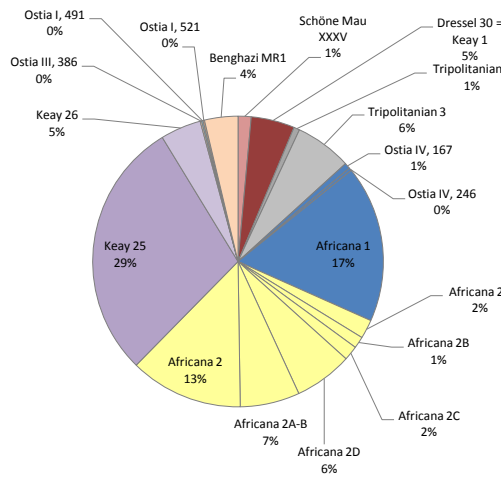
This kind of data can also give some indication of the relative quantities of olive oil, wine and fish products being exported to Rome. At Portus the African wine amphorae Schöne Mau XXXV, Dressel 2-4 and Dressel 30 are represented in small percentages. Schöne Mau XXXV is also notably quite well represented at sites in Rome in deposits dating from the mid-1st to early 2nd century (Ciotola *et al.* 1989; Panella 1992). Other amounts of wine could also be represented amongst the significant proportion of type Keay 25, Africana 2 and Tripolitanian 2. This is an important point to make because in a recent article examining imports to Ostia based on the assemblage generated from the DAI-AAR excavations, Martin (2008) still gave no consideration that African wine could have been represented. Unfortunately, without the publication of the amphora forms it is impossible to know which forms Martin is basing his argument upon. Suffice it to say that his estimates of 0% African wine from AD 50-475 at Ostia are extremely suspect. Equally, the huge drop in imported wine amphorae to Rome/Ostia which Panella and Tchernia (2002: figures 9.1 & 9.2) record from the mid-3rd to mid-5th century must be attributable to African forms not being identified as wine amphorae at a period when they are particularly dominant.

In the Portus assemblage Tunisian olive oil is represented in good quantity by Africana 1 and its predecessors Ostia LIX and XXIII, possibly by some of the Africana 2 amphorae, and later by Keay 25 and Keay 62 (the predominant contents of these is uncertain, see discussion above). Tripolitanian 1 and 3 also appear to have made up a good percentage of the total imported olive oil.

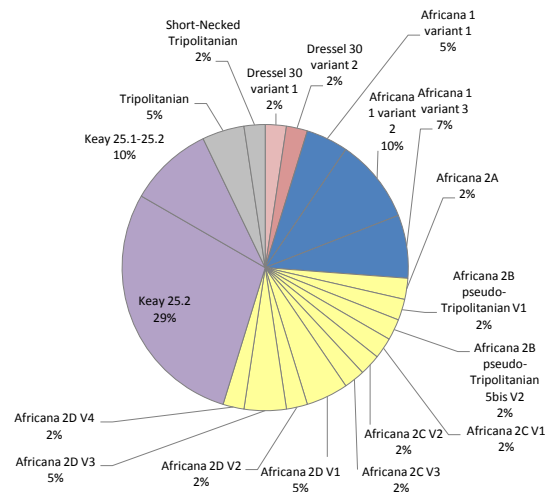
1. Proportion of Amphorae by Form from Surface Survey at Leptiminus (2992 rims)



2. African Amphora Forms from Strato I of Area XVI at the Terme del Nuotatore. A 4th-century deposit (623 diagnostic rims).



3. African Amphorae from Deposit A 105, Palatine East Excavations (42 Diagnostic rims)



4. African Amphora Forms from Surface Survey at Portus (330 sherds)

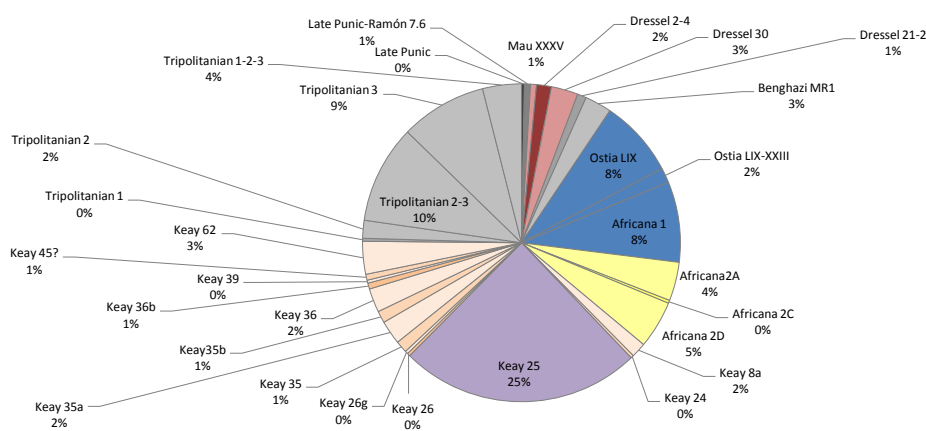


Figure 4.12 Relative proportions of African Amphorae from various sources (0% values indicate a quantity between 0% and 1%).

Fish products were no doubt also of some importance, represented by the Africana 2 series and possibly other forms as well. The large percentage of Keay 25 (25%) may indicate that 4th-century imports were of a greater volume than the 2nd and 3rd centuries, thus confirming the trend observed in the previous graphs (Figure 4.12 no. 2 - 4.12 no. 3), although the small size of the sample discourages any firm conclusions on this basis.

The very late 3rd to very early 4th-century deposit, A 105, from the Palatine East excavations, can be analysed in a similar fashion. Although this time the number of sherds is much smaller (there were 59 rims of African amphorae within an assemblage of 2,377 amphora sherds and 182 amphora rims from the rubbish deposit), there is a far greater degree of chronological precision. Again, African wine is clearly represented by the Dressel 30 form in small numbers, and presumably also by some examples of Africana 2 and Keay 25. In these last two pie charts the importance of the Keay 25 content controversy becomes apparent, as Keay 25 amphorae appear to make up such a high percentage of all African amphorae that arrived at Portus and went on to Rome at this time (39% of African material from the Palatine deposit). Tunisian products seem to vastly outnumber those from Tripolitania in these assemblages, although this is not surprising as the number of Tunisian port cities considerably outnumbered those of Tripolitania. Simply comparing the proportions of Africana 1 against Africana 2 variants displays clearly that fish sauce and probably wine also were of great significance as African exports, as they probably were from the beginning of the export boom in the mid-2nd century AD. The other imitation wine amphorae from Africa, however, are poorly represented in these assemblages. For Portus, their numbers could be diminished because the wine was sold in the same containers it was shipped in. The fact that at Ostia Dressel 30 represented 26.8% of a mid-3rd century deposit containing 2,127 diagnostic sherds should indicate that there is still some way to go in understanding exactly what the fluctuating quantitative importance of African wine at Rome and its harbour sites is telling us about the scale and nature of trade. Dressel 30 seems to have declined in importance by the 4th century, if the 4th-century deposits analysed here can be taken as representative. The low number of African sherds from the Palatine East deposit, however, warns against generalisation.

The ubiquity of African amphorae in other contexts and the relative absence of Dressel 20 in those places, such as at excavations in Rome, indicates the unique nature of Monte Testaccio. The low percentage of African amphorae in the mound evidently has a lot to do with their ability to be recycled, whereas the bulky Dressel 20, which required two individuals to carry, were mainly destined to head straight for the rubbish heap at the warehouse to which they were delivered.

TRADE WITH OTHER PARTS OF THE MEDITERRANEAN

Rome was clearly an important centre for consumption of African olive oil, wine and fish products from reasonably early on, with intensification in the mid-2nd century AD being an important development. However, sites in the rest of the Mediterranean do not show the same pattern of consumption. According to Reynolds, “Tunisian amphorae, and not solely those carrying oil, were directed almost exclusively at the Rome market during the 1st and 2nd centuries. Tunisian amphorae did not reach Spain and Gaul in any quantity until the mid-3rd century or even later” (Reynolds 2010: 16). “At Lyon, again in contrast to Ostia, the combined figures for Tunisian imports for c. 190-250 are relatively low” (Reynolds 2010: 21).⁹⁶ African amphorae only appear regularly in Gaul after AD 250 and were not common until the 4th century. At Vienne, there is a significant importation of ARS and cooking ware from the late 2nd to 4th centuries, but amphorae were not common until the 4th century. African amphorae did appear early at a villa on the Rhône AD 25-75, but do not reach significant quantities until AD 275-350 onwards (Reynolds 2010: 21).

In Spain, quantified assemblages are hard to come by, but late-2nd to early-4th-century African amphorae are rare: Africana 1 seem to be extremely few in number, with the Africana 2 series being slightly better represented, but it was the Keay 25 type and other later forms which became really common (Lagóstena Barrios 2007; Molina Vidal 2007). As mentioned above, the majority of amphorae examined by Keay from Catalonia were of a north-Tunisian fabric (Keay 1984: 410), and this pattern has also been noted by Molina Vidal for the late-2nd to early-4th-century amphorae found

⁹⁶ The evidence cited is from Lemaître (2000: fig. 1) where African forms made up only 3% of the total amphora assemblage.

at coastal sites in the regions of Valencia and Murcia, immediately to the south-west (Molina Vidal 2007: 241). Percentages of the northern Tunisian fabric among African amphorae from sites of the Tarragona coastline, south of the mouth of the Ebro were as follows: Keay 3, 46.6%, Keay 4, 85.7%, Keay 5, 50%, Keay 6, 90.3% and Keay 7, 82.1%. For the early-4th to mid-5th-century amphorae the predominance of northern fabrics continues, although central Tunisian fabrics continued to have a degree of importance: Keay 25, 75.8%, Keay 26, 100%, Keay 40, Keay 41, 50% (Molina Vidal 2007: 241-242).

Michel Bonifay has drawn attention to the fact that African Red Slip ware appears in the eastern Mediterranean completely independently of the amphorae, which are only present there in small quantities, implying that the table ware was travelling alongside grain or possibly textiles or another perishable commodity (2004, 2007c). Sites in the eastern Mediterranean demonstrate a complete lack of African cookware and very few African amphorae from the 2nd-5th century: the amphorae that do appear tend to be from Tripolitania (Leitch 2010: 321). ARS on the other hand is widely attested in the eastern Mediterranean, particularly the 4th-century forms produced in northern Tunisia, demonstrating that these goods were not necessarily linked into the same trading patterns. This raises the question of how the trade in amphora-borne products articulated with that of other African exports.

OTHER AFRICAN EXPORTS: COOKWARES, RED SLIP WARES AND TEXTILES

It is interesting to note that African cookwares are well represented at Rome/Ostia as early as the late 1st century BC as well as in coastal Spain, where sequences from Valencia provide important information about these successive waves of importation (Bonifay 2004: 477; Reynolds 2010: 15-19), first of cookwares and then of tablewares (African amphorae do not arrive in Spain in any quantity until the mid-3rd century of later).⁹⁷ The main period of export for the African cookwares, however, seems to have

⁹⁷ Thus, when Leitch asserts that African Cookware production began in the early 1st century AD (Leitch 2011: 169), this is due to a typological distinction between early forms, which she describes as Hellenistic in character, and forms of the 1st century AD present at Pompeii (De Caro 1994: fig. 146, n. 151) and in Spain (Aquilué Abadías 1985), which she views as the beginning of the classic tradition (Leitch 2010: 278).

begun in the mid-1st century AD, peaking in the 3rd century and ceasing sometime in the 5th century (Leitch 2008: 16). By the time African amphorae became well distributed in the Mediterranean, during the 3rd and 4th centuries, their dispersion seems to have mirrored that of the African cookwares fairly closely (Figure 4.13). As just noted, neither was commonly exported to the eastern Mediterranean and it seems likely that amphora-packaged foodstuffs were traded alongside cooking and domestic wares, which were often produced at the same coastal kiln sites as the amphorae (Bonifay 2004: 69; Leitch 2010: 331; 2011: 176). The ARS kiln sites, however, seem in general to have functioned separately, in many cases being located much further inland.



Figure 4.13 The distribution of significant African cookware finds in the 3rd to 4th centuries (after Leitch 2008: fig. 7).

As with African amphorae, the African Red Slip ware industry was known from its main points of consumption, chiefly on the northern side of the Mediterranean basin, a long time before much interest was taken in its centres of production. Two early separate typological systems were constructed by Waagé (1933, 1948) and by Lamboglia (1958, 1963) and were later united by Salomonson, who finally suggested a North African origin for the wares (Salomonson 1968, 1969). The work of John Hayes in further classifying African Red Slip, as well as other African wares, in *Late Roman*

Pottery (1972) and its later supplement (1980), as we have seen, had a major impact in refining the dating of these wares. Using excavated deposits from Athens, Cyprus and Istanbul, Hayes provided a long-needed chronological framework for the 5th-7th centuries that finally began to bring the “Dark Ages” into the light (Reynolds 2010: 2). Excavation at the Avenue de President Habib Bourguiba, Salamambo at Carthage helped to indicate further common types and refine or confirm the dating of many 5th, 6th and 7th century forms (Fulford 1984). Further progress in identifying some of the earliest forms came from excavations at Carthage, on the north side of the Circular Harbour (Fulford and Timby 1994), and across decumanus VI N (Freed 1998).

