UNIVERSITY OF SOUTHAMPTON

FACULTY OF LAW, ARTS AND SOCIAL SCIENCES

School of Humanities

The Pottery from the John Ward - Perkins excavations at Lepcis Magna.

by

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Part 1.

Thesis for the degree of Master of Philosophy

June 2009

UNIVERSITY OF SOUTHAMPTON

ABSTRACT

FACULTY OF LAW, ARTS AND SCIENCES.
SCHOOL OF HUMANITIES

Master of Philosophy

THE POTTERY FROM THE JOHN WARD-PERKINS EXCAVATIONS AT LEPCIS MAGNA.

by Marguerite Attree

The primary aim of this thesis was to carry out the post excavation work for the archaeological excavations carried out at Lepcis Magna in 1951. Concurrently with their excavations at Lepcis Magna the British School at Rome also undertook excavations at Sabratha between 1948 and 1951 under the leadership of J.B. Ward-Perkins and Dame Kathleen Kenyon. The post-excavation work on Sabratha has now been completed and published (Kenrick 1986; Dore & Keay 1989 and Fulford & Tomber 1994). This present thesis will complement this work and that which has already been carried out at other key Mediterranean sites such as Carthage, Benghazi and in the UNESCO Libyan Valleys Survey.

The Tripolitanian town of Lepcis Magna is relatively famous for its surviving monumental architecture, but, in contrast, very little has been written about the economy of the town. Details of the surviving archive from the 1951 Lepcis Magna excavation are presented in chapter 3 and the re-drawn section drawings can be found in appendix 10. A selection of pottery drawings can be found in chapter 5 and the pottery fabric descriptions in appendix 9. After the pottery had been categorized, identified, quantified and cross-referenced (wherever possible), typological descriptions were written. The analysis of the Lepcis Magna coarsewares was particularly important to this thesis as this was the first time that many of the vessels had been catalogued and typologies created for them. The assemblage was also examined statistically to see whether there was anything unusual about the way the pottery was deposited across the town and also analysed to show how the supply of pottery changed through time and from which parts of the Empire it was imported.

Aspects of the pottery assemblages from Lepcis Magna and Sabratha were compared in order to see whether there were any similarities or marked differences between them. Both towns had Punic foundations and Sabratha, like Lepcis Magna, was a port on the Mediterranean coast as well as being on the trans-Saharan caravan route to the Fezzan. Given these factors one might expect some similarities in their pottery assemblages. Similarly, aspects of the pottery assemblages from Lepcis Magna and ULVS were studied in order to see whether there were any similarities or marked differences between them.

The thesis concluded with deductions about the nature of the economy of the Roman Tripolitanian town of Lepcis Magna based on the analysis of the pottery recovered during the John Ward - Perkins 1951 excavations; such an analysis has not previously been undertaken and published.

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Accompanying Materials

CD ROM containing Lepcis Magna pottery database, additional appendices and tables.

DECLARATION OF AUTHORSHIP

I, Marguerite Attree declare that the thesis entitled

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and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;
- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;
- where I have consulted the published work of others, this is always clearly attributed;
- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
- I have acknowledged all main sources of help;
- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;
- none of this work has been published before submission.

Signed: [redacted] .....

Date: .....1/6/09.....

Acknowledgements
I would like to begin by thanking all of the people who have supported me through my personal problems over the years since I began this project and for the generous academic help I have received. In particular I would like to thank Simon Keay for his continued infinite encouragement, guidance, supervision and for his critical comments on the various drafts of this thesis. I would like to extend my thanks to my advisor David Peacock. I would also like to thank Mark Grahame for his reading of an early draft of this thesis and for his help, suggestions and support. I would like to acknowledge the help that Dave Williams gave me with the identification of the amphorae and for his general support. I would like to mention the help that the late Nick Bradford gave me by checking my early pottery drawings and Kathryn Knowles for her help in identifying the pottery lamps. I am very grateful to Ann Baker, who despite her recent illness proof read much of the thesis. I would also like to thank Patricia Terndrup for her help in resolving my computer problems. Additionally I am grateful to Jon Adams and Mary Orr for allowing me to complete my studies; and I would like to thank Mary Stubbington for her administrative help. Finally I would like to thank Geoff Attree for his help with the statistical testing, for reading this thesis and for his financial and emotional support.

Definitions and abbreviations

Pottery fabrics
ABT .... African Black Top ware.
ARS ..... African Red Slip ware.
BGW .....Black Gloss ware.
ERPW ...Early Roman Plain ware.
ESA .....Eastern Sigillata 'A' ware.
ESB .....Eastern Sigillata 'B' ware.
ITS .....Italian Sigillata.
TWW ....Thin Walled wares.

Trench locations
LM FV. .....Lepcis Magna Forum Vetus.
Sev. Bas. ....Severan Basilica.
Col. St. .....Colonnaded Street.

Statistical abbreviations
e.v.e.'s .... Estimated vessel equivalents.
PMCC .....Pearsons' product moment correlation coefficient.

Publications, People and web sites.
CIL ... *Corpus Inscriptionum Latinarum.*
CVArr ... *Corpus Vasorum Arretinorum.*
EAA ... *Atlante I and II Enciclopedia dell'Arte Antica.*
IRT ... Reynolds, J.M. and Ward-Perkins J.B. (Ed.) 1952. *Inscriptions of Roman Tripolitania. British School at Rome.*
JRA *Journal of Roman Archaeology.*
JWP ... John Ward Perkins.
PBSR ....*Proceedings of the British School at Rome.*
QAL ... *Quaderni Di Archeologia Della Libya.*
Southampton University Roman Amphorae: a digital resource: Keay and Williams 2005 ... (Keay and Williams: 2005).
ULVS ... UNESCO Libyan Valley Survey.

Introduction and Aims.

The three towns of Roman Tripolitania, Lepcis Magna, Sabratha and Oea are located on the Mediterranean coast of Libya, North Africa. All three towns had common Punic origins. The only extant standing Roman archaeological remains of Oea, modern day Tripoli, is that of a marble triumphal arch which was dedicated in AD 163 to the emperors Marcus Aurelius and Verus. Sabratha is probably now best known for its late second century theatre which was substantially restored by Italian archaeologists between the two World Wars. The British School at Rome carried out excavations in Sabratha between 1948 and 1951 under the leadership of J.B. Ward-Perkins and Dame Kathleen Kenyon, concurrently with their excavations at Lepcis Magna. The post-excavation work on Sabratha has subsequently been completed and published (Kenrick 1986; Dore and Keay 1989; Fulford and Tomber 1994). Extensive work has been carried out in the Libyan hinterland by the UNESCO Libyan Valley Survey (ULVS) during the 1980's and these results have been published in two volumes (Barker and Mattingly 1996).

The third town of the Tripolis was Lepcis Magna which is relatively famous today for its surviving monumental architecture and detailed descriptions about these remains can be found in many books. The classic guide book to the sites is 'The Antiquities of Tripolitania', written by Haynes (reprinted 1981), which not only provides an excellent guide to the monumental remains of Lepcis Magna and Sabratha but also presents information on the historical and geographical development of Libya. In contrast, however, very little has been written about the economy, its culture and the society of Lepcis Magna itself and it is one of the aims of this thesis to make an attempt at beginning to redress this balance.

The primary aim of this thesis is to carry out the post excavation work for the 1951 archaeological investigations at Lepcis Magna. This will involve analysis of the pottery assemblage together with the surviving archive material. A number of small finds accompanied the pottery. This collection included a small number of coins, fragments of glass unguent jars, a few pieces of worked bone, a group of marble fragments, some bronze fragments which included possible fixtures which were used to secure marble to the Severan Basilica walls, a few beads and a gaming die.

Deductions about the nature of the economy of the town will be based primarily on an analysis of the pottery evidence recovered during that 1951 excavation; such an analysis has not been previously published. The pottery assemblage, accompanied only by labels, which gave details of trench locations and soil types, had remained virtually untouched since it had been excavated. It appears that little, if any, post-excavation work had been carried out at the time. The material had been deposited at the University of Southampton following the death of the excavators.

A total of 5188 sherds were available for study and after a careful examination it was determined

that they came from a maximum of 4582 vessels. Due to the potential amount of data being generated, each of these vessels was assigned a record in a database to later help with the quantification, classification and interpretation of the assemblage. I have drawn over 1900 of the sherds, initially in order to form typologies and as an aid to identification. A selection of these drawings can be found in Chapter 5. The data generated by the post-excavation work will be subsequently presented.

Details of the surviving archive from the 1951 excavation are presented in Chapter 3. The re-drawn section drawings can be found in the appendix 10. In the absence of detailed excavation notes, as already commented on, the recovered pottery assemblage from the 1951 excavations will necessarily have to assume a more important role in the interpretation of the site than perhaps it might otherwise merit.

The post-excavation work on the Lepcis Magna material is important as the study of the pottery assemblage will provide information about the economic and commercial activities of the town. This analysis will then complement work which has already been carried out at other key Mediterranean sites; such as Sabratha (Libya), Carthage (Tunisia) and ULVS (Libya).

The aims.

The aims will be achieved by:

a) Systematically examining the archaeological evidence from the 1951 excavations at Lepcis Magna and recording this data in a form that has a clear structure and one that can be easily understood.

b) Identifying and classifying the archaeological evidence and comparing and contrasting this evidence with that found at other related sites.

c) Using the data in conjunction with material obtained from other relevant sources, to see what inferences can be drawn about the economy of the Roman town of Lepcis Magna.

The aims of the individual chapters are as follows:

Chapter One - The Roman Tripolitanian town of Lepcis Magna placed within its historical, geographical/physical and economic framework.

The aim of this chapter is to place the Roman Tripolitanian town of Lepcis Magna within its historical and its geographical/physical framework and to briefly summarise what has happened to the town of Lepcis Magna in more recent centuries in order that the work of the following chapters can be viewed in context. The work of the UNESCO Libyan Valleys Survey (ULVS) will also be discussed briefly.

Chapter Two - The Background

This chapter examines how Lepcis Magna has survived the ravages of both time and archaeological investigations, and makes a brief review, but realistically probably not an

exhaustive one, of some of the articles that have been published (in English) about Lepcis Magna over the years. Other excavations, which have taken place at Lepcis Magna in more recent times, will also be considered.

Chapter Three - The 1951 Excavation

The aim of this chapter is to examine the available surviving archive evidence. This evidence consists of a few section drawings, plans and the labels, which accompanied the excavated material and, by incorporating information from relevant written sources, to produce a structured summary of that evidence for the 1951 excavations at Lepcis Magna. The re-drawn sections and the recreated stratigraphy can be found in appendix 10 and in this chapter respectively.

Chapter Four - The pottery assemblage and its distribution across the excavation.

The aim of this chapter is to examine the nature of the pottery assemblage and hence devise a procedure for the systematic recording and initial analysis of the pottery so that quantification can be undertaken. This will be initially achieved by recording information from each pottery sherd into a database. The complete database was originally compiled in Dbase IV but is presented on the CD-ROM as an excel workbook. The database facilitates a comprehensive examination of where the pottery was excavated from so that locations, counts and weights can be quantified and studied to see whether, for example, there was anything unusual about the way the pottery was deposited across the site. A series of Pearsons' product moment correlation coefficient and chi squared tests will also be worked out to examine the data statistically to see whether there was anything unusual about the way the pottery was deposited across the town.

Chapter Five - The Pottery.

The aim of this chapter is to examine the major groups of pottery and to create a typology for them. The forms of the pottery vessels will be identified, wherever possible, and their production centres and date range of manufacture recorded. Drawings of some of the vessels will also be presented here. Statistical testing of the data will be carried out where it is deemed necessary. With these data it should be possible to show how the supply of pottery changed through time and from which parts of the Empire it originally came and hence determine whether Lepcis Magna was trading more with either the Eastern or Western Empire. The pottery will also, wherever possible, be cross-referenced to finds excavated from a number of North African locations. The pottery fabric descriptions can be found in appendix 9 (see CD-ROM).

Chapter Six - A comparison between the Lepcis Magna and Sabratha pottery assemblages.

The aim of this chapter is to compare and contrast aspects of the pottery assemblages from Lepcis Magna and Sabratha in order to see whether there are any similarities or marked differences between them. Both towns, as already stated, had Punic foundations and Sabratha, like Lepcis Magna, was a port on the Mediterranean coast as well as being on the trans-Saharan caravan route

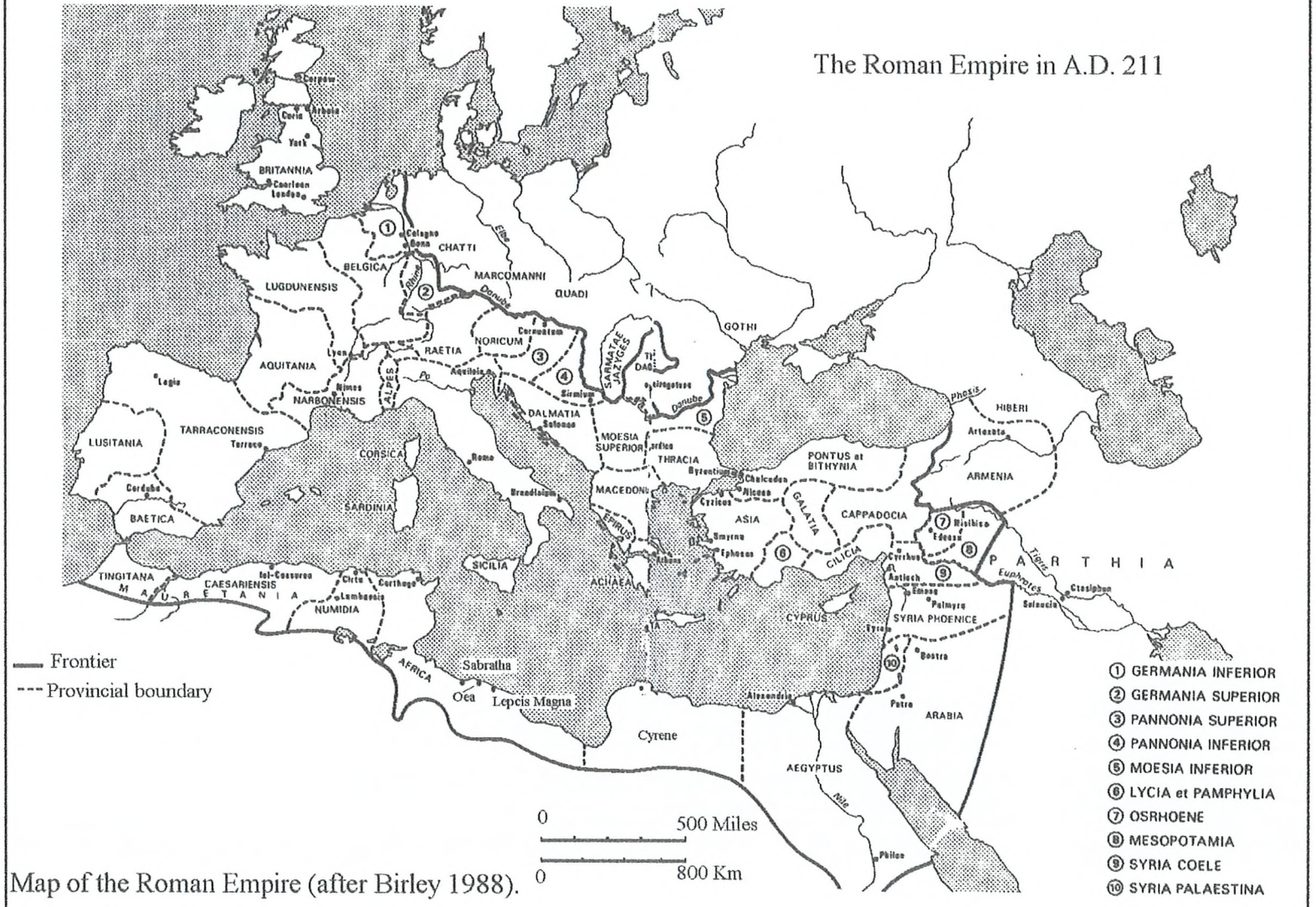
to the Fezzan. Given these factors one might expect some similarities in their pottery assemblages. Although the two pottery assemblages are significantly different in size, by using percentages some useful comparisons will be made.

Chapter Seven - A comparison between the Lepcis Magna and the ULVS pottery assemblages.

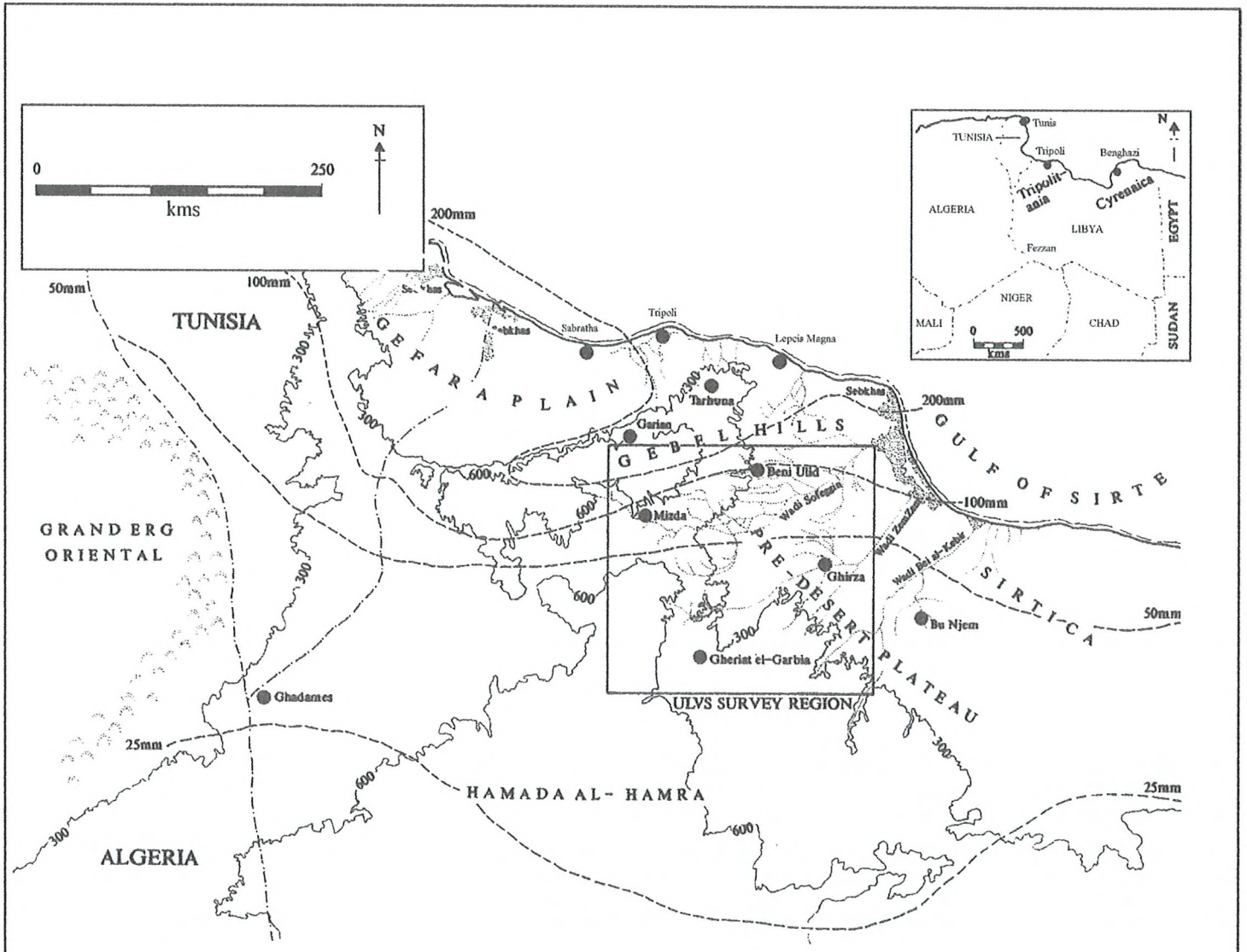
The aim of this chapter is to compare, contrast and examine aspects of the pottery assemblages from Lepcis Magna and ULVS in order to see whether there are any similarities or marked differences between them. However, the extent of the comparison may be limited by the availability of the hinterland data.

Chapter Eight - The economic implications of the pottery.

The aim of this chapter is to assess what the pottery assemblage from the John Ward - Perkins excavations at Lepcis Magna in 1951 can tell us about the Roman Tripolitanian town of Lepcis Magna.



Map of the Roman Empire (after Birley 1988).



Map of Tripolitania; also showing location of ULVS, rainfall isoyets and contours. (After Barker 1996.)

Chapter One - The Roman Tripolitanian town of Lepcis Magna placed within its historical, geographical/physical and economic framework.

The three towns of Roman Tripolitania Sabratha, Oea and Lepcis Magna were located on the Mediterranean coast of Libya. Lepcis Magna became the administrative centre for the province of Tripolitania, which was created at the beginning of the fourth century (Mattingly 1995: 116). Lepcis Magna is sited some three kilometres east of the modern town of Al-Khums and approximately one hundred kilometres south-east of Tripoli, ancient Oea. Haynes (1981: 18) describes how the ancient name for Libya, Lebu, can be traced back in 4000 year old Egyptian texts and how the tribes who lived in this area evolved. The Greeks expanded the use of the name 'to all the Hamitic peoples of North Africa whose language, physical characteristics and manners distinguished them from the Negro and Negroid Aethiopians' of the Sudan' Haynes (1981: 18). Herodotus writing in the fifth century BC, records where the Tripolitanian Libyans lived and he described their customs and them as being pastoral nomads (4. 168-199). Haynes (1981: 19) accepts this view, but sees the early Libyans as more settled, 'their movement seems to have been no more than seasonal migration between fixed areas.' Haynes also described the dwellings of the ancient Libyans, their dress, their religious beliefs and inhumation practises as well as their acceptance of polygamous marriages.

Sabratha

In the past the best known town of African Tripolitania was Sabratha. Like Lepcis Magna, the town of Sabratha had Punic origins. Ward-Perkins (1994: 371) refers to excavations which revealed remains of a trading post of the fifth century BC. The first coastal settlement at Sabratha was built close to a natural rock formed harbour. Subsequently, in the late second century AD, a new town, based on a rectilinear design, was constructed further to the south-east. The town of Sabratha is probably now best known for its theatre which was built in the town in AD 180 and which was substantially restored by Italian archaeologists between 1927 and 1937 (see Plate 1). Excavations, between the two world wars, also revealed shops, streets, a wall dating to Punic times and the forum buildings, which included five temples. The curia and the basilica have also been identified, along with three separate bath complexes. The only local building material available for use in Sabratha was a relatively poor quality sandstone, which had to be covered in stucco in order to make it a practical building material (Ward-Perkins 1994: 378). The town of Sabratha and its principal buildings have been comprehensively described by Ward-Perkins (1994), Haynes (1981) and Di Vita (1999).

The town of Sabratha was sacked by the Austuriani c. AD 365 and much rebuilding was required following a major earthquake (Mattingly 1995: 183). Under the Vandal occupation in the fifth century the fortunes of the town again declined and the town walls were destroyed. A brief revival of the town occurred during the Byzantine period of rule, but on a much smaller scale. This revival was short lived, as not long after the Arab conquest in AD 643 the town seems to have gone into a final decline. Ward-Perkins, Kenyon and the British School at Rome, as referred to in the

introduction, carried out excavations in Sabratha in the years 1948, 1949 and 1951 concurrently with the excavations at Lepcis Magna. The results of these excavations at Sabratha, with particular reference to the archaeological stratigraphy, the buildings and the small finds, especially the pottery, were eventually published posthumously in three volumes (Kenrick 1986; Dore and Keay 1989; Fulford and Tomber 1994).

Oea

Moving eastwards along the coast from Sabratha, the next town in the 'Tripolis' was Oea, which is now the modern day city of Tripoli and present day capital of Libya. The major seaport for Libya is located there. Oea seems to have followed the same general historical pattern of development as the neighbouring cities of Sabratha and Lepcis Magna. However, as these two cities declined in importance, their buildings were destroyed and their population numbers dwindled. Oea, in contrast, increased in importance following an Arab invasion. Oea's natural harbour and oasis, according to Mattingly (1995: 122), would have been important factors in the Arabs' choice of location. Unlike Sabratha and Lepcis Magna, which were never re-developed, Oea became an Arab military and administrative centre. Oea remained under Arab control until it was conquered by the Turks in 1551, except for a period of twelve years (1146-1158) when it came under the control of the Sicilian Normans (Arab. Net). The town also suffered an attack by the Spanish in 1510. Tripoli today has the old walled Medina as well as the more recent mosques which were built in the 17th and 18th centuries. There are also the distinctive buildings constructed by the Italians during the first half of the twentieth century as well as a complement of the more ubiquitous later twentieth century buildings. The only standing Roman archaeological monument in Oea is the marble triumphal arch dedicated to the emperors Marcus Aurelius and Verus in AD 163 (see Plate 2).

Lepcis Magna

The town of Lepcis Magna has perhaps been best known for its outstanding surviving monumental architecture; detailed descriptions about these remains can be found in a number of books. One such source is Ward-Perkins (1993) '*The Severan Buildings of Lepcis Magna - An Architectural Survey*'. Lepcis Magna was the third Roman Tripolitanian town and it was probably the administrative capital of the area. The town of Lepcis Magna was designated a World Heritage Site by UNESCO in 1982. One of the earliest recorded descriptions, as cited in the introduction, of recent centuries describes, incorrectly in many respects, Lepcis Magna in this way. '*... there are a great extent of ruins, but all in bad taste; chiefly done in the time of Aurelian - indeed very bad.*' This terse description was made by James Bruce, the first known European, to visit Libya in 1766, who, according to Cumming (1969: 17), 'possessed both the knowledge and the equipment to undertake an exploratory expedition with any serious claim to scientific method.' Bruce's apparent dismissal of Lepcis Magna was probably coloured by the personal hardships he had endured during his travels. Fortunately perhaps for Lepcis Magna, Bruce's unfavourable impression is not the one that visitors to this once powerful Roman North African town receive today. That the town is in a ruinous state cannot be denied. After visiting Lepcis Magna in the Autumn of 1999, just

weeks after direct flights between London and Tripoli had been re-instated, the picturesque location of the city on the shores of the Mediterranean with the sun reflecting off the now golden coloured weathered limestone, used in the construction of some of the buildings, and the sheer magnificence of the remains of the monumental architecture leave the modern visitor with a much more favourable impression.

Numismatic evidence demonstrates that between the first century BC and the early part of the first century AD the Neo-Punic form of the name, 'Lpqi' was favoured, (Reynolds and Ward-Perkins 1952: 73) whilst epigraphic evidence shows that by the Roman period the name of the city had become 'Lepcis' spelt with a 'c' rather than a 't', as is often used in the literature, and that this was the locally preferred spelling of the city's name. Some ninety inscriptions use this form (Reynolds and Ward-Perkins 1952: 73). The 'Magna' part of its name probably came into use in Trajanic times when the status of the town was enhanced by becoming a *colonia.* It may also have helped to differentiate it from another North African settlement, which was called Leptiminus by the Romans.

The physical remains of the town are mainly those of the monuments and public buildings. As Raven (1993: xxx) writes, 'None of the cities of North Africa is more than a ghost town. Monuments have survived, but not - with rare exceptions- shops and houses, except for walls a few feet high.' Even the monuments have suffered, not just at the hands of time and decay, but from people using them as quarries for ready dressed stone. Some of the Lepcis Magna columns were brought to Europe and re-used in the palace at Versailles and even in George III's Surrey residence (Raven 1993: xxx).

The historical development of Lepcis Magna.

The development of Lepcis Magna from a small trading station to an important Roman coastal town, complete with its monumental buildings - many of which were constructed during the reign of Septimius Severus and not that of Aurelian as incorrectly thought by Bruce - probably owes much to it geographical location between Carthage and the eastern Mediterranean. The Roman author Sallust (76-79) later recorded Lepcis Magna as being founded by the Tyrians of Phoenicia. Carthage had been created as a Punic port and town in the ninth century BC, virtually controlling the trade in the western Mediterranean from the seventh century BC until 146 BC when it was totally destroyed by the Romans. The Phoenician presence is attested to in the survival of official Neo-Punic inscriptions from first century Lepcis Magna (Garnsey and Saller 1990: 192).

The later creation of Alexandria as a port on the Nile Delta by the Greeks in the fourth century BC also contributed to the continuing importance of Lepcis Magna. Between the two ports of Carthage and Alexandria was a coastline approximately 2000 km long, which except for the Wadi Lebda could offer little shelter to ships. The Wadi Lebda was the mouth of a river, whose promontory

could offer some protection against gales (Bianchi Bandinelli 1966: 16) and it was there that a trading centre, Lpqy, was created by the Phoenicians possibly as early as the eighth century BC. A number of Phoenician graves were discovered under the stage of the Roman theatre (Haynes 1981:71). The settlement could have functioned as a market for the local agricultural production as well as being well positioned for the trans-Saharan trade.

There has been some debate as to whether the early settlement at Lepcis Magna was permanently occupied before the sixth century BC. Haynes believes that it was not since the historian Herodotus does not mention any involvement by the inhabitants of Lepcis Magna in the struggle between Carthage and Greece in 511 BC, when the latter, under Dorieus, tried unsuccessfully to colonise land to the east of Lepcis Magna, at Wadi el-Caam (1981: 26). After the successful expulsion of the Greeks, Lepcis Magna seems to have come under the influence of Carthage. Haynes (1981: 28) goes on to describe the relationship between Carthage and the trading stations, or *emporia*, of Lepcis Magna, Sabratha and Oea. Sabratha and Oea were also founded by the Phoenicians. These three coastal towns later formed the African *Tripolitana regio* which probably had Lepcis Magna as its administrative centre and which came into being in the third century AD, but the administrative links between the three towns were undoubtedly formed much earlier.

Carthage signed two treaties with Rome the first in 507 BC and the second in 384 BC (Polybius III: 22-25). These treaties restricted foreign ships to trade only from Carthage's own harbour, thereby taking total control over all exports and imports in this part of North Africa. Carthage also exacted taxes from their emporia. Lepcis Magna, for example, had to pay each day one Talent which Mattingly has calculated as totalling 9 tonnes of silver a year (1995: 50) as well as having to provide Carthage with men and equipment in times of war (Haynes 1981: 29).Despite having to pay these tributes - which was not unusual in the ancient world - Lepcis Magna still enjoyed a degree of freedom in domestic matters since it could elect its own magistrates and make its own laws (Haynes 1981: 29).

The fortunes of Carthage waned following the second Punic war with Rome. Although Carthage's other territories were forfeited to Massinissa, whom Rome recognized as the King of Numidia, Carthage was allowed to keep the emporia (Haynes 1981: 31). Numidia, during the last years of the second Punic War, had become an ally of Rome after it had changed sides following the expulsion of the Carthaginians from Spain in 206 BC. Subsequently, Massinissa wanted the Tripolitanian towns as well and by 150 BC Carthage and Rome were at war again. Carthage was finally defeated in 146 BC and Tripolitania passed into Numidian hands. Tribute still had to be paid, but now the trading restrictions were lifted and this brought the emporia into contact with other Mediterranean towns and Rome itself. (Haynes 1981: 33).

In time, the prosperity of Numidia also declined as family disputes, following the death of Micipsa in 118 BC, meant that the kingdom was divided. (Haynes 1981: 33). During this period of instability the people of Lepcis Magna approached Rome and they were accorded the status of *amici sociique*, 'friends and allies'. Lepcis Magna appealed to Rome again in 106 BC as the town needed protection from a pro-Jugurthan conspiracy within the town (Haynes 1981: 33). Jugurtha had, by 112 BC, united the whole of Numidia and in the process he is said to have murdered his two cousins with whom he was supposed to share the kingdom after his uncle's death. Jugurtha eventually lost favour with Rome when he had Italian citizens at Cirta massacred (Bowder 1980: 115). Rome responded to this appeal by stationing four army cohorts in the town.

Between 111 and 46 BC, the people of Lepcis Magna continued to enjoy the status of, 'friends and allies' of the people of Rome. This meant that they maintained their independence but could look towards Rome for military protection. However, during the Civil War, the people of Lepcis Magna fell foul of Caesar when they favoured the armies of his rival Pompey during the civil war and for this error of judgement they were to pay an annual tribute of three million pounds of olive oil, estimated as being the produce of one million trees. The size of this fine suggests that Lepcis Magna must have had access to large areas of fertile land (Reynolds and Ward-Perkins 1952: 77).

This Lepcis Magna fine and those of other African towns were recorded in Caesar's *Bellum Africanum* (97: 3). Haynes (1981: 34) suggests that Sabratha and Oea may also have been incriminated with Lepcis Magna and therefore they may have had to share in the paying of the fine. However, some doubt has been cast on whether the town was correctly identified as being Lepcis Magna when the town of Leptis Minor, in modern day Tunisia, seems more probable as other towns geographically closer to Leptis along the eastern coast of Tunisia were also fined and recorded in *'Bellum Africanum'* in the same passage (Grahame 1998: 107).

Following the civil war, the status of Lepcis Magna changed very quickly at this point from 'friend and ally' to that of 'subject state'. Lepcis Magna now came under the control of the province of Africa Nova. The hundred years following the death of Caesar saw many struggles for control of parts of North Africa. One such confrontation was successfully dealt with by L. Cornelius Balbus and the III Augusta in 20 BC, against the Garamantes of the Fezzan. Again in AD 24 the III Augusta backed by the IX Hispana was based in the Lepcis Magna area to deter attacks on the town and to prevent Tacfarinas, an erstwhile Roman soldier, from reaching asylum with the Garamantes (Haynes 1981: 36). The Garamantes seem to have made several appearances in the history of Tripolitania. At one time Lepcis Magna and Oea were in conflict over frontier raids involving the stealing of animals and crops and Oea decided to call upon the Garamantes for assistance. The Garamantes responded by laying siege to the town of Lepcis Magna as well as ravaging the surrounding countryside and it required the intervention of the III Augusta to expel

them (Haynes 1981: 38).

Augustus restored the freedom, lost during the civil war, to the Tripolis sometime between 12 and 6 BC. Circa AD 74 Lepcis Magna became a *municipium* (Mattingly 1995: 116). A *municipium* had some self governing powers in that it could, for example, elect its own magistrates, own public lands and keep its own records but could be inspected by prefects sent out from Rome. During the second century AD the towns were upgraded to the status of *colonia*: a community with full rights of citizenship and greater independence from Rome in administrative matters. This happened to Lepcis Magna c. AD 109-110 under the auspices of the Roman Emperor Trajan and an arch was erected to commemorate this event. (Manton 1988: 64). The *sufes* (magistrate) at that time was a L. Septimius Severus, a native of Lepcis Magna who not only possessed estates in Lepcis Magna, but also owned land in Italy (Birley 1988a: 1). The Severus family may originally have come from Italy. This L. Septimius Severus was the grandfather of the future Emperor L. Septimius Severus, who was probably the most important native of Lepcis Magna (Birley 1988a: 1).

Lucius Septimius Severus was born in AD 145 on the 11th April (see Plate 3). He was thought to be the second son of Publius Septimius Geta and Fulvia Pia. Septimius Geta, unlike his father and his son, does not seem to have held any form of high office, but two other contemporary members of his family, possibly cousins, P. Septimius Aper and C. Septimius Severus, were senators in Rome. Geta appears to have remained at home in Lepcis Magna with his family (Birley 1988a: 1). Lucius Septimius Severus became consul in the year AD 190. Two years later he was the governor of Upper Pannonia when the emperor Commodus was murdered on the final day of the year AD 192. Publius Helvius Pertinax, the next emperor, was also murdered within three months, in March AD 193, by the Praetorian Guards (Birley 1988a: 94). Pertinax was quickly followed by Didius Julianus who, in effect, bought himself the now vacant title (Birley 1988a: 95). However, on April 13th Septimius Severus was hailed Emperor by his legions and he marched on Rome to avenge the death of Pertinax. On the first of June Didius Julianus was murdered and within a few days Septimius Severus entered Rome unopposed (Birley 1988a: 103).

The Emperor Septimius Severus (AD 193-211) bestowed a further honour on Lepcis Magna, along with Carthage and Utica, c. AD 202 when he awarded the town the *ius italicum*, 'Italian Rights' which meant it would not have to pay land tax since it was now considered to share equal status with the Italian cities (Garnsey and Saller 1990: 27). To show their appreciation the citizens of Lepcis Magna appended the name of Septimia to the town's title (Haynes 1981: 44). In return Lepcis Magna donated a quantity of olive oil to Rome (Mattingly 1995: 155). Septimius Severus was to have a lasting influence on the development of Lepcis Magna in the late second century AD as much of the monumental building at this time was almost certainly due to his imperial largesse (Garnsey and Saller 1990: 188).

What kind of Roman town was Lepcis Magna? Fontana (2001: 162) sees Lepcis Magna as 'atypical in comparison to other African cities and ultimately to the entire Western Empire', and that 'the city never experienced an influx of Italian colonists' and therefore Romanization of Lepcis Magna did not result 'from direct contact between diverse ethnic groups' as there were only three Italian families living in Lepcis Magna. Tomlinson (1992: 199) does not believe that Lepcis Magna was typical as few towns had both Punic antecedents and had also produced a Roman emperor. Describing the changes in building styles and materials, many of which were carried out during the Severan period, he continues by saying that 'the urban exuberance went over the top. Structurally marble and granite were not superior to local limestone, only more expensive'. One hundred and twelve granite columns were imported from Aswan for the Severan temple and basilica, and between 400-500 Italian cippolino marble columns for the colonnaded street (Mattingly 1995: 120-121). Mattingly suggests that Lepcis Magna may have been fairly prosperous even before Septimius Severus became emperor, citing the lists drawn up by Duncan-Jones recording various donations including one of a silver statue of an aunt of Severus which cost HS 115,000 (1995: 120).

Epigraphic evidence.

A brief review of the public buildings at Lepcis Magna is essential to this thesis as much information about the development of the town and its general prosperity can be gleaned from them. Especially useful is the epigraphic information recorded on the buildings. This provides details not only about imperial largesse but also about private donations and the names of some individual benefactors have survived. One inscription, for example, comes from the arch of Tiberius and it records that the arch had been erected to celebrate the fact that during the proconsulship of C. Rubellius Blandus (AD 35-36) a quantity of land had been recovered and subsequently sold, thereby producing funds with which to pave the streets (Haynes 1981: 92). Some of the inscriptions which survive were the original dedicatory inscriptions like that of Rubellius Blandus, whilst others were rebuilding inscriptions which recorded the patrons who paid to have repairs and reconstruction work carried out. IRT 533 and 534 records that restoration work was carried out in the theatre at Lepcis Magna between AD 157 and 158 (see Plate 4). This rebuilding of the *proscaenium* and *scaenae frons* of the Augustan theatre in Greek marble and the addition of marble statues cost 500,000 HS (Duncan Jones 1962: 82).

The inscriptions, some of which were bilingual, show that the people named were Punic or Libyan/Punic in origin, people like Muthumbul or Himilcho, whilst some of them seem to have adopted a Roman name as well like Boncar Clodius. One of the leading families of Lepcis Magna was that of Annobal Rufus. An inscription written in both Punic and Latin shows that he was responsible for the building of the theatre between AD 1 and 2 (Di Vita 1999: 64). Other members of his family bore the cost of the building of a temple in AD 42 and the portico which was situated between the market and theatre. Later in AD 61 another family member built the portico at the

harbour (Haynes 1981: 95). This family also held high public office; Annobal Rufus was the *sufes* (magistrate) as well as the *flamen* (priest of the imperial cult). The epigraphic evidence has recorded that some citizens provided public buildings and facilities for the town and how much they cost. See Table 1.1 in appendix 1.

Further epigraphic evidence comes from the Augustan period and tells of the building of the theatre, the chalcidium and the wall around the market. Other improvements were carried out later, e.g. to the temple of Magna Mater in AD 72, as well as the paving of the Old Forum paid for by Gaius, son of Hanno (Haynes 1981: 86). A number of fountains and arches were also built. In 119-120 water was brought into Lepcis Magna at the expense of Q. Servilius Candidus. Fortunately a good supply of grey lias limestone for general building purposes was available locally from Wadi Lebda and Wadi Zennad. Marble seems to have been reserved for decorative statues and sculptures until Trajanic times. The amphitheatre was built during Nero's reign whilst the circus was constructed in the Antonine period. Further public buildings, like the baths, were constructed in the time of Hadrian. Additional information about some of the principal buildings, their dates of erection, the materials used in their construction and their sponsors can be found in Table 1.2 in appendix 1.

Roman North Africa is exceptionally rich in its epigraphic evidence, probably more so than any other Roman province. Warmington (1954: 39) has collected the names of 242 municipal patrons from the area and a number of these people come from Lepcis Magna. Table 1.3, see appendix 1, lists some of the named patrons of Lepcis Magna (as were then known in 1954); these are from a subset of Warmington's 242 names (1954: 43). Originally, during the Republic, a patron would have been a politician who would offer protection and favours and possibly money to his clients who in return would obey his wishes, serve his interests and vote for him. Warmington also notes that by the beginning of the third century there was a change in the way a patron was chosen. Previously the patron would have been a local influential man but such men were displaced by men who were based in North Africa in an official capacity (1954: 46).

A number of governors also become patrons, including Claudius A...., the *proconsul Africae*, in the late third century. Warmington also identifies a small group of patrons who had imperial connections (1954: 55). One such patron of Lepcis Magna was C. Rubellius Blandus, proconsul AD 35-36, who was married to Iulia, granddaughter of Tiberius. Warmington believes that the apparent lack of second century patron names could perhaps be supplemented if and when the Basilica Ulpia is excavated (1954: 39). Epigraphic evidence can also provide evidence about local government officials in North Africa. The role of the *curatores*, who first made an appearance in the first century AD, meant that an imperial official had the responsibility to supervise the property and finances of the towns. The first *curatore* in Africa seems to have been appointed in AD 196 at

Sufetula (Sbeitla, Tunisia), whilst in Lepcis Magna the first recorded *curatore* was c. AD 238 (Lucas 1940: 57). However, the chosen *curatore* is unlikely to have been a local citizen because of the nature of the office. The people chosen to be *curatores* came from different ranks in society. Some were of senatorial rank whilst others like Lepcis Magna's Cl. Aurelius Generosus was of equestrian rank (Lucas 1940: 61). Another inscription honoured the *curatore* T. Flavius Vibianus.

The reliability of rebuilding inscriptions has been called into doubt by Thomas and Witshel (1992: 135-177). They were unsure whether or not the repair work carried out was as extensive as that claimed on the inscriptions. However, Fagan (1996: 81-93) takes the view that many of the epigraphic claims were probably not too exaggerated as the 'benefactors' would have found it difficult to delude the local populace with false claims of works which had or had not been carried out, and their political image would have suffered if the claims had been grossly distorted. Fagan also believes that not enough of the original buildings and their subsequent repairs have survived in order to make a fair assessment of what repairs were or were not made.

Wealth

As already mentioned, the epigraphic evidence has shown that individual citizens had provided buildings and facilities for the city, but where did the wealth of Lepcis Magna and its citizens come from? Mattingly (1995: 157) has been a leading proponent of the view that much of the wealth would have come from the production of olive oil. However the region was also affluent and important to Rome because of its grain production and its access to wild animals. Birley provides evidence for the production of grain in the form of an inscription from a Greek city which refers to 'the possibility of importing corn from Lepcis Magna during a food shortage' (1988a: 6). Additionally, to raise income, towns and cities generally had the right to impose tolls on goods coming into and going out of their territories (Lewis and Reinhold 1966: 143, 329). They also had the prerogative to sell the rights to trade in certain specified commodities. Income could also be generated from renting out properties and land that belonged to the city. Grain, or other crops, could be grown on city owned land and then sold. Wealthy citizens could also make bequests in wills or even pay off a town's taxes.

Marble, as already noted, was used on public buildings to display the wealth and status of its leading citizens, and its civic prosperity. The accumulation of wealth was important in the Roman world, as it is indeed today to some people. Wealth was required for enhancing personal prestige and much of this wealth was derived from the owning of land. Indeed ownership of land and wealth was a pre-requisite for the holding of public office and for climbing up the social and political ladder. The property qualification alone for a senator was one million sesterces (Duncan Jones 1962: 69). Duncan Jones suggests that there were actually quite a large number of African millionaires, 'amongst whom the men who actually reached the Senate were doubtless only the most influential' (1962: 69). He has identified some 200 senatorial families owning land in Africa

between the reigns of Vespasian and Septimius Severus but exactly how many of them were of African origin is uncertain as individual Senators could own land in many parts of the empire.

The *summae honorariae* was another means by which towns or cities could raise income. The *summa honoraria* was the amount of money a person would have to pay for the privilege of holding a civic office or becoming a priest. The actual amount payable would probably depend on where the person was residing and the importance of the town. Duncan Jones (1962: 66) records that some magistrates, wishing to impress the local populace, would actually pay out a greater sum of money than the normal going rate. He records one *summae honorariae* at Sabratha as being 10,000 sesterces. He also suggests that decurions in addition to the magistrates had to pay the *summae honorariae* (1962: 68). Duncan Jones queries how vital these payments actually were to the financial well being of the town or city. He notes that in some places the *summa honoraria* was used to finance a statue erected to record the holding of office. This he suggests could imply two things: either that the city was financially solvent and consequently was not short of funds or that the cities financial administration was not being properly managed (1962: 69).

Duncan Jones has also gathered together information, taken from epigraphic remains from North Africa, with specific reference to financial matters up to the time of Diocletian (Emperor AD 284–305). He has found them useful 'in that they offer the most detailed information that has survived about the civic donations which were a constant feature of the activities of the urban upper class in many provinces under the principate' (1962: 50). He goes on to suggest that the reason why sums of money appeared on inscriptions was to impress the local populace. The recording of such donations seems to have been more prevalent in North Africa than in other parts of the empire and these donations were generally from individual gifts rather than from larger groups of people.

There are many possible shortcomings in interpreting the inscriptions because the amounts recorded were for the original building estimate and not for the final outlay as such. It must also be remembered that the inscriptions that have survived are only a subset of the original inscriptions. Duncan Jones (1962: 52) believes that less than 10% of statue inscriptions have survived in North Africa. He also high-lights the danger in making generalisations and illustrates this by pointing out that because there has been an increase in prices paid between succeeding reigns this may not just be due to inflation but to the fact that donors were perhaps being more generous. He does, however, acknowledge that there was inflation at this time (1962: 54).

Another interpretative problem occurs when using building costs to try to estimate the wealth of an area. Duncan Jones (1962: 55), citing Charles-Picard (1959: 96-100), illustrates this by pointing out that there were not that many ways in which surplus wealth could be used and that it is also impossible to calculate how many years' savings, if indeed savings were necessary, each donation

represented. Similarly the fact that the remains of 262 statues dedicated to the Severan family have survived but only 62 for Commodus might be because the North Africans wanted to celebrate the elevation of one of their own to the most exalted position.

Monumental buildings.

The monumental building phase of Septimius Severus has been described as being artificial and that, 'the city's resources were probably overstrained' (Reynolds and Ward Perkins 1952: 78). By the end of the Severan dynasty Lepcis Magna seems to have been sliding into decline. This decline is also reflected in the number of imperial dedications. Of 161 such dedications 151 are dated to before the end of the Severan dynasty whilst just 10 come from the fifty years following the murder of Alexander Severus (Reynolds and Ward Perkins 1952: 78).

Very little archaeological evidence has survived of the Phoenician phase of Lepcis Magna's history. However, Haynes (1981: 71) has recorded that a number of early graves, as previously referred to, were found under the stage of the Roman theatre as well as some sixth to fifth century BC material. The oldest existing building remains are to be found in the Forum Vetus. The Forum Vetus is of particular interest to this study as approximately one-quarter of the pottery assemblage was excavated from there. The complex was built close to and even partly over the original Punic settlement towards the end of the first century BC and the rectangular grid pattern of building seems to have been instituted at this time. It has been suggested that the reason for the slight deviation on the north-east side was because of the existence of an earlier Punic structure (Ward-Perkins 1981: 371).

Three temples were built on the north-west side of the forum, the North Temple, the Temple of Rome and Augustus and the Temple of Liber Pater which is believed to be the earliest of the three (Ward-Perkins 1981: 373) see Figure 1.1. Mattingly (1995: 118) citing the work of Di Vita (1969: 196-202), believes that the building of the forum may have been started as early as the second century BC and that two of the temples, those of Liber Pater and the Temple of Rome and Augustus, were originally dedicated to the local deities of Milk'ashtart and Shadrapa and that these were rebuilt and rededicated in Augustan times. On the west side there were another three temples, one of which was later converted into a church. Adjacent to these was the basilica and the curia. Outside the forum, by AD 30, approximately 620 m of street had been laid out in a south-westerly direction.

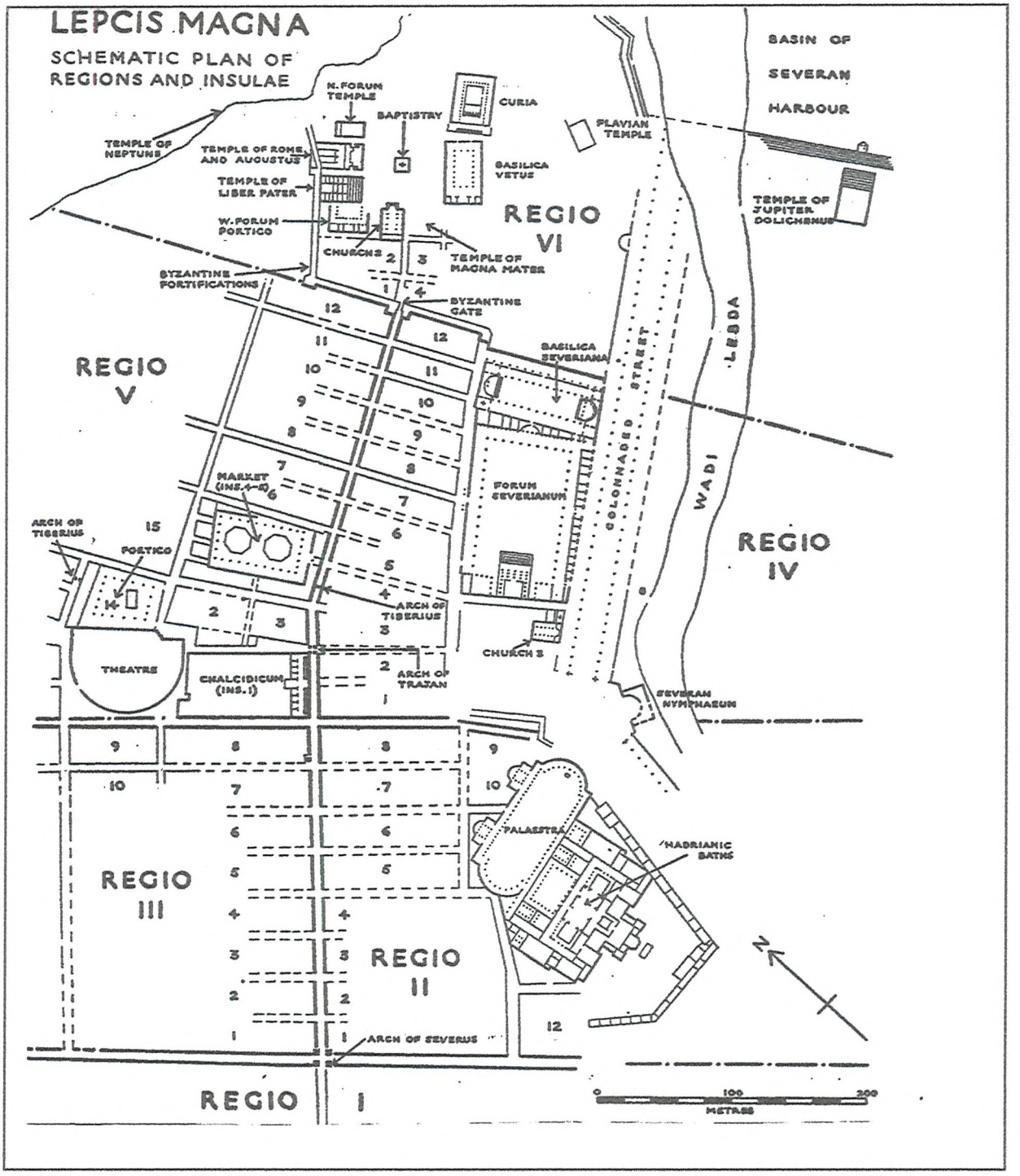


Figure 1.1 Plan of Lepcis Magna *(After Reynolds and Ward-Perkins 1952).*

In the earlier monumental building period the use of limestone predominated and fortunately for Lepcis Magna there was a good local supply available for general building purposes from the Wadi Lebda, the Wadi Zennad and Ras el Hammam, which was 5 km south of the town. The town's amphitheatre was built into the site of an old quarry in AD 56 (Di Vita 1999: 83). The excellent quality of the limestone has also been given as the reason for the survival of much of the epigraphic evidence (Mattingly 1995: 117). Marble seems to have been generally reserved for decorative statues and sculptures until Trajanic (AD 98-117) times. According to Ward-Perkins (1981: 376), under Hadrian (AD 117-138), there was a movement towards a greater use of marble, possibly under the aegis of Greek and Roman craftsmen. One of the first buildings in which marble

was used extensively was the Hadrianic baths.

The baths of Hadrian (see Plate 5) are of particular importance as they are amongst the largest ever built. Tomlinson (1992: 194) cites the fact that the baths are a 'very rare example of a symmetrical, organised structure, *thermae*, of the type evolved by Nero and Trajan at Rome itself, and as far as we know from the surviving instances, the first example of the type outside Rome.' During the 1951 excavations a number of small finds were recovered from the drains of the baths. Reynolds and Ward-Perkins (1952: 77) suggests that there are possibly more buildings to find from the first part of the second century, especially since extensive building was being carried out at Sabratha during the Antonine period. The elusive Lepcis Magna basilica of Ulpia is thought to date from this period (Reynolds and Ward-Perkins 1952: IRT 543).

Many of the older buildings were given marble 'face-lifts'; these included the market (see Plate 6) and two of the Forum Vetus temples. Ward-Perkins sees this change to marble and the adoption of Imperial building styles as resulting in a loss of individual identity for Lepcis Magna as, for example, columns and other types of architectural decorations were being brought in ready-made and these were of traditional Roman style. He concludes that 'much of the new architecture was rather dull, but it was ostentatiously expensive and it satisfied the pretensions of an age of material progress and civic prosperity' (1981: 378). Land was reclaimed from the wadi in order to provide sufficient space for this phase of building.

Evidence of some industrial activities that were carried out in Lepcis Magna has survived. Bandinelli (1964: 75) reports that a number of iron ingots were found in a shop in the Chalcidicum. Mattingly (1995: 118) records the presence of large warehouses, probably for the storage of agricultural produce, in the suburbs of Lepcis Magna beyond the Hunting Baths, as well as a centre for glass production close to the arch of Marcus Aurelius. A measuring table with its standard local measurements has been discovered in the market place. Shops have also been identified in the market; one was thought to be a butcher's shop as a stone slab had grooves on it possibly caused by the butcher regularly sharpening his knife (Manton, 1988: 67).

Probably the greatest monumental building phase was initiated at the end of the second century AD. The colonnaded main street, the nymphaeum (completed AD 211), the forum and the basilica (started AD 210) all date to this Severan period. Epigraphic evidence on the Lepcis Magna basilica states that it was built for Severus and completed by his son Caracalla in AD 216. A four-way arch was erected to honour the Severan family (see Plate 7). The arch, sited at the intersection of the *cardo* and the *decumanus*, was built of limestone and faced with marble. Haynes (1981: 73) suggests that it was quickly built to commemorate a visit that Severus probably made to his birthplace in 203 to mark his tenth year as emperor. Bandinelli (1964: 69), on the other hand,

suggests that the arch may have been put up to proclaim the granting of colonia status.

With the exception of this four-way arch Ward Perkins describes these Severan buildings as being of real distinction (1981: 386). The forum had a temple, believed to be dedicated to the Severan family, constructed on its south-west side. Ward Perkins also describes in detail the adjoining basilica which had an apse at both ends of the nave. Some of the major changes to the harbour were also undertaken at this time, or even prior to the start of the monumental building phase (Di Vita, Di Vita-Evard, and Bacchielli 1999: 112). This was probably precipitated by the need to provide berthing facilities for the transference of huge and expensive quantities of building materials from the ships. 'The small islands were incorporated into two huge quays which between them contained a *cothon* (inner basin), a fairly extensive expanse of water' (Di Vita, Di Vita-Evard, and Bacchielli 1999: 112). A number of warehouses, two temples and a lighthouse were constructed on the moles. The harbour was subsequently linked to the town by means of the colonnaded street.

At the junction of the two sections of colonnaded street a piazza was created. This piazza, Ward-Perkins (1981: 390) believes, was originally intended to be circular but was changed during the construction phase to allow for an imposing nymphaeum to be built at the junction of the two sections of colonnaded street. Ward-Perkins also notes the decline in local building customs and the increased domination of traditional Roman styles, but, by the time of the Severan building phase, influences from other parts of the empire were also becoming evident. Ward-Perkins (1981: 390) suggests that one of the architects may have come from north-western Asia Minor. The colonnaded street has parallel forms in Syria whilst the basilica displays similarities with Trajan's basilica in Rome. Other features such as capitals with lotus-and-acanthus designs indicate Attic origins, whilst the motif of an acanthus ring at the base of columns are said to show affinities to Egyptian and Syrian forms (Ward-Perkins 1981: 391).

The Severan building phase again utilised the grid pattern for the layout of its buildings. However, as Ward-Perkins notes (1993: 1), 'although each individual extension was laid out on neatly orthogonal lines, the town planners never managed to look quite far ahead, with the result that the individual quarters were in some cases many degrees out of alignment with their neighbours.' These deviations are of use as they indicate stages in the development of the town. It is possible to divide the Roman archaeological remains of the town into approximately five phases (Ward-Perkins 1993: 1). The Forum Vetus area, as already stated, has the earliest extant remains. The second phase under Augustus, which included alterations to the Forum Vetus, appears to have extended as far as the market. The third stage, which according to Mattingly (1995: 118) deviates by 17 degrees, seems to be delimited by the theatre, the Chalcidicum and the decumanus. In phase four, the provision of a water supply, financed by Q. Servilius Candidus (c. AD 120), made it

possible for the Hadrianic baths to be built and again their orientation seems to have been influenced by both the existing buildings and by the Wadi Lebda. The final stage seems to be that of the Severan period and, to disguise the differences in the grid alignments between the basilica and forum, a trapezoidal block of shops and offices were inserted. These five phases did not preclude the building of other monuments, such as arches, within the existing grids, nor, as has already been reported, alterations and improvements being made to existing buildings.

Town defences.

The earliest defences of Lepcis Magna seem to have been an earthwork (Haynes 1981: 71) but it was later supplanted by stone fortifications, which were built between AD 250 and 350. The later Byzantine walls enclosed a much smaller settlement (see Plate 8). The area of land encompassed within the towns defences are shown in Table 1.4.

Table 1.4 - Area of land within the towns defences.

Defence	Earthworks	Late Roman Walls	Byzantine Walls
Area Enclosed	425 ha.	130 ha.	38 ha.