One of the most significant but poorly understood aspects of ARS production is that, during the course of its manufacture, from the 1st to 7th centuries AD, it shifted its main region of production several times (Bonifay 2007b: 153). Workshops producing the A fabric were the first to begin operation, excavations at Carthage demonstrating that they began production as early as c. AD 15 (Freed 1998: 37, Table 1). It appears (on the basis of fabric affiliation with later productions) that until the end of the 2nd century most active kilns were located in northern Tunisia (Ben Moussa 2007: 36-42. fig. 3; Carandini 1970: 114; 1981a: 19; Hayes 1980: 518). Bonifay, however, does not rule out a central Tunisian location for some of the workshops (2004: 47). His other hypothesis, however, that on the basis of fabric *Uthina* could perhaps have been one of the early production centres (2004: 47-48), seems to have been quashed by Mackensen (2009), who has now argued that recent chemical analysis does not support this conclusion.⁹⁸ The fact that the A workshops remain un-located may be due in large part to a lack of systematic survey, but there is also the real possibility that they are buried under alluvium in a river valley somewhere. Alluvial deposits are particularly thick in parts of northern Tunisia, for example, at Utica, where the location of the ancient harbour also remains unknown.

It was the products of these workshops (ARS A) that were dominant in the Antonine period, at which time they surpassed in quantity the other categories of fineware at Ostia (Panella 1993: 620) and at Rome (Bonifay 2004: 478; Rizzo 2003: Table 31). However, this increase in exportation was contemporary with the setting up

⁹⁸ Mackensen argues that the A¹⁻² fabric is not sufficiently similar to the later D² fabric known to have been produced there.

of new ARS A/D and the more prolific C producing workshops in central Tunisia that gradually came to replace the A production altogether. The location of one A/D workshop is known thanks to the work of the Sahel Pottery Project, 150 km west of Sullecthum at Henchir el-Gellal-Djilma (Figure 4.2). Production probably began here during the 3rd century (Mackensen and Schneider 2002: 131). Recent survey of the Tunisian coast has also shown that sherds of the A/D fabric are common on sites south of Sullecthum (Bonifay 2004: fig. 254), which confirms the location of the workshops proposed in Atlante (Carandini 1981a: 53). The Sahel Pottery Project (Peacock *et al.* 1989, 1990) also found evidence of African Red Slip ware C production in central Tunisia. The most important known site is without doubt Sidi Marzouk Tounsi (Bonifay 2004: 478), a major C fabric workshop of supra-regional importance which covers an area of around 40 hectares. Situated more than 100km from the coast and c. 40 km north of Djilma, Sidi Marzouk Tounsi produced the bulk of not only the late forms, but those of the 3rd century as well, probably beginning production in the mid-3rd century (Mackensen and Schneider 2002: 131).

At the beginning of the 4th century production in northern Tunisia regained its importance with the production of the D¹ fabric around AD 320-330 (Mackensen and Schneider 2002: 125).⁹⁹ Three main zones of workshops are known. The first, situated in the lower Medjerda valley close to the town of Thuburbo Minus, surveyed by Mackensen during the 1980s, consists of three important workshops: El-Mahrine, Henchir el-Biar and Borj el Jerbi, all of which which produced the category D¹ (Mackensen 1985, 1988a, b, 1993, 1998, 2009; Mackensen and Schneider 2002). The second large workshop, known since the 19th century and revisited in 1995-1997 (Barraud *et al.* 1998), is that of Oudhna, in the lower Miliane valley. The kilns here were producing the D² forms. The third site is that of Sidi Khalifa on the periphery of the town of Pheradi Majus in the gulf of Hammamet (Ben Moussa 2007). It has traditionally been classed as producing D² material, but Bonifay has proposed a new category C/D, which could also apply to the small workshop of Chogafiya further inland (2004: 49). However, our knowledge of the production of this large category of ceramic is still not very extensive and there are clearly more workshops to be

⁹⁹ This is the start date given by Mackensen for the potteries near Tebourba.

identified (Bonifay 2004: 48). For example, a workshop (now termed “atelier X” by Bonifay) has been identified upon stylistic grounds by Mackensen (1998: 33-39) in his examination of assemblages from the unpublished German excavations at Carthage. At this time, however, it remains un-located, possibly lying somewhere in the region between Zaghouan and El Fahs on the Oued Miliane (Mackensen and Schneider 2002: 123).

ARS lamp production was also an innovation of this period. Imported Italian lamps appear to have dominated in Africa from the late 1st century BC until the 2nd century AD (Knowles 1994: 24). Tunisian production of imitation lamps did begin in the late 1st century AD and eventually came to supplant Italian imports during the course of the 2nd century (Allen 2011: 387; Bailey 1980: 179-181; Deneuve 1969: 83-86; 1987). This trend is observable at Carthage, Leptiminus, Sabratha and at Berenice, although at the last site the Italian imports are also supplemented by some eastern Mediterranean examples (Fulford and Tomber 1994: 4). ARS lamps, however, only began to be produced at the end of the 3rd century AD or at the beginning of the 4th in central Tunisia (Allen 2011: 391). Their distribution quickly became extremely widespread, the apogee of ARS lamp production being the 5th-7th centuries (Bonifay 2007b: 148). It was again central Tunisia where during the mid-5th century the most characteristic ARS vessels and lamps of the Vandal period were manufactured, but after the reconquest under Justinian, northern workshops once again became dominant.

This wholesale shifting of the location of the industry several times over the course of several centuries would appear to indicate some form of top down control. Our only understanding of the organisation of workshop units themselves, however, comes from surface survey and the discovery of various potters’ tools and so on associated with the industry. The ubiquity of clay firing tools, known as saggars, at the kiln sites, gives an indication of how the vessels were stacked while being fired. The only example of an excavated ARS kiln, at Oudhna, had a capacity of around 180 saggars; with approximately 12 vessels to a saggar, this implies a total firing capacity of over 2000 vessels (Bonifay 2007b: 150). Other than observing that some of the most important kiln sites spread over several hectares it is difficult to talk about the organisation of production in greater detail. Whether these consisted of aggregations

of individual workshops, or if there was a greater degree of division of labour at some, is impossible to gauge at this time. The scale of production was evidently very large indeed.

THE LINKS BETWEEN AGRICULTURAL PRODUCTION AND ARS PRODUCTION

Carandini (1970; 1983b: 149) and Panella (1993: 629) maintained that the growth of the C ware industry and the decline of the A fabric production, possibly somewhere in the hinterland of Carthage, was linked to the growth of olive oil as an export commodity in central Tunisia. More recently, Lewit has also commented on the symbiosis that existed between olive oil production and ARS manufacture (2011: 318-322). There is both archaeological and ethnographic evidence to suggest that press cake was used as a fuel. Although it was no doubt an enabling factor, it is probably going too far to say that large-scale olive oil production in central Tunisia was the reason for the location of ARS kiln sites there; the ubiquity of pressing sites and the successful operation of ARS production in northern Tunisia for many decades at a time, suggests other reasons were more crucial. It may be, for example, that alterations in the system of taxation had a significant influence. The first relocation would then fit with the imposition of a direct tax on olive oil under Severus and the shift back to northern Tunisia to the reforms of the Tetrarchy in some manner.

At any rate, it seems likely that, whilst situated in central Tunisia, ARS may have been produced on the same estates that were producing significant quantities of olive oil and wine for export. This is assumed to be the case, for example, with the production site of Sidi Marzouk Tounsi (Mackensen 1998: 30). As a result it is likely that there were seasonal flows of African fine wares to the coast following each pressing season. Another product which may also have been transported to the coast in this annual procession may have been textiles. Indeed, it has been noted how the practice of pastoralism and oleiculture were by no means mutually exclusive (Hitchner 1994; Whittaker 1988). As a matter of fact there seems to have been an even greater level of symbiosis here, as animal skins provided the means by which the liquid produce of these inland estates could be transported to the coast (Marlière and Costa

2007). What evidence do we have that many communities also produced textiles for regional and wider trade?

In Chapter 3 it was noted that the remains of presses were often visible from surface survey. In contrast to this, evidence for textile manufacture or other forms of production can be impossible to trace without excavation. Wilson has noted, for example, that it is only due to the vast clearance scheme at the Roman colony of Thamugadi (modern Timgad, north-eastern Algeria) that we know anything about its large-scale textile production (Wilson 2002: 250). He also points out that Diocletian's Price Edict of AD 301 (19.51 and 61) set the maximum price for a Numidian hooded cloak at 3,000 denarii, and 600 denarii for Numidian shirts: they were not, therefore, cheap items. During the recent coastal survey of Tunisia several sites were recorded which possessed both *Murex* shells (which were used to produce a purple dye) and vats, leading the authors to suggest that the same premises could have been used for both *garum* and *salsamenta* production, as well as purple dye (Slim *et al.* 2004). However, Wilson has argued that excavations of purple dye production workshops at Meninx, on the isle of Jerba, and at Eusperides, located under modern day Benghazi, suggest that purple dye production required no built infrastructure or vats. Presumably though, in some cases vats discovered in a coastal location could have been used for the dyeing of the cloth. I see no reason to exclude the possibility that some of the vats he identifies at Sabratha could have been used in this way, rather than for processing fish products (Wilson 1999, 2002). Logic dictates that if the shells were the source of the dye, much of the dyeing of textiles would have taken place close to the coast.

OVERLAND TRADE

Although for good reasons the main focus of this chapter has so far been on tracing the movement of African amphorae in order to understand the trade in African agricultural and marine products, I also want to highlight here our inability to quantify, or even detect, movements of African olive oil and wine that occurred by means of land transport. Since the evidence seems overwhelmingly clear that these products

moved to the coast in skins (Marlière and Costa 2007), it becomes apparent that millions of litres of oil and wine could have been travelling overland internally in this same way and we would have no knowledge of its importance to African economic integration. Indeed, if it were not for the inland distribution of red slip wares from several central Tunisian workshops, which do not appear to have been exported overseas at all, we would have little indication that these overland trade routes even existed.

At one of these workshops, HENCHIR ES-SRIRA, the fabric and range of forms could be considered as equivalent to the ARS C production, but with a continental distribution. At SIDI AÏCH, on the other hand, there appears to have been affinities with ARS E, and some of its products did appear on the south-east coast of Tunisia (Bonifay 2004: fig. 254). Other continental productions are also known from eastern and central Algeria, notably at TIDDIS (Berthier 2000: 84-132). An African fineware industry of more regional importance is Tripolitanian Red Slip ware, now known to have been produced in the region of Lepcis Magna, and with a distribution in western Tripolitania (Felici and Pentiricci 2002). Partly on the basis of the trade in some central Tunisian ceramics (Bonifay's "productions continentales"), Troussset has argued that the ZARAÏ tariff can be explained more naturally in terms of broad east-west overland trade connections (Troussset 2001). I shall return to this point in a little more detail in the final chapter. For now, let us return to the problem of understanding the nature of maritime trade.

4.2.1 SHIPWRECKS CARRYING AFRICAN CARGOES

A considerable number of Roman period shipwrecks carrying African material is now known, mainly distributed in the shallower waters of the western Mediterranean, clustering around the coasts of Sicily, Tuscany, Provence, the Balearic islands and Croatia. In this section we will focus on the wrecks that were obviously carrying African ceramics as part of their cargo, excluding the numerous, less important examples of wrecks where African ceramics were included as part of the belongings of the ship's crew. There are about 60 wrecks with African amphorae as part or all of their cargo,

although the number for which there has been a comprehensive investigation of the wreck site and detailed resulting publication is far less.¹⁰⁰ The vast majority of the wrecks discussed here are included, along with a summary account of their finds, in Parker's survey of ancient shipwrecks (Parker 1992. I have preserved his names and terms in what follows). Up to date discussion of the more important African shipwrecks can be found in Bonifay's 2007 article, which includes more recent references for several of them, and also includes a couple of wrecks which are not covered by Parker.

Although shipwrecks clearly provide a large and extremely important body of data relating to ancient patterns of trade, this information needs to be used with an awareness of the many biases that have shaped the current record. Echoing the views of a number of other dissenting parties,¹⁰¹ Wilson has recently criticised the naivety with which several ancient historians have approached the evidence from shipwrecks (Wilson 2009a: 219-229; 2009b, 2011). Firstly he has attacked an assertion by anglophone historians that the majority of maritime trading activity was carried out through coastal tramping (Bang 2008: 141-142; Horden and Purcell 2000: 143-52, 365-70; Woolf 1992: 287). By this is meant the practice of sailing from port to port selling a bit of cargo here and there and occasionally taking on other wares to sell further on down the line (Wilson 2011: 53-54). Wilson argues, however, that various different forms of evidence "combine to show that commerce in the Hellenistic and Roman periods was emphatically not largely a matter of coastal tramping" (Wilson 2011: 54): the cargo evidence from ships, the obvious investment in port infrastructure and the distribution of traded goods from terrestrial sites around the Mediterranean.

A different set of ancient historians have tended to take the frequency of shipwrecks per century as a more or less accurate indication of fluctuations in the overall volume of trade. Hopkins, for example, originally tried to use an early version of Parker's catalogue to suggest that during "the period of Roman imperial expansion and in the High Empire (200 BC-AD 200), there was more sea-borne trade in the Mediterranean than ever before, and more than there was for the next thousand

¹⁰⁰ To put this number in perspective, a recent study of all Roman shipwrecks carrying stone cargoes, an equally visible type of wreck, could point to just 73 published examples (Russell 2011).

¹⁰¹ Most notably Whittaker (1989).

years" (1980: 105-106). He painted a picture of rapid growth followed by steep decline in the scale of the Roman economy as a whole. In Chapter 1 I mentioned briefly that Jongman (2007a: 612; 2007c) and Scheidel (2009), have recently tried to find other proxies for the level of economic activity that agree with this general pattern, such as ice-core pollution or quantified animal bone deposits. Unfortunately, Wilson argues that their efforts are misplaced, because of a crucial failure to understand the processes influencing the formation of the shipwreck record.