However, as Mattingly points out (1995: 120) probably only two-thirds of the area, (c.280 ha), enclosed by the earthworks was densely populated. The exact extent of building across the other side of the wadi is still not known. References were made in antiquity to a Forum of Trajan, but its location remains unclear and it has been suggested by Mattingly (1995: 119) that it may really have been a reference to the Forum Vetus.

The uncertainty over the exact extent of building must influence population estimates. Raven puts the population of Lepcis Magna in the third century AD as approximately eighty thousand (1993: 101). By our standards this is small for a city but, as Raven goes on to say, 'they were cities not by virtue of their size but by virtue of their function, and the privileges granted by Rome' (1993: 102). In contrast Fontana citing Di Vita Evrard (1993: 295-297), gives a much smaller population estimate of fifty thousand for the late second century (2001: 161).

This decline in the occupied/defended area of the city can also be seen at Sabratha and it is therefore probably more indicative of what was happening within Tripolitania itself rather than of events taking place elsewhere in the empire (Reynolds and Ward-Perkins 1952: 78). Lepcis Magna seems to have experienced an upturn in fortunes during the reign of Constantine (emperor 306–337), when restoration work was carried out on some of the public buildings and a defensive wall was constructed. During the fourth century AD sand dunes began encroaching on the town.

The Vandals occupied Tripolitania in AD 455 and during this time the town's defences were destroyed. Haynes (1981: 62) records that the only other archaeological evidence of their stay was that of a collection of coins discovered in the market. Under Justinian the town was again reprieved. A new defensive wall was built but this time the area enclosed was greatly reduced. Lepcis Magna was made the centre for the *dux limitis Tripolitanae provinciae*, but the town never

regained its former status. An Arab assault on Libya in AD 643 brought about the end of Byzantine rule. By the eleventh century the town of Lepcis Magna had been abandoned due to the incursion of coastal sand.

Coastal location and trade.

As already stated, Lepcis Magna had been established as a port for a number of centuries before it came under Roman control following the fall of Carthage and it seems to have prospered. The prevailing weather conditions, currents and wind direction of the Mediterranean would have been important in Lepcis Magna's trading links with other parts of the Roman Empire. Extensive research has been carried out into weather patterns in the Mediterranean and it has been summarised by Fulford who has compared the patterns of trade of Tripolitanian trade with that of Cyrenaica; 'Off Tripolitania the wind direction is fairly equally divided between the north and north-west for two-thirds of the time; westerly and north-easterly breezes blow for about 15 % of the time... However the effect of strong northerly winds is to raise heavy seas in the Gulf of (Sidar) Sirte' (1989: 169-191).

According to Strabo (*Geography* 17. 3. 20) the gulf was a place best avoided as there were many rocky spits and sandbanks and that the 'safe escape of a boat is rare' if the boats became stuck in the shallows. When there were winds from the north the best sailing from Lepcis Magna seems to have been west towards Tunisia and then north up the coast to Cap Bon. From Cap Bon the islands of Pantelleria and then Sicily could be reached easily. However north westerly winds would have made this voyage difficult. In the case of Cyrenaica, Fulford (1989: 169-191) concludes, that it was easier to make voyages to Crete - a two-day voyage according to Strabo - when there were adverse wind conditions than to try to reach Tripolitania. Lucan (*Pharsalia* IX: 303-318) also described the 'uncertain conditions that prevail there - sea broken by shoals, and dry land severed by sea - and the waves strike beach after beach before they collapse with a roar, of the gulf. The effects that the weather might have had on Lepcis Magna's trade will be examined later in Chapter 5.

Water Supply and climate.

An adequate water supply was as essential in the past as it is today for both domestic and agricultural use. The three largest desert oases today are the Al-Kufrah, Ghat and Ghhudamis. The Wadi Kiam is the sole permanently flowing river, only two kilometres in length, in Libya as the other wadis stop running during the summer. Opinions differ over whether or not rainfall in North Africa was actually higher today than it was during the Roman period. Goodchild (1950: 6) believed it to have been somewhat higher in the Roman period as fortified farmhouses have been identified as far south as the Wadi Zemzem, whilst Green (1986: 129) believes that quantities of rain were similar to that of today but that there was then much better management of water supplies. The quantity of rain varies dramatically between the coastal plain and the pre-desert. The average annual coastal rainfall is some 300 mm whilst to the south of Ghirza this is reduced to

only 25 mm (Mattingly 1995: 8-9). In order to supplement water supplies for the town a system of water cisterns were constructed outside of Lepcis Magna to conserve rainwater (see Plate 9). Cisterns were often installed in the larger houses for the collection of rainwater as well. Water was also brought into the town via an 'aqueduct' from the Wadi Caam for the public baths and for the fountains. Provision was also made for the removal of sewage and other forms of waste. The coastal sites also benefited from supplies of underground water which made it possible to support an urban population (Haynes 1981: 14).

Haynes (1981: 14) describes many other climatic problems which faced both the peoples of ancient Tripolitania and those of modern day Libya, such as the Ghibli, 'the scorching, sand-laden south wind', which can wreak havoc on plants and torrential rainstorms and can shift tonnes of top soil to the desert where it turns into dust. Some of the soil comes from weathered basalts, originating from the plateaux, which are sufficiently nutrient rich and when mixed with the aeolian loams and sands can become redeposited in the channels of the wadis (Barker and Jones 1980-81: 14).

The countryside of Libya and Tripolitania has been described by various classical authors. Strabo (*Geography* 17. 3. 1) writes that 'the greater part of the interior and of its ocean-coast is desert, and it is dotted with settlements that are small, scattered, and mostly nomadic; and in addition to its deserts, its being a nursery of wild beasts drives out people even from land that could be inhabited; and it overlaps a considerable part of the torrid zone.' Herodotus (*History* 4.175) wrote of the 'Hill of Graces' as being wooded but he thought this was not typical as 'all the parts of Libya I have previously described are quite bare'. Sallust (*Jugurthine War* VIII 76-79), comments on the deserts which were between Tunis, Lepcis Magna and Cyrenaica whilst Lucan claimed that ' for all the expanse of dry sand that divides burning Berenicis from the lesser heat of Leptis knows nothing of leaves; for Ammon has taken all the trees for himself' Lucan (*Pharsalia* IX). Another physical aspect of the landscape is the Gebel, which is the edge of the Saharan plateau and has been described as being the dominant feature in the Tripolitanian landscape (Haynes 1981: 13). The Gebel goes as far as Games in Tunisia and to the west of Lepcis Magna.

Agriculture.

The Carthaginians have been credited with the introduction of agriculture to this area (Raven 1993: 25). The Gebel was a fertile region where the majority of the olive trees were cultivated (Goodchild 1950: 5). The propagation of olives in the ancient world is well attested to by such authors as Pliny (*Natural History* XV 1-34). Pliny, in his Natural History, collated facts on the history and production of olive oil. He described the different qualities of oil and how it should be produced as well as its many uses. Columella, writing his *On Agriculture* (vi-ix), provides advice on how farm storehouses should be designed and built in order to keep agricultural produce, such

as olive oil and wine, in the best possible condition. The authors provided advice on how to grow, harvest and process the olives, including the maintenance of milling machinery. Masonry remains of oil processing buildings have been discovered in Tripolitania.

The olive tree seems to have been an excellent choice as an agricultural staple as it is extremely hardy and for the most part needs very little nurturing other than the harvesting of its fruits. Other crops can be grown amongst the trees, a practice that is still carried on in many parts of the Mediterranean today. Some of the wealth of Tripolitania would have come from the production of olive oil and vast quantities of it were produced for the Roman market. Olive oil had many uses besides its obvious culinary ones; it was the primary lighting fuel and, furthermore, it was used in the production of perfumes, cosmetics and skin oils (Mattingly 1988a: 33).

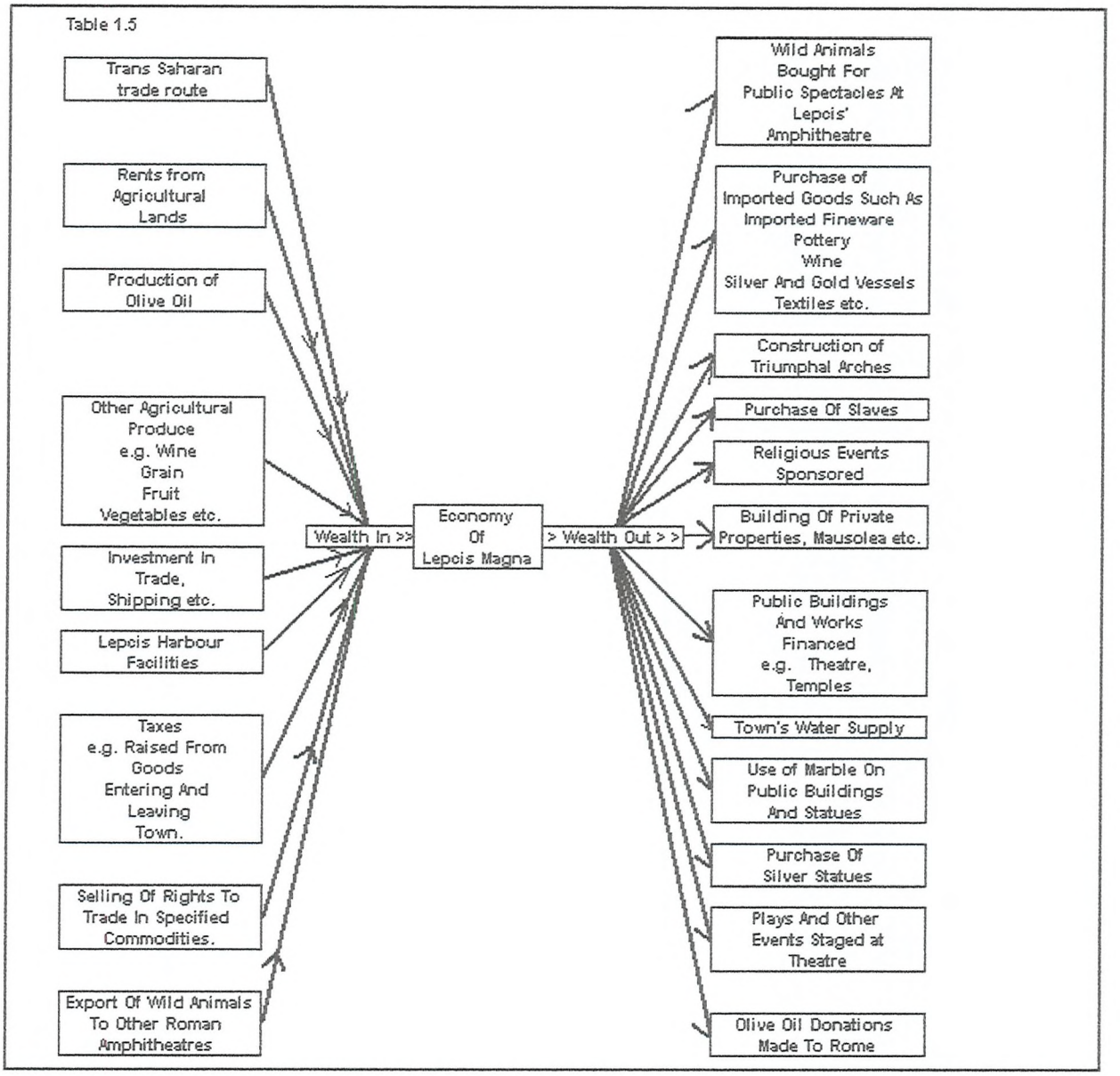
During the second century AD, under Roman influence, the production of olive oil was increased even further and land previously held by local tribesmen was planted with olive trees. Some of these tribesmen were encouraged to move onto land which had not been farmed before and to cultivate it; an inducement of not having to pay tax on the vines and olive trees until they were mature was offered to them in return. This increase in land being brought under cultivation is corroborated by second century AD epigraphic evidence from the Bagradas valley, Tunisia, which stated that, 'An olive orchard may be planted and cultivated in such place where a person brings uncultivated land under cultivation on the following terms: he shall be entitled to retain full possession of the crops of the olive orchard thus planted for the next ten harvests after such planting.....' (CIL, Vol. VIII, No. 25,902). During the third and fourth centuries AD the majority of olive oil being consumed in Rome no longer came from Baetica but instead came from North Africa (Keay 1988: 104).

One useful primary source of information about the production of olive oil comes from the *tituli picti,* which were painted onto some of the Tripolitanian amphorae. A number of Tripolitanian amphorae were excavated in Pompeii and the *tituli picti,* written in neo-Punic, identified the contents as being olive oil (*shmn*) (Mattingly 1995: 154). Mattingly has used this *tituli picti* on Tripolitanian amphorae, to compile information about the leading families of Lepcis Magna and their land holdings. Four of the amphorae from the Lepcis Magna assemblage, all of which were manufactured in Tripolitania for the transportation of oil, were marked in someway, three with partial stamps and one with possible *tituli picti.* Unfortunately it proved impossible to decipher them.

Trade and Economy.

To illustrate aspects of the Lepcis Magna economy Table 1.5 has been devised and it illustrates how wealth could have been brought into the town and what that wealth could have been used for.

Table 1.5



Besides having good port facilities, Lepcis Magna was also the starting point for the trans-Saharan caravan route to the Fezzan, from where supplies of precious stones, gold, ebony, ivory and slaves could be obtained. However, Mattingly has cast doubt on whether the, 'scale and importance in the regional economy were as great as sometimes imagined' because assumptions are made that desirable goods were available for purchase and that 'the chronology of the pacification of the desert tribes occurred after the date at which the major towns were already showing signs of considerable wealth' (1995: 156). The archaeological evidence for such a trade is limited. Many of the exotic animals destined for slaughter in the Roman amphitheatres would have passed through Tripolitania on their way to Italy and elsewhere. This animal trade is recorded in the mosaic pavement of a portico, depicting an elephant accompanied by an inscription, which was excavated in the *Piazzale Delle Corporazione,* Square of the Guilds, at Ostia (Macadam, 1994: 367). This surviving mosaic pavement illustrates that there were trading links between the towns of Sabratha and Ostia (see Plate 10) and that Tripolitania was involved in supplying animals for the amphitheatres. However, very little other archaeological evidence has survived to confirm this

trade, as has substantiation for the benefits of the trans-Saharan trade to the Tripolitanian towns, but it has been suggested that the so called 'Hunting baths', a name derived from the hunting scenes depicted on the mosaics, at Lepcis Magna may have belonged to a group of merchants who were involved in the animal trade (Ward-Perkins, 1994: 382).

Mattingly (1995: 138) argues that much more archaeological and literary evidence has survived for its agricultural trade and he has written much about the agricultural economy of Tripolitania. He believes that during the Roman period the crops such as cereals, vines and olives continued to be grown as before but now they were grown on a much larger scale and he sees this as a move from subsistence to the production of surpluses which could then be sold. He cites the depiction of cereals, horse rearing, sheep, market gardening and olives on some of the coastal villa mosaics to illustrate that a variety of agricultural activities were being undertaken (1995: 143). Such depictions, however useful, can not indicate the scale of agricultural production. Mattingly also believes that much of the land was held by a small number of Lepcis Magna families.

Lepcis Magna was linked by roads to the interior and to other coastal settlements. Evidence for one of the Lepcis Magna roads comes in the form of a limestone column, which marked the start of the Gebel road. The inscription testifies that the road, which was 44 miles long, was engineered during the proconsulship of L. Aelius Lamia (AD 15 -16). Mattingly suggests (1995: 140) that this distance may have marked the limits of the town's *territorium* and could have been where many of the town's olive trees were cultivated. He also estimates that Lepcis Magna had an area of some 3000-4000 sq. km. of agricultural territory (1995: 143).

UNESCO Libyan Valleys Survey and olive oil production.

Looking briefly beyond the confines of the town, extensive work has been carried out in the Libyan hinterland by the UNESCO Libyan Valleys Survey (ULVS) during the 1980's. The survey, which took place between 1979 and 1989, originally came into being at the request of Colonel Gaddafi. The ULVS undertook 'fieldwork in Tripolitania in order to investigate the long-term relationships between settlement, land-use and environment on the desert margins' (Barker, 1996: 1). The different types of historical settlement in Tripolitania were identified and the chronology of their development examined and established. The agricultural methods employed in the Romano-Libyan period were also investigated. The team also produced a gazetteer of the sites they had investigated and also provided analysis of some of the pottery recovered and identified from various sites (Barker and Mattingly: 1996).

The survey has explored the potential for the re-development of agriculture in Libya. During the survey, much information was gathered on the agricultural practices of the Roman period. One of the greatest problems both today and for the farmers of the past was that of water supply.

Archaeological evidence has been found, on some of the Roman farms, to show that barrages were built in order to control the water from the wadis and to prevent soil erosion. Silt trapped in the barrages could then be used to form terraces on which fruit trees and vegetables could be grown. Cisterns were also built to store some of the excess rainwater.

The ULVS survey team has been particularly interested in two different kinds of site, *the opus Africanum* farms and the *gsur*. The *opus Africanum* farms tend to belong to one of two kinds. The courtyard farm had a rectangular enclosure with more than one entrance and between 2 to 12 'rooms' or spaces attached to the enclosure walls. These farms tended to be found mostly in the northerly wadis. The other form was more open, with a number of small buildings with only a few rooms each, and was more widely built. The farms were usually undefended and were generally built close to good wadi soils. The *gsur* were fortified tower like buildings which seem to have been built during the late second century to third centuries AD on defensible positions and also they had small settlements associated with them. The pottery evidence supports the theory that the farms were earlier in date than the *gsur* (Dore 1995: 147).

Remains of many olive oil presses have been found, during the survey and on one site, LM 4, presses, vats and tanks were recognized (Mattingly 1995: 148). Mattingly has estimated the number of olive oil presses in Lepcis Magna alone to have been in the region of 1500, each capable of producing up to 10,000 litres of oil in a good season. This meant that 15,000,000 litres of oil could have been produced annually and perhaps as much as two-thirds of this amount, according to Mattingly (1988a: 37), could have been available for export.

Large quantities of Tripolitanian I amphorae have been identified at *Monte Testaccio* in Rome and at Ostia. (Southampton University Roman Amphorae: a digital resource: Keay and Williams 2005). However, Mattingly (1995: 153) thinks that this Tripolitanian oil would have only been a small percentage of the total oil required by the consumers of Rome. Mattingly (1988a: 37) has identified, what he believes to be, a number of possible oileries on large estates which could have been involved in large-scale oil production. One such site, Senam Semana, had 17 oil presses whilst at Henchir Sidi Hamada evidence for 9 such presses have been discovered.

Whether Mattingly has over emphasised the importance of the olive oil trade to the Tripolitanian economy cannot be determined. However, an analysis of the assemblage of Lepcis Magna amphorae, see Chapters four and five, should provide us with additional evidence either to support or to reject his hypothesis.

Chapter Two - Background.

The extant remains of Lepcis Magna seem to have fared badly in the last four hundred years. To call the early work carried out at Lepcis Magna 'archaeological excavation' is perhaps being over generous. The work carried out more closely resembled treasure hunting and architectural plunder. These kinds of ransacking activities were not unique to North Africa but were common practice on most classical sites in Europe, such as Pompeii and Herculaneum, in the eighteenth and continued even into the nineteenth century.

In Lepcis Magna a large proportion of the marble columns and slabs were removed on the orders of the French Consul, Lemaire, in the years following 1686. The consul seems to have regarded Lepcis Magna merely as a quarry site without any concern for its historical importance. Many of the marble columns were sent to France where only a few of them were re-used as columns. The majority appear merely to have been used as mundane building materials. Other Lepcis Magna columns are reported to have been sent to other locations in Europe, including Britain's Virginia Water (Lane, 2004: 67- 94). A further forty-eight columns were used in the building of the Murad Agha Mosque, Tajura. One column, (see Plate 11), which apparently did not complete its intended journey, still lies abandoned on the seashore to this day. The plundering of architectural material carried on into the twentieth century as Walda's 1996 excavation revealed. Robber trenches to the west of the theatre showed from where sandstone blocks had been removed, possibly as late as the 1930's (Walda 1997: 294).

Bruce's dismissive description of Lepcis Magna (see Chapter 1), however, may as well be true if we consider the scant amount of public attention and the limited excavation work that has been carried out in this important North African town. Bianchi Bandinelli (1966: 15), in his introduction to his book on Lepcis Magna, writes, 'This book, for example would have been very different if it could have drawn on the resources of a scholarly appraisal, or a series of proper excavation journals.' A detailed survey and plan of the town was made by a Captain H. W. Smith in the nineteenth century but was never published (Bianchi Bandinelli 1966, 62). Perhaps this 'oversight' occurred because Smith himself was also too busy plundering the site and sending sculptures and columns back to London. Some of the principal published historical accounts are listed in Table 2.1.

Table 2.1 - Listing some of the principal published historical accounts of Lepcis.

Table 2.1	Year	Author	Theme
	1836	J.D. Delaporte	An illustrated account of Lepcis Magna
	1845	H. Barth	Description of antiquities
	1873	Archduke Salvator of Habsburg-Lothringen	Identification of buildings
	1877	Rae	Identification of buildings
	1899	M. Durand	Description of Lepcis Magna, republished
	1902	Lemaire	North African coast, republished

By 1910 a more structured approach to archaeology in Libya was being initiated by the director of the Missione Archeologica Italiana, Halbherr, and after the Italians seized power in Libya

following their war with Turkey. Archaeological excavation at Lepcis Magna, and indeed throughout Tripolitania, eventually became far more organised and a Superintendent of Antiquities was appointed. The names of these superintendents are listed in the table below together with their main areas of excavation interest where known. Each of the superintendents would also be complementing and continuing the work undertaken by his predecessor. At this time excavation work tended to concentrate on the towns like Lepcis Magna and Sabratha, which over the centuries had been buried by sand, rather than on the smaller hinterland settlements. In 1939 Libya became part of the kingdom of Italy.

A comprehensive description of many of the monuments, listed in Table 2.2, is given by Vergara Caffarelli and Caputo (Bianchi Bandinelli 1966).They also provide a lengthy interpretation of the artistic elements of the major buildings.

Table 2.2 - Superintendents of Antiquities.

Year	Superintendent of Antiquities	Principal work carried out in Lepcis Magna
1913-1919	Salvatore Aurigemma	
1920-1923	Pietro Romanelli	Exploratory & systematic excavation of town.
1923-1928	Renato Bartoccini	Severan Arch, Hadrianic Baths, Liber Pater apse in Severan Basilica, Harbour.
1928-1936	Giacomo Guidi	Forum Vetus, Harbour, Nymphaeum, Market, Chalcidicum, Severan Basilica
		and Hercules apse.
1936-1951	Giacomo Caputo	Severan Basilica & conversion to Church, excavation and restoration of
		Theatre & Chalcidicum.

Following the allied victory at El-Alamein, from 1943 onwards, the British archaeologists worked alongside their Italian colleagues. The Department of Antiquities for the British Military Administration was managed by J.B. Ward-Perkins and he was responsible for beginning a topographical survey of the region. Together with J.M. Reynolds they collected and published data on 'The Inscriptions of Roman Tripolitania' in 1952.

Excavations, as already stated, were carried out by Ward-Perkins in Lepcis Magna in 1951. Ward-Perkins, at this time, also undertook an exhaustive examination of the Severan buildings, the results of which were eventually published, posthumously, in 1993. Only selected parts of this 1951 excavation were eventually written up and published. There is an absence of published detail on the actual excavation itself and the associated archaeological finds and this has been a major reason for the undertaking of this review and indeed for this thesis itself. However a number of papers were published after the excavations were completed and these papers apparently draw on information from the excavations e.g. Ward-Perkins (1951b) and Ward-Perkins and Goodchild (1953). Further details of other relevant articles can be found tabulated on page 37.

One of the most useful literary resources currently available for the study of Libyan archaeology is the annual report issued by the Society for Libyan Studies which was first published in 1970. The society took as its mandate the responsibility 'to bring about the continuation and completion of archaeological work undertaken in the country in the last twenty-five years' (Cumming 1970: 6-11). The same article summarised British involvement in Libyan archaeology between the years

1943 and 1970. However, only a passing reference is made to the 1951 excavations at Lepcis Magna. A list of the British Antiquities Officers has been extracted from this article and is given below in Table 2.3 It highlights some of their main contributions to Libyan archaeology where known. During this period, one of the now classic guidebooks to Tripolitania was written by Major D.E.L. Haynes, (Haynes: reprinted 1981), the then Antiquities Officer.

Table 2.3 - A list of the British Antiquities Officers.

Year	British Antiquities Officer	Main contribution to Libyan Archaeology
1944	Major C.G.C. Hyslop	Guide book to Cyrenaica.
1945	Major D.E.L. Haynes	Guide book to Tripolitania.
1946	R.G. Goodchild	Christian antiquities of Tripolitania, road system, Limes.
1950	C.H. Johns	Controller of Antiquities.

The main brief of the Antiquities Office was to look after the monuments already excavated by the Italians but limited fieldwork was also being started in the pre-desert areas. In fact extensive fieldwork outside of the main Roman towns was soon undertaken by Goodchild (Brogan 1970: 6-7) who was particularly interested in the road system and the *Limes*.

In 1950 Goodchild described Tripolitania as particularly interesting since its Roman towns were located on the coastline and were predominantly influenced by the Mediterranean style whilst inland there was a blend of Roman and Libyan elements. He identified Roman villages bordering a Roman road whilst in the hinterland Roman farmhouses and mausolea have been recognized as well as cisterns and irrigation channels associated with the preservation of water for agricultural purposes (Goodchild 1950: 5).

Some other important publications and articles from this period are listed in Table 2.4. They have been selected, because of their particular importance to Lepcis Magna.

Table 2.4 - Important publications related to Lepcis Magna.

Year	Author	Title
1948	Ward-Perkins, J.B.	Severan art and architecture at Lepcis Magna.
1949	Ward-Perkins, J.B. et. al.	The Hunting Baths at Lepcis Magna.
1950	Goodchild, R.G.	Two monumental inscriptions of Lepcis Magna.
1951	Reynolds, J.M.	Some inscriptions from Lepcis Magna.
1951a	Ward-Perkins, J.B.	Tripolitania and the marble trade.
1951b	Ward-Perkins, J.B.	Excavations at the Severan Basilica at Lepcis Magna.
1951c	Ward-Perkins, J.B.	The art of the Severan age in light of Tripolitanian discoveries.
1952	Reynolds, J.M. & Ward-Perkins, J.B.	The inscriptions of Roman Tripolitanian.
1953	Goodchild, R.G. & Ward-Perkins, J.B.	The Roman and Byzantine defences of Lepcis Magna.
1953	Ward-Perkins, J.B. & Goodchild, R.G.	The Cristian antiquities of Tripolitania.
1954	Goodchild, R.G.	Tabula Imperii Romanii.
1955	Reynolds, J.M.	Inscriptions of Roman Tripolitania:a supplement.
1965	Goodchild, R.G.	The unfinished 'Imperial' baths at Lepcis Magna.

In December 1951 Libya became independent and Ernesto Vergara Caffarelli was asked to become the Director of Antiquities, a post which he held until his death in 1961. Vergara Caffarelli had excavated at a number of locations inside Lepcis Magna including the Temple of Serapis, the market portico and a bath building. He was responsible for completing the work on the Christian Church, which had been begun by British archaeologists. Work was also resumed, during his tenure, on the excavation of the amphitheatre.

Excavations were also undertaken by T.H. Carter, D. Cronower and the University Museum of Philadelphia in 1960 and 1961 in the vicinity of the Forum Vetus. The excavators discovered pottery, some of which they thought could be dated to the seventh century BC when they were searching for the remains of the Phoenician settlement (Carter 1965: 123). Carter's report details the buildings discovered by the teams as well as describing the various different pottery assemblages. Between 1962 and 1965 Di Vita became the new Libyan archaeological consultant and, in 1964, the route of the *limes* between southern Tunisia and Lepcis Magna was explored by N. Hammond and P. Bellwood. This important archaeological consultant's post was later held by D. Baramki and subsequently by Tahr Baki (Di Vita 1999: 10).

Another resource relevant to this research, which could be seen to complement the earlier article by Brogan (1970: 6-11), cited above, is the article written by G.D.B. Jones in 1989, again published in *Libyan Studies*. This provides details of a number of excavations relevant to Lepcis Magna that have been carried out both in the town and in its environs in more recent times. The article highlights the discovery of the remains of a mid-second century villa which were found accidentally in 1972, when work began on a new building, in the vicinity of Lepcis Magna. This villa was excavated by Di Vita (Jones 1989:95) who subsequently found that the villa had been built over the remains of an earlier harbour mole.

This particular article also highlights the usefulness of aerial photography (1989: 96) which has resulted in the probable identification of a number of warehouses and storerooms. These are unfortunately no longer visible for study on the ground due to the encroachment of modern buildings. Reference in this article is also made to excavations being carried out on the Flavian temple and Laronde's recognition of part of the Severan harbour construction. These could affect the established view of the size of Lepcis Magna in Byzantine times.

The dearth of new excavations as lamented by White, (1997: 575), has perhaps now been partly addressed as a series of excavations, led by Walda, that took place in Lepcis Magna between 1994 and 1997). The area excavated, close to the theatre, had not been previously dug and it was thought that an Odeion might have been built there. Eventually the remains of a peristyle house, occupied as late as the fourth to fifth century, were revealed. A 13 metre deep well was found within the peristyle court. Finds in the 'kitchen' included amphora sherds, coins, glass, mosaic fragments and the remains of a small lion sculpture. Coin evidence has suggested a date between the late fourth and early fifth centuries AD for the last occupation of this area. The team also provisionally identified two water cisterns and a well (Walda et al. 1995, 1996, 1997 and 1998).

The 1995 excavation revealed that the original peristyle of the house had been divided into smaller units and that these later walls were of inferior quality and may have been the cause of their later

collapse. Further excavation in the so called 'kitchen' revealed deposits of over half a metre. The paved entrance to an 8 metre deep cistern was also exposed. Excavation has also revealed what is believed, by the system of piped water, to be the first recognized domestic toilet in Lepcis Magna. Mud brick walls, which were dated by deposits to the first century, were found beneath the structure of the house in 1996. The archaeological evidence suggests that the site then seems to have fallen out of use for 250 years. The flagstone floor of the atrium was lifted in 1997 and this exposed a system of drains; the cisterns were examined further and revealed evidence of maintenance (Walda et al. 1995, 1996, 1997 and 1998).

These excavations are of particular importance to the study of the development of Lepcis Magna since the majority of the previous excavations have concentrated mainly on the town's monumental buildings, especially those built during the Severan period, and have largely ignored the remains of domestic buildings. More recently developed archaeological techniques, such as flotation tanks, for the study of environmental material, have been used, as well as recording excavation information in three dimensions. The data generated should enhance our understanding of how the town developed, and indeed, possibly how it declined, as well as providing a broader picture of life in the town itself (Walda et al. 1995, 1996, 1997 and 1998). The excavated pottery will be examined in greater detail in Chapter 5.

Bringing this review up to date, the excavations in the Wadi Lebda, carried out by the University of Hamburg in 2005, have found the remains of a mosaic depicting scenes from the amphitheatre, which came from a villa's cold plunge bath (Cosh 2005: 3).

Chapter Three - The 1951 Excavation

The principal aim of this chapter is to examine the available surviving archive evidence, comprising some drawings and the trench labels (which accompanied the excavated material) and, incorporating information from relevant written sources, to produce a structured summary of the evidence for the 1951 excavations at Lepcis Magna.

Perhaps fortuitously during the Second World War, Colonel Mortimer Wheeler and the then Major Ward-Perkins, in their roles as senior British Army officers arrived in Tripolitania, and, realising the importance of the town with its Severan monumental buildings, set about trying to prevent any further damage being done to the site by the Allied troops locally stationed. Ward-Perkins returned to Lepcis Magna after the end of the war and, under the auspices of the British School at Rome, began excavating and recording the surviving Severan monuments. The excavations at Lepcis Magna and the related architectural studies were carried out between 1948 and 1953 by John Ward-Perkins, as already referred to in Chapter 1, whilst he was director of the British School at Rome. This work at Lepcis Magna was carried out at the same time as excavations at nearby Sabratha, under the direction of Kathleen Kenyon.

Kronenburg (Ward-Perkins, 1993) provides some details of the Lepcis Magna architectural archive which had survived in various stages of completion and preservation. This has now been published and it provides extensive information on the Severan buildings. However, the written documentation for the 1951 summer excavations at Lepcis Magna does not seem to have survived nearly as well as the architectural archive. In fact, the notebooks and any contemporary thoughts on the interpretation of the site based on the excavations still remain elusive. A reference to the 1951 excavations however, was made in an addendum by Ward-Perkins (1953) to an article concerning the Christian Antiquities of Tripolitania where he refers to the excavation of Churches 3 and 6, and for which he provides some architectural details and interpretation. Reference to the excavations in the Basilica was also made in a *PBSR* article (1951: 111-121). His detailed studies of the Lepcis Magna buildings have subsequently formed part of several publications including his 'Roman Imperial Architecture' (1994).

Despite the paucity of information on the actual details of the 1951 excavations, it has, however been possible to recreate a certain amount of the stratigraphy of the individual trenches from the information recorded on the original card labels which accompanied the pottery. The information about the trenches, such as their exact location within the town and their relationship to each other will have to remain, at best, imprecise. The trenches seem to have been sited in two distinct areas of the town, the Forum Vetus and the later Severan quarter. The recovered pottery from the two areas seems to have been initially stored differently. The 'Forum Vetus pottery' was in brown paper

bags which had some stratigraphic information pencilled on them, whilst the 'Severan' material was accompanied by labels which had some limited information, such as trench, layer and soil description, recorded on them. This difference in recording methods may suggest that the pottery was excavated during different seasons. If this was indeed the case it probably will not make too much difference to the subsequent analysis of the pottery if it is assumed that the same methods of recovery and selection of pottery were carried out in both areas of the town.

A few index cards have also survived which seem to relate to pottery from trench 22. It has not been possible to ascertain whether these cards were written contemporaneously with the excavation or were written later in an attempt to start the post excavation report. Using the method described in the Sabratha report (Dore and Keay 1989: 4) I have been able to partly decode the Lepcis Magna cards. For example, I believe that, Y II i 6, can most likely be interpreted as: Y= North Africa, II = Lepcis Magna, with 'i' representing a particular location, in this instance trench 22. However, it has been suggested (Dore and Keay 1989) that the Roman numeral could also represent a time frame within an area. The 6 could represent a particular context or group of contexts, in this instance layer 6. However, as these 'identifiers' only seem to exist for a small proportion of the pottery from one layer and in the absence of any other original recorded information this system cannot usefully be employed with the Lepcis Magna material.

Table 3.1 (see CD-ROM) provides a possible reconstruction of some of the 'Severan' trenches in terms of their makeup and location, based on the information recorded on the labels. It should be noted however, that this is not a completely accurate picture as not all of the trenches and layers seemed to have contained pottery and therefore a stratigraphic label was not included for them. Fortunately a few of these omissions could be filled in from the accompanying 'small finds' labels but the soil composition of some layers will remain unknown unless the notebooks can be located.

Table 3.2 (see CD-ROM) provides similar information on the excavations carried out in the Forum Vetus. As I began processing the Forum Vetus pottery, which included washing and marking the sherds with their trench locations, as well as entering information into a database (see Chapter 4), I deemed it necessary to add my own 'reference numbers'. These reference numbers were assigned to try to differentiate in some instances between numbers of bags of pottery which were simply labelled LM FV (Lepcis Magna Forum Vetus). These additional identifiers could prove useful when it is necessary to combine all of the LM FV pottery back together for analysis, or when each small assemblage of sherds needed to be analysed separately. A certain amount of conjecture has had to go into translating certain abbreviations, for example, NET has been interpreted as the north east temple and TRA as the temple of Rome and Augustus. A set of index cards has also survived which relate to some of the finds from the Forum Vetus. I have taken the information from the cards and tabulated it in Table 3.3 (see CD-ROM); unfortunately, as can be seen, some of the

information is at best, ambiguous and incomplete. However, it has been possible to cross-reference some of these 'Z' numbers to the information that was recorded on the paper bags and these reference numbers are included in the table.

A number of the original plans and section drawings for the excavation were eventually located at Manchester University where they were being stored. Some of the trench section drawings are still missing but there are section drawings from areas from which apparently no pottery was recovered. These particular section drawings have helped to create a more detailed and complete picture of the site. The section drawings have now been re-drawn and can be found in appendix 10.

Once again a caveat needs to be inserted here in respect of over simplified labelling, especially when other relevant documentation becomes lost. For example, the location for trench 1 refers simply to a 'church' when in fact a number of churches were built in the town. However, I have interpreted this, with the aid of the section drawing, see appendix 10 and the town plan (see page 43), as being Church 3, which was built between the north-west wall of the Colonnaded Street and the south-west wall of the Severan Forum - one of the four small churches built by Justinian. Trenches 21 and 22 simply refer to a portico; once again I have taken this, with the aid of the section drawings and a coin small find to be the Portico of the Colonnaded Street. If in the event the location of the trenches have not been identified correctly, although it will have repercussions when the sherd distributions across the town are examined by location and plotted as pie-charts, see Chapter 5, it should not affect the results when groups of pottery i.e. the amphorae are analysed as a single assemblage.

Table 3.4 records whether the following trenches section drawings have survived.

Table 3.4 Recording whether trench section drawings have survived.

Trenches	Location	Section	Trenches	Location	Section	Trenches	Location	Section	Trenches	Location	Section
1	Church	yes	13	Piazza	no	31	Piazza	no	25	Palaestra	no
2	Church	yes	14	Piazza	no	4	Nymphaeum	yes	26	Palaestra	no
3	Piazza	no	15	Piazza	no	9	Nymphaeum	no	27	Palaestra	no
7	Piazza	yes	16	Piazza	no	21.101	Col. Street	yes	29	Palaestra	no
8	Piazza	yes	17	Piazza	no	21	Portico	yes		Severan Bas	no
10	Piazza	no	18	Piazza	no	22	Portico	yes			
12	Piazza	no	19	Piazza	no	23	Palaestra	no			

Figure 3.1 and Table 3.5 provide a list of the key architectural features of the town and a plan of the town features (Haynes 1981). The plan shows the position of some of the major buildings of Lepcis Magna.

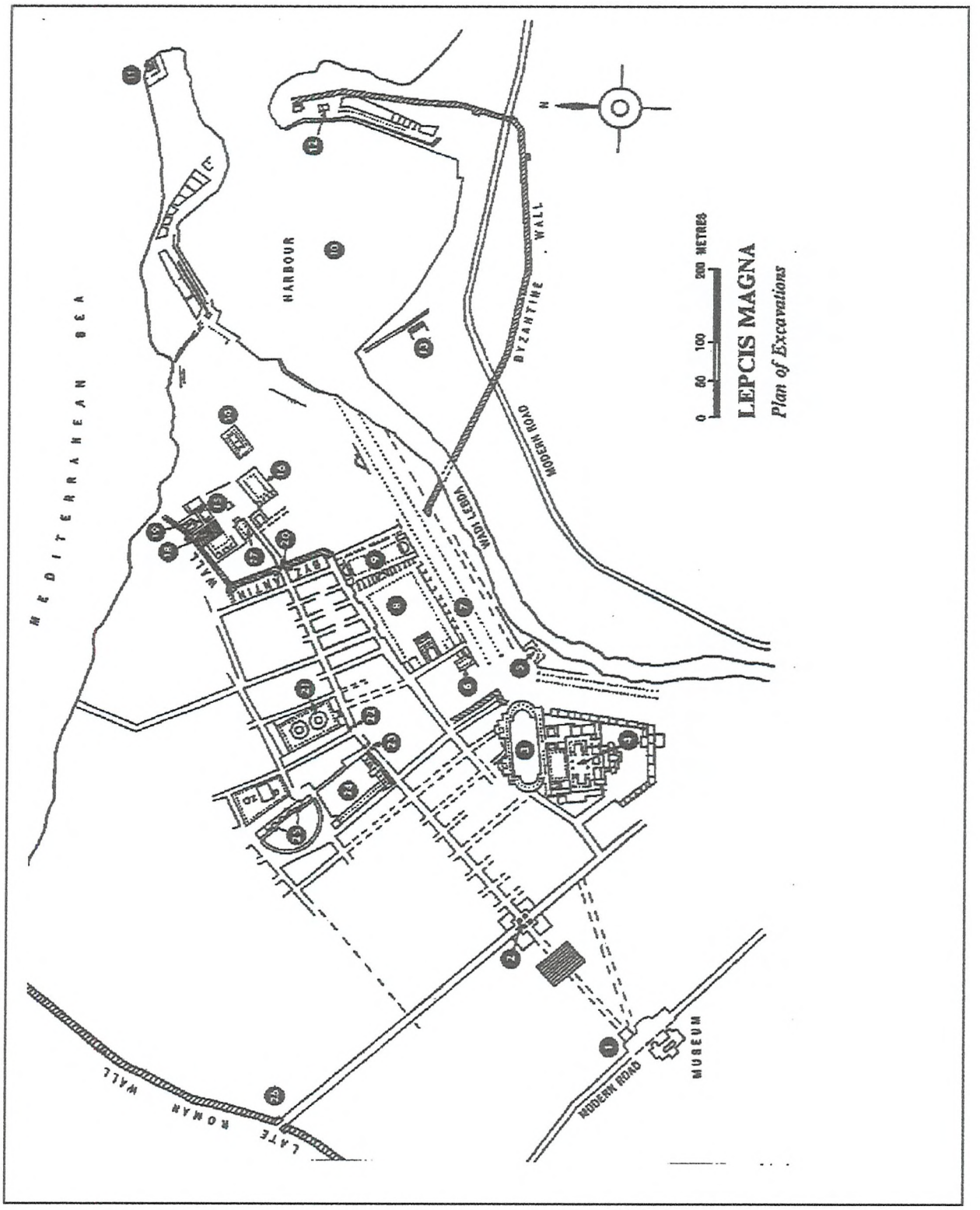


Figure 3.1 Plan of Lepcis Magna (after Haynes 1981).

Table 3.5 - Listing key architectural features of the town.

Key to plan of Lepcis			
2 Severan Arch	9 Severan Basilica	16 Basilica	23 Arch of Trajan
3 Palaestra	10 Harbour	17 Old Forum Church	24 Chalcidicum
4 Hadrianic Baths	11 Lighthouse	18 Temple of Liber Pater	25 Theatre
5 Nymphaeum & Piazza	12 Doric Temple	19 Temple of Rome & Augustus	26 West Gate
6 Church	13 Temple	20 Byzantine Gate	27 Circus
7 Colonnaded Street	14 Curia	21 Market	28 Amphitheatre
8 Severan Forum	15 Forum Vetus	22 Arch of Tiberius	29 Hunting Baths

Numbers 3, 5, 6, 7, and 9 are of particular interest and relate to the general area where the 'Severan' trenches were located.

Number 15 marks the location of the Forum Vetus, the other main source of excavated pottery. The plan is also useful in seeing which parts of the town were selected for excavation in 1951 and which areas were not sampled. In the absence of the excavation notebooks, the planning strategy behind the precise location of each of the trenches will have to remain unknown.

A more detailed view of the Forum Vetus is provided in Figure 3.2 (Ward-Perkins 1981). This plan helps to clarify some of the abbreviations and the more cryptic comments which were written on the paper bags referred to above (see Table 3.2). The town plan also helps to locate from where the pottery was excavated.

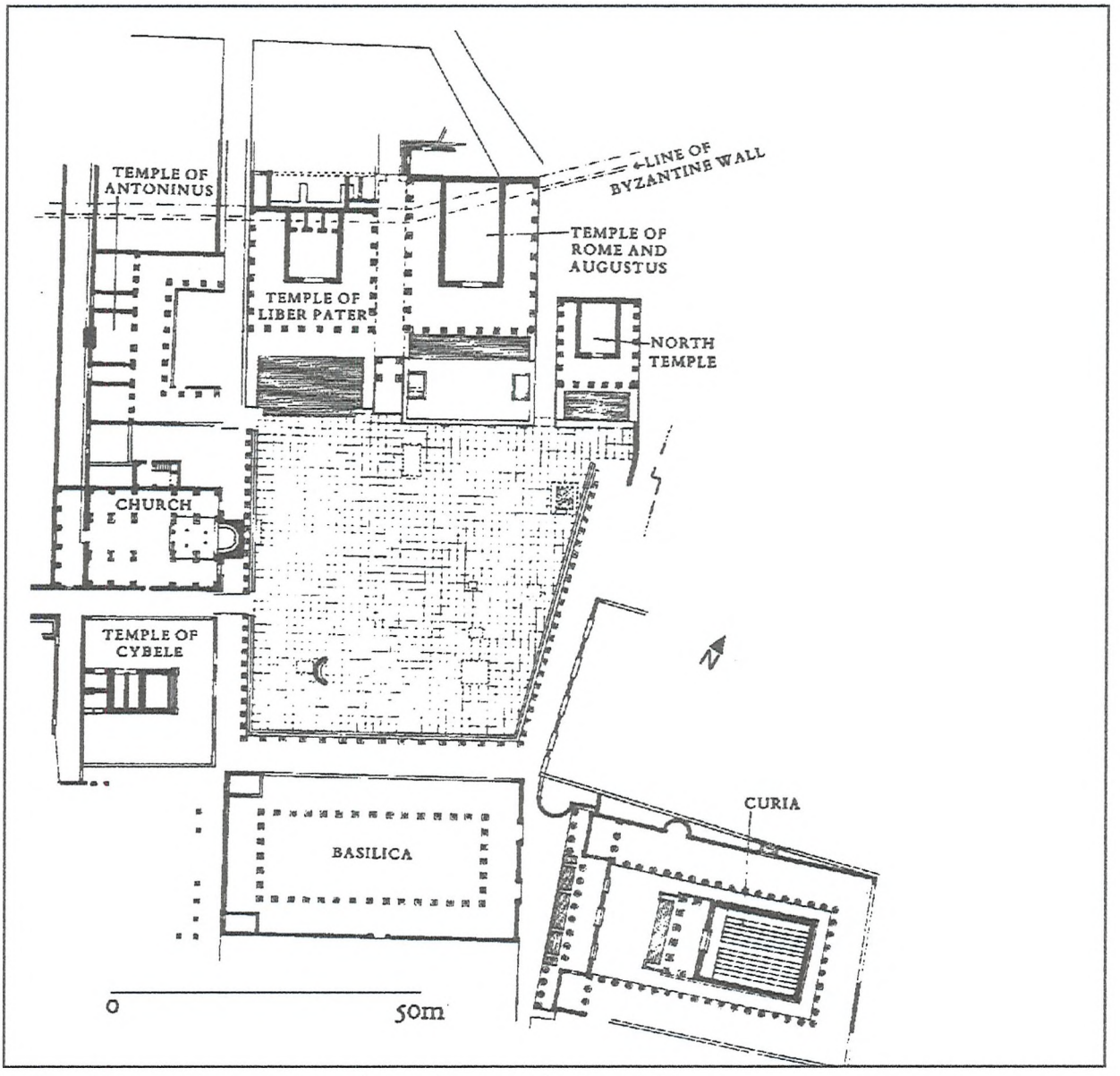


Figure 3.2 Plan of the Forum Vetus (after Ward-Perkins 1981: Figure 242).

It has been possible to create a partial reconstruction of some of the 1951 trench stratigraphy, see Tables 3.1-3.3 on the CD-ROM, has proved to some extent to be successful, it has not been possible to create a complete picture of the excavation in the continuing absence of contemporary written documentation. The precise rationale for the location of the trenches and the questions they

were intended to answer will have to remain unknown though it is safe to assume that the trenches were positioned so that further information about the layout and construction of the Roman town could be collected.

The positioning of trenches in other parts of the town may possibly have led to the finding of different quantities and proportions of pottery types. However, assumptions have had to be made that the actual pottery recovered was a representative sample of all of the pottery that was in circulation in the town. An examination in qualitative and quantitative terms of the pottery will be undertaken in the following chapters in order to see what information they can reveal about the town of Lepcis Magna, its place in Tripolitania and perhaps its wider role as a town of the Roman Empire.

Chapter Four - The pottery assemblage and its distribution across the excavation.

4.1 - Background and Approach.

The principal aim of this chapter is to examine the nature of the pottery assemblage and hence devise a procedure for the systematic recording and initial analysis of the pottery excavated at Lepcis Magna so that quantification can be undertaken. This will be achieved by recording information from each pottery sherd into a database and an example of such a database record is shown on page 49. The database facilitates a comprehensive examination of where the pottery was excavated from so that locations, counts and weights can be quantified and studied to see whether, for example, there was anything unusual about the way the pottery was deposited across the site. The Lepcis Magna pottery assemblage consisted of amphorae, finewares, coarsewares; shallow casseroles/pans, deep casseroles/pans, large narrow-mouthed jars, miscellaneous small jars and beakers, braziers, large lids, small lids, small and medium bowls, dishes, medium and large bowls, large bowls/basins, unguentaria, jugs, flasks and flagons.

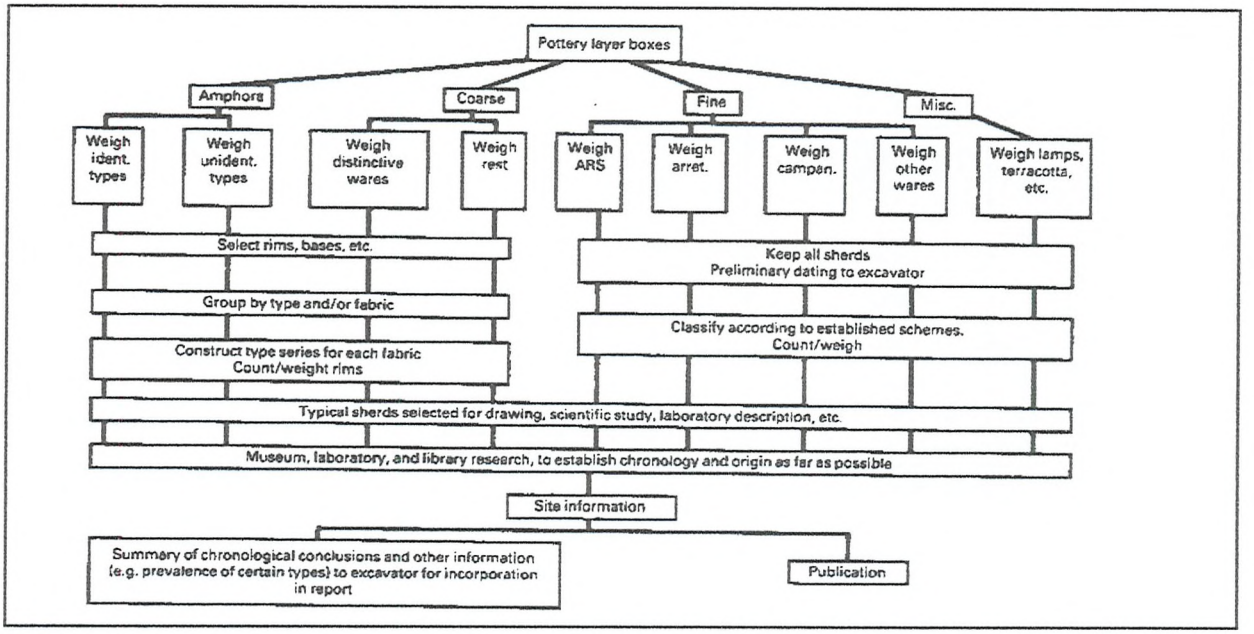
Kenrick (1986: 2), in his introduction to the report on the excavations at Sabratha, records that only half of the finds from that excavation were actually brought back to England, the remainder being kept by the Libyan Government. Whether this division of the assemblage was also true for the Lepcis Magna collection of pottery and associated small finds is not known but the quantity of pottery recovered from Lepcis Magna is much smaller than that from Sabratha. However, this may be more to do with the relative scale of the two excavations rather than on relative quantities brought back to England. The assumption that the excavated pottery assemblage is representative of the total pottery which was in general use lies behind this analysis; the validity of the analysis thus depends on the degree to which the assumption is correct.

However, it is perhaps not strictly true in another sense to call it a 'complete assemblage', since the recovered pottery assemblage from Lepcis Magna does seem to be biased in favour of rims. Rims may have been selected for keeping and for further analysis as rims can be more readily identified and can be more diagnostic of form. Dore writing about the composition of the Sabratha coarse pottery points out that the Sabratha assemblage was 'largely composed of rim sherds'; he believes that 'the discarding of most of the wall and base sherds probably took place very soon after the material came out of the ground though additional screening may have been done before transport to Britain.' (1989: 87). A similar selection may be true for the Lepcis Magna assemblage.

In order to begin the quantification and interpretation of the pottery some form of classification was necessary. In recent years a number of studies have been written concerning the methodology of pottery studies. One of the most important contributions to the study of ceramics has been the scheme pioneered at Carthage by Peacock, and shown in diagram form in Figure 4.0, illustrating the pottery processing scheme employed there. Due to the large volume of material, some four

metric tonnes at one site, much of the initial analysis there was based on weight (Peacock 1984: 1-5). As the Lepcis Magna pottery assemblage was relatively small in comparison all of the sherds will be used initially, using elements of the Carthage method, for analysis.

Figure 4.0 - Showing main features of processing scheme (after Peacock 1984: 3).



Topics referred to in the studies above range from the use of simple descriptive statistics to more advanced multivariate analysis. 'As a general rule, the first stage of data analysis should be the use of simple display techniques and descriptive statistics to summarise information on individual variables. Simple graphic descriptive techniques include the construction of histograms or scatter plots to assess variable distributions and interrelations' (Sinopoli 1991: 66). Such simple graphic techniques will be employed initially to describe the Lepcis Magna pottery assemblage.

The primary analysis of the Lepcis Magna material was quantitative in nature and it dealt with the actual counts and weights of pottery recovered. In order to facilitate this analysis each pottery vessel, as represented by one or more sherds, was assigned an individual record in the database. Counting sherds is simple to carry out and record but, paraphrasing Rice, 'there is a need to look for all sherds which belong to same vessel or otherwise counts may be misleading and that there is no guide as to how many pieces a pot will actually break into'(1987: 291). It was decided to assign all of the Lepcis Magna sherds which clearly belonged to the same vessel the same database record number as, in some instances, it was unclear whether some of the breaks in the vessel sherds had occurred in antiquity or in more recent times. This course also seemed appropriate because, for example, in the case of a particular sigillata dish, it was represented by eleven sherds, whilst the majority of other vessels were often represented by just a single sherd. All that remained of one Egyptian amphora, for example, was a single rim/handle fragment, but this was enough to identify its fabric and form. This method, of using 'cross-mended sherds' was considered to be more appropriate when quantities of pottery were to be compared from different locations, as the

statistics were less likely to be biased in favour of more fragile vessels, which were perhaps more likely to break into a greater number of fragments than perhaps some of the more robust coarsewares, or in favour of larger vessels which have the potential to produce many more sherds than smaller vessels.

Different types of vessels could also have different 'life spans'. Fine table-wares, for example, may have been handled more carefully and were not subjected to the kind of thermal shock that cooking wares experienced. Occasionally sigillata bowls have been excavated which show evidence of having been repaired in antiquity by riveting a broken piece back in. The use of a Roman 'super glue' to repair some broken vessels has also been detected (The Ermine Street Guard Associate Newsletter 2008: 6). In contrast cooking wares probably had shorter lives as they may have been discarded when they became too difficult to clean, hence impairing the flavour of the food, or simply because they cracked during cooking. Large storage jars on the other hand, which could be built into shop counters, could survive intact for many years. Orton, Tyers and Vince (1993: 166-167) discuss at length the relative merits and pitfalls of quantifying pottery assemblages as well as discussing the idea of 'completeness' and 'life spans' of pots in an assemblage.

A total of 5188 sherds was recovered from across the Lepcis Magna excavations and these sherds were judged after careful examination to have come from a maximum of 4582 vessels. The maximum number of vessels present was, as Millet describes, 'calculated by counting the number of sherds once all adjacent fragments have been joined' (1979: 77). The exact minimum number of vessels from which all of these sherds came cannot be determined because it is not always possible to say definitely whether, for example, rims and body sherds belonged to the same vessel. However all sherds which were considered to have come from the same vessel were assigned to the same database record and so the minimum number quoted is thought to be close to that of the maximum number of 4582 vessels. In the case of some of the amphora rims and bases, which have been given separate record numbers, it is possible that they may originally have been part of the same vessel. So as not to bias the statistics, the 'counts', quoted below in the various tables and referred to in future chapters, are based on the maximum number of 4582 vessels and not those of the 'total' 5188 sherds. All sherd pieces judged as belonging to the same vessel were recorded as 'one sherd' but the weight quoted is that of the total weight for all sherds which clearly belonged to the same vessel. Sherd weight as Millet says is simple to do and record (1979: 77).

The database

According to Anderson ideally we need to know three basic facts about each sherd of pottery: its 'identity, its date and its origin'(1984: 32). However, the Lepcis Magna database record structure has been designed to record as much information as possible about individual sherds, such as their fabric, form, place and date of manufacture, weight, dimensions etc. A typical record, in this case

one for a Tripolitanian amphora sherd, is illustrated here.

Field	*Explanation*	Data for sherd ARM 135
Location		Piazza
Trlayer	*Trench/Layer*	LPA 12.4
Record	*Record number*	1935
Id	*Identity code*	ARM 135
Dw g	*Sherd drawn*	Yes
Print	*Final print*	No
Finecoarse	*Fine or coarseware*	(A) Amphora
Ware	*Fabric*	NALR North African Lime Rich
Formfunct	*Vessel function*	Amphora
Type	*Typology*	Tripolitanian Early Roman Amphora 11A
Pieces	*Number of sherds*	1
Sherdpart	*Main Sherd part*	Rim
Makersmark		None
Daterange		First Century to Fourth Century
Source	*Region of manufacture*	Tripolitania
Surfacecol	*Surface colour*	*7.5yr8/3
Corecol	*Core colour*	7.5yr5/3
Fabrichard	Fabric hardness	Very Hard
Feel		Smooth
Fracture		Smooth
Frequency Inclusions		Common
Sorting		Moderately w ell
Rounding		subrounded
Surfacetr	*Surface treatment*	Yes
Decoration		None
Rimeve	*Rim e.v.e.*	17.5 %
Rimdiam	*Rim diameter*	14.0 cm.
Baseeve	*Base e.v.e.*	0 cm
Basediam	*Base diameter*	0 cm
Maxdiml	*Maximum dimension length*	0 cm
Maxdimw	*Maximum dimension width*	0 cm
Weight		135g
TS	*Thin section made*	No
Info	*Additional information*	Limestone quartz iron ore inclusions
		* Surface treatment colour - core banded

Estimated rim (and base) equivalents e.v.e.'s were calculated by measuring diameters on a chart and recording the percentage present (Orton, Tyers and Vince 1993: 172). This data facilitated the sorting of the pottery sherds in a number of different ways so that later the relevant data could be extracted, for example, to form typologies and to compile fabric descriptions when required. Each pottery database record consists of 35 fields. The database was also designed to allow for appropriate searches to be made and relevant calculations to be carried out, based on single fields or on a combination of fields. For example, it would be possible to calculate the total weight of pottery in a given layer or to search for the location of specific types of pottery. It was not, however, possible or indeed necessary to complete each field for each vessel. The complete database was compiled in Dbase IV but is presented on a CD-ROM in appendix 13 as a spread sheet. Appendix 2 (see CD-ROM) provides a brief breakdown of the various groups of pottery in the assemblage. The pottery sherds have been allocated to groups which shared some similar attribute such as form or fabric and letter codes have been applied to these pottery groups to facilitate cross-referencing to the database and illustrations. As will be seen later in Chapter 5, wherever possible the pottery assemblage has been cross-referenced to a number of different sources for identification purposes.