He points out a number of biases underlying Parker's graph (Parker 1992: fig. 3) of the frequency of Mediterranean shipwrecks by century (Wilson 2009a, 2011). He demonstrates how the dramatic peak and trough of the graph during the Roman period can be flattened slightly, by calculating the probability per annum for each shipwreck and by adding information on further wreck sites found over the last two decades (Wilson 2009a: 219-225). Even with these improvements, however, the graph is still mainly a record of ships that had been carrying amphorae and architectural stone, since it is these that appear as readily identifiable mounds on the sea bed (Wilson 2009a: 228). In spite of knowing that many ships, some of them very large indeed, were frequently in use transporting grain across the Mediterranean, we have very little proof for any of them (Bonifay 2007a: 258; Wilson 2009a: 228).¹⁰² Changes in the trade of amphora-borne products, or changes in the packaging of these products, will therefore have had a significant impact on the number of wrecks discovered. Following this line of argument, Wilson wonders whether the sharp drop in the number of wrecks recorded from the 1st century AD into the 2nd century is the result of the introduction of the barrel (Wilson 2009a: 224). This argument could also threaten the narrative of the dominance of African olive oil, wine and fish products at Rome and at other sites in the western Mediterranean. An alternative account would, however, have to explain why African Red Slip and Tunisian cookwares also became so dominant at the same time.

On top of these biases it should be stated that many wrecks are chance finds, poorly reported, or only partly investigated, and there is an inherent bias both towards

¹⁰² The two exceptions that prove the rule are the Saint Gervais B and Les Laurons B wrecks. Les Laurons B also carried amphorae, whereas at the St Gervais B wreck grain had been preserved by a quantity of pitch in the ship's hull. The latter is dated to the 7th century, when the *annona* was no longer in force in the western Mediterranean.

the shallower coastal waters that are reachable by recreational divers, and towards the northern half of the Mediterranean basin where this activity is more frequently carried out (Mattingly 2006a: 293-294). As a result of this, there are very few ancient shipwrecks known in general from along the North African coastline, and it is difficult to know how representative the shallow water wrecks from other parts of the Mediterranean are of African shipping routes. Sailing from Carthage or other African ports directly to Rome was a relatively short route. Ships making this journey may have been less likely to sink, and therefore are possibly underrepresented in the shipwreck evidence (Parker 1992: 20). The rapidity of changes in Mediterranean weather patterns, on the other hand, makes this explanation unlikely to be adequate on its own. Indeed, Fulford has recently commented that the greatest expected incidence of wrecks in the western Mediterranean between the mid-1st century AD and mid-5th century AD might be on precisely this route, but that there “is no hint of this in the shipwreck record” (Fulford 2009: 251).

Bearing these caveats in mind, what can the ships that went down carrying African cargoes tell us about patterns of African trade? Bonifay is more optimistic than some, commenting that their distribution is partly due to the unequal development of underwater archaeology in the last 40 years, but also that it represents the principal shipping routes in use during antiquity (Bonifay 2007a: 253). This appraisal, however, possibly seriously underestimates the bias contained in the pattern of shipwreck evidence. How do we know that shallow water wrecks are representative of all ancient shipping? A greater number of investigations, such as the study of several deep water wrecks found at Skerki Bank (McCann and Freed 1994; McCann and Oleson 2004), may in time alter the current picture quite drastically. In this section I will focus on the shipwrecks that are known to have had African material as part, or all, of their cargoes during the Roman period. These can be described as heterogeneous and homogeneous cargoes; the latter type I shall deal with first.

HOMOGENEOUS CARGOES

There are 33 wrecks from the beginning of the 1st to the end of the 4th century AD, which from current knowledge can be said to have been carrying African amphorae as their sole cargo. Most of these are contained in Parker's catalogue. The port of origin can often be suggested for this type of cargo, but at this time only a handful of examples can with any certainty be said to have been loaded in a single African harbour before setting sail. Two of the ships, Plemmirio B (early 3rd century AD) and Héliopolis A (c. AD 300), were probably loaded at Sullecthum (modern Salakta), while a further two, Pampelonne (c. AD 300) and Trapani (c. AD 300), probably cast off from Neapolis (modern Nabeul). The wreck at Giglio Porto, probably of 3rd-century date, had a cargo of Africana 2A and 2B. One of the Africana 2B amphorae was stamped "HONO/RATI", a stamp that is attested at the workshop of Leptiminus. The homogeneity of the amphorae claimed by the excavators suggests that all may have been loaded at Leptiminus. Of a similar date, the wreck of Camarina A (Sicily) had a small cargo of Africana 1 amphorae, as well as its primary cargo of Numidian marble from Chemtou, northern Tunisia. The addition of a secondary cargo of African type C cookware, also produced in northern Tunisia, makes its port of origin likely to have been Tarbarka or perhaps Carthage (Bonifay 2007a: 256).

A number of wrecks also contained African ceramics from two or more geographically separate workshops. That is, although the cargoes remained wholly African, the merchandise had been loaded in more than one location. The wreck of Trincere (Pontacolone and Incitti 1991), dated to the first half of the 3rd century, contained amphorae that may all have been produced at Salakta, but the presence of African cookwares A and C, produced in the region of Carthage and not in Byzacena, may well indicate that the merchandise was then transhipped at Carthage where the cookwares were taken on board (Bonifay 2007a: 256). The La Luque B wreck, dating to the 4th century, contained two distinct groups of Keay 25. The first group was probably produced at Nabeul, whereas the second group is of unknown origin. The presence of a complementary cargo of African lamps, the stamps from which can be traced to the workshops of Tipasa or Cherchell, Algeria, perhaps suggests that the second group was loaded in this region along with the lamps (Bonifay 2007a: 256). In the wreck of



Figure 4.14 Shipwrecks carrying African amphorae.

No.	Name	Amphorae	Date
1	Skerki Bank	Tunisian <i>lomentum</i> amphorae	c. AD 50
2	Praiano	Afr.1, Afr. 2	AD 150-250
3	Port Azzuro B	Trip 1, Dr.10 and Dr 2-4	AD 50-100
4	Delphinion A	Afr. 1 > Trip.	AD 175-200
5	Camarina A	Afr. 1	AD 175-200
6	Capo Graziano M	Afr. 1 and Afr. 2A?	AD 150-250
7	Procchio I	Gaulish pear-shaped, Afr. 1	AD 160-200
8	Plemmirio B	Afr. 2A > Afr. 1	c. AD 200
9	Grado	Afr. 1 > Grado 1, Knossos 19 > Trip. 1	c. AD 200
10	Ognina A	Afr. 1 > Dr. 20, Beltrán 2B, Kapitan 1, 2	c. AD 215-230
11	Monaco A	Afr. 2A, D30	AD 200-250+
12	Giglio Porto	Afr. 2A and 2B	AD 200-225
13	Trincere	Afr. 2A, Dr. 30, ACW	AD 200-250
14	Capo Plaia	Afr. 1 > Trip.	AD 200-275
15	Qawra	Afr. 2A	AD 200-275
16	Dragonera A	Afr. 2A	AD 200-275
17	Punta Cera	Afr. 2A, Afr. 1?	AD 200-275
18	Pag	Afr. 2A	AD 200-300
19	Santa Maria	Afr. 2A	AD 200-300
20	Trapani	Panella 33?	AD 200-300
21	Giannutri	Afr. 2C\2D	c. AD 250
22	Colonia de Sant Jordi C	Afr. 2B-D	AD 250-300
23	Cabrera A	Afr. 2B-D, Almagro 50, 51C, Beltrán 72	AD 250-300
24	Porto Azzurro A	Afr. 2D	AD 250-300
25	Marzamemi F	Afr. 2B-D, Almagro 50, 51C	AD 275-300
26	Punta del Fenaio	Afr. 2B	AD 200-325
27	Povile	Afr. 2A, B, C	AD 200-400
28	Pelješac	Afr. 2A	AD 200-400
29	Circeo E	Afr. 2B or D?	AD 200-400
30	Cabo de Gata	Afr. 1\Afr. 2?	AD 175-325
31	Cabrera C	Dr. 20, Tejarillo 1, Beltrán 72	c. AD 250

No.	Name	Amphorae	Date
32	Punta Ala	Dr. 20, Afr. 2B-D, Dr. 30, ACW	c. AD 250
33	Cap Blanc	Almagro 51C > Afr. 2B-D > Beltrán 72	AD 290-325
34	Nora	Afr. 2A, 2B-D	AD 300-400
35	Ratino	Afr. 2B	AD 325-350
36	Marzamemi D	Beltrán 68, Afr. 2D, Cylindrical	AD 325-350
37	Sobra	Keay 25, Almagro 50, Greek pear-shaped	AD 320-340
38	Ognina 2 and 3	Afr. 2B-D	AD 300-400
39	Eloro A	Keay 25	AD 300-450
40	Xlendi C	Keay 25	AD 350-450
41	Cap de Garde	Afr. 2D	AD 285-365
42	Planier G	Afr. 2C, Almagro 50, 51	AD 300-350
43	Lazareto	Afr. 2D, Almagro 50, 51C, Dr. 20, Dr. 30	c. AD 320
44	Femmina Morta	Afr. 2B-D > Keay 3A, 81, Almagro 51C, Terjarillo 1	AD 300-325
45	Pampelonne	Keay25 > Afr. 2C	AD 300-350
46	Héliopolis A	Keay 25.1, LR3	AD 300-400
47	Tcerny Nos	Spatheia (Riley LR8B)	AD 300-500
48	Pian di Spille	Keay 25, Keay 52(1)	AD 350-500
49	La Luque B	Keay 25.1/25.3	AD 300-325
50	Les Catalans	Keay 25.3, Dr. 23, Beltrán 72, Almagro 51A	c. AD 350
51	Port Miou	Keay 25.3	AD 400-425
52	Dramont F	Keay 25.2, Almagro 51A(1)	c. AD 400
53	Dramont E	Keay 35, spatheia	AD 425-450
54	Triscina C	Spatheia and cylindrical amphora	AD 400-500
55	Filicudi Porto	Keay 62	AD 475-550
56	Saint-Gervais B	Keay 61/8A	AD 600-625
57	Marsa Lucch	Spatheia (Riley LR8A)	AD 500-650
58	Dramont E	Keay 35, spatheia	AD 425-450
59	Triscina C	Spatheia and cylindrical amphora	AD 400-500
60	Filicudi Porto	Keay 62	AD 475-550
61	Saint-Gervais B	Keay 61/8A	AD 600-625
62	Marsa Lucch	Spatheia (Riley LR8A)	AD 500-650

Table 4.3 Shipwrecks carrying African amphorae

Femina Morta (Sicily), the cargo of Africana 2C, 2D and Keay 25.1 amphorae possibly originated at Nabeul. However, also on board were Hispanic amphorae and a mixed consignment of African sigillata, consisting of fabric A, from northern Tunisia, and C, from central Tunisia. Bonifay suggests that this cargo was possibly loaded at Carthage or Nabeul (Bonifay 2007a: 257). Finally, the ship that had been carrying both Tunisian Africana 1 and Tripolitanian amphorae of the late 2nd century, presumably picked up *en route*, found wrecked off the west coast of Turkey (Delphinion A), may have had something of a maverick for a captain.

HETEROGENEOUS CARGOES

Cargoes where African amphorae only make up part of the amphora assemblage are about half as common as the homogeneous type in Parker's catalogue (17 wrecks), but the number of well-published wrecks of each type is about equal. Both Bonifay (2007a: 254-255) and Peña (2007: 72-82) have recently commented on a series of heterogeneous cargoes containing both African and Hispanic amphorae. Bonifay states that the 3rd-century wreck of Cabrera III constitutes the model for this type of cargo. In the Cabrera III wreck there is heterogeneity in two senses: the cargo includes amphorae from Baetica, Lusitania and Africa, but there is also heterogeneity amongst the African material, with amphorae from the workshops of Neapolis, Sullethum, Leptiminus and possibly Thenae or Thapsus (stamp: TON) being present (Bonifay 2007a: 254-255). Of the 131 amphorae recovered, 124 containers belonging to six different classes can be suggested to have been part of the ship's cargo (Bost *et al.* 1992; Parker 1992: 81). Two of these classes, Dressel 20 and 23, are likely to have had a primary use of olive oil, while the other four categories of amphorae, the 19 Almagro 50s, 16 Almagro 51Cs, 7 Beltrán 72s and 32 African IICs, seem to have been primarily used for fish products. Of course, as Peña points out, the heterogeneity of the cargo may well imply that some of the amphorae were being reused and this seems clearly to have been the case with the African material, originating from so many different workshops (2007: 78-79). In any event, the African

amphorae had evidently been through a far greater set of exchanges and transfers than the Portuguese material before arriving in the ship's hull. The Grado wreck, which contained remains of at least 600 amphorae of four different classes, showed that three of the classes were not primary use containers. African oil containers of Tripolitanian 1 and Africana 1 forms, along with Aegean wine containers of Knossos 19, were all being reused to package fish preserves (Peña 2007: 72-73). The excavators of the Cabrera III wreck claim that the ship's cargo had clearly been loaded as a single event, and the Iberian origin of much of the material makes Cadiz a likely candidate for the port of departure (Peña 2007: 76). The ship was wrecked off the Balearic Islands, suggesting that it was possibly *en route* to the west coast of Italy, perhaps Ostia or Portus being its planned destination (Bost et al 1992, 200-202).

More interestingly, the excavators, looking for parallels with the Cabrera III wreck, noted that four other Roman wrecks located along the Iberia-Italy shipping route also contained Portuguese fish product amphorae alongside examples of Africana 2. Furthermore, the combination of Africana 2 and Iberian fish product-carrying amphorae is even more common. This can be noted in the Planier G wreck off the provençal coast, the 4th-century Lazzaretto wreck off the west coast of Sardinia, and the late 3rd-century Marzamemmi F wreck located close to the southern shore of Sicily.