The fabrics of the sherds were described using the following attributes:

Table 4.0 - Showing the criteria used for describing the pottery fabrics.

Hardness	Soft	Feel	Harsh	Fracture	Smooth
	Hard		Rough		Fine
	Very hard		Smooth		Irregular
					Hackly
					Laminated
Inclusions					
Frequency	Sparse	Sorting	Well sorted	Rounding	Angular
	Moderate		Moderately		Subrounded
	Common		Ill sorted		Rounded
	Abundant				

4.2 - Preliminary Analyses

The seven pottery categories

In this next section the pottery has been separated into seven different categories and the results are shown in Table 4.1. A more rigorous examination of the pottery vessels, which entails looking at the regions of manufacture and their vessel forms, will be undertaken in the Chapter 5. The deposition and distribution of the various types of pottery will be considered in greater detail later to see if there is anything significant about the way the pottery was dispersed across the town.

Table 4.1 - Showing the seven different pottery categories.

POTTERY GROUP	COUNT	WEIGHT(G)
FINE	653	11436
FINE/COARSE	193	6720
COARSE	2712	98892
AMPHORA	907	84183
THIN WALL	12	72
LAMP	102	1311
GLAZED LUMP	3	60
TOTAL	**4582**	**202674**

a. Analysis by fabric

The first category shown in Table 4.1 is that of the fineware fabrics. The Lepcis Magna finewares are dominated by four main fabric types, the most numerous group, perhaps not unexpectedly given their geographical location, being the African Red Slip Wares which were manufactured in the region of modern day Tunisia. The second largest fineware group is that of the Eastern Sigillata 'A' wares, now believed to have been produced in the Syrian area 'the region of eastern Cilicia north of Iskenderun' (Hayes 1997: 54), closely followed by that of the Black Gloss wares and then the Italian Sigillata wares. There were a number of other fineware fabrics represented in the pottery assemblage but not in any notable quantities and these will be briefly examined later.

The second category, 'fine/coarse', is closely linked with the first 'fine' category as it is really a sub-group of the African Red Slip wares and comprises those vessels which have burnished slip on one face only and those which are completely unslipped. These are the Hayes forms 181-200 (Hayes 1972). Hayes (1972: 200) queried whether these forms would be better classed amongst the local African fabrics rather than with the finewares. Sometimes these two categories will, for the purpose of analysis, be regarded as being separate groups, whilst at other times they will be analysed together (see Chapter 5).

The largest category of pottery was the coarsewares (excluding amphorae), both in terms of

quantity, some 59 % in weight, and some 49% of the total recovered pottery. The second largest group in terms of weight was, not unexpectedly, that of the amphorae. Figures 4.1 and 4.2 illustrate that whilst the number of amphora sherds is much smaller than the number of coarseware sherds, the overall weight of the amphorae is much closer to the total weight of coarseware pottery; again this is to be expected given the relative dimensions, thickness of vessel walls and weights of the amphorae as compared to that of the more general coarseware such as casseroles.

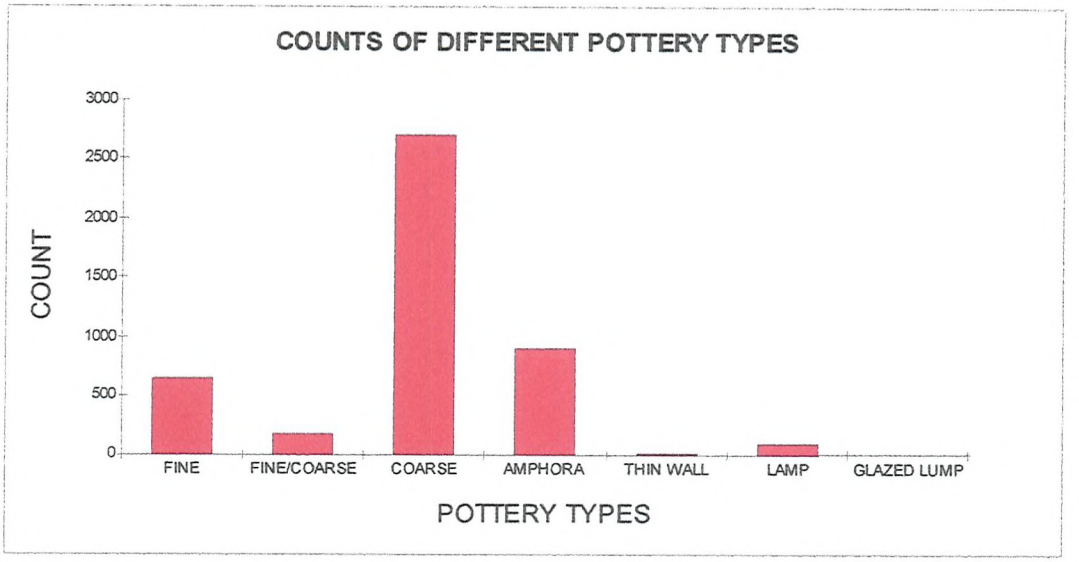


Figure 4.1 - Showing counts of pottery types.

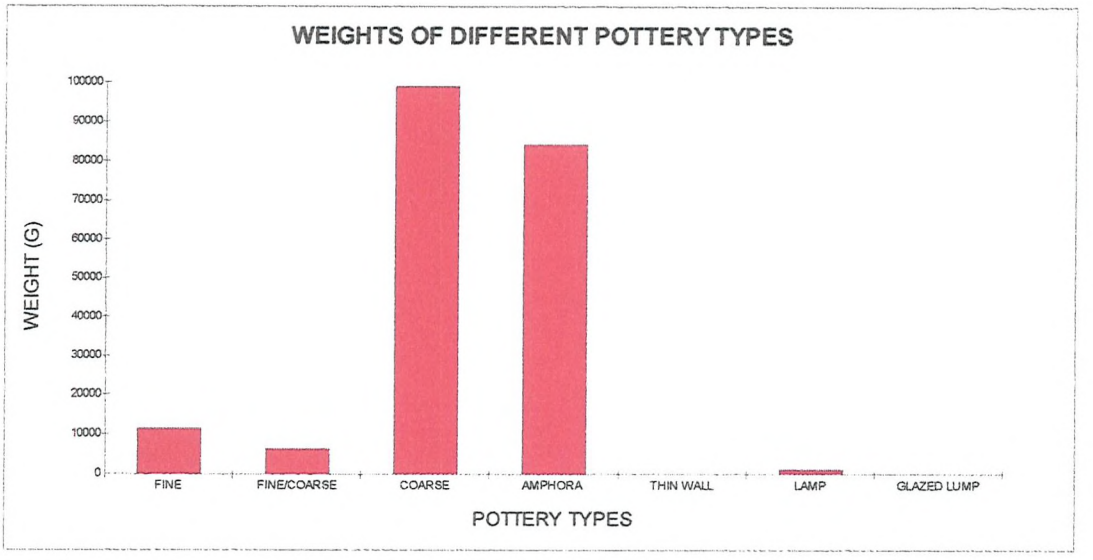


Figure 4.2 - Showing weights of pottery types.

The next distinct group is that of the lamps. A total of 147 lamp fragments have been identified, which were judged to have come from a maximum of 102 individual lamps. The lamps were made from a variety of fabrics, some of which could easily be categorised as finewares whilst other fabrics have been classified as coarsewares, but for the purpose of this analysis they will be regarded as a homogeneous group.

The sherds from 12 vessels from a type of pottery called 'thin walled' were also recovered. The

last category is that of 'glazed lumps'. This refers to three pieces of fired clay which have had a green glaze applied to them. These have been included in this table as form a distinct group in themselves. It is possible that they might be related to the glazed pottery lamps, but as no definite proof exists for this, they will have to remain in a separate category. Two of the pieces were recovered from the Severan Basilica whilst the third fragment came from the Piazza.

The first tables, shown below, contain simple numeric data about location and how much pottery was collected for each trench. However, before any subsequent analysis and interpretation of the data can be undertaken several factors will have to be taken into consideration. For example, some areas of the site appear to have much more pottery than others, but, then again, some areas had a greater concentration of trenches so greater quantities of pottery might therefore be expected.

The strategy which has been employed for dealing with the differences in the quantities of pottery recovered and the disparity between the numbers of trenches was to express the counts and weights as a percentage of the total pottery recovered in a given location, thereby providing a statistic that is independent of the total amount of pottery recovered. However, carrying out this procedure without regard for absolute numbers is not without potential pitfalls. Drawing inferences from data obtained from small samples can be problematic. An assumption had to be made that the pottery itself was randomly deposited across the site, unlike Monte Testaccio in Rome where empty amphorae were dumped (Greene 1992: 17). The relative sizes of trenches is also an important factor to be considered. Larger trenches might be expected to produce more pottery but unfortunately the relevant data concerning size for the majority of the trenches is still not known. To illustrate the results bar charts and percentage bar charts will be used initially. Statistical tests such as Pearsons' product moment correlation coefficient and chi squared will be used when considered appropriate.

b. Analysis by location. - The trenches.

Table 4.2 records the number of trenches per location and it can be seen that the greatest number of trenches was positioned in the Piazza and the least in the vicinity of the Colonnaded Street. From this distribution of trenches one would expect the greatest quantity of pottery to come from the Piazza and the least from the Colonnaded Street and the Nymphaeum and indeed this was the case as can be seen below in Table 4.5. However, an assumption has had to be made that all of the trenches were of similar size and are hence comparable. Making this assumption is necessary because although some section drawings have survived unfortunately no plans have.

Table 4.2 - Showing the location and number of trenches.

Location	Number of trenches
Church	2
Piazza	9
Nymphaeum	1
Portico	2
Colonnaded Street	1
Palaestra	4
Severan Basilica	8

Pottery counts and weights

Table 4.3 provides a detailed list of counts and weights of pottery recovered from each layer in each trench.

Table 4.3 - Pottery counts and weights per location.

TR/LAYER	COUNT	WEIGHT (g)	TR/LAYER	COUNT	WEIGHT (g)	TR/LAYER	COUNT	WEIGHT (g)
CHURCH 1.1	3	63	13.6	3	45	22.2	31	1985
1.2	13	431				22.3	29	1460
1.3	7	120	14.2	109	4137.75	22.5	13	253
1.4	36	748	14.3	109	5112.5	22.6	206	10572
1.5	23	1083	14.4	31	2263	22.12	1	120
1.6	1	15	14.5	10	340	COL. ST.		
1.8	50	2085				21.101	35	3520
1.11	42	1156	17.1	37	2077			
1.12	17	856	17.2	23	1142	PALAESTRA		
1.13	25	1981.5	17.3	29	1324	23.*	1	20
			17.5	62	2417	23.2	17	628
2.1	4	331	17.7	4	135	23.3	20	1112.5
2.3	9	175.5	18.3	33	2889	23.4	4	775
2.3 OR 23. ?	1	20	18.4	4	195			
2.4	21	708.5				26(A)1/2	16	1455
2.4 ?	1	25	31	11	580	26(A)2(C)3	1	100
2.7	4	130	31.1	1	10	26(A)3	29	2548.5
PIAZZA			31.2	2	116	26(A)3 ?	1	50
3.3	14	854.5	31.3	26	1358	26(A)X	42	1646.5
			31.5	13	945	26(B)2	54	2887
7.6	99	4146	PORTICO			26(B)2(C)3	85	3400.5
7.6 & 7.7	1	275	21	26	2676.25	26(B)3	14	715
7.6 & 7.8	1	65	21.1	1	65	26(B)3 OR (C)3	1	25
7.7	152	5721	21.3	33	1610	26(C)1	15	845.5
7.8	14	352.5	21.4	36	2065	26(C)3	79	5156.5
			21.6	10	368.5	26(C)4	17	883
8.3	153	8328	21.10*	56	3525.25	26(D)1	17	1395
8.3 ?	1	95	21.10&21.11	1	35	26(D)2	31	1338.5
8.3 & 8.6	1	170	21.10&21.16	1	60			
8.4	5	230	21.11	113	4013	27.5	28	1388
8.5	28	1265	21.12	45	2540			
8.6	69	4430	21.13	74	3556.5	29.3	18	336
8.6 & 8.7	1	460	21.14	1	35			
8.7	78	4364	21.16	30	1481.5	SEV. BAS.		
8.8	16	769	21.16&21.17	2	112	LPB 1.2 OR 5A.	3	30
8.9	26	805	21.17	72	4611.5	LPB 1.4	5	400
8.?	2	35	21.17 ?	1	23	LPB 5A.1	3	161
			21.17&21.18	1	185	LPB 5.2	22	1324
12	66	2224	21.18	31	1775.5	LPB 11.1	11	1243
12.1	183	7933	21.18/19	19	1267.5	LPB 12.3	37	960
12.1 & 18.3	1	73	21.19	20	1399			
12.2	27	1490	21.22	51	2556	JWP	21	462.5
12.3	30	586.5				LM FV	1236	36139
12.4	79	3687.75	22.1	4	120	TOTAL	4582	202674.5
						TABLE 4.3		

One apparent anomaly in the list of locations is the one that has been recorded as 'JWP'; which was not an actual location but an assemblage of pottery that was simply accompanied by a label on which was written 'from a fairly superficial layer - JWP knows about it.' (This illustrates the danger of notebooks and artefacts becoming separated through time and final reports not being completed during the lifetime of the principal excavators.) Various assumptions will have to be made when this particular assemblage of pottery is analysed. According to the section drawings a trench was dug in the nymphaeum but no pottery seems to have been recovered from it, therefore the nymphaeum will not appear in the statistics below. Data from the Forum Vetus pottery is now included. The data from Table 4.3 is summarised in Tables 4.4 and 4.5.

Table 4.4 - Showing the total amounts and weights of pottery collected per trench.

LOCATION	TRENCH	COUNT	WEIGHT(g)	LOCATION	TRENCH	COUNT	WEIGHT(g)
CHURCH	1	217	8538.5	COL ST.	TOTAL	35	3520
	2	40	1390	PORTICO	21	624	33960.5
	TOTAL	257	9928.5		22	284	14510
					TOTAL	908	48470.5
PIAZZA	3	14	854.5				
	7	267	10559.5	PALAESTRA	23	42	2535.5
	8	380	20951		26	402	22446
	12	386	15994.25		27	28	1388
	13	3	45		29	18	336
	14	259	11853.25		TOTAL	490	26705.5
	17	155	7095				
	18	37	3084	SEV.BAS.	TOTAL	81	4118
	31	53	3009	JWP	TOTAL	21	462.5
	TOTAL	1554	73445.5	LM FV	TOTAL	1236	36024

Figures 4.3 and 4.4 are graphical representations of the data in Table 4.5 and show the count of pottery collected by location and, similarly the weight of pottery recovered per location.

Table 4.5 - Showing the total amounts and weights of pottery collected per location.

LOCATION	COUNTS	WEIGHT (g)
LM FV	1236	36024
Church	257	9928.5
Piazza	1554	73445.5
Col. St.	35	3520
Portico	908	48470.5
Palaestra	490	26705.5
Sev. Bas.	81	4118
JWP	21	462.5
TOTAL	4582	202674.5

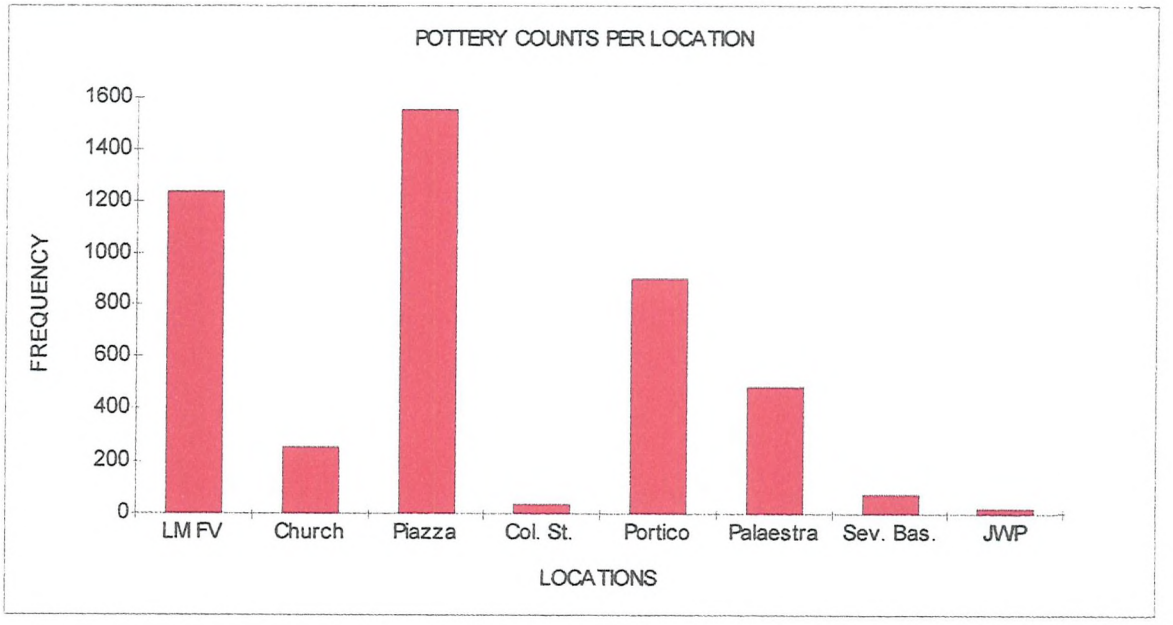


Figure 4.3 - Showing the pottery counts per location.

As already noted, and predicted, the largest group of pottery, by count and by weight, did indeed come from the Piazza, whilst the smallest amount of pottery (excluding the JWP collection) came from the Colonnaded Street.

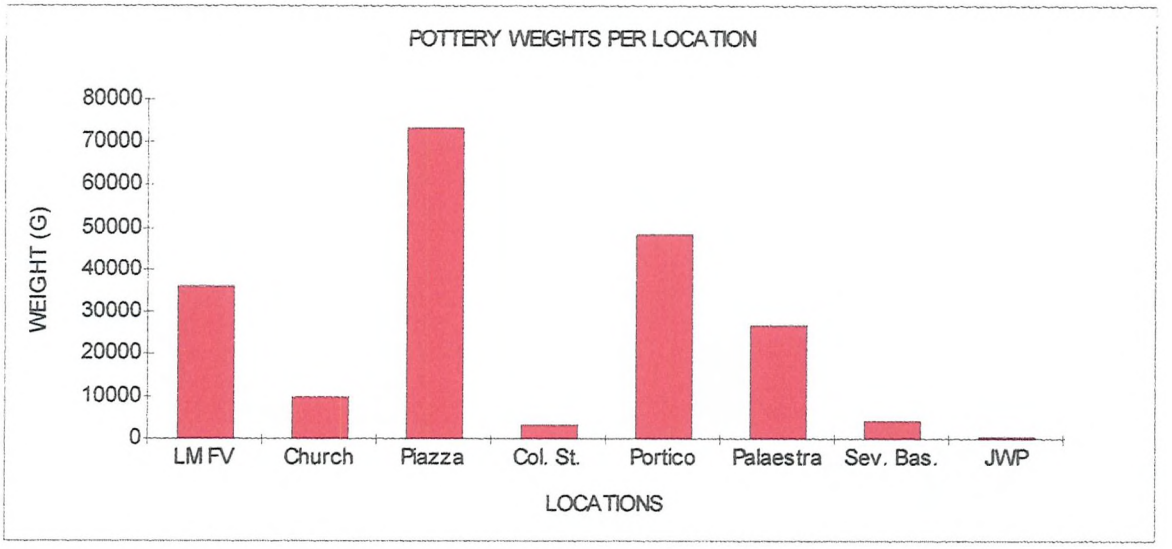


Figure 4.4 - Showing the pottery weights per location.

In Table 4.6 pottery counts and weights for each location have been calculated as percentages of the total recovered pottery assemblage. This enables us to see whether or not the distribution by weight is significantly different from the distribution by count. If there was a significant difference this could indicate that, for example, heavier sherds were not distributed fairly evenly across the site. Sherds of such vessels as amphorae, not surprisingly, generally weigh much more than fineware sherds although in a numerical count statistic each type of sherd is of equal importance.

Table 4.6 - Showing pottery counts and weights expressed as percentages.

Location	Counts	% Counts	Weight (g)	% Weights
LM FV	1236	27	36024	17.8
Church	257	5.6	9928.5	4.9
Piazza	1554	34	73445.5	36.2
Colonnaded Street	35	0.8	3520	1.7
Portico	908	19.8	48470.5	23.9
Palaestra	490	10.7	26705.5	13.2
Severan Basilica	81	1.8	4118	2
JWP	21	0.5	462.5	0.2
Total	4582		202674.5	

The calculations suggest that there is not a real difference between the distribution by weight and by count across the site and Figure 4.5 shows this result graphically.

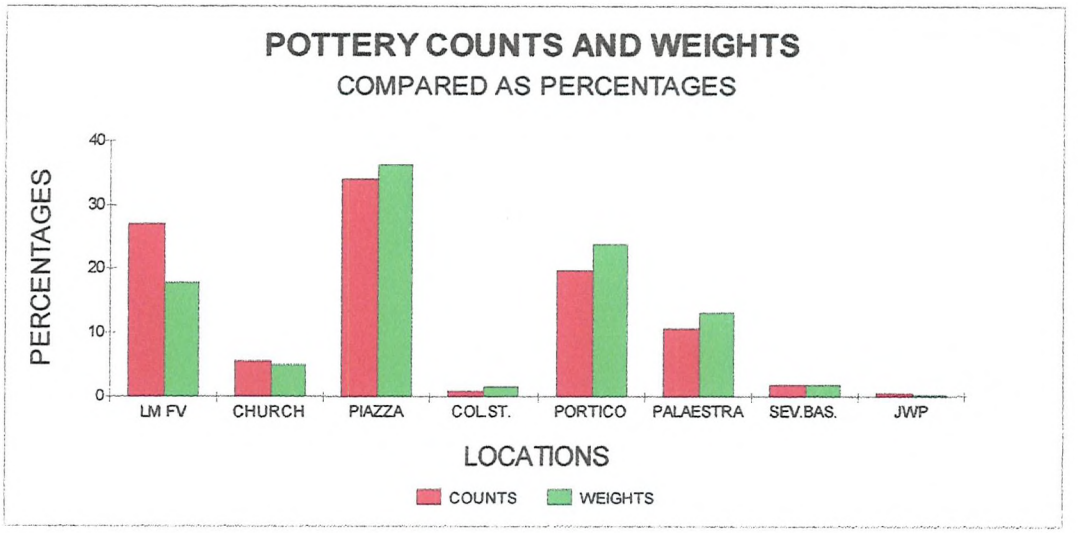


Figure 4.5 - Showing pottery counts and weights compared as percentages.

To confirm these results statistically and to demonstrate that it did not matter whether the count or the weight data was used a statistical test was carried out. The test determined whether or not there was correlation between the count and the weight of each category and the value of Pearsons' product moment correlation coefficient (PMCC) was calculated. After carrying out the test (details of which can be found in appendix 3A) it was confirmed that there was significant correlation between the count and weight of each category. This confirms that in this case the same result was obtained whether the count or the weight data was used.

As has been previously mentioned, the sherds of different vessels such as amphorae and finewares are considerably different with regards to weight. In order to compensate for this Table 4.7 and Figure 4.6 were compiled. They compare the different pottery groups weights and counts as percentages to see whether there were significant differences between them.

Table 4.7 - Showing pottery weights and counts as percentages.

POTTERY GROUP	% COUNT	% WEIGHT
FINE	14.3	5.6
FINE/COARSE	4.2	3.3
COARSE	59.1	48.8
AMPHORA	19.8	41.5
THIN WALL	0.3	0.04
LAMP	2.2	0.6
GLAZED LUMP	0.06	0.02

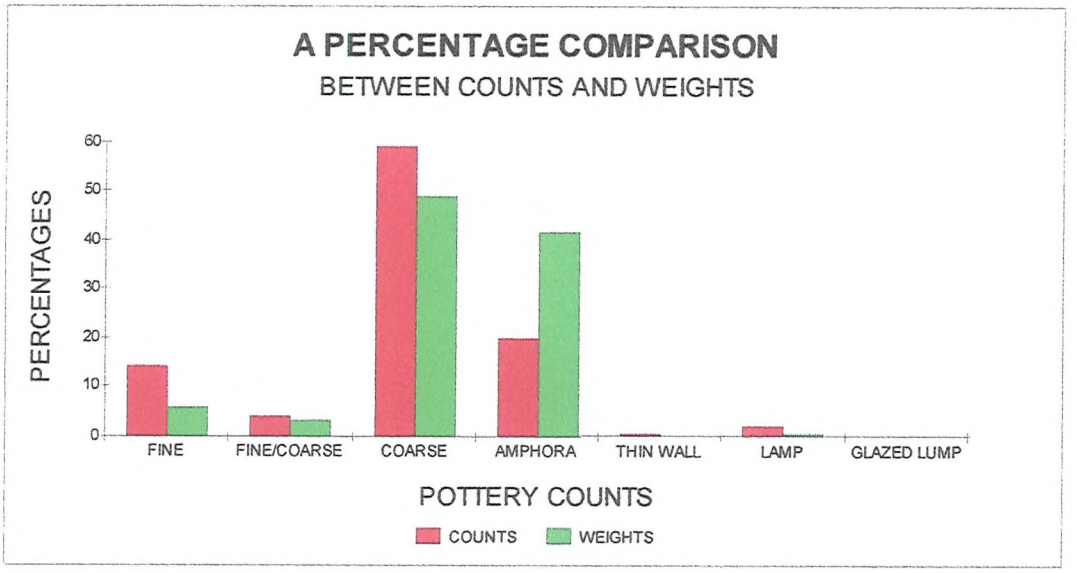


Figure 4.6 - Showing a percentage comparison between counts and weight

Once again, as we can see from the data, there was no appreciable difference when the data was represented as percentages, with the possible exception of that of the amphorae, but as already mentioned this could be explained by the fact that amphora sherds are intrinsically heavy. Pearsons' PMCC test was used to check these findings, see appendix 3B for the details of the test, and once again the results confirm that the same result could be obtained whether the count or weight data was used.

A more detailed analysis of the distribution of the main groups of pottery will now be undertaken. All of the pottery from the same homogeneous group, like the amphorae, will be initially considered together in the following analysis, regardless of date and places of manufacture. The high positive correlation obtained in the earlier PMCC indicates that whether counts or weights are used similar results should be obtained. However because of the possible distorting effect of the intrinsic differences in the weights of different vessels it was decided that counts would be used. The implication of the actual dates, regions of manufacture, and their relevance to the development of the town of Lepcis Magna will be considered in Chapter 5.

C. Analysis by location and class of pottery.

The amphorae.

For analytical purposes only the rims and bases of the amphorae will be considered here. The decision was made to exclude the largest group, i.e. the body sherds, at this juncture in order not to bias any statistics by over estimating the number of vessels actually represented; but at the same time to take note of noting Tomber's warning that 'by processing rim only sherds ... valuable dating and source information attained from body sherds would be lost.' (1993: 149). The Sabratha assemblage contained 1716 rims but only some 59 bases (Keay 1989). These Sabratha bases represent only some 3.3% of the combined total of rims and bases, which might suggest that some form of selection for analysis in favour of rims had taken place prior to analysis. A statistical comparison between the two assemblages of Lepcis Magna and Sabratha will be undertaken in Chapter 6.

At Lepcis Magna a maximum number of 281 amphora vessels, derived from rim and base counts, were identified. Here the bases represent 21.4% of the combined total. With these differences in relative proportions, between the two sites, the Lepcis Magna rims and bases whilst quantified concurrently may be commented upon separately. Table 4.8 provides an analysis of the distribution of the 221 amphora rims and 60 bases across Lepcis Magna by trench and layer.

AMPHORA RIM & BASE DISTRIBUTION														
	RIM		BASE			RIM		BASE			RIM		BASE	
LOCATION	CNT	TOTAL	CNT	TOTAL	LOCATION	CNT	TOTAL	CNT	TOTAL	LOCATION	CNT	TOTAL	CNT	TOTAL
1.1					18.3	5				26(C)4	3			
1.2	1		1		18.4		5			26(B)2(C)3	3		1	
1.3					31					26(A)1/2	3			
1.4	1				31.1					26(D)1	1			
1.5	2				31.2					26(D)2	1	21	1	7
1.6					31.3	2		1		27.3				
1.8	2		1		31.4					27.5	1			
1.11	1		2		31.5	1	3	1	2	27.6		1		
1.12														
1.13	3	10		4	21	1				SEV.BAS.			1	1
					21.1			1						
2.1					21.3	5				LM FV				
2.3	2				21.4	1		2		Z00001	1			
2.4	1				21.5					Z00006	3			
2.7		3			21.6					Z00010	2			
					21.7					Z00015	2			
3.3					21.8					Z00018			1	
					21.9					Z00019	1			
7.3					21.10	6		3		Z00023	1			
7.4					21.11	3				Z00027				
7.5					21.12	4				Z00031	1			
7.6	6				21.13	3				Z00035	2			
7.7	6		2	2	21.15					Z00042	1		1	
7.8		12			21.16	2		1		Z00058	2			
					21.17	7		4		Z00060	2	18		
8.3	10		2		21.18	2		1		BAG 2	1			
8.4	1				21.19			1		BAG 4	1			
8.5	4		1		21.18/19	1				BAG 7	4		1	
8.6	5		2		21.22	2	37		13	BAG 8	1		1	
8.7	6		3							BAG 10	4			
8.6 & 8.7	1				22.1	1				BAG 11	2			
8.8	1				22.2	1				BAG 13	1			
8.9	1	29		8	22.3	1		1		BAG 16	1			
					22.5	2				BAG 23	1			
12			1		22.6	6	11	1	2	BAG 25	1			
12.1	13		1							BAG 26	1			
12.2	1				21.101	1	1	3	3	BAG 40	1			
12.3	1									BAG 44			1	
12.4	6	21		2	23.2					BAG 300	1			
					23.3	1		1		BAG 307	2			
14.1					23.4	1	2		1	BAG 310	1			
14.2	7		2							ALPHA 2	1	24		5
14.3	5		3		26(A)1									
14.4	4		1		26(A)2									
14.5		16		6	26(A)3	2		1		TOTAL		221		60
					26(A)X									
17.1	1		1		26(B)2	1		1						
17.2	2				26(B)3	1		1						
17.3	1				26(C)									
17.5	3		3		26(C)1	1				Table 4.8				
17.7		7		4	26(C)3	5		2						

The use of a maximum number of amphora vessels has its potential pitfalls as rims and bases might belong to the same container. This is certainly possible with the Tripolitanian amphorae which appear to dominate the assemblage. The above data was then summarised for each trench and then displayed in Table 4.9.

Table 4.9 - Showing the distribution of amphora rim and base counts by trench.

AMPHORA DISTRIBUTION								
TRENCH	TOTAL		TRENCH	TOTAL		TRENCH	TOTAL	TOTAL
	RIM	BASE		RIM	BASE		RIM	BASE
1	10	4	17	7	4	27	1	0
2	3	0	18	5	0	29	0	0
3	0	0	31	3	2	SEV. BAS.	0	1
7	12	2	21.101	1	3	LM FV	42	5
8	29	8	21	37	13			
12	21	2	22	11	2	TOTAL	221	60
13	0	0	23	2	1			
14	16	6	26	21	7	TABLE 4.9		

Table 4.9 shows that the greatest concentration of amphora rims and bases came from a single trench, trench 21 in the Portico. This information was then shown by location in Table 4.10 and shown in Figure 4.7.

Table 4.10 - Showing the summary of amphora rim and base distribution by location.

AMPHORA LOCATION	RIM COUNT	BASE COUNT
LM FV	42	5
CHURCH	13	4
PIAZZA	93	24
COL. ST.	1	3
PORTICO	48	15
PALAESTRA	24	8
SEV. BAS	0	1
TOTAL	221	60

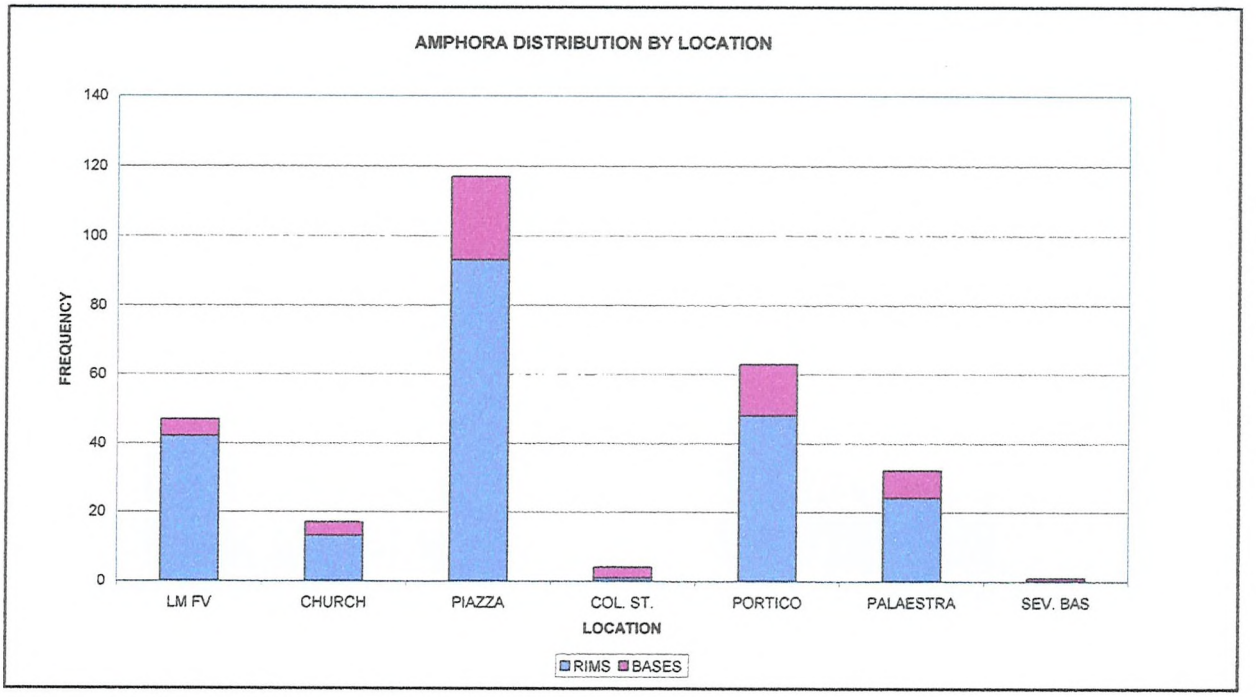


Figure 4.7 - Showing the summary of amphora rim and base distribution by location.

The graph illustrates that the greatest overall concentration of amphora rims and indeed bases came from the Piazza, which is perhaps not too surprising since the largest number of sherds were also recovered from there. The use of stacked bar charts allows us both to compare total frequencies and examine the relative proportions of rims and bases. In order to look for possible disparities in the distribution of the amphorae the number of amphora were calculated as a percentage of the total pottery recovered per location. This information is recorded in Table 4.11 and shown pictorially in Figure 4.8

Table 4.11-Showing the number of amphorae calculated as a percentage of total pottery recovered per location.

AMPHORA LOCATION	RIM COUNT	% OF TOTAL PER LOCATION	BASE COUNT	% OF TOTAL PER LOCATION
LM FV	42	3.4	5	0.4
CHURCH	13	5.1	4	1.6
PIAZZA	93	6	24	1.5
COL. ST.	1	2.9	3	8.6
PORTICO	48	5.3	15	1.7
PALAESTRA	24	4.9	8	1.6
SEV. BAS	0	0	1	1.2
TOTAL	221		60	

The table shows that the relative percentage of amphorae recovered from the Piazza was not in fact exceptional.

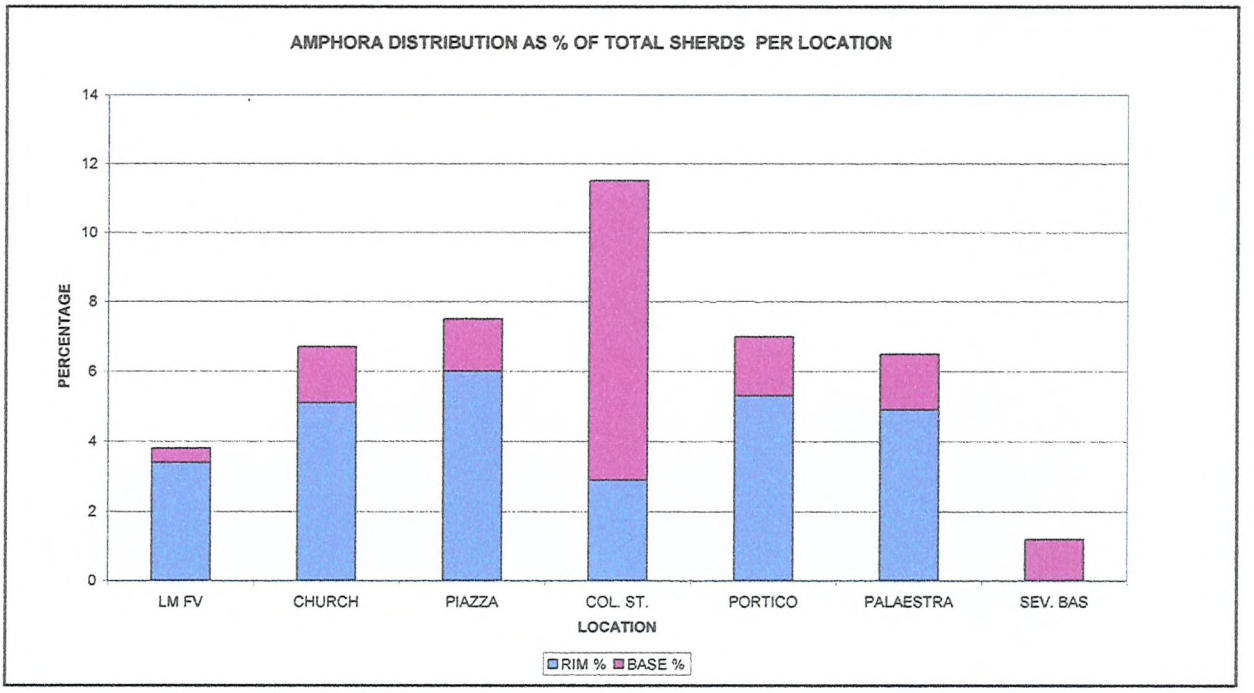


Figure 4.8 - Showing the amphorae distribution calculated as a percentage of total pottery recovered per location.

One interpretation of this data might suggest that the amphorae were being disposed of randomly and not in designated areas of the town. However, it is interesting to note that the amphorae represented 11.5% of the total pottery recovered from the Colonnaded Street which might suggest that refreshments were being bought, sold or consumed in that area. Goods would have passed along this street en-route to and from the harbour and breakages might account for some of these sherds being found in this location. (NB that whilst the 11.5% of sherds appears to be a large quantity in reality it was only four sherds.)

In this next section, see Table 4.12 and Figure 4.9, the counts for the amphora rims and bases and their relative percentages per location were calculated. The percentages show that the majority of amphora rims and bases came from the Piazza and Portico trenches. The results also show that the relative percentages of amphora rims and bases were similar at each location with the possible exception of the Forum Vetus trenches where the percentage of rims was higher.

Table 4.12 - Showing counts and percentages of amphorae per location.

LOCATION	Rim counts	Percent	Bases count	Percent	Count total	Percent
LM FV	42	19	5	8.3	47	16.7
CHURCH	13	5.9	4	6.7	17	6.04
PIAZZA	93	42.1	24	40	117	41.6
COL. ST.	1	0.45	3	5	4	1.4
PORTICO	48	21.7	15	25	63	22.4
PALAESTRA	24	10.9	8	13.3	32	11.4
SEV BAS	0	0	1	1.7	1	0.36
TOTAL	221	100	60	100	281	100

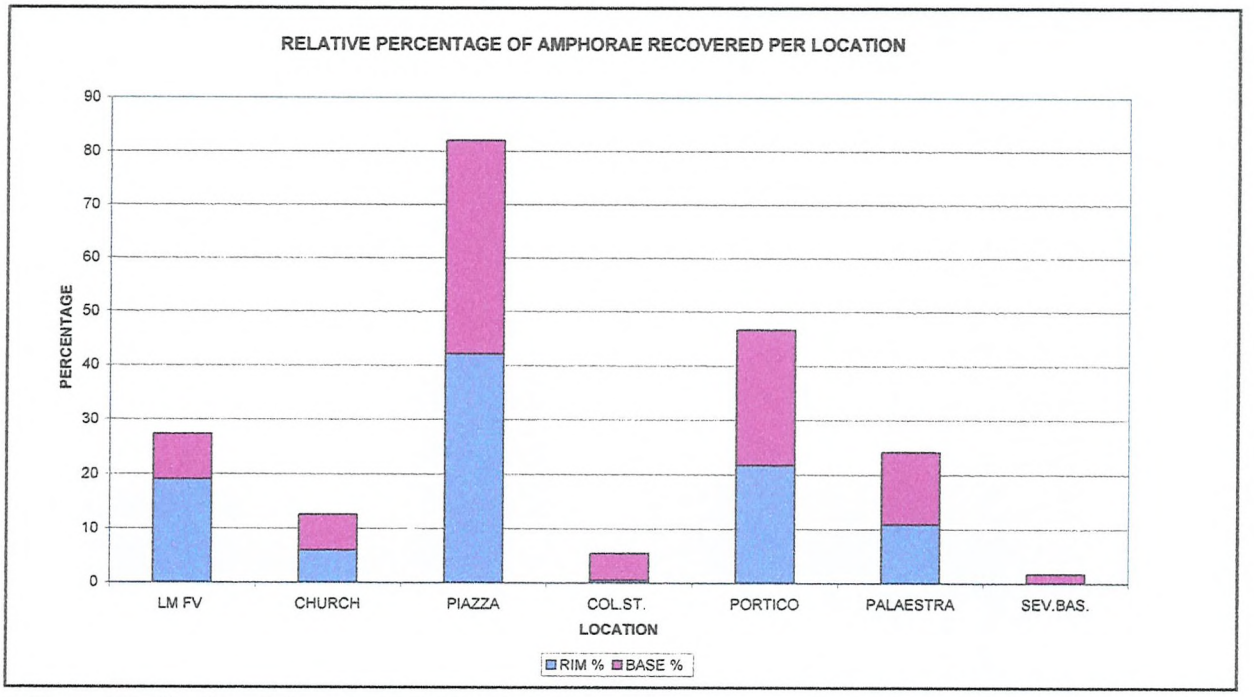
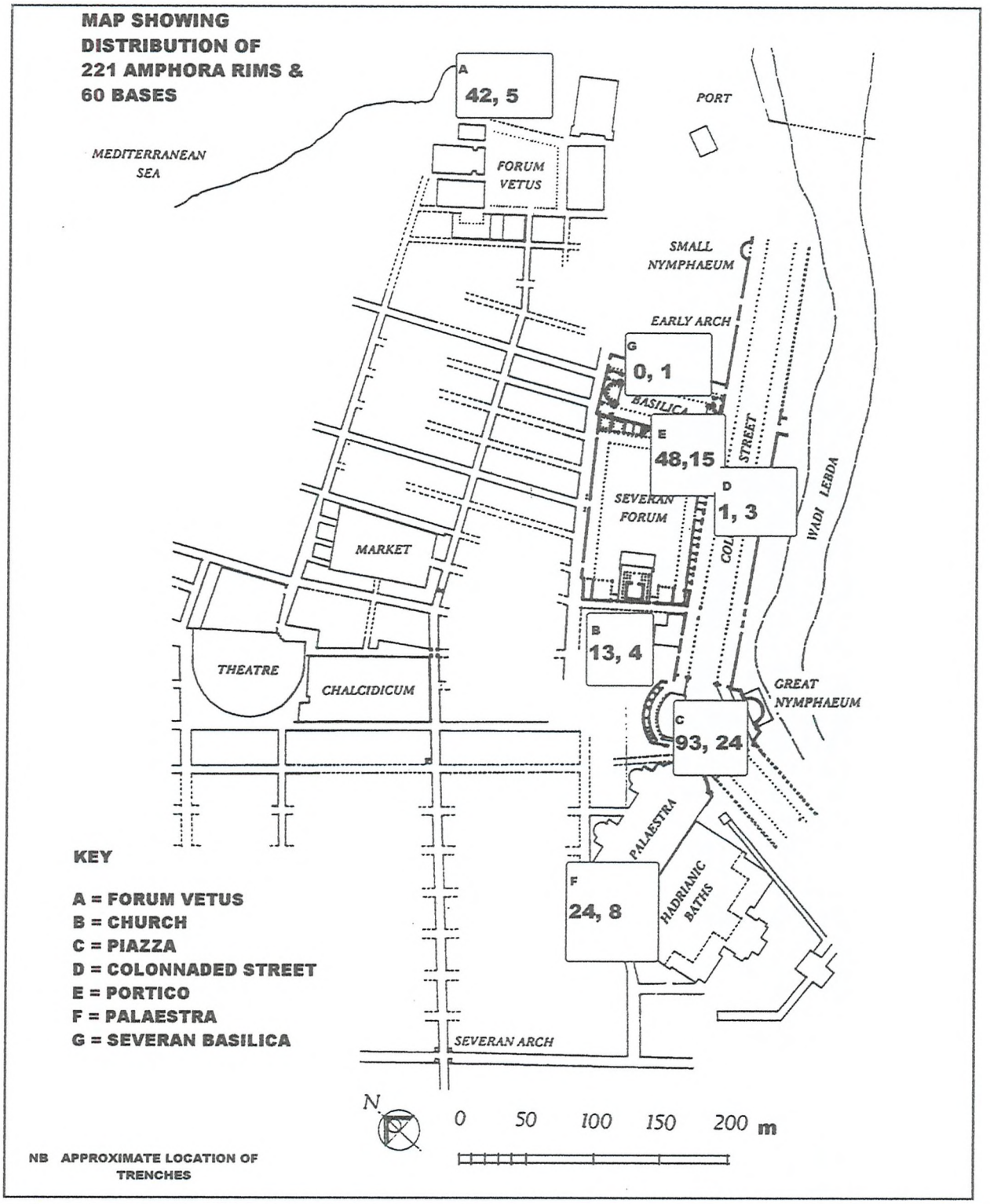


Figure 4.9 - Showing relative percentage of amphorae per location.

If indeed the Forum Vetus excavations were carried out earlier than the rest of the excavation this disparity might be simply explained away by a difference in the way the pottery may have been selected for future analysis.

In addition to the previous percentage calculations a chi squared test was carried out to see whether there was anything statistically unusual about the distribution of the amphorae. On this occasion the counts of the rims and bases have been combined. The null hypothesis is that 'the distribution across the trenches was the same for the amphorae and non-amphorae'. The complete test can be found in appendix 3C. Because of the low expected values for the Colonnaded Street and Severan Basilica data, the data for these locations were excluded from the following test. (NB a chi squared test cannot be used if the expected values are below 5.) The test results show that the amphorae were not evenly distributed across the trench locations. A number of reasons have already been given for the apparent differences in the amphora distribution including the existence of possible refreshment areas. It also has to be borne in mind that, in order to use a chi squared test, data from certain locations had to be excluded.

Using data generated in this chapter, a series of town plans showing the distribution of the major groups of pottery were produced. The approximate positions of the trenches were shown on the plans and the number of sherds recovered from each location recorded. Town plan 1 shows that the largest group of amphora were recovered from the Piazza trenches. The town plans provide an 'at a glance' illustration of where each type of pottery was excavated from. They also illustrate which areas of the town were devoid of particular kinds of pottery.



Town plan 1 - Showing distribution of amphora sherds by count.

The finewares

The distribution of the main types of finewares recovered from across the Lepcis Magna excavations will be considered in this next section.

African Red Slip Wares

The first type of pottery to be examined in depth will be the African Red Slip Wares (ARS). Table 4.13 provides a detailed analysis of where all of the ARS sherds were excavated from.

Table 4.13 - Showing distribution of ARS sherds.

ARS LOCATION								
LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL
1.1			12.1&18.3	1	**72**	21.18/19	4	
1.2	2		14.1			21.22	5	
1.3			14.2	10		21.16&21.17	1	**93**
1.4			14.3	10		22.1		
1.5			14.4	4		22.2		
1.6			14.5	5	**29**	22.3	4	
1.8	3					22.5	1	
1.11	2		17.1	5		22.6	25	**30**
1.12			17.2	4				
1.13		**7**	17.3	3		21.101	2	**2**
			17.5	13				
2.1	1		17.7		**25**	23.2	2	
2.3	2					23.3	1	
2.4	2		18.3	2		23.4		**3**
2.7	1	**6**	18.4		**2**			
			31			26(A)1		
3.3	4	**4**	31.1	1		26(A)2		
			31.2			26(A)3		
7.3			31.3			26(A)X		
7.4			31.4			26(B)2		
7.5			31.5	2	**3**	26(B)3		
7.6	21					26(C)		
7.7	20		21	4		26(C)1	1	
7.8	3	**44**	21.3	4		26(C)3	3	
8?	1		21.4	8		26(C)4		
8.3	27		21.5			26(B)2(C)3	1	
8.4	1		21.6	3		26(A)1/2		
8.5			21.7			26(D)1		
8.6	9		21.8			26(D)2	2	**7**
8.7	10		21.9			29.3	4	**4**
8.6 & 8.7			21.10	7		27.3		
8.8	1		21.11	14		27.5		
8.9	1	**50**	21.12	5		27.6		
			21.13	11		LM FV		**16**
12	11		21.15			SEV. BAS		**2**
12.1	46		21.16	3		JWP		**4**
12.2	2		21.17	13				
12.3	1		21.18	5		**TOTAL**		**403**
12.4	11		21.19	6		**TABLE 4.13**		

Table 4.14 and Figure 4.10 summarise this information. (The sherds of ARS recorded as coming from the JWP layer have been excluded from the next part of the analysis, for the reasons given earlier.)

Table 4.14 - Showing the counts of ARS recovered per location and as a percentage of total pottery recovered per location.

LOCATION	COUNT	% OF TOTAL
LM FV	16	1.3
CHURCH	13	5.1
PIAZZA	229	14.7
COL. ST.	2	5.7
PORTICO	123	13.5
PALAESTRA	14	2.9
SEV. BAS	2	2.5

Once again, the greatest numbers of sherds were found in the Piazza and, to investigate the significance of this, the relative percentages of ARS were calculated in the usual manner. These results are also shown in Table 4.14 (see above) and on Figure 4.11.

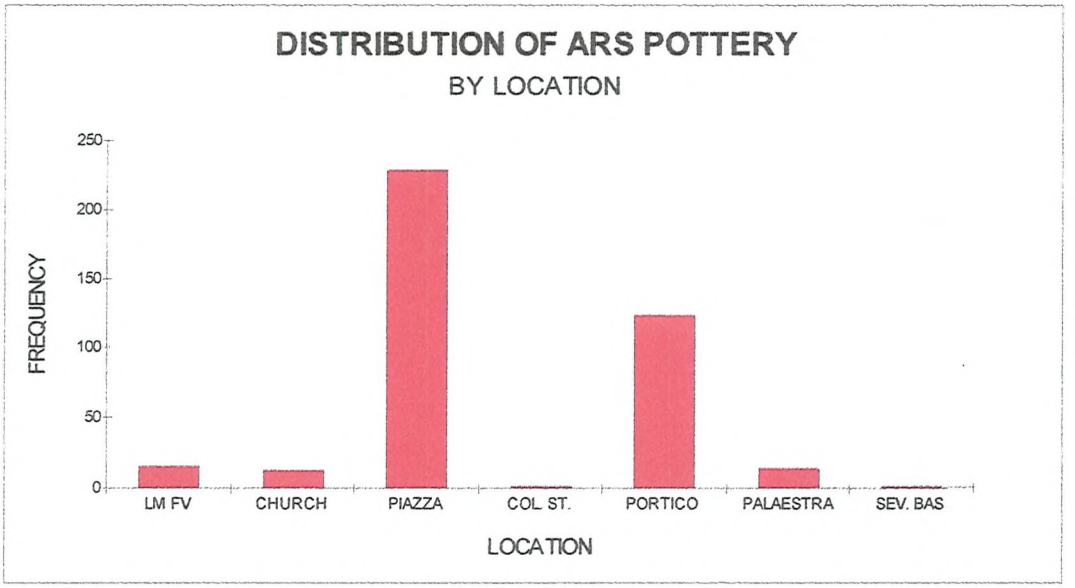


Figure 4.10 - Showing distribution of ARS pottery by location.

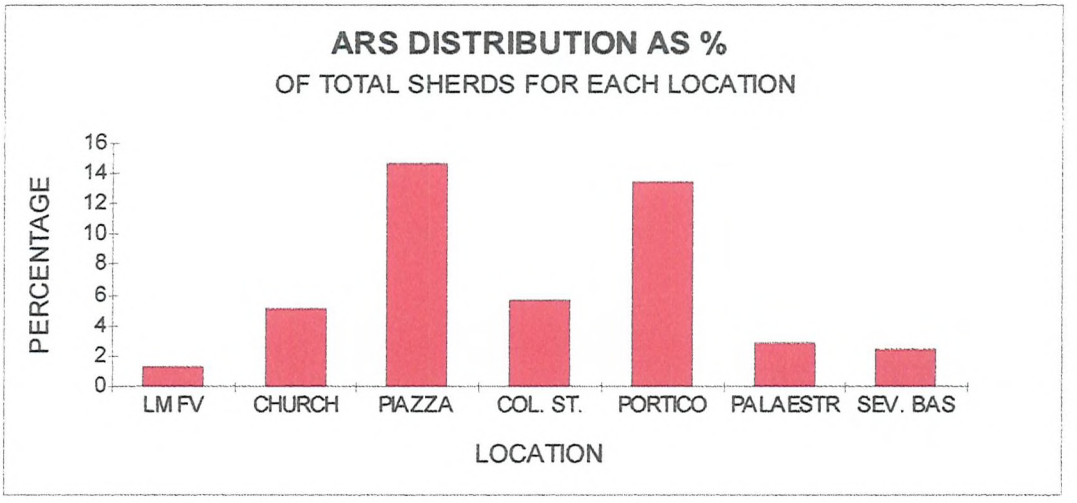
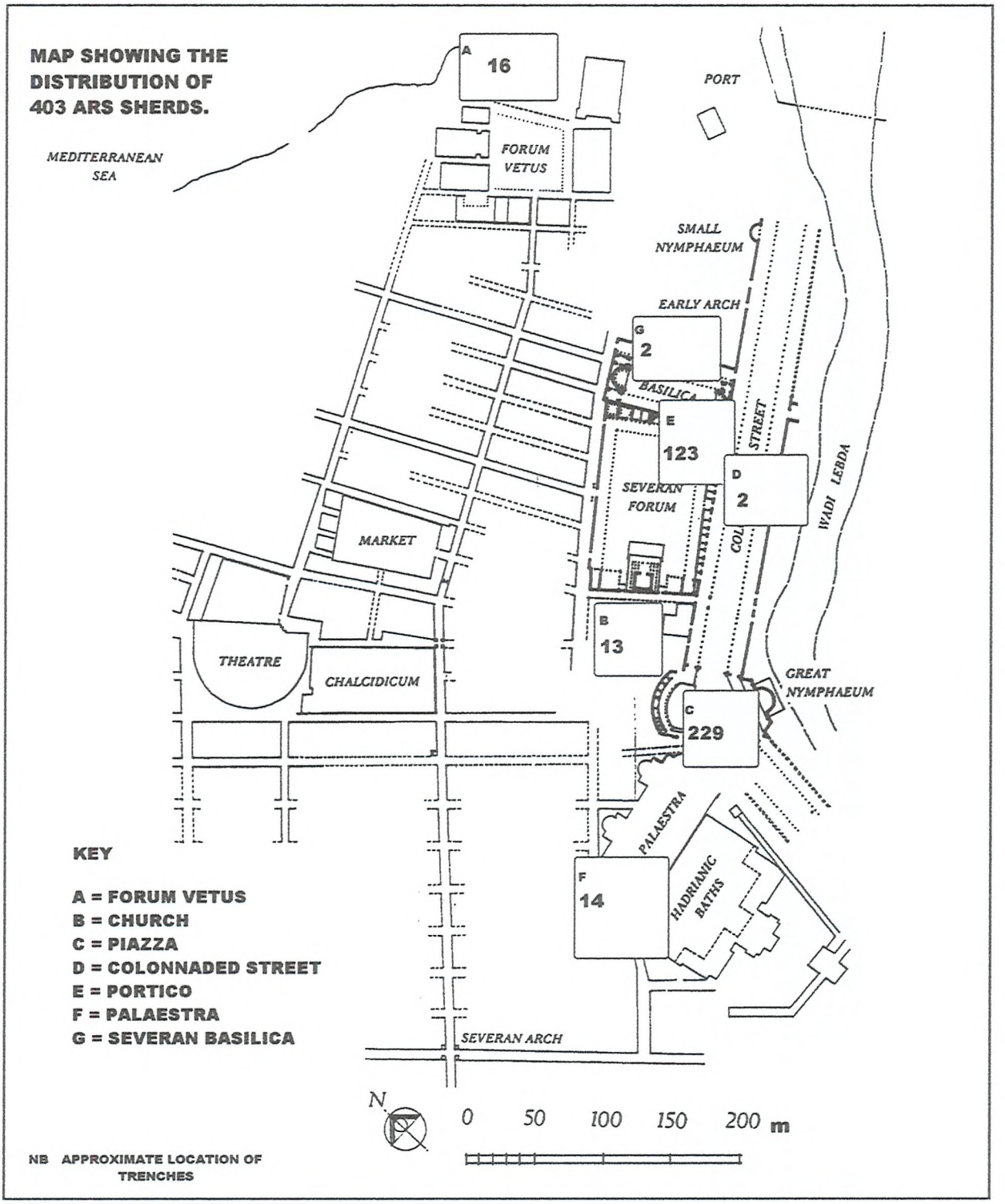


Figure 4.11 - Showing the distribution of ARS as a percentage of total sherds per location.

The greatest percentages of ARS were recovered from the trenches in the Piazza and Portico whilst the smallest percentage was recovered from the Forum Vetus. The distribution of the ARS sherds can be viewed on town plan 2. The relative percentages seem to suggest that the distribution of ARS was not uniform across the site. In order to test this theory a null hypothesis was set up and a chi squared test carried out. The null hypothesis is that 'there is no difference in the way that the number of ARS and non-ARS finewares were distributed across the trench locations.' The alternative hypothesis is 'the ratio of ARS to non-ARS finewares differs significantly from trench to trench.' The complete chi squared test is shown in appendix 3D. (Due to the small sample size the data for the Severan Basilica and Colonnaded Street was omitted.) The result was found to be significant at the 5% level so therefore we can reject the null hypothesis and conclude that there are significant differences in the distribution of ARS pottery across the site. A possible explanation of these differences in the distribution will be discussed below. But before this happens it will be useful to look at the distribution of the Black Gloss Wares (BGW).



Town plan 2 - Showing distribution of ARS sherds.

Black Gloss Wares (BGW).