CONCLUSIONS

Bonifay drew several main conclusions from his examination of the shipwreck evidence (Bonifay 2007a). Curiously, although it was one of Africa's major exports, and the monumentalisation of the Îlot de l'Amirauté within Carthage's harbour may have coincided with Commodus's creation of an African grain fleet in AD 186, we have no clear evidence of African grain ships in the shipwreck evidence. This is because there is a bias towards the identification of amphora mounds on the seabed. Second, while the activity of Carthage is well documented, particularly from the 4th-century *ostraca* from Amirauté which describe the process of weighing state oil for export, there is no single wreck that

can be said to have originated at this major harbour town. There is a possibility that some of the heterogeneous wrecks, which represent the transshipment of goods, could have originated in Carthage. However, the origin point could equally be other African ports, or especially Ostia or Portus, where a diverse range of goods would no doubt have been available. The African harbours that are traceable in the shipwreck evidence are the eastern Tunisian ports of Neapolis, Sullecthum and Leptiminus. Finally, part of the diffusion of African fish products appears to be through the intermediary of Hispanic ports, which also export their own regional products.

Several additional comments can be added. If Carthage as a port of origin is not represented, then surely, even speaking only of amphora-carrying ships the record must be drastically incomplete. Problematic though the interpretation of amphora contents is, olive oil very rarely appears as the sole cargo, or even the majority cargo, in these shipwrecks. Wine, *garum* and *salsamenta*, the products which are so often assumed to be piggy-backing on the fiscal shipping of olive-oil, actually appear to be far more prominent (Table 4.3). This is no doubt justified by the relative proportions of amphora types in terrestrial assemblages. However, it is also highly possible that the lack of deep water wrecks is significantly skewing the picture towards mixed product cargoes. The handful of wrecks that may have been carrying African olive oil as their sole cargo (Africana 1, 2B, Tripolitanian 1 and Tripolitanian 3) sank off Sicily, Sardinia and Italy's western coast, indicating that they may have been blown off course from a direct shipping line between Proconsularis and Ostia/Portus. More deepwater wrecks need to be investigated before we can characterise precisely the nature of the full range of ancient cargoes. Nonetheless, as Wilson has already pointed out, the evidence of cargoes that we have is enough to indicate that coastal tramping was not the most common form of maritime trade (Wilson 2011: 53-54). Rather, large merchant ships carried sizeable cargoes between major ports and emporia and smaller vessels then loaded more heterogeneous cargoes, conveying them to secondary ports. During the Roman period there is evidence for significant improvements at many harbour sites. In Tunisia, moles at Sullecthum (c. 350 m long), Leptiminus (c. 560 m), Thapsus (1000m long and in places 100m wide), Acholla (more than

460 m long) and Gigthis (140 m long) provided vastly improved access for large ships (Wilson 2011: 49-51, figures 2.24-2.26).

Very few wrecks from the sample examined here date prior to the 3rd century, and it seems likely that this is indicative of the pattern identified by Reynolds, of African amphorae being mainly exported to Rome prior to the mid-3rd century AD (Reynolds 2010: 19). It may well be that the shipwreck evidence we have so far does not represent the cargo composition that was common for ships that travelled the direct route from Africa to Rome. What can we say about the distribution of the most frequently exported African amphora types?

4.2.2 CONCLUDING REMARKS: THE DISTRIBUTION OF THE MAIN EXPORTED AFRICAN AMPHORAE TYPES

AFRICANA 1 SERIES

There is a dramatic increase in the importation of these Tunisian amphorae at Rome/Ostia from the middle of the 2nd century AD, when they first appear in deposits dating between AD 140 and AD 180. As we saw from the excavations on Monte Testaccio, Africana 1A is the most important mid 2nd-century variant. In order to understand the beginnings of the increase in olive oil exports from Tunisia it is imperative to document the kiln sites for this form as well as its predecessors, Ostia LIX and Ostia XXIII. Unfortunately, it still isn't known where these latter two types are produced. Although Ostia XXIII production is suggested at Leptiminus, only 27 sherds were recovered from the urban survey as opposed to 368 sherds of Africana 1A (Dore 2011: 338). As the analysis of amphora fabrics becomes increasingly advanced, an important task will be to document precisely which regions of Tunisia were best represented in the Rome/Ostia import boom of the mid-late 2nd century AD. Stamps of course do not help with this problem because the majority of them date to the 3rd century AD.

The date range of the Africana 1 series is generally held to be the late 2nd-later 4th centuries AD, while Ostia LIX and XXIII began production probably in the second half of the 1st century AD. At Leptiminus, Africana 1 production seems to have peaked in the 3rd century (Dore 2011: 338). Table 4.3 shows the chronological development of African amphorae forms in Parker's shipwreck catalogue. Although many of the shipwrecks are dated very imprecisely, in the shipwreck evidence Africana 1 appears to have become much less common after AD 200. The datable wrecks are "all late Antonine-Severan, and the typological standardisation revealed by these finds is consistent with intensive, relatively short-term production over a few decades" (Gibbins 2001: 316). Our knowledge of the distribution of Africana 1, of course, is still incomplete, but Rome and Ostia appear to have been its main points of consumption. It is well distributed on sites of the western Mediterranean, but apparently only in much smaller quantities, which perhaps indicates that the level of its production was dropping off by the mid-late 3rd century, the time when African amphora really began to be widely distributed in the western Mediterranean.

On the Roman town sites studied by Keay in north-east Spain, Africana 1 comprised an average of 4.7% of all identifiable amphorae and did not reach rural sites. Keay argued that this pointed to a relatively late arrival of African amphorae in Spain, as was also supported by the absence of the early types Ostia XXIII, LIV and IV (1984: 411).¹⁰³ Recent studies of sites along the coasts of Baetica and Tarraconensis seem to confirm this interpretation. Although widely distributed, only five examples of Africana 1 are known from sites along the Baetican coast (Lagóstena Barrios 2007: 196), and they are attested at only 9 out of 21 sites along the coast of Tarraconensis, and never in great quantity (Molina Vidal 2007: 217-219). However, further quantified assemblages from around the Mediterranean are necessary before this general pattern can be confirmed. We should not be surprised if African oil was not exported in large quantities to southern Spain, a region that also produced and exported olive oil in large quantities during this period.

¹⁰³ This view is also confirmed by Reynolds (2010).

Sicily, or the two Mauretanian provinces in particular, might still yield significant levels of importation of this form.

AFRICANA 2A, B, C AND D

Africana 2 types A and B appear to commence production at a similar time to Africana 1, and they enjoy the same increase in importation at Ostia at the end of the 2nd century AD. Types C and D appear to have begun production in the mid-3rd century (Dore 2011: 339). In contrast to Africana 1, the Africana 2 sub-variants reached both towns and rural sites in Catalonia during the 3rd century, although in lower volumes for each individual form. At Luni, in Liguria, however, Africana 2 examples are absent prior to the 4th century. The distribution of stamped Africana 1 and 2 amphorae produced at the Sahel ports of Leptiminus, Hadrumetum and Sullectum has recently been examined by Stone (2009) and Stone *et al.* (2011b). What distinguishes these stamps in particular is the inclusion of the name of the port town of their production. For example, among other variants, amphorae from Leptiminus are stamped with the letters “LEP”, some from Hadrumetum include the letters “HADR”, and others from Sullectum “ASVL”. Amphorae from Nabeul can also be identified by the stamp “C.I.N”, *C(olonia I(ulia) N(eapolis)*. The stamp “TVB” or “TVBVS” has been associated with Tubusuctu, whilst other attributions are still uncertain: “THP” for Thapsus, “TH” or “TON” may indicate Thenae and “TOP” is possibly attributable to Taparura (Sfax) (Bonifay 2004: 13-14).

Owing to the survey work and excavations carried out there, more stamps are known from Leptiminus than any other African amphora production site. Over 200 stamped amphorae are now known. Of these, 145 amphora stamps have been found in the port town itself by the Leptiminus Archaeological Project (85 of which could be attributed to a specific amphora form), while a further 78 examples were found elsewhere (53 of which could be attributed to a specific amphora form), but are securely attributable to Leptiminus. A further 9 were found by archaeologists previously working at Leptiminus. Of the 232 total, 48% come from Rome/Ostia. At Sullectum 25 stamps are known from the region of the town and a total of 98 stamps have been found outside of

the province. For Hadrumetum 42 examples are known from outside. A very high proportion of the exported stamped amphorae produced at Hadrumetum (60%) and Sullethum (80%) come from Rome/Ostia (Stone 2009: 132), and this seems to fit in well with the other evidence from excavations and shipwrecks that indicate that Rome was by far the most important market for African amphora-borne products.

There is also a paucity of evidence to support the idea that Africana 1 amphorae were often shipped as the sole cargo, especially when accessing markets away from Rome. We have definitive evidence of Africana 1 travelling alongside the pitched Africana 2A, but in the Plemmirio B wreck examples of Africana 2A outnumbered the Africana 1 three to one. And in general there seems to be much more evidence for the Africana 2A being shipped as the sole cargo (perhaps as many as two thousand in the case of the Punta Cera shipwreck off the coast of Tuscany).¹⁰⁴

It is a distinct possibility that Africana 2B was also an oil amphora, and, if this is the case, mixed cargoes of possibly wine, olive oil and fish products are more common in the shipwreck evidence. Several wrecks containing a combination of the Africana 2 subtypes are attested. Again, we come up against the problem of the potentially large biases in the shipwreck data. As we have seen, during the late 2nd-4th centuries at Leptiminus Africana 1 appears to have been produced in roughly the same quantity as Africana 2A, 2C and 2D put together. How typical of African port towns Leptiminus was, however, remains to be demonstrated. Stone *et al.* (2011a: 249) assert that Leptiminus may have been atypical in that the Sebket Sidi el-Hani blocked the route from the High Steppe to the town. This, they argue, may have meant that olive oil from that region was far more likely to have been exported via the port towns of Sullethum or Hadrumetum.

Table 4.3 also shows other chronological shifts in the composition of cargoes of African amphorae. After Africana 1 became less common in the 3rd century, Africana 2A, which often seems to have travelled together with Africana 1, continued to be used for some time. Cargoes containing Africana 2B, C and D become common by the mid-3rd century. The absence of Africana 2B production at Leptiminus, however, doesn't allow us

¹⁰⁴ Parker (1992: 346).

to characterise it as a replacement for Africana 1 at this time, although certain characteristics make Africana 2D stand apart from A, B and C. Typologically there is minimal articulation of the rim, immediately distinguishing it from the other three types (Figure 4.6). It has also been noted that it appears to have been far more frequently stamped, perhaps making it more likely to have been an *annona* amphora. It also retains something of the thinner cylindrical form of Africana 1 in its body. Despite the discussion regarding the relationship between pitch and amphora contents above, it is possible that Africana 2D took over the role of Africana 1 as an oil amphora.

AFRICANA 3/KEAY 25

The earliest types of this series probably began production at the end of the 3rd century AD. Its sheer ubiquity in the western Mediterranean during the 4th century seems to imply a greater level of centralisation and organisation of Tunisian amphorae production, particularly in the north of the country. It is represented in several homogeneous shipwreck cargoes of the 4th century off the southern coast of France: firstly a ship that probably set off from Sullethum, Héliopolis A, contained Africana 3A/Keay25.1 amphorae, secondly, the Pampelonne F. wreck carried African 3A/Keay 25.1 and African 2C amphorae, and finally, the La Luque B wreck carried an amphora cargo of Africana 3A/Keay 25.1 and Africana 3B/ Keay 25.3.

TRIPOLITANIAN AMPHORAE

Tripolitanian amphorae were imported to Rome as early as the 1st century BC (Reynolds 1995: 45), but unlike the situation with Africana 1 and 2A and B, the supply of Tripolitanian amphorae to Rome/Ostia appears to have remained fairly constant throughout the period of the 1st-3rd century. Within the surface assemblage from Portus Tripolitanian forms make up about 25%, indicating that at one time they probably constituted a considerable percentage of the amphorae imports to the capital. As already noted, the percentages of African amphorae present on Testaccio cannot be used as any

kind of accurate guide to the scale of their importation, but their presence in any quantity there at all probably indicates a regular practice of importation.

Exports to Rome were probably far lower by the late 3rd-early 4th century than they had been during the Severan period (Anselmino *et al.* 1986: Table 2a; Reynolds 2010: 75, Table 2b, 2c). Percentages may be even lower for Rome (than indicated in Reynolds 2010, Table 2c, where they attain similar percentages to the preceding period) because some mid-Roman Amphora 1 production, upon which the figures are based, may be located in eastern Sicily rather than Cyrenaica. In the 4th-century deposits from the Palatine East excavations and from the Terme del Nuotatore Tripolitanian amphorae make up only around 7% of the imported African amphorae, with Tunisian amphorae predominating. Reynolds notes that the Tripolitanian type Keay 10 was common at Lepcis during the late 5th century, but has not been found to have been exported in any quantity (Reynolds 2010: 76). Perhaps this is an indication of a return to a more insular economy? On the other hand, the matter is still far from settled, as Reynolds also notes that if Keay 24 can be proved to be Tripolitanian, then this indicates that the cities of north-eastern Spain became an important export market for Tripolitania in the 4th and 5th centuries (Reynolds 2010: 75).

Stamped examples of the Severan period have been found primarily in Tripolitania, Ostia and Rome (Manacorda 1977). Keay notes that a small sample from Alicante was unstamped (1984: 134), and that generally Tripolitanian amphorae seem to have had a weak presence in Spain (Molina Vidal 2007: 242-243). Levels of Tripolitanian amphorae at Ostia and Rome remain steady at roughly 5% of total amphorae, but on Monte Testaccio their proportions against Tunisian amphorae vary widely depending on the precise area and stratum of the mound being investigated (Revilla Calvo 2007). In the mid-2nd century the Tripolitanian amphorae are almost exclusively Tripolitanian 1, whereas in the early 3rd century all are Tripolitanian 3. Tripolitanian amphorae also seem to be hugely under-represented in the shipwreck evidence. The relative absence of the oil-carrying amphorae Tripolitanian 1 and 3 is detrimental to understanding the nature of trade links between Tripolitania and the rest of the Mediterranean. That Tripolitanian

amphorae sometimes travelled together with Africana 1 is hinted at by the Capo Plaia and Delphinion A wrecks, but incomplete information on these cargoes makes it impossible to draw firm conclusions as to whether this was transshipment or the recycling of amphorae.

CONCLUSION

Analysis of the production and consumption of African amphorae has highlighted chronological and quantitative differences between the regions of Tunisia and Tripolitania. Tripolitanian amphora production and export appears to have begun earlier, and declined before Tunisia. Also, its level of production seems to have remained fairly constant in comparison with Tunisia. It is the Tunisian exports to Rome and Ostia that underwent a huge increase during the course of the 2nd century, with expansion continuing to include many sites in the western Mediterranean also. There seems little doubt that this phenomenon was a result of the bringing of a huge swathe of land south of the Dorsal into use for the cultivation of olive trees and vines. We also have to remember that other large-scale changes to the economy may have come about during this time, but that they are less easy to study archaeologically.

If Africana 1, Tripolitanian 1 and Tripolitanian 3 were used for olive oil, the conventional picture that many of the major pressing sites produced olive oil is not contradicted, particularly in Tripolitania. We must now acknowledge that wine also contributed a small but significant percentage of the exported amphorae. It is, however, the expanding production of marine products along the coast where the amphora workshops were located that increasingly contributed to the success of African trade. The combination of olive oil arriving from the interior and the bountiful catches of the local fishing industry, encouraged the development of specialised amphora producing workshops at key harbour sites, but also further inland, nestling close to the key routes to the sea. It was along such routes that fine tablewares, and probably also textiles and other products, came with olive oil and wine in animal skins from the estates of the interior.

5 EXPLANATIONS: AT WHAT COST?

The preceding chapters have examined the literary and epigraphic evidence for the ownership of large estates in Africa, the archaeological remains of vast centuriation systems that spread across the landscape, of production facilities for olive oil and wine, and also of the ceramic vessels that either carried or travelled with these agricultural products to the far shores of the Mediterranean. Although many gaps, biases and deficiencies in the available data still remain, there seems little doubt that a significant expansion in economic activity took place in Africa during the Roman period, which was described so dramatically by Carandini as the “African Boom”. The example of the discovery of fish-salting sites along Tunisia’s coastline, however, and the corresponding shift away from an interpretation of an economy dominated by the export of olive oil, adequately displays the vulnerability of our models to the generation of new data. Whilst more high quality surveys are still needed in many regions, the greatest single setback in our understanding of economic questions is the lack of excavations in rural contexts. There still exist several obvious gaps in our knowledge, such as the whereabouts of the kiln sites for ARS A, for example. The real challenge, however, is to avoid allowing the sectors of the economy that are most difficult to study archaeologically to fall into the background, or to disappear entirely from the historical narrative. The ceramic finds and monumental stone blocks that have formed a considerable part of this investigation have a tendency to take prominence in our discussions regarding the ancient world, but we must remember that this is largely due to the biases in survival of information.

In Chapter 1 it was noted that one weakness in Finley’s approach was that, in characterising the ancient economy as a whole and stressing its unconnected cellular nature, he ignored potentially significant changes that had occurred across space and time and failed to adequately describe the series of interlinking (but not necessarily interdependent) economic spheres that constituted the Roman Empire. By ignoring the potential contribution of archaeological data his model fundamentally misjudged the character of much ancient trade. The Italian Marxist School showed a greater ability to synthesise archaeological and historical evidence and, in studying both the coming into

being as well as the supersession of an “ancient mode of production”, it also crucially concentrated on qualitative changes over time. This approach, however, still retained much of the character of the old modernist interpretation of the ancient economy while adhering to a theoretical model that was too rigid and restrictive and which even at the time had been largely discredited. Postcolonial approaches were found to have contributed much valuable critique, but were also found to have struggled to fully jettison the conceptual baggage of current neoliberal economic theory. An important example of this is the proclaimed agenda of giving voice and agency to the exploited and unheard of imperialist systems. In some cases it has been all too easy for these accounts to lapse into a support of the humanist and individualist rhetoric of the neoliberal agenda (thus, in the social sciences there has been focus on demonstrating this through the study of “consumption”).¹⁰⁵

In this concluding chapter I want to respond to these historiographical and epistemological issues by focusing on the structure of Roman society (which I will characterise as based on a hierarchy of different social classes) and how that structure altered through time. Bland generalised statements that characterise Romans as “competitive” and “profit motivated” (Silver 2007) and indigenous peoples as incapable, hot-blooded and irrational need to be discarded once and for all (Modéran 2003: 1-23, with numerous examples). In some senses the critique of the humanist subject of the Enlightenment mirrors that of the critique of the concept of Romanisation: people have been desperately trying to replace the discredited conceptual framework with another that preserves precisely the flaws of the original. Subjectivity and agency need to be situated, and not just in the appropriate historical epoch, but also in the specific circumstances and social milieus which influenced, enabled and constrained decision making and action. No universal theory of the subject or of subjectivity can provide that, and asserting this fact has nothing whatsoever to do with denying free will.

How was economic change achieved and what was its impact on the structure of everyday life within Roman Africa? Who were the main beneficiaries of the system, and to

¹⁰⁵ See in reference to this Foucault’s discussion of “subjected-sovereignty” (Foucault 1977: 221-222).

what extent did they exploit others to reap those rewards? Rather than laying significance solely on the agency of individuals, I want to examine how the social structure and how articulations between different social classes within that structure influenced individual and collective action and shaped the overall historical trajectory. It is also important to understand how changes over time in the composition and size of these social classes further impacted on and altered the course of events. As such, I see the study of economics as a medium through which to study and progress towards answers to this type of problem. Economic history should never be an end in itself. I see no benefit in attempting to examine the progress or efficiency of past societies comparatively on some kind of quantitative scale dreamt up by those who subscribe to a defunct ideologico-political conceptual framework. Such approaches show no interest in understanding the specific qualitative elements that constitute historical difference (whether in the context of Roman history or in any other sphere). Rather than, in the manner of political economy, beginning with *a priori* statements about the nature of a trans-historical subject, in what follows I will attempt to build up a picture of social classes and relations between them gradually from the empirical evidence.

5.1 AFRICAN EXPORTS

Grain appears to be the most obvious product that could have been profitably exported from the newly acquired estates in Africa in the immediate aftermath of the destruction of Carthage. Due to the lack of concrete archaeological evidence for the production and export of grain, however, this has not formed the main focus of any of the above chapters. Many impressive millstones for producing flour are attested in the survey reports for Tunisia, but in general one has to fall back of proxies, such as ceramic distributions, for any material indication of exportation. We do know, however, that from a very early date African grain had been imported into Rome. Livy tells us that large quantities were brought to Rome from Africa by Publius Scipio and sold cheaply in 201 and 200 BC (31.4.6 & 31.50.1). How often shipments of grain were leaving Carthage for

Rome or other parts of Italy prior to 146 BC is difficult to assess, but archaeological deposits dating between 200 and 146 BC, excavated from the Punic ship sheds on the north side of Carthage's circular harbour, include about 5-7% Italian ceramics, most of which are Dressel 1A of Campanian fabrics, along with a small amount of Campana A black-glazed ware. This suggests a significant level of trade between the two cities (Fulford 1983: 8). Rostovtzeff cited an inscription of the early 2nd century BC, found at Istrus on Romania's Black Sea coast, that honours a Carthaginian for importing grain into the city (Rostovtzeff 1941: 619, n. 20). He took this as support for his theory that a Carthaginian agricultural revival may have taken place in the period immediately following the Second Punic War (although problems remain in the dating of archaeological sites from this and later periods).

We do not know how many Africans were forced to work as slaves or in a condition close to slavery following Carthage's destruction in the Third Punic War, but as I argued in Chapter 2, the vast schemes of centuriation and supporting evidence of the *Lex agraria* can be seen to indicate the assimilation of formerly Carthaginian agricultural lands by the Roman elite. At Rome, subsidised grain became available on a regular basis from 123 BC onwards, following Gaius Gracchus's reforms, and it was perhaps the grain produced on the newly acquired African estates that began to be imported at this time. The institution of distributing free grain was eventually introduced in 58 BC (Garnsey 1983: 62). When Caesar annexed the eastern part of Numidia at the end of the civil war, he announced that the new province would yield an annual tribute of 1,200,000 modii of grain (Plutarch *Caesar*, 55). There was no permanent official for the food-supply, however, until Augustus established the *praefectura annonae* late in his reign. The process of the system's development was both piecemeal and abortive, even being abolished at one stage by Sulla. By AD 66, however, we are informed by Josephus that Africa supplied Rome with enough grain to feed the capital for eight months of the year and Egypt enough for a further four (*Jewish War* 2.383-385). Some have suggested that we should not take this passage to indicate that Rome was entirely reliant on these two provinces

for its grain supply in the mid-1st century AD (Fulford 1987: 66-67), but rather that Africa was the single most important source of non-Italian grain.

It is about this period, under the Flavians, that fine tableware products from Africa began to be exported both to Rome/Ostia as well as to the coastal sites of southern and eastern Spain. As noted earlier, some African cookware forms had been appearing in Spain as early as the late 1st century BC. The appearance of these more durable products indicates that African grain, or some other perishable product such as textiles, had perhaps been reaching these regions prior to the growth of these ceramic industries. Interestingly, it was at this same period that imports of Italian *sigillata* to Africa apparently ceased (Carandini 1970: 107; 1983b; Fulford 1983: 9).

On the basis of the ceramic evidence the significance of African exports continued to grow throughout the 2nd century AD. By the middle part of this century there was a profound increase in the importation of African amphorae and fine tableware at Rome/Ostia, while in Spain the increase was in African finewares only (Reynolds 2010). These trends, visible in the archaeological deposits of this period, also appear to correspond well with other forms of evidence. For example, around AD 140 the *mercatores frumentarii et olearii Afrari* dedicated a statue to the Prefect of the *annona* (Pavis d'Escurac 1976: 340; *CIL* 6, 1620), suggesting some kind of important relationship existed between the institution of the *annona* and the export of African food products (the most visible archaeologically of course being olive oil, wine, *garum* and *salsamenta*). It should be pointed out, however, that association with *annona* shipping in no way reduced the significance of this trade for African landowners, as the movement of these goods is not an indication simply of taxation in kind. Sirks (1991: 395) envisages, for example, that in the beginning much of the state grain was purchased. Wine and fish products were not *annona* products, nor was olive oil at this period.

A significant increase in the volume of imported Tunisian amphorae at Rome and her main port sites began in the final quarter of the 2nd century AD. It may be significant that the increase in African goods in Rome at the end of the 2nd century AD corresponded to the creation, under Commodus, of an African grain fleet, the *Classis Commodiana*, and

the renaming of Carthage as *Colonia Commodiana Togata* in AD 186. Hurst still appears to entertain the possibility that the monumentalisation of the Îlot de l'Amirauté, visible in the archaeological evidence, was linked with this event (Hurst 1994). He has also recently argued that, in spite of the known presence of *annona* shipping and presumably storage at Carthage's harbour, "in its physical remains Roman Carthage looks like a merchant port" (Hurst 2008: 66).

By the mid- to late 3rd century African products were exported across the entire Mediterranean, but there was a curious pattern to their distribution. The ARS vessels, and later the lamps, had a broader distribution than the African amphorae and cookwares. Beginning with a sharp increase in the first half of the 3rd century AD, ARS was exported in quantity to the eastern Mediterranean and is found not only on the urban sites of the littoral but also on the rural, non-urban sites of the interior (Bes and Poblome 2009: 75). The distribution of African amphorae and African cookwares on the other hand was restricted mainly to the central and western Mediterranean. This has led Bonifay to suggest that in general African cookwares travelled along with olive oil, wine and fish products, whereas the wider distribution of ARS vessels and lamps was probably associated with the supply of African grain to Rome and the provinces and, in my opinion, probably textiles and other perishables as well (Bonifay 2003; 2004: 477-479; 2007b: 144; 2007c: 9; Rice 2011: 91). It is also clear that the inconsistencies between terrestrial ceramic assemblages and known shipwreck cargoes indicate that trade in the Mediterranean in general was emphatically not experiencing a sharp decline in the 2nd and 3rd centuries AD after a peak in the 1st century, as some ancient historians have suggested (Wilson 2011: 35-36). As far as Africa was concerned, there was a trade explosion.

In summary, the main artery of African trade for a long time seems to have been channelled to Rome. This pattern is only broken in the mid-3rd century, when African amphorae appeared in quantity in southern Spain and France, and ARS appears in the eastern Mediterranean. Only in the wake of the Severan dynasty, therefore, do we see Africa emerge as an economic force in the wider Mediterranean.

5.2 A SOCIALLY EMBEDDED ECONOMY

The degree to which the redistributive powers of the Roman state, in particular the system of direct taxation in kind, which provided food for the populace of the capital and other supplies for the army, contributed to the unusual dominance of African goods at Mediterranean sites is a source of some debate. It is perhaps unfortunate that the issue has so often been reduced to a simplistic distinction between free market trade and state-controlled redistribution. In recent years studies of the Roman *annona* undertaken by Rickman (1980), Sirks (1991), De Salvo (1992), Carandini (1988) and Harris (1993, 2000) have vigorously stressed the role of free enterprise and a market mechanism (of sorts) at the centre of the process. The *annona* and other redistributive mechanisms, on the other hand, have been viewed as primary by Pavis d'Escurac (1976), Remesal Rodríguez (1986) and more broadly by Wickham (2005), and Whittaker (1993, 1994). It is worth pointing out, however, that by the time he wrote *The Ancient Economy*, Finley did not rely on either the concept of *laissez faire* or on Polanyi's concept of "redistribution" in his conception of the Roman economy (Finley 1985: 155-160). Although Bang has also reminded us that the concept of free trade is an anachronism in this context (Bang 2007), ultimately a middle ground appears to have developed which allows for a combination of taxation, both in money and in kind, alongside market trade (Mattingly 2006a). The key issue to grasp is the qualitatively different nature of trade and markets in antiquity to our own time, which remains difficult to characterise precisely.