At this juncture all of the Black Gloss Ware fabrics were considered together regardless of fabric. The quantities of these wares were shown in Table 4.15 below. Figure 4.12 shows the distribution of the Black Gloss wares across the site. From the table it can be seen that nearly all of the sherds, some 95%, came from the Forum Vetus. Applying a statistical test to the data was considered unnecessary because the proportion found in the Forum Vetus was clearly the largest.

Table 4.15 - Showing distributions of black gloss wares.

Table 4.15	LOCATION	BGW Counts
	LM FV	97
	CHURCH	0
	PIAZZA	4
	COL. ST.	0
	PORTICO	1
	PALAESTRA	0
	SEV BAS	0
	TOTAL	102

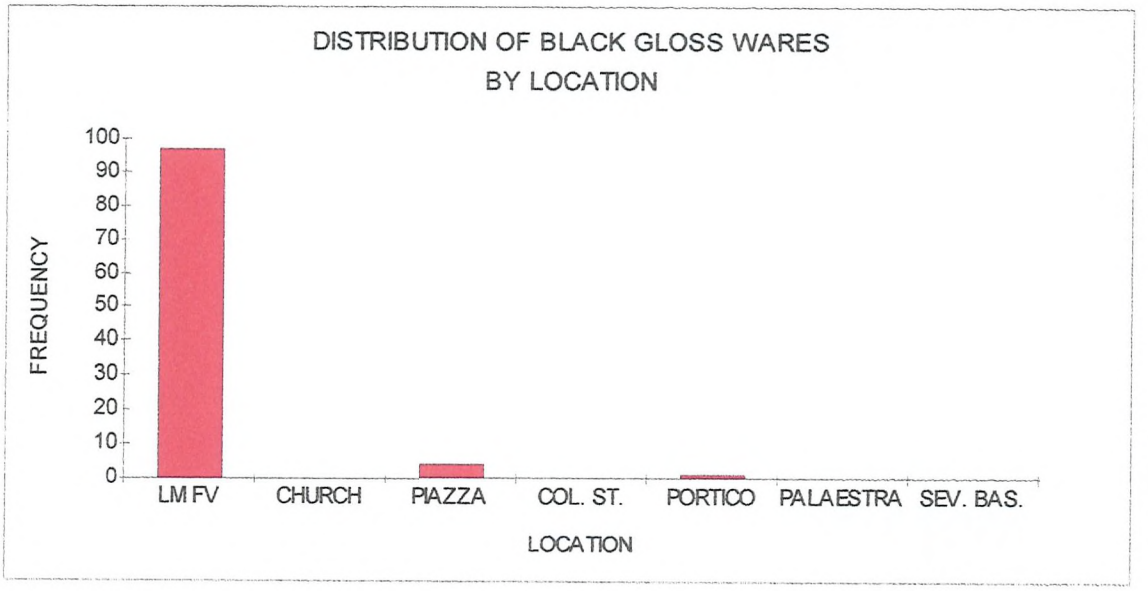


Figure 4.12 - Showing distributions of black gloss wares by location.

Figure 4.13 contrasts the distribution of BGW and ARS finewares.

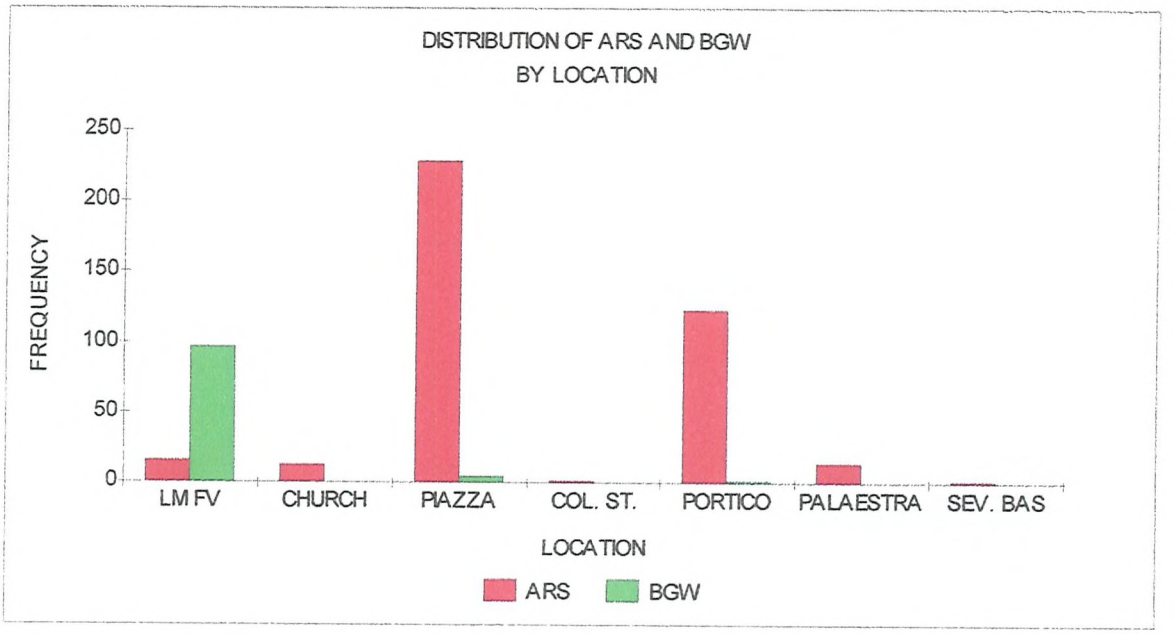
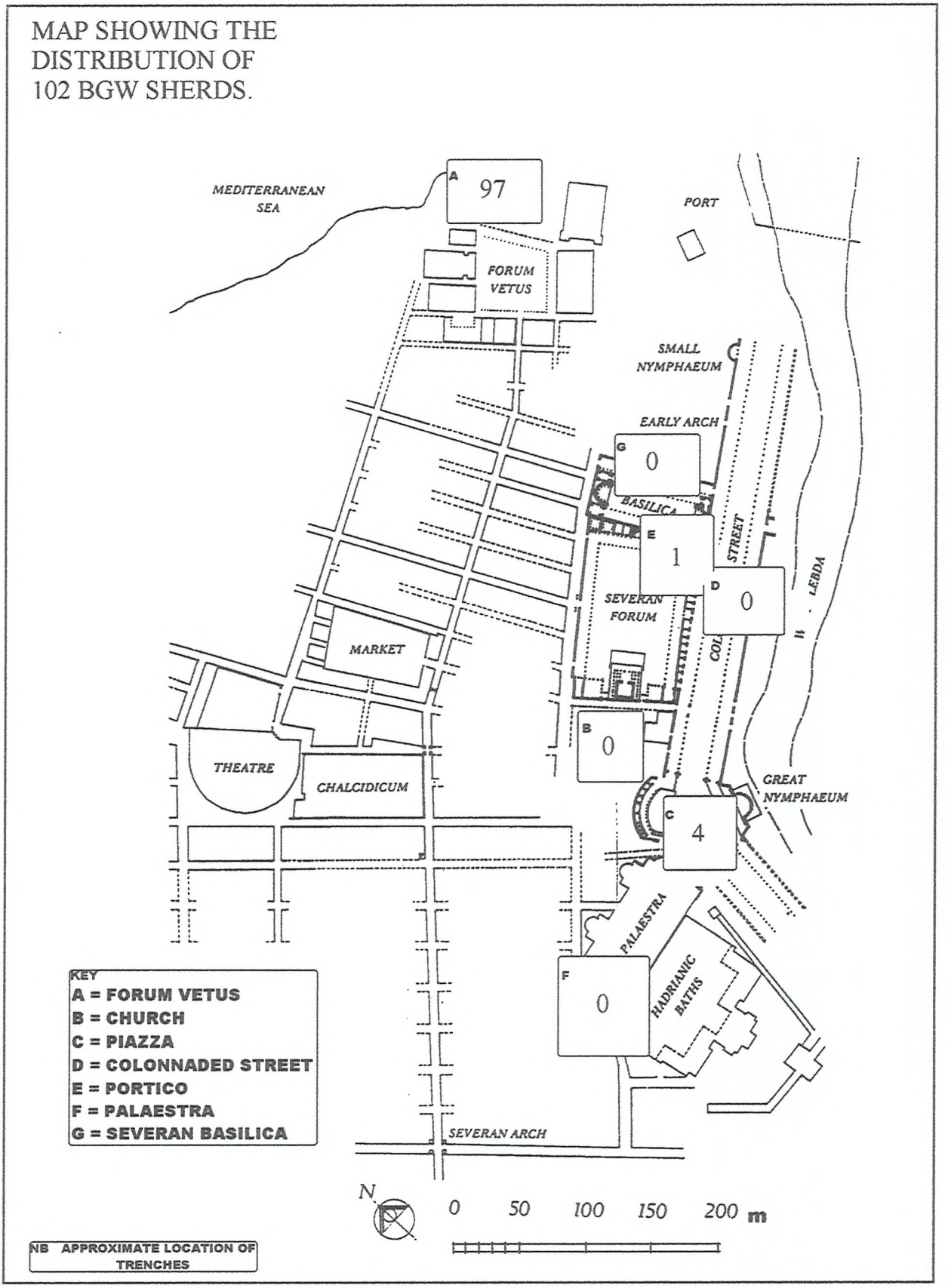


Figure 4.13 contrasting the distribution of BGW and ARS finewares by location.

The most probable explanation for the apparent difference between the two distributions is that the chronologically earlier BGW (produced fourth century BC onwards) was found in the Forum Vetus, which was one of the earliest parts of the town. Epigraphic evidence shows that Forum Vetus, the Old Forum, was repaved in the Augustan period. One flagstone had a bronze inscription of the proconsul Calpurnius Piso 5 BC to AD 2, whilst the later ARS pottery, (manufactured late

first century AD onwards), was mostly excavated from the 'newer' Severan parts of the town. It is interesting to note that in the excavations conducted at Lepcis Magna, in the 1990's, that an absence of Black Gloss wares was commented upon (Walda 1997: 43). However, as these excavations were adjacent to the theatre and hence outside the Forum Vetus this, in the light of the 1951 results, is not too surprising.

The distribution of the black wares is shown on town plan 3 and it illustrates how the majority of the sherds came from the Forum Vetus.



Town plan 3 - Showing distribution of BGW sherds.

Eastern Sigillata 'A'

Numerically the second largest group of fineware pottery is the Eastern Sigillata 'A' (ESA). Its distribution across the site will be compared to that of the BGW and ARS to see whether it mirrors either distribution pattern or has one of its own. The distribution of the Eastern Sigillata 'A' sherds can be seen in Tables 4.16 and 4.17.

Table 4.16 - Showing distribution of Eastern Sigillata 'A'

ESA LOCATION								
LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL
1.1			18.3			26(B)2(C)3	5	
1.2			18.4			26(A)1/2		
1.3			31			26(D)1		
1.4	6		31.1			26(D)2		23
1.5	5		31.2			27.3		
1.6			31.3			27.5		
1.8	5		31.4			27.6		
1.11	1		31.5			29.3	1	1
1.12	1							
1.13	2	20	21			Z00012	1	
			21.3			Z00016	1	
2.1			21.4	1		Z00027	1	
2.3	1		21.5			Z00029	2	
2.4			21.6			Z00030	1	
2.7		1	21.7			Z00037	4	
			21.8			Z00040	1	
3.3			21.9			Z00043	3	
			21.10			Z00047	1	
7.3			21.11	2		Z00052	1	
7.4			21.12			Z00055	1	
7.5			21.13			Z00057	2	
7.6			21.15			Z00059	3	
7.7			21.16			Z00062	2	24
7.8	2	2	21.17					
			21.18			BAG 2	6	
8.3			21.19			BAG 7	1	
8.4			21.18/19			BAG 9	3	
8.5			21.22		3	BAG 10	11	
8.6	1					BAG 12	2	
8.7	2		22.1			BAG 18	1	
8.6 & 8.7			22.2	1		BAG 20	1	
8.8	1		22.3	2		BAG 22	1	
8.9	1	5	22.5	1		BAG 25	3	
			22.6	1	5	BAG 26	6	
12						BAG 40	1	
12.1			21.101			BAG 44	1	
12.2						BAG 45	12	
12.3			23.2			BAG 46	2	
12.4			23.3			BAG 100	1	
13.6	2	2	23.4			BAG101	1	
14.1						BAG 200	1	
14.2			26(A)1			BAG 300	1	
14.3			26(A)2			FV BAS	2	57
14.4			26(A)3	2				
14.5			26(A)X	1		LPB 12.3	6	6
			26(B)2	11		TOTAL	149	
17.1			26(B)3					
17.2			26(C)					
17.3			26(C)1	1				
17.5			26(C)3	3				
17.7			26(C)4			TABLE 4.16		

Table 4.17 - Showing the summary distribution of Eastern Sigillata 'A' by location.

Table 4.17	LOCATION	Count	% Per Location		LOCATION	Count	% Per Location
	LM FV	81	6.5		PORTICO	8	0.9
	CHURCH	21	8.2		PALAESTRA	24	4.9
	PIAZZA	9	0.6		SEV BAS	6	7.4
	COL. ST.	0	0		TOTAL	149	

This information is illustrated in Figure 4.14.

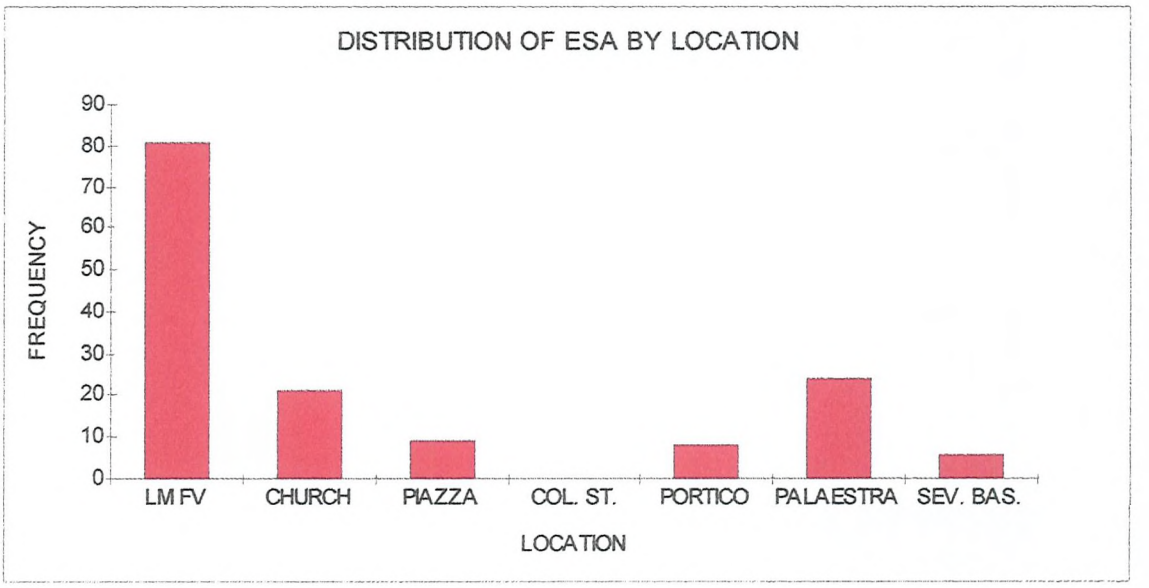


Figure 4.14 - Showing the distribution of Eastern Sigillata 'A' by location.

The greatest concentration of this fineware was recovered from the Forum Vetus. In the customary manner, these counts have been calculated as percentages of the total pottery recovered per location. (See Table 4.17 and Figure 4.15.)

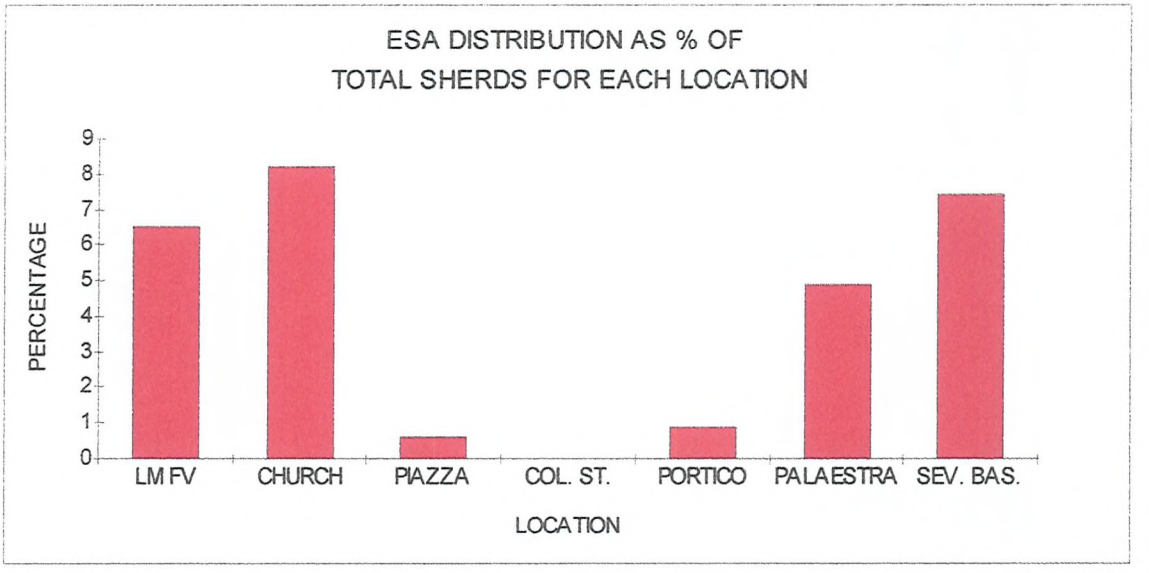
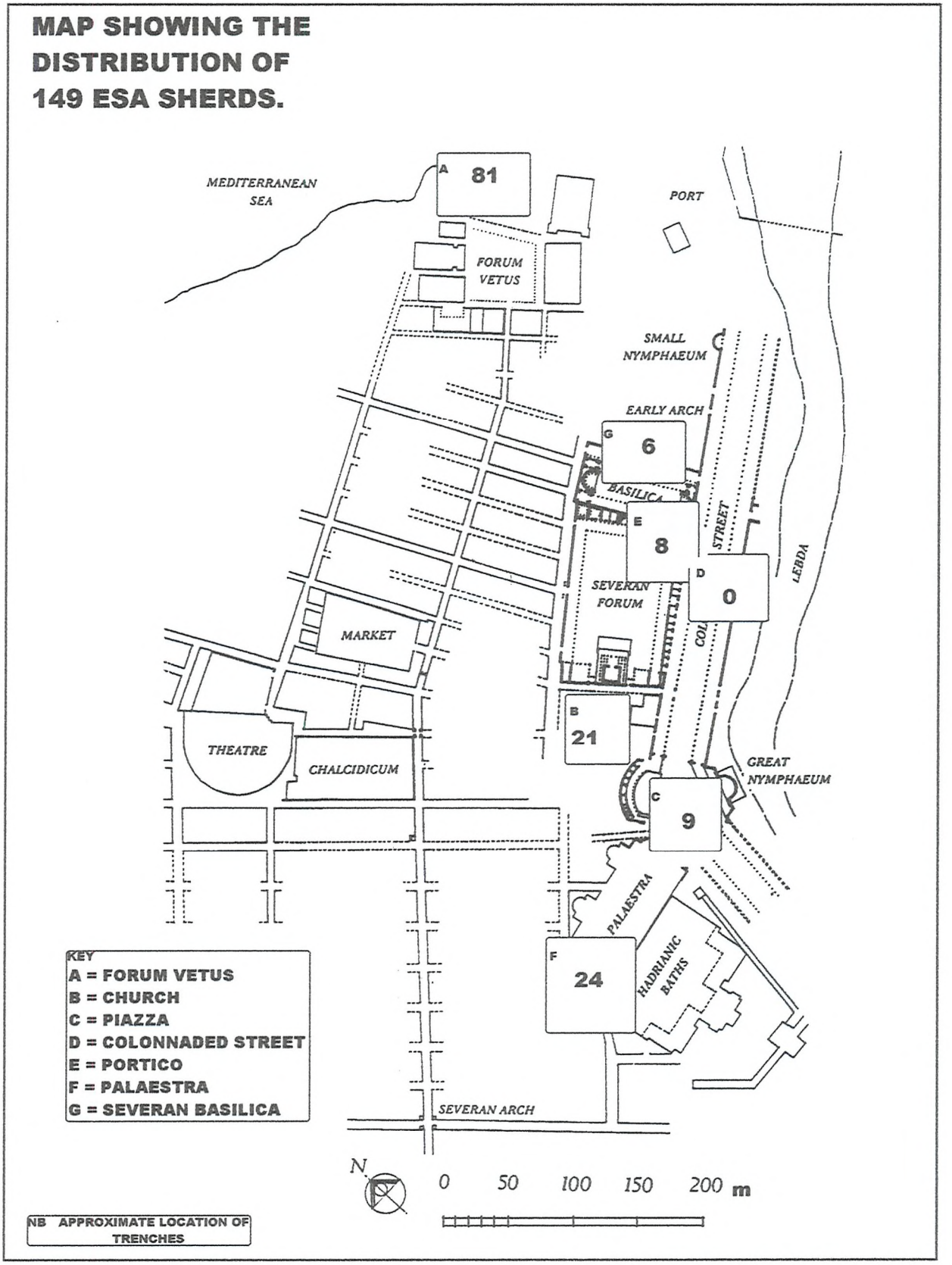


Figure 4.15 - Showing ESA distribution as percentage of the total pottery recovered per location.

Despite the greatest count of ESA being excavated from the Forum Vetus, when percentages of the total count for each location were compared, the highest quantities were recorded as coming from the Church and from the Severan Basilica. The distribution of the ESA sherds can be seen in town plan 4 (see below) and it illustrates that the largest group of it came from the Forum Vetus.

To confirm whether or not the ESA pottery was distributed evenly across the locations once again a chi squared test was carried out. The complete test can be found in appendix 3E. Because the expected values obtained for the Colonnaded Street, Severan Basilica and JWP were below 5 these

categories were excluded for the reasons already stated above. Appendix 3E also shows the recalculation of the expected values after the three categories have been excluded. The test results show that the distribution of ESA across the locations was clearly not even.



Town plan 4 - showing distribution of ESA sherds.

The production of ESA pottery chronologically overlaps the end of production of BGW and the

start of production of ARS and this seems to be reflected in the distribution of ESA at Lepcis Magna, with sherds being found in most areas of the town, and not just the early parts of the town like the Forum Vetus or the later Severan areas.

Italian Sigillatas

The last remaining major group of finewares, not thus far examined, is that of the Italian Sigillatas. Table 4.18 provides the details of where the sherds were excavated from. These results are then summarised in Table 4.19 and illustrated in Figure 4.16.

Table 4.18 - Showing distribution of Italian sigillatas per location.

LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL
1.1			14.3			22.3	1	
1.2	2		14.4			22.5		
1.3			14.5			22.6		3
1.4	1							
1.5	1		17.1			21.101		
1.6			17.2					
1.8	1		17.3			23.2		
1.11	1		17.5			23.3		
1.12			17.7			23.4		
1.13	1	7						
			18.3			26(A)1		
2.1			18.4			26(A)2		
2.3	1					26(A)3		
2.4	2		31			26(A)X	4	
2.7		3	31.1			26(B)2	3	
			31.2			26(B)3		
3.3			31.3	1		26(C)		
			31.4			26(C)1		
7.3			31.5		1	26(C)3	1	
7.4						26(C)4	1	
7.5			21			26(B)2(C)3	1	
7.6			21.3	1		26(A)1/2		
7.7			21.4	2		26(D)1		
7.8	1	1	21.5			26(D)2	1	11
			21.6			27.3		
8.3			21.7			27.5	1	
8.4			21.8			27.6		1
8.5			21.9			29.3	1	1
8.6			21.10	1				
8.7			21.11	1		LM FV	1	
8.6 & 8.7			21.12			Z00037	3	
8.8			21.13			Z00047	1	
8.9			21.15			Z00048	2	
			21.16	1		BAG 2	2	
12	1		21.17	3		BAG 26	2	
12.1	1		21.18			BAG 700	1	
12.2			21.19			LM FV BAS	2	14
12.3			21.18/19			LPB 12.3	3	3
12.4		2	21.22		11	JWP	2	2
						TOTAL		60
14.1			22.1	1				
14.2			22.2	1		TABLE 4.18		

Table 4.19 - distribution of Italian Sigillatas per location and as a % of total pottery recovered per location.

Table 4.19	LOCATION	Count	% Per Location
	LM FV	14	1.1
	CHURCH	10	3.9
	PIAZZA	4	0.3
	COL. ST.	0	0
	PORTICO	14	1.5
	PALAESTRA	13	2.7
	SEV BAS	3	3.7

Figure 4.16 illustrates the fact that numerically the distribution of the Italian Sigillatas was similar for four of the locations. These counts were then expressed as percentages of the total pottery recovered per location to investigate whether there was anything unusual about the distribution. (See Table 4.19 and Figure 4.17).

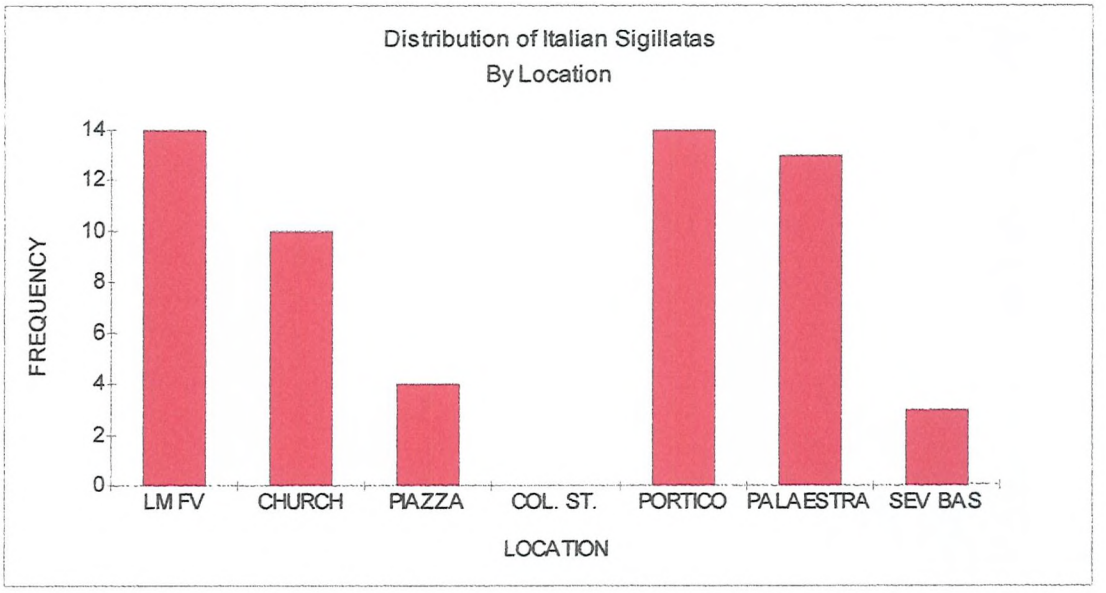


Figure 4.16 - Showing distribution of Italian Sigillatas by location

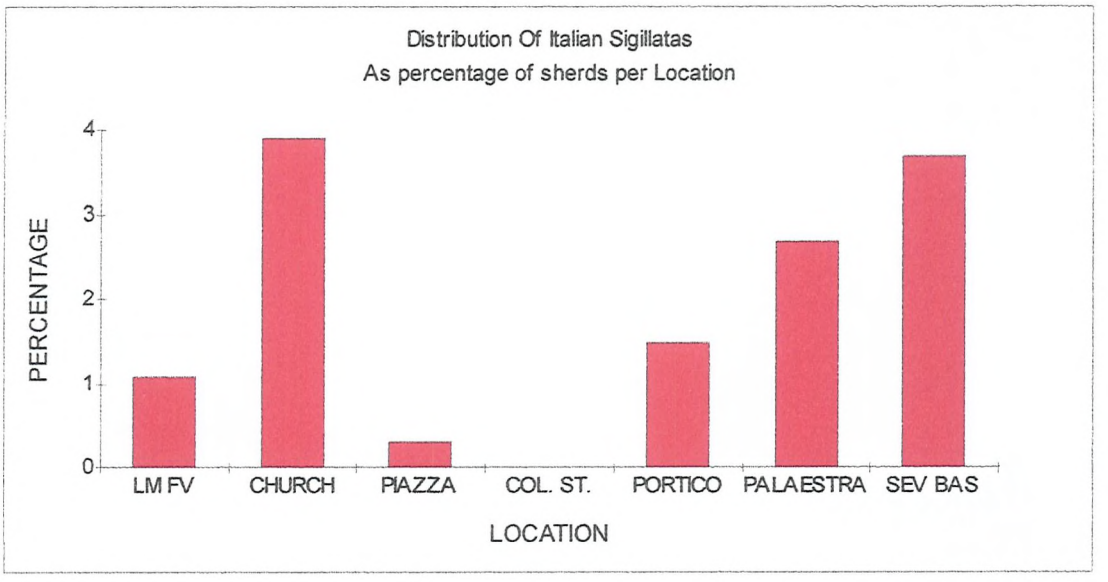
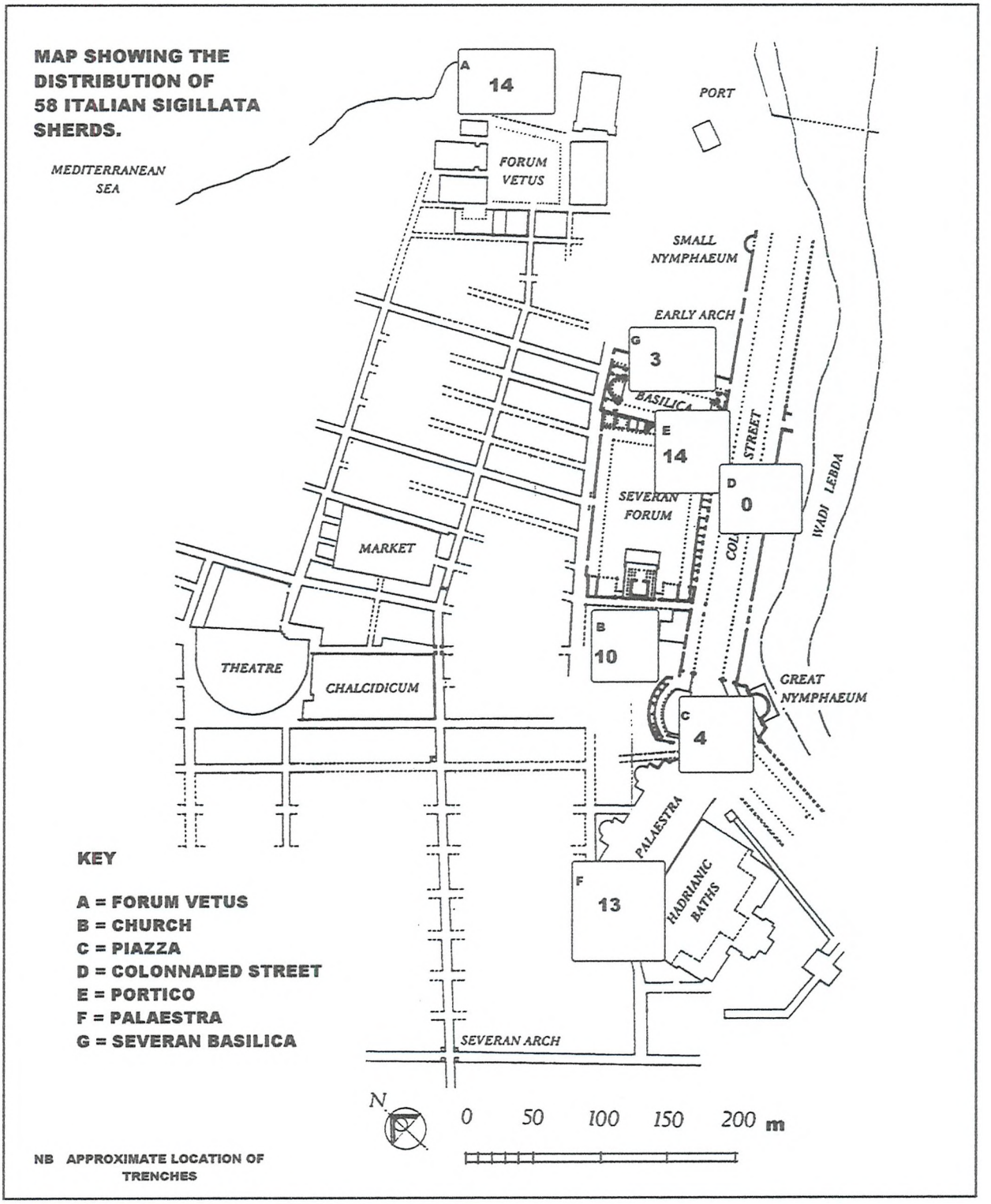


Figure 4.17 - Showing distribution of Italian Sigillatas as percentage of total pottery recovered per location.