Wickham views taxation as an integrative force linking regions together and encouraging additional trade. He refers to the Carthage-Rome and the Alexandria-Constantinople *annona* routes as western and eastern "tax spines" which, particularly in the west, dominated the pattern of commercial activity (Wickham 2005: 709-730). The *navicularii* during the late Empire were families associated with certain estates burdened with the requirement of providing shipment of state supplies (Jones 1964: 828). In exchange for their services they were exempt from customs duties, even on goods which they shipped privately (*CTh* 13. 5. 24), and Wickham sees this subsidised shipping as the

backbone of Mediterranean trade. There are, however, several problems he encounters in trying to enforce this model.

To begin with, the Vandal conquest of Africa *Pronconsularis* in AD 439, although clearly breaking the tax links with Rome, does not mark the end of African exports to the western Mediterranean. Although Wickham tries to find evidence of decline he has to admit that African goods continued to circulate quite merrily for another 200 years. He puts this down to the robust nature of the system which developed from the fiscal routes, but it is far from definite that African trade was either reliant on, or had its genesis in, the tax system. As Wickham himself admits, the absentee owners of vast tracts of African land who were resident at Rome or in other parts of Italy would have reinforced exactly the same axis of trade (2005: 163). This makes it all the more difficult to separate the causal influences, because if absentee landowners lost large estates during the Vandal conquest, these estates may also have lost access to the markets they had become accustomed to produce for. A combination of these two factors no doubt contributed to the predominance of the Rome/Africa trade route, but it is very difficult to place more emphasis on one or the other in the context of the late 2nd-century, or even the mid 3rd century, increases in African exports. Merrills and Miles, who appear to support Wickham's model in general, have argued that the collapse of the tax links with Rome ultimately led to the more widespread commercialisation of African products, but a decline in exports to Italy (Merrills and Miles 2010: 143-150). The assertion, however, that huge centres for oil processing, "could scarcely have developed without the constant demand represented by the *annona*" (Merrills and Miles 2010: 147) may be weakened somewhat by the observation that roughly five large farms could have produced the same quantity of oil listed in the entirety of the 4th century *ostraca* from the Îlot de l'Amirauté during AD 373.¹⁰⁶

¹⁰⁶ Total minimum input to the facilities at Carthage recorded on the *ostraca* in AD 373 = 1,337,000 lbs. (c. 437,000 kg/481,000 l). According to Mattingly's estimates, a large farm with 8 presses could produce 104,000 litres in an average season (about a fifth of the amount recorded in the *ostraca*). The implication is either that the *annona* were not that significant, or that the records left at Carthage were only a fraction of that usually shipped from Africa. Whilst the latter possibility is part of the answer, Peña has already

The significance of the *annona* is therefore extremely difficult to gauge. At this time, it appears an undeniable fact that Africana 1 amphorae travelled mainly to Italy, presumably with Rome's ports being the primary destination. While on distribution maps they have a wider distribution, their quantity in regions such as southern Spain and France is actually very low. The possibility that Africana 1 was chiefly an *annona* amphora therefore cannot be ruled out. Having said this, it seems likely that before the 3rd century, state oil requirements were purchased rather than taken as taxation in kind. In other words a market for oil and grain existed before they became *annona* products. Oil must have been a very significant source of income for the owners of African estates during the 2nd century and possibly even earlier.

The literary sources record that the regular distribution of free or subsidised olive oil by the state began at Rome under Septimius Severus (*SHA*, Sev. 18.3 and 23.2), but the existence of Monte Testaccio leaves little doubt that the importation and purchase of olive oil was systematised by the state quite some time earlier (Chapter 4). Several texts indicate the importation of olive oil for distribution as early as the mid-2nd century AD (Pavis d'Escurac 1976: 196; Sirks 1991: 388).¹⁰⁷ Rodríguez-Almeida (1993) believes that olive oil may have been included in state distribution under the early Principate, although there is no firm evidence to prove this. There is, however, some evidence of a connection between olive-oil merchants and the *annona* in the mid-2nd century AD. Baetican merchants had a former *praefectus annonae* as their official patron (*CIL* 6, 1625b), although this does not mean the *praefectus annonae* administered the importing of olive oil at this period (Harris 1993: 187). A difficulty with a solely state-driven model, however, is that, by the time that olive oil had become an established *annona* product, the pattern and distribution of African goods had broken away from the Africa-Rome tax route (by the middle of the 3rd century). It seems to me that the huge quantities involved make it extremely unlikely that African goods were becoming distributed mainly as the secondary

calculated that the total amounts implied by the *ostraca* may have been sufficient to supply a significant percentage of the capital's free dole, between 18.4-46.3% of it (Peña 1998: 210-212).

¹⁰⁷ *CIL* 2, 1190; Call.1 cogn; D. 50.6.6.6; Scaev.1 reg; D. 50.4.5

cargoes of *annona* ships. Advocates of an *annona*-driven model of trade surely have to concede that this evidence does not sit very comfortably with this theory.

Another problem with Wickham's model is that he views the African economy as essentially un-integrated and wholly dependent on export in order to function. His argument for this is based on the fact that the main categories of African Red Slip ware that get exported outside Africa do not appear to circulate to any great degree within the African provinces. However, as noted in Chapter 4, there are certain ranges of fine table ware produced in central Tunisia, that enjoy quite a wide distribution within North Africa, but are different from those forms exported to the rest of the Mediterranean. Additionally, if one analyses the amphorae evidence from coastal sites, a low percentage appears to originate from outside Africa, implying a significant degree of economic integration between coastal towns (Fulford 1987: 87; Rice 2011).

A second assumption is that, since Africa's regions were exporting mainly the same products, there was nothing to be made from trade at home. This is possibly a grave misunderstanding of how these regions functioned. To assume that all the wine and oil travelled to other parts of the Mediterranean, when the population of Roman Africa's towns and countryside probably numbered in the millions and there was a low, but still significant, Saharan population that would have provided another market for these products, seems absurd, and typical of an outmoded view that sees all economic stimulation to have originated from Rome. Field survey and analysis of satellite imagery is resulting in the realisation that a larger population must have existed in some desert locations during Roman times than was previously thought possible (LeQuesne *et al.* 2010; Sterry and Mattingly 2011). These populations would no doubt have provided another important source of consumption, but one that is more difficult to trace archaeologically. Millions of litres of oil and wine could have been travelling overland internally in skins and barrels, and we would have no knowledge that this was the case. If it were not for the continental distribution of some of the central Tunisian ARS productions we would have no indication that these overland trade routes even existed, although as a result of this realisation the Zarái tariff has now been cited as further

evidence of this fact (Trousset 2001). Indeed, a concern to be linked in to both Mediterranean maritime as well as overland trade routes could well have been the deciding factor in the location of the central Tunisian workshops.¹⁰⁸ The idea that Africa was split into several terribly un-integrated economic units has had a considerable level of currency (Fulford 1989; Shaw 2003; Wickham 2005: 721).¹⁰⁹ However, the fact is that African economic integration remains little studied, and is equally difficult to study. A certain indication that there was a degree of internal economic integration and overland trade in the later period is given by the continental distribution of some central-Tunisian ARS.

That large-scale commercial activity is clearly indicated by a wide variety of sources cannot be in doubt (Harris 1993, 2000), but this in no-way impacts on the validity of many of the claims made by substantivist/primitivist authors, especially regarding the inapplicability of modern economic theory to the problem of the Roman economy. The qualitative differences between the modern economy and the ancient are still too great for modern economic theory to have any relevance. The integration of markets during the Roman period never reached anything approaching the take off that was experienced during the 19th century. The Roman economy consisted of both market distribution and redistributive mechanisms, but what we mean by “market” needs to be clearly distinguished from later developments and our modern preconceptions of what the term means.

5.3 AFRICAN AGRICULTURAL DEVELOPMENT

Although the chronological details are still not very precise, the export boom, which is visible in Roman-period ceramic assemblages, was clearly linked to changes in the African countryside traceable through the archaeological evidence, and therefore also to private elite interests enabled through Roman imperialism. Significant olive oil production for

¹⁰⁸ This seems to me far more likely than the assertion that it was the availability of fuel that made central Tunisia an attractive location (see Lewit 2011).

¹⁰⁹ Although see more recently Quinn (2011).

export probably began earlier in Tripolitania than in Tunisia. A substantial amount of oil had probably been arriving in Rome from Leptis Magna since the fine imposed by Caesar after the civil war with Pompey. Plutarch says Caesar boasted some 3,000,000 pounds of olive oil would be paid by the city each year (Plutarch *Caes.* 55). The relative minority of early amphora types at Leptiminus is probably a positive indication that the fine was imposed not on that town but on Leptis Magna.

Without excavation of some of the early period farm sites it is impossible to pin down exactly how production in Libya was first organised. Several sites of the Libyan Gebel have produced black-glazed wares, although there is a tremendous increase in the number of sites from the 1st century AD. We might tentatively suggest that the industry developed during the last two centuries BC, from one of numerous small production sites, to one where several large estates with very large processing capacity came to dominate the settlement hierarchy by the 2nd century AD. It has already been argued that the profits from the exportation of olive oil were particularly important for the wealth and status of emergent Tripolitanian elites (Mattingly 1985, 1988b, 1995). The evidence at this time relates particularly to the aristocracy of Lepcis Magna, but Sabratha and Oea were probably also important ports for export.

In spite of the rise to prominence of the Tripolitanian elite, Septimius Severus becoming emperor at the end of the 2nd century AD, and perhaps stronger indications of an increasing intensification production of olive oil and wine in the Libyan Gebel than in Tunisia (probably peaking in the 2nd century), amphorae from this region appear to maintain a fairly consistent percentage of the total amphorae imported to Rome/Ostia from the 1st to 3rd centuries AD. One explanation for this might be that Tripolitania was less reliant on Rome as a centre of consumption for its products. As noted above, there is the possibility that Egypt absorbed a considerable amount of its marketable goods. At any rate, by the 4th century it seems possible that the Tripolitanian oil boom was on the wane. The reasons for this decline are not clear, but the replacement of the open *opus africanum* farms with the defended *gsur*, both in the Gebel and in the pre-desert zones, suggests that less settled times had arrived in the province.

In central Tunisia, by contrast, there is evidence to suggest that production for export began later and was sustained for longer. Again, without excavation the chronology of the production sites is particularly difficult to pin down, but what we do know seems to fit fairly well with the evidence for amphora exports. At Rome/Ostia Tunisian imports reach high levels for the first time in the third quarter of the 2nd century AD. By the mid-3rd century Tunisian amphorae become really common on the coastal sites of southern and eastern Spain, southern France and Sicily, as well as being traded up and down the North African coastline. This expansion in Tunisian exports fits well with what we know of the intensification of agricultural production in the High Steppe at this time. There is little doubt that the pacification of central Tunisia under the Flavians led to the establishment of increasing numbers of estates oriented towards the production of olive oil and perhaps also wine during the course of the 2nd and 3rd centuries. The surface collection of ceramics at some of the largest production centres indicates that they were in use during the mid-3rd to 5th century (Chapter 3). The lack of internal circulation of earlier ARS forms and the absence of excavation of this type of site, however, limits our understanding of when exactly these sites came into being.

As we saw in Chapter 4, one can distinguish certain chronological and quantitative differences between the importation of Tripolitanian and Tunisian amphora types to Rome and the western Mediterranean during the imperial period. On the basis of the evidence examined in Chapter 3, these can probably be linked fairly securely to trends in the organisation and development of agricultural production in each region (Chapter 3). The crippling lack of excavation of these rural production sites, however, makes it extremely difficult to gain a sufficient understanding of the level of production prior to these periods of mass export. Put simply, the evidence for the African production and trade of amphorae only gives us an indication of the level of export to the Mediterranean. To what extent local or more regional overland trade routes had already developed in the earlier period is extremely difficult to gauge. If we rely on the dating of sites from the surface collection of ceramics from current surveys conducted in Tunisia and Libya, which in all cases rely heavily on the identification of diagnostic fine wares, the indication seems

to be that there were far fewer sites in the centuries prior to the 1st century AD. However, there is every reason to believe that agricultural produce destined for inland sites would have travelled in skins, barrels and sacks that have left no archaeological trace.

In summary, the fluctuations of the export boom can be linked directly to changes in the organisation of the production of both ceramics and food products in the African countryside and along its coastline. Specifically, the 3rd century boom in exports just described is clearly linked to the expansion and intensification of production in the Tunisian High Steppe (although we should not ignore the contribution of northern Tunisia, which was no doubt considerable). The evidence for the most intensive agricultural production and ARS production during the 3rd century is also located in central Tunisia, with the large-scale amphora workshops of the coast catering for these exports to be transferred to ships and marketed abroad. This evidence is no doubt indicative of significant changes occurring in the composition and structure of African society more generally.

5.4 THE FORMATION OF THE WEALTHIER CLASSES

“In general senators, honorati and even decurions considered industry and trade beneath them.”

(Jones 1964, 871)

An integral part of the Finley/Jones model of the ancient economy was that the upper echelons of Roman society had no interest in trade and commerce, and that this was therefore a considerable cultural barrier to technological development and economic growth. This position found a reasonable degree of support in the literary sources, particularly in the writings of Cicero, and has a substantial history. It was, for example, the general opinion of the German historian Barthold Niebuhr at the beginning of the 19th century (Niebuhr 1827: 148), from whom Marx adopted it (Marx 1993: 477) and no doubt popularised it further. As we saw in Chapter 1, a certain kind of modernism began to dominate towards the end of the century before the Finley/Jones orthodoxy took hold in

the mid-20th century. The last three chapters, however, have presented convincing evidence to suggest that, in fact, in Roman Africa extremely powerful and wealthy individuals came to control agricultural production, and that in many cases these individuals were involved in drawing part of their income from profits made from export.