The results highlight the fact that very little of the Italian Sigillata was actually recovered in the Piazza trenches, i.e. only 0.3 %. However, it needs to be remembered that the number of sigillata sherds is quite small in itself, only some 1.3% of the total recovered pottery and 7.1% of the finewares. The emphasis has changed from their being four nearly equal groups of pottery to just two groups; the Italian Sigillata found in the Church and the percentage of Italian Sigillata recovered in the Severan Basilica now seem to be more important. It was not possible for a chi squared test to be carried out due to the small sample size. The distribution of the sherds can be found in town plan 5.

However, the distribution of the Italian Sigillata sherds across the town is perhaps not so easy to understand, unlike that of the previous finewares which were excavated generally from the 'chronologically correct' parts of the town. The dateable Lepcis Magna Italian Sigillata sherds, as

will be shown in Chapter 5, mostly belong to the first century AD and therefore one might have expected the majority of the sherds to have been excavated in the Forum Vetus. A plausible explanation for the disparity is that the church location was wrongly identified in the first place, an explanation which will be rejected, but at least half of the church sherds came from older contexts and therefore the sherds may be residual.



Town plan 5 - showing location of Italian Sigillata sherds.

Distribution of all finewares

The distribution of the other three main fineware groups and their relationships to each other have

already been examined but in Table 4.20 the distribution of all finewares is shown. The figure of 18.4% is that of the total number of sherds from all groups of finewares expressed as a percentage of the total number of sherds recovered. Information on the distribution of the African Black Top wares (ABT), although not strictly a fineware, has been included here. Further details about their distribution can be found below.

Table 4.20 - Showing the distribution of the main fineware groups by location.

	ARS	BGW	ESA	SIG	ABT	OTHER	FINEW ARE	TOTAL	FINEW ARE %
LOCATION	COUNT	COUNT	COUNT	COUNT	COUNT	FINEWARES	TOTAL	POTTERY	OF TOTAL
LM FV	16	97	81	14	4	28	240	1236	19.4
CHURCH	13	0	21	10	1	8	53	257	20.6
PIAZZA	229	4	9	4	28	8	282	1554	18.1
COL. ST.	2	0	0	0	0	0	2	35	5.7
PORTICO	123	1	8	14	16	22	184	908	20.3
PALAESTRA	14	0	24	13	2	11	64	490	13.1
SEV. BAS	2	0	6	3	0	1	12	81	14.8
JWP	4	0	0	2	0	1	7	21	33.3
TOTAL	403	102	149	60	51	79	844	4582	18.4

Figure 4.18 illustrates the counts of finewares in each particular location and not surprisingly the greatest quantities came from the largest overall samples i.e. the Piazza and the Forum Vetus.

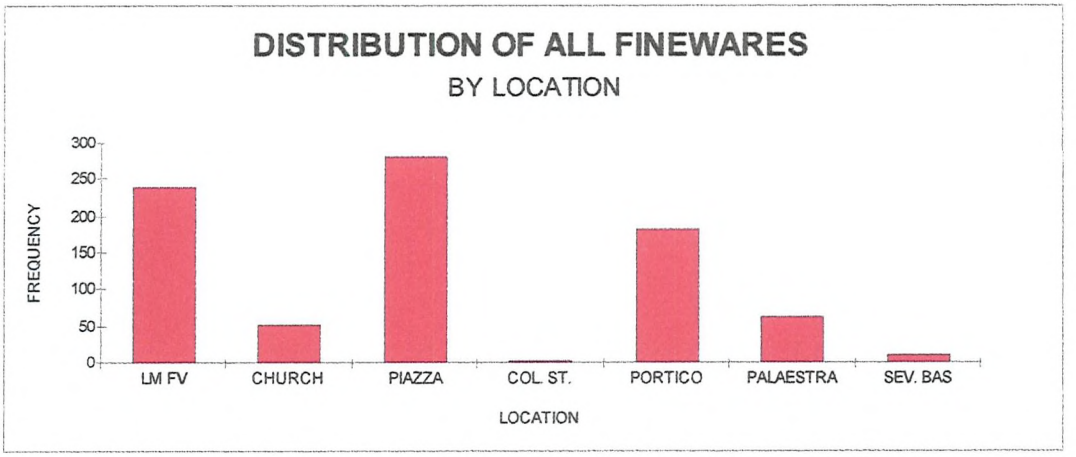


Figure 4.18 - Showing distribution of all finewares by location.

However, when these counts were expressed as percentages, see Figure 4.19, it is interesting to note that five of the seven locations have similar proportions of finewares.

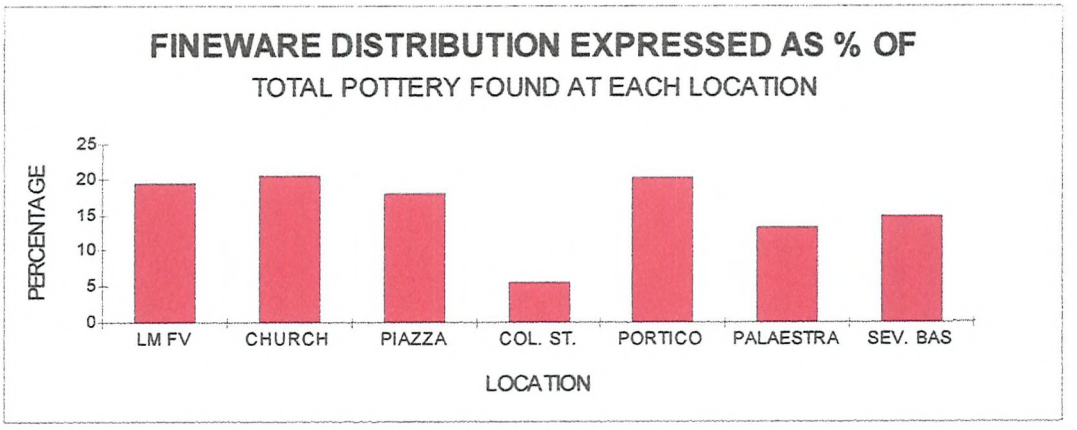


Figure 4.19 - Showing fineware distribution as percentage of total pottery found at each location.

Included in the group of 'other' finewares (see above) are a number of fineware fabrics which were judged to be too small in number to merit individual analysis. These included eight sherds of

Cypriot Sigillata, four of which were recovered in the Palaestra. Fifteen sherds of Tripolitanian Red Slip Ware (TRS) and a few sherds of Pompeian Red Ware were also identified. Sherds of three Eastern Sigillata 'B' vessels were also recognized as well as a single sherd of Campanian Orange Sigillata. Figure 4.20 illustrates the individual counts of the six main groups of finewares across the excavation.

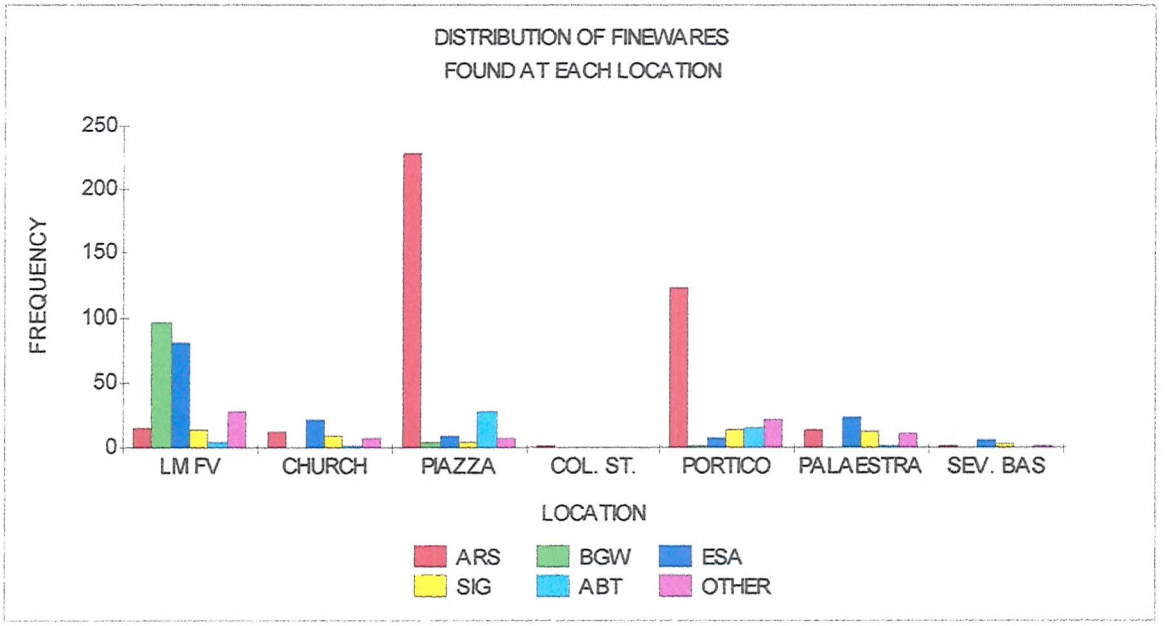


Figure 4.20 - Showing distribution of finewares found at each location.

Numerically the distribution of finewares is dominated by that of the ARS in the Piazza and the Portico. The third largest count was that of the BGW in the Forum Vetus, whilst the quantity of ESA also recovered from the Forum Vetus was also large. These counts were then expressed as percentages of the recovered pottery, see Table 4.21 and Figure 4.21.

Table 4.21 - Showing the distribution of main finewares expressed as percentages.

	ARS	BGW	ESA	SIG	ABT	OTHER	TOTAL
LOCATION	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	POTTERY
LM FV	1.3	7.8	6.6	1.1	0.3	2.3	1236
CHURCH	5.1	0	8.2	3.9	0.4	3.1	257
PIAZZA	14.7	0.3	0.6	0.3	1.8	0.5	1554
COL. ST.	5.7	0	0	0	0	0	35
PORTICO	13.5	0.1	0.9	1.5	1.8	2.4	908
PALAESTRA	2.9	0	4.9	2.7	0.4	2.2	490
SEV. BAS	2.5	0	7.4	3.7	0	1.2	81

Once again the ARS from the Piazza and Portico dominate the statistics but now the quantity of ESA from the Severan Basilica also appears greater.

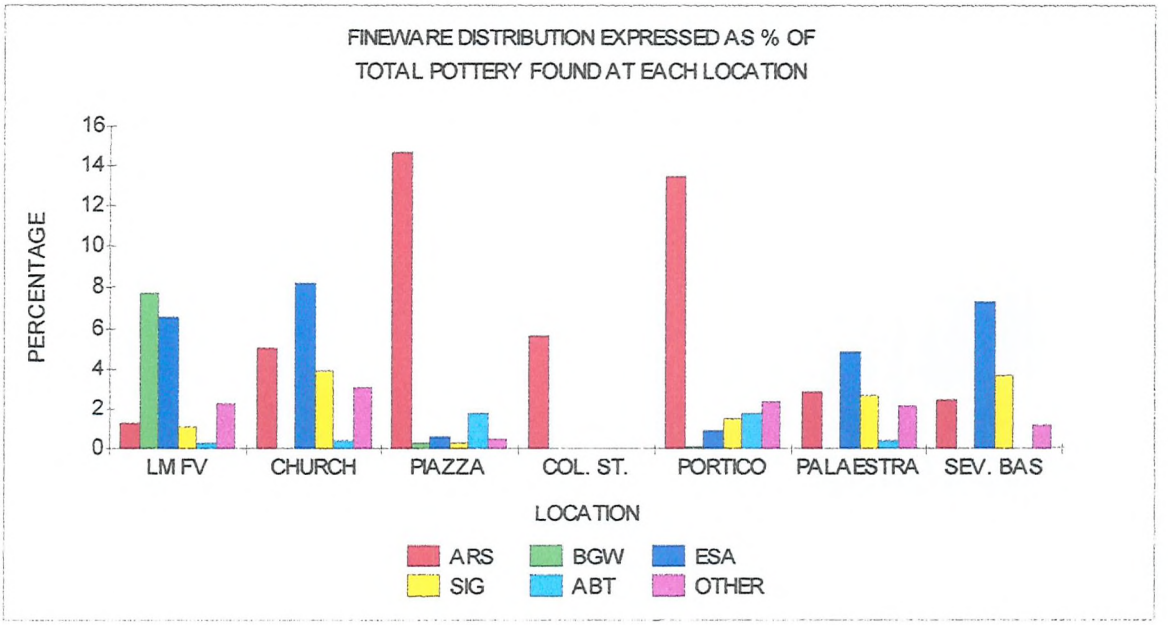


Figure 4.21- Showing the distribution of main finewares expressed as percentage of total pottery found at each location.

African Black Top wares

Another distinct group of pottery, which could perhaps have been classified beside the ARS forms, is the African Black Top wares. A more general look at their distribution across the excavation, compared to some of the finewares, has already been given above in Tables 4.20 and 4.21. The distribution of the 51 sherds is shown in Tables 4.22 and 4.23.

Table 4.22 - Showing distribution of African Black Top wares.

Table 4.22 ABT distribution.								
LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL
1.1			14.1			22.1		
1.2			14.2			22.2		
1.3	1		14.3	1		22.3	1	
1.4			14.4			22.5	2	
1.5			14.5		1	22.6	4	7
1.6								
1.8			17.1			26(A)1		
1.11			17.2	1		26(A)2		
1.12			17.3	1		26(A)3		
1.13		1	17.5			26(A)X		
			17.7		2	26(B)2		
2.1						26(B)3		
2.3			21			26(C)		
2.4			21.3			26(C)1		
2.7			21.4	1		26(C)3		
			21.5			26(C)4		
3.3	1	1	21.6			26(B)2(C)3		
			21.7			26(A)1/2		
8.3	3		21.8			26(D)1	2	
8.4			21.9			26(D)2		2
8.5			21.10	1				
8.6			21.11	3		BAG 2		
8.7	1		21.12			BAG 4		
8.6 & 8.7			21.13			BAG 7	2	
8.8			21.15			BAG 8		
8.9		4	21.16			BAG 25		
			21.17	1		BAG 26	1	
12			21.18	1		BAG 40	1	
12.1	7		21.19			BAG 307		
12.2	1		21.18/19			BAG 310		
12.3	1		21.22	2	9	ALPHA 2		4
12.4	11	20				TOTAL		51

The tables show that the greatest numbers of sherds were recovered from the Piazza trenches, but the proportion was similar to that of the Portico. It was not possible to carry out a chi squared test on the ABT data due to many of the 'expected' values being below the required value of 5.

Table 4.23 - Showing counts and percentages of ABT Ware.

ABT		
LOCATION	COUNT	% of TOTAL
LM FV	4	0.3
CHURCH	1	0.4
PIAZZA	28	1.8
COL. ST.	0	0
PORTICO	16	1.8
PALAESTRA	2	0.4
SEV. BAS	0	0
TOTAL	51	

However a chi squared test was carried out to see whether there was anything unusual about the distribution of all of the fineware pottery sherds irrespective of fabric type. The results can be found in appendix 3F. The test results suggest that there was something unusual about how these fineware sherds were distributed across the trenches. The finewares accounted for 13% of the total pottery excavated in the Palaestra. However, when the test was repeated, this time omitting the data from the Palaestra, see appendix 3G, the results were no longer statistically significant.

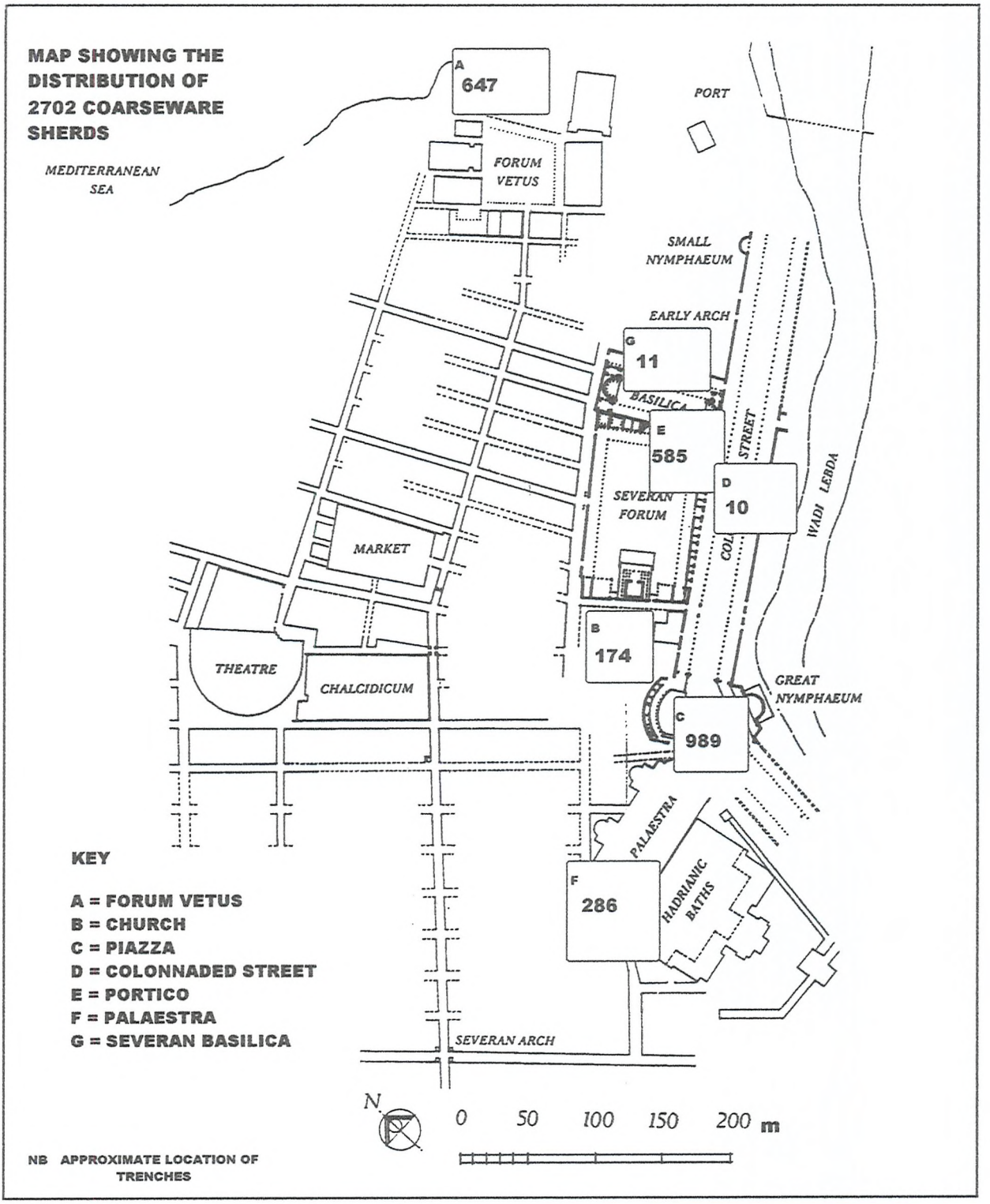
'Thin-walled' wares

A small assemblage of 'thin-walled' wares was also identified and after careful examination of the sherds it was decided that they came from a maximum of 12 vessels. All of the sherds were excavated from the Forum Vetus trenches.

The coarsewares

Numerically, the largest group of pottery, as was shown in Table 4.1, was that of the coarsewares and their distribution is shown in town plan 6. (Once again the JWP coarsewares were excluded.) The coarsewares form a much broader class than the other categories as it includes many different forms and fabrics. Included in this category were sherds from: mortaria, casseroles, bowls of various sizes, braziers and their fire baskets, unguentaria, jugs, flagons and a variety of lids, plates and dishes.

Sherds from the distinctive Pantellerian ware were also identified (see below) but because of the large variety of vessel forms and given that in some cases there were only single examples involved, it was decided not to examine all of their distributions except for particular homogeneous groups. Some of these pottery groups have also been recorded as being present at both Sabratha and Benghazi (Dore and Keay 1989; Riley 1979).



Town plan 6 - Showing distribution of coarseware sherds.

Benghazi Early Roman Plain Ware 1

The first type of coarseware to be examined is the Benghazi Early Roman Plain Ware 1 (ERPW 1). (Riley 1979: 246-247). See Table 4.24. This data was then summarised in Table 4.25 and illustrated in Figure 4.22.

Table 4.24 - Showing distribution of ERPW 1.

ERPW 1				LOCATION	COUNT	TOTAL		LOCATION	COUNT	TOTAL
LOCATION	COUNT	TOTAL		14.3				22.3	5	
1.1				14.4				22.5		
1.2				14.5		2		22.6	1	
1.3										10
1.4	2			17.1	1					
1.5	1			17.2				26(A)1/2	5	
1.6				17.3				26(A)2		
1.8	5			17.5				26(A)3		
1.11	1			17.7		1		26(A)X	4	
1.12								26(B)2	9	
1.13	1	10		18.3				26(B)3	3	
				18.4				26(C)		
2.1				31				26(C)1		
2.3				31.1				26(C)3	3	
2.4	3			31.2				26(C)4		
2.7		3		31.3				26(B)2(C)3	9	
				31.4				26(A)1/2		
7.3				31.5	1	1		26(D)1	2	
7.4								26(D)2	1	36
7.5				21	2					
7.6				21.3	1			LM FV		
7.7				21.4	1			Z00011	1	
7.8				21.5				Z00014	1	
				21.6				Z00024	1	
8.3	1			21.7				Z00027	5	
8.4				21.8				Z00035	1	
8.5				21.9				Z00040	4	
8.6				21.10	2			Z00060	4	
8.7	3			21.11	1					
8.6 & 8.7				21.12				BAG 2	1	
8.8				21.13	2			BAG 18	2	
8.9	3	7		21.15				BAG 20	1	
				21.16	1			BAG 21	1	
12				21.17	1			BAG 26	1	
12.1				21.18				BAG 40	1	
12.2				21.19	1			BAG 300	1	
12.3				21.18/19				BAG 303	1	
12.4	1	1		21.22		12		BAG 307	2	
								BAG 312	1	29
14.1				22.1						
14.2	2			22.2	4			SEV. BAS.	4	4

Table 4.25 - Showing the distribution of ERPW 1.

LOCATION	Count	% Per Location
LM FV	31	2.5
CHURCH	13	5.1
PIAZZA	12	0.8
COL. ST.	0	0
PORTICO	22	2.4
PALAESTRA	35	7.1
SEV BAS	4	4.9

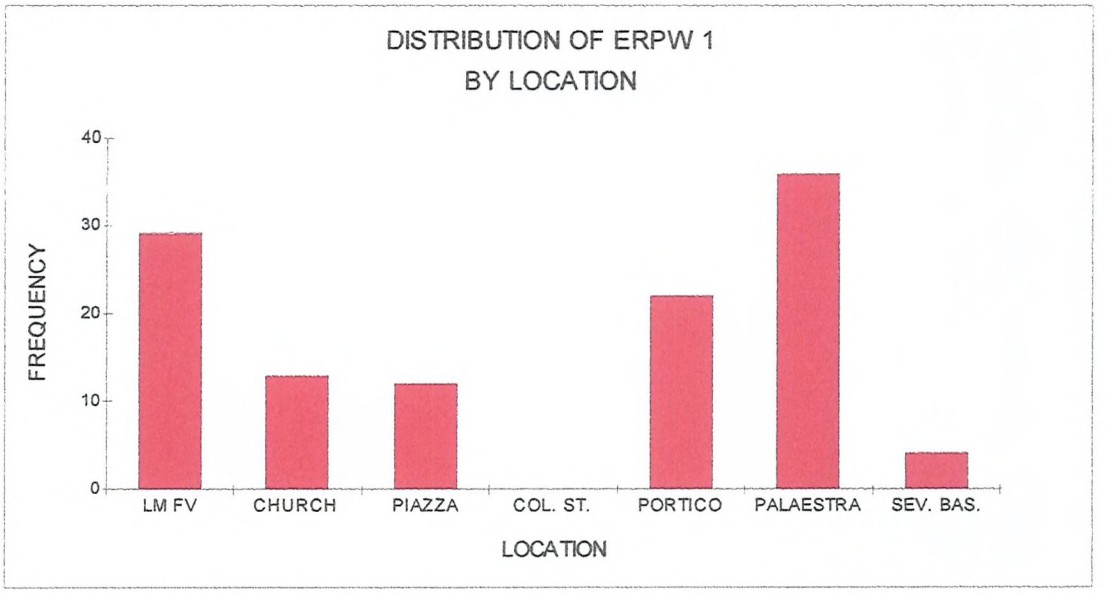


Figure 4.22 - Showing the distribution of ERPW 1 by location.

The counts were then expressed as percentages of total pottery recovered per location in Figure 4.23.

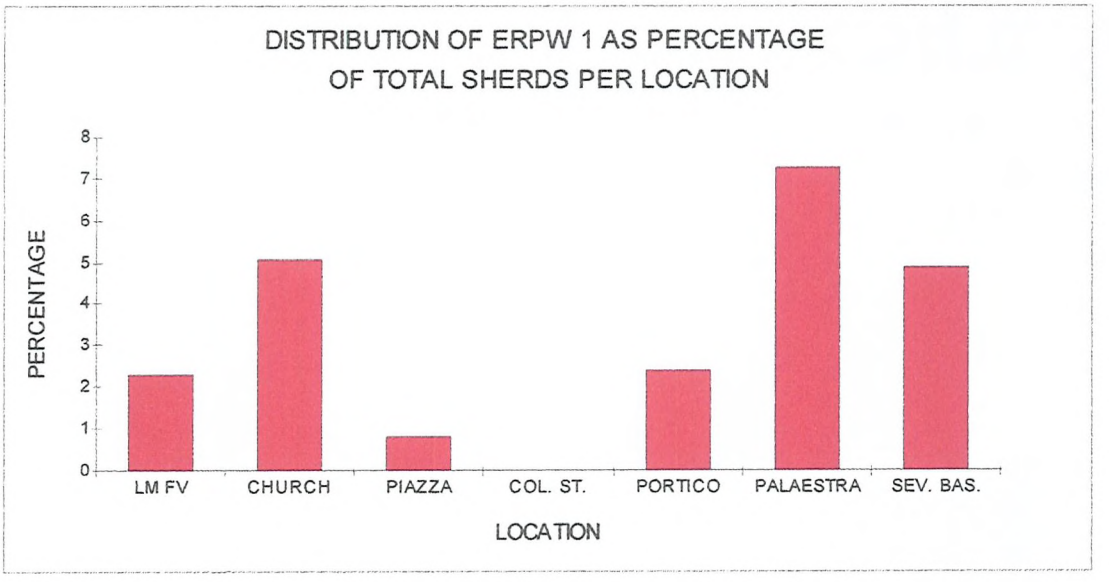