After the final destruction of Carthage it seems there was a process of appropriation of huge swathes of land by the wealthy and politically powerful of the Italian peninsula. The few pieces of legislation we know about that attempted to grant allotments to the lower orders, colonists or retired veterans were subsequently repealed or altered, giving ownership of the land in most cases back to the rich to exploit as they wished. Unfortunately, our sources only allow us a vague idea of the sorts of political factions struggling for representation in the narrow oligarchical system of government at Rome, but it is clearly indicated in the literary evidence that by the mid-1st century BC huge fortunes had been made in Africa through land.

Senatorial involvement in the intensification of the production of foodstuffs is confirmed in a number of ways. As we saw in Chapter 2, inscriptions of the mid-2nd century AD erected at the *Saltus Beguensis* name a senator as the owner of this large estate, upon which the archaeological remains of extremely large battery-type press buildings still survive. The purpose of the inscriptions was to record a *Senatus Consultum* allowing a bimonthly market to be held on the estate, demonstrating how elites at the very top rung of society were central to controlling and organising exchange in the rural countryside. Additionally, it is a distinct probability that the African senator Quintus Anicius Faustus, provincial governor of Africa (AD 197-202), owned a neighbouring estate (M'Charek 2006). For the 3rd century in Tripolitania, another senatorial connection is demonstrated by amphorae stamps and *tituli picti* that include the letters C.V. (*clarissimus vir*) or C.F. (*clarissima femina*), linking senatorial estates in the Gebel to amphorae destined for Monte Testaccio as part of the state oil supply (Aguilera 2007). Other amphora stamps of the 3rd century in Tunisia display initials that may also have represented the *tria nomina* of high status individuals (Stone *et al.* 2011b). This evidence not only suggests senatorial interest in trade, it links senators to the most productive

agricultural (and probably also pescatological) enterprises of the Roman Empire. It also indicates that, far from being reluctant to associate themselves with such trade, a significant number of them were happy to have their names stamped on the packaging. One has to concur with Whittaker:

“The idea that rich landowners were not involved or interested in the profits from the produce of their land - or that we should be surprised when they were involved - is quite simply absurd.”

(Whittaker 1983: 173)

While oil was clearly not the sole source of African prosperity, it must be conceded that it was probably of greater significance as an export than wine. The relatively recent realisation that the export of fish products was also extremely important gives a clear indication that the owners of the numerous villas with intricate and realistic designs of many types of fish on their mosaics probably owed some of their wealth to this industry (as owners of fishing fleets and fish-salting premises). As already noted, the production and export of textiles, along with grain and other perishable products, although impossible to quantify from archaeological evidence, could also provide the explanation for the widespread distribution of ARS in the eastern Mediterranean. Equally, the curious wholesale movement of the location of this fineware industry at different periods would seem to suggest some kind of centralised control over the production process.

While Senatorial involvement undermines the theory regarding the uninterested position of the upper classes, it reinforces the idea that trade and markets were substantially socially embedded during the Roman period. Although in need of alteration, the Finley/Jones position may be correct in assuming that the most important long distance transfers of goods were controlled by wealthy and powerful individuals. Below the senatorial and equestrian level, what do we know about the decurions (local town councillors) who Jones also excluded from an involvement in trade? That is, did rich important men with the right political connections simply monopolise lucrative imperial contracts and access to foreign markets, or was there an element of intra-provincial competition in the export trade?

In Africa, the settling of many veterans and colonists under Caesar and Augustus probably increased the numbers of citizen landowners with more modest sized plots. The initial division visible in local politics between immigrant *pagi* and indigenous *civitates* appears to have given way to the emergence of a multicultural curial class by the late 2nd century AD. There is a copious amount of epigraphic evidence that attests to the fact that a broad group of middle-order African families in towns all across the province, whether originally Italian immigrants or otherwise (some were, many were not), became extremely wealthy from the early 2nd to the mid-3rd century AD (Table 5.1). A significant number of inscriptions from Africa give us some indication of the scale of personal fortunes of those belonging to the curial class during this period.

Throughout the Roman Empire incumbents of municipal offices were required to pay a fixed sum to the town upon their election. This institution, known as the *summa legitima* or *summa honoraria*, is particularly well attested in the African epigraphic data between the reigns of Hadrian and Septimius Severus, which, as we saw in Chapter 2, was the period in which local autonomy was granted most freely by the Roman state. Thanks to the sums of money recorded in these inscriptions, we have some idea of the level of spending power generated by this institution, a proportion of which was often put towards public building projects.

The money derived from this practice was probably in many cases the single most important source of income for a town, although of course some towns also had their own lands and estates which were another stream of revenue. We know that disputes could often arise between municipal authorities and private landowners. Agennius Urbicus explained that:

*“Res publicae are accustomed to bring suits over the right of territory because they claim the necessity of imposing munera in a certain part of the land or of levying recruits from a vicus, or of imposing cartage services or the transport of supplies on those places that the res publicae are attempting to claim.”*¹¹⁰

Levying taxes on trade and money changing were other possible sources of income for a town (Duncan-Jones 1990: 176), but in most cases it was the private fortunes of the local

¹¹⁰ Quoted in Dossey (2010, 105, n. 27).

1. Duovirate		
Cuicul	4,000	<i>An. Ep.</i> 1914, 237
Bulla Regia	5,000	<i>ILA</i> 451
Hippo Regius	10,000	<i>ILAlg</i> 10
2. Aedileship		
Althiburos	2,000 (probably)	<i>CIL</i> 8, 27771
Thubursicum Numidarum	4,000	<i>CIL</i> 8, 4874
Theveste	4,000	<i>CIL</i> 8, 1842
Auzia	5,000	<i>CIL</i> 8, 9024
Cirta	20,000	<i>CIL</i> 8, 6944
Rusicade	20,000	<i>CIL</i> 8, 7990
3. Triumvirate		
Cirta	20,000	<i>CIL</i> 8, 6944
4. Quinquennialitas		
Cirta	20,000	<i>CIL</i> 8, 7095
Carthage	38,000	<i>ILA</i> 390
Hippo Regius	10,000	<i>CIL</i> 8, 17408
5. Decurionate		
Muzuc	1,600	<i>CIL</i> 8, 12058
Thubursicum Numidarum	4,000	<i>ILAlg</i> 1236
Cirta	20,000	<i>CIL</i> 8, 10867
Munchar	Either 400 or 2,200	<i>CIL</i> 8, 25468
6. Flamonium perpetuum		
Vazi-Sarra	1,000	<i>CIL</i> 8, 12006
Biniana	2,000	<i>CIL</i> 8, 76
Verecunda	2,000	<i>CIL</i> 8, 4187
Sigus	2,200	<i>CIL</i> 8, 19122
Henchir-es-Schorr	2,000	<i>CIL</i> 8, 11998
Zama	4,000	<i>CIL</i> 8, 12018
Sutunurca	4,000	<i>ILA</i> 300
Numlili	4,000	<i>CIL</i> 8, 26121
Medeli	2,000	<i>CIL</i> 8, 885
Henchir-Sidi-Navi	6,000	<i>CIL</i> 8, 23107
Thubursicum Numidarum	6,000	<i>ILAlg</i> 1236
Tupusuptu	Less than 8,000	<i>CIL</i> 8, 8835
Henchir-Bedd	6,000	<i>CIL</i> 8, 14370
Capsa	10,000	<i>CIL</i> 8, 98
Mustis	10,000	<i>CIL</i> 8, 15576
Thuburbo Maius	10,000	<i>CIL</i> 8, 12370
Diana	10,000	<i>CIL</i> 8, 4588
Uchi Maius	12,000	<i>CIL</i> 8, 26255
Lambaesis	12,000	<i>CIL</i> 8, 2711
Rusicade	Required sum must have been less than the 82,000 promised	<i>CIL</i> 8, 7963
7. Pontificate		
Cirta	10,000	<i>CIL</i> 8, 7079
8. Augurate		
Rusicade	Probably 20,000	<i>CIL</i> 8, 7990
Timgad	Required sum was probably less than the 21,200 which the inscription says was paid.	<i>CIL</i> 8, 17837
9. Praefectus IV coloniarum		
Cirta	20,000	<i>CIL</i> 8, 6944
10. Magister pagi		
Oued Scham	2,400	<i>CIL</i> 8, 17257

Table 5.1 Sums paid (in sesterces) for municipal office recorded on African Inscriptions (after Haywood 1938: 77-78).

aristocracy which paid for construction. We also know that towns that lacked fully Roman institutions, such as Dougga, had to rely on the private benefaction of their wealthier citizens and patrons for their suites of public buildings.

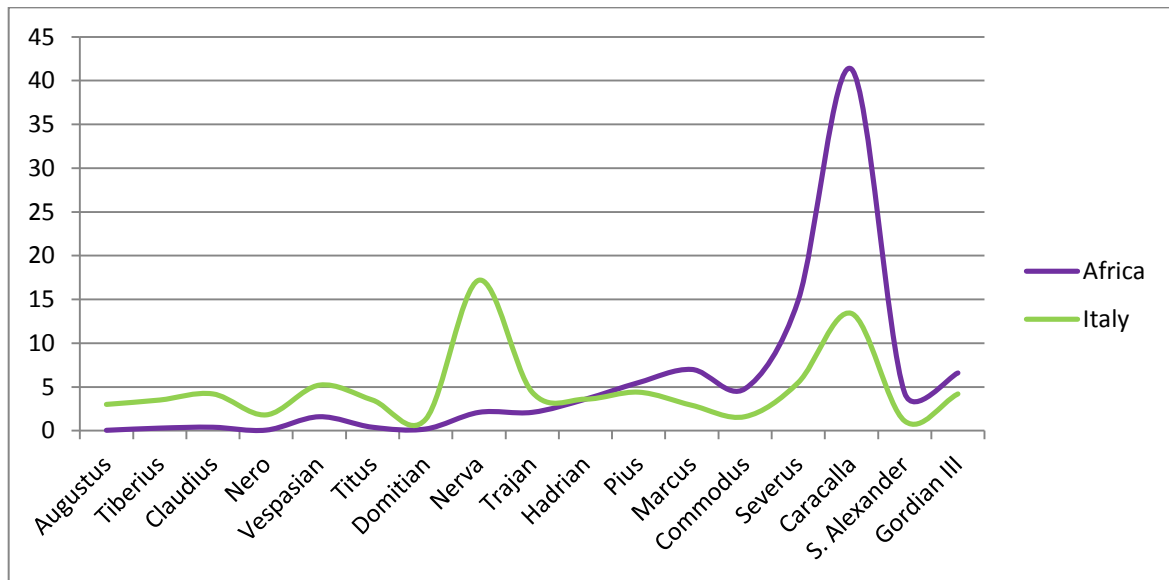


Figure 5.1 Totals of inscriptions for Africa (contained in *CIL* 8) and Italy (*CIL* 5, 9, 10 and 11) averaged per year of reign (after Duncan-Jones 1982: Table 11).

The evidence for the *summae honoriae* combined with that of private benefactions demonstrates the large size of some of the personal fortunes belonging to this class of local magistrates. There seems little doubt that some of these men would have derived at least part of their wealth from producing olive oil, wine or grain on their estates for export. Others would have owned fish-salting installations, fishing fleets or estates upon which vast numbers of amphorae were produced. Still others may have owned warehouses and seafaring ships. Presumably though, there was a significant divide between the politically connected super rich and the merely wealthy.

Haywood calculated that from the *summae legitima* alone the annual income of Cirta would have perhaps been in the region of 360,000 sesterces (1938: 78), while Duncan-Jones pointed out that the income of a more modest town such as Thubursicum

Numidarum would have been less than a tenth of that amount, around 35,000 sesterces (1990: 177). To put these sums into perspective, a medium-sized temple could cost 60-70,000 sesterces (Duncan-Jones 1982: 90, nos. 8, 9, 10a, 11), a small paved forum 200,000 sesterces (Duncan-Jones 1982: 92, no. 42), and a theatre could easily cost three times as much, perhaps 600,000 sesterces (Duncan-Jones 1982: 77-78).

We also know that in the very last years of the 1st century AD these sorts of sums were also being paid as bribes to senior imperial officials. The trial of the former governor of Africa, Marius Priscus, which we learn about in the letters of Pliny the Younger who was involved as a member of the prosecution, involved the exiling of a man of equestrian rank and the murder of seven of his friends in exchange for the sum of 300,000 sesterces. An even larger sum, 700,000 sesterces, had been used to inflict various punishments and tortures on another man of the same status, who had been flogged, condemned to the mines, and finally strangled in prison. Priscus pleaded guilty to all of the crimes, but his only punishment was the repayment of the 700,000 sesterces to the treasury and a period of exile from Italy and Africa (Pliny the Younger *Ep.* 2.11).

Clearly it would take a town with a more modest income, such as Thubursicum Numidarum, many decades to furnish itself with the range of public buildings that are commonly found within African urban sites of the Roman period. Over and above this, it would have been difficult, or rather impossible, for the upper classes of these less wealthy towns to pay the necessary bribes to get political decisions made by corrupt officials to swing in their favour.

As noted by many others, the apparent flowering of the African economy, indicated by both the increase in African exports and in public building programmes (Figure 5.1), also corresponds to a sharp increase in the number of African Senators, who by the final third of the 2nd century constituted about 15% of their class (Corbier 1982: 685-754; Le Glay 1982: 755-781). There seems little doubt that the increasing wealth of African elites contributed to their political elevation and that this in turn helped them to control their access, initially to Italian markets, and eventually to those of other regions as well. However, one can also note that, with Africa in the ascendancy, 15% is still only a

very small enfranchisement, which may well have led to some of the political tensions of the following century. This was no doubt aggravated further by the increasing size of this top stratum of African society as it reaped the rewards from exploiting an ever growing population. By AD 383 the imperial government eventually had to acknowledge that many senators would be resident in the provinces rather than in Rome or Constantinople (Heather 1998: 184-210), and by AD 400 there had been an increase in the size of the senate and the founding of a second senate at Constantinople, indicating that the enfranchisement of increasingly powerful provincial elites across the empire eventually had to be conceded.

This process of the grudgingly slow enfranchisement of provincial elites may well have been a contributing factor to the eventual decline and fall of the Western Empire. These newly emergent provincial elites had to be empowered in order to hold the Empire together, but at the same time this only increased their power and the growing factionalism and anarchy within the state. These elite factions began to realise that their individual power bases in the provinces could function more efficiently as separate territories and could survive on their own locally-generated wealth. We see a foreshadowing of this process in the 3rd century with the creation of the Gallic Empire (AD 260-274). Economic development in the provinces therefore fostered the regionalisation of power, which led to the gradual disintegration of the Empire. In Africa, the invitation that secured the arrival of the Vandals in the mid-5th century, whatever its exact nature, completed this process (Courtois 1955: 156, n. 1; Shaw 2011: 772-773).

The archaeological evidence for estates in the Tunisian High Steppe and Libyan Gebel demonstrates that the battery type press buildings represented the very top rung of the site hierarchy. We should probably expect such sites to have been the property of senators and equestrians. Below these huge examples, however, there was a well populated landscape of small, medium and large sites also involved in production. That there was an almost unquenchable market for these products seems to be indicated by the fact that even the more arid and remote regions of the Libyan pre-desert were engaging in the surplus production of olive oil and wine. This must surely be significant,

when at the same period the Libyan Gebel was engaged in extremely intensive levels of production. The archaeological evidence thus gives a clear indication that there were different kinds of estates, with correspondingly different sorts of estate owners, different sorts of labour force and alternative ways in which production was organised. Can we reconstruct something of the conditions in which the middle and lower orders of African society toiled during this time period?

5.5 THE LOWER ORDERS

The discovery of the Great Agrarian Inscriptions that date to the 2nd century AD has created the impression that the majority of agricultural production in Africa at this time was based on tenant sharecroppers, who are referred to as *coloni* in both the literary and epigraphic record (Carandini 1970: 99; Carlsen 1990; Mattingly 2011b: 153; Mattingly and Hitchner 1995: 189; Rostovtzeff 1926: 277, 289; Whittaker 1978, 1980b). There is a great deal of evidence contained in these inscriptions that demonstrates that the *coloni* were a class subject to a high degree of economic exploitation both by tradition and by the law. Abundant information on their situation is provided by the conditions of their tenure listed in these agrarian inscriptions, which state, for example, that a third of their crop should be paid to the landowner. In the inscriptions that date to the early part of the 2nd century the *coloni* were mainly concerned to increase their rights regarding the application of Mancian tenure to their plots (in order that they could bring new lands under cultivation and increase their individual yields), but by the later part of that century, under the reign of Commodus, it seems that the degree to which they were being exploited was becoming ever more severe and intolerable. The chief tenants had been colluding with each other as well as the imperial *procuratores* to extract more labour and rent from their sub-tenants, the *coloni*, with the threat and actual use of gang violence. What more do we know about this broad underclass that must have formed the large majority of the population in this region?

It is possible that by the later Roman Empire either the use of the term *coloni* had changed, or the position of tenant farmers in general had altered significantly for the worse. In the agrarian inscriptions of the 2nd century AD some of the *coloni* on the *Saltus Burunitanus* were Roman citizens, but by the 4th century there is evidence to suggest that tenant farmers referred to as *coloni* had become increasingly dependent on their landowners and possessed fewer legal rights. Whether or not one accepts the recent attempts by Carrié (1982, 1983) and by Grey (2007, 2009) to discredit the idea that *coloni* of the late Roman Empire were tied to the land in a condition of quasi-slavery, there is little doubt that this broad group, which probably constituted the majority of the population of Roman Africa, had become increasingly heavily exploited by their landowners.

Recent works by Dossey (2010) and by Shaw (2011) have demonstrated how literary sources from the 4th and early 5th centuries can illuminate how the situation in Africa had continued to develop from the 2nd century onward. A number of law codes from the 4th century list consequences for *coloni* who had fled their masters' estates, which range from binding in chains to more extreme forms of corporal punishment (*CTh* 5.17.1; *CTh* 2.24.2). Additionally, a legal constitution issued by Honorius and Theodosius at the beginning of AD 412 indicates that, by this time at least, *coloni* were pretty much the bottom rung of society. Concerned with issuing fines to individuals of any status found to have inappropriate associations with the dissident church, it listed various fines to be charged, from larger sums to be paid by high-ranking imperial officials and senators, through incrementally smaller amounts applicable to those of lower social standing (among these were *negotiatores*, free citizens or plebs and circumcellions). At the end of the list come the categories of *coloni* and slaves, to whom monetary fines were no longer applicable. Instead, corporal punishments to be inflicted on the body were listed as appropriate for those at the bottom of the social hierarchy (Atkinson 1992; Shaw 2011: 643-644).

Grey (2007) has recently suggested that the 4th century law codes, which threatened punishment for *coloni* who fled their estates, probably applied mainly to individuals who

fled before paying their taxes. We might also assume that this was true of *coloni* who fled in order to avoid insurmountable debts to their landlords or chief tenants. Indeed, certain events, knowledge of which only survives by chance thanks to the fact that it was appropriated for use in the religious invective directed at the dissident church after a schism which developed at the beginning of the 4th century, indicate that debts owed by tenants to their landlords were a prime cause of secular violence and unrest during the course of the 4th century (Dossey 2010: 176-180; Shaw 2011: 780-782). The best known of these is the account of the activities of Axido and Fasir during the early AD 340s, written about a little over two decades later by Optatus, Bishop of Milevis in Numidia:

“At that time a gathering of those men was whipped up whose madness had apparently been condemned by these very same bishops only a brief time before. For in the time before Unity [i.e. before 347], when men of this kind were accustomed to wander through small hamlets in the countryside, at the time when Axido and Fasir were being called the Commanders of the Saints by these same madmen, no one could be secure in their own possessions. Records of debts had lost their force. At that time no creditor was at liberty to enforce payment. Everyone was terrified by the letters issued by the men who boasted that they were the Commanders of the Saints. And if there was any delay in obeying their orders, a demented mob suddenly flew to their side. As the terror advanced before them, creditors were besieged with threats. In fear of death, persons who deserved to demand repayment of what was owed to them were forced to groveling supplications. Each of them hurried to write off the debts owed to him – even if these were enormous – and reckoned it a profit if he escaped injury at the hands of these men. Even the safest road could not be travelled because masters, thrown out of their vehicles, scampered like slaves before their own slaves who were now ensconced in the seats of their masters. At the behest and command of such men, the positions of masters and slaves were reversed.”

Optatus, *Contra Parm.* 3.4.5–7, SC 413: 40–43 (quoted in Shaw 2011: 167-169).

Shaw’s interpretation of this passage is that the term “slaves” actually refers solely to debtors “who were seeking freedom from the unjust treatment imposed on them by the terms of debt-bondage” (Shaw 2011: 781). Augustine refers to very similar circumstances in a letter of AD 417, which may or may not be referring back to such earlier times (Shaw 2011: 695-696).

It is interesting also to note the category of people referred to as “circumcellions”, placed just above the status of *coloni* in the aforementioned constitution of AD 412. Shaw interprets the circumcellions as groups of free but low-status men who were contracted to work seasonally on the domains of larger landowners (2011: 645). There is a

reasonable amount of evidence that this class of individual was a fact of Africa's agricultural regime. An epitaph from Mactar of the early 3rd century AD belonging to a supposedly low-born peasant (*ILS* 7457) records that the man had reaped the harvest of another man for 12 years and was head of a harvest gang for 11 years. Finally, the inscription claims, he was able to purchase his own property and even become a *censor* of his local town. The rhetoric of the inscription is strikingly similar to many other situations of high inequality: work hard and you shall eventually be rewarded. Nonetheless, it indicates that a modest level of social mobility could have been the expectation of some agricultural labourers. Cato's agricultural manual indicates that the hiring and loaning of agricultural labour would have been a normal practice in Italy as early as the 2nd century BC, particularly the hiring of labour gangs under a contractor during harvest time (Cato *Agr* 4, 16, 136-7 and 146-7). A passage from Apuleius' *Apologia* (17.1) adds weight to the probability that this was still a common practice in 2nd century AD Africa, when he wonders in passing "whether you have slaves to cultivate your fields or yourself exchange labour mutually with your neighbours". As MacMullen concludes, the implication is that both alternatives were familiar (1987: 366).

5.6 CONCLUSION

This study has attempted to refocus attention on the structure of North Africa society and the issues of inequality and exploitation to shed light on the causes the large-scale economic changes that took place during the course of Roman rule. The contrast between the mid-2nd century BC and the mid-5th century AD is a sharp one. By the Vandal period many more towns, villages and farmsteads existed than under Carthaginian or Numidian rule, and, almost without exception, landowners were attempting to maximise the production of their estates, goods from which were being traded the length and breadth of the Mediterranean. The preceding chapters, however, only represent a tentative first step in trying to grasp an adequate understanding of the underlying historical causation. A wealth of evidence relating to subject remains that I have only managed to briefly touch

on in this final chapter: the articulation of newly emergent classes with the old order, the impact of the “boom” on public benefaction and elite ostentation that visibly altered townscapes throughout the province, the conditions of labour and tenure for the lower orders on estates, and so on and so forth.

I hope I have argued convincingly that, while one can attempt to discuss these changes purely in the abstract and quantified terms of GDP, *per capita* income, and so on, these concepts are more or less redundant when attempting to construct explanatory models to account for different types of historical growth. I cannot accept, for example, Scheidel’s assertion that pinning down Roman demography quantitatively is important for the sole reason that it would help us to calculate *per capita* income and therefore compare the Roman world to other historical periods (Scheidel 2008). The very idea of making purely quantitative comparisons is saturated with the religiosity of neoliberalism and its neocolonial/imperialist ideology, which elevates “real” economic growth above all else. Even in the field of economics, qualitatively *new* laws come into being. Different laws are generated in different social milieus, and the various historical periods have experienced the hegemony of entirely different systems of categories, tied to quite definite social presuppositions (Foucault 1970; Lukács 1971: 235).

Even if one sets aside this obvious criticism of the neoliberal paradigm, which tries to analyse all historical epochs using the same methodology, it is plain that the current debate over the rate of ancient economic growth has now reached a complete impasse. I honestly cannot see what the difference between 0.2% and 0.1% (or less) growth per annum translates to in terms of meaningful conclusions (Saller 2002; Scheidel 2009: 62). The archaeological record makes clear that colossal changes in trade relations and in the organisation of production took place from the second half of the 2nd century BC and continued right the way through the imperial period. Models developed under the current paradigm, however, have been powerless to provide any clear explanation for these developments (other than to minimise them as less significant than those that took place during the early modern period in Europe).

In this study, by contrast, I hope I have made some progress towards explaining the pressures that were put on the traditional, narrow oligarchic system, not simply as Rome's existing elite factions became more affluent and powerful with the expansion of their empire, but also as economic development in the provinces gave rise to newly emergent social classes that fundamentally altered the way in which the Roman state was composed and how it functioned.¹¹¹ We are beginning to understand something of how and why the structure of North African society developed as it did under Roman rule and how this structure in turn impacted on Africa's own specific historical trajectory. The distribution of wealth was self-evidently hugely unequal. Despite the social classes being organic and changing, the structural articulation between them consistently enabled the wealthy and powerful to maintain their cultivated lifestyle and to keep the majority of the lower orders in an increasing situation of exploitation. Whilst the ability of Africa's elite to control the resources of the land gave them increasing influence at the imperial centre, just as in our own society, the fundamental structural inequalities that existed between the wealthier classes and the gradations of the less well-off beneath them were preserved, and even deepened, during what appears to have been a fairly steady and prolonged period of economic growth.

Finally, I want to come back to Mattingly's elevation of the concepts of "discrepant experience" and "discrepant identity" and Faulkner's criticism that the process of identity creation was essentially secondary to the structure of the power network created by Roman imperialism (Faulkner 2008: 68). One can agree with Mattingly that, although much of the experience of the empire would not have been very pleasant, there would have been different social groups who experienced and responded to their various situations in a multitude of ways. This appears to me to be a generalisation of the situation posited by de Ste. Croix for the incorporation of Greece into the empire:

¹¹¹ In this I am aware I have drawn strongly on the Italian Marxist school, which I criticised in the opening chapter on different terms.

“... the Greek propertied classes did not merely acquiesce in the process: they assisted in it – and no wonder, because they themselves, after the Romans, were the chief beneficiaries of the system.”

(de Ste. Croix 1981: 309)

Greek Sophists of the 2nd century AD managed to find cultural common ground with Romans by ignoring the more recent past of the conquest and focusing on their classical heritage (Konstans and Saïd 2006). In a similar fashion, amongst the African colonised population we would expect to find not only instances of resistance, cultural difference and individuality, but also examples of complicity and strategies of fraternisation. All systems of domination provide opportunities for a few to aid in the subjugation and exploitation of the many, and the case of Roman North Africa is no different. I am not sure if this justifies referring to Africa as “a landscape of opportunity” (Mattingly 1997: 146-166; 2011b).¹¹² While it may well have been a system of expanding scale, in which muscled labourers toiled in the fields and in the orchards and olive groves, in which the ports were busy with the hustle and bustle of loading and unloading of produce, and in which there was an impressive degree of wealth creation, it could equally be referred to as a landscape of exploitation or a landscape of extreme inequality, for example. The increasing inequalities that arose out of the successes of African agriculture no doubt contributed in no small part to the flaring up of social tensions so clearly expressed in the literary sources of the 4th and 5th centuries. It is the simplistic narratives, which assume the benefits of economic growth to society are self-evident and unproblematic, of which at the current time we have to be most wary.

¹¹² See criticisms of Mattingly’s conceptual framework by Faulkner (2008: 67-69).

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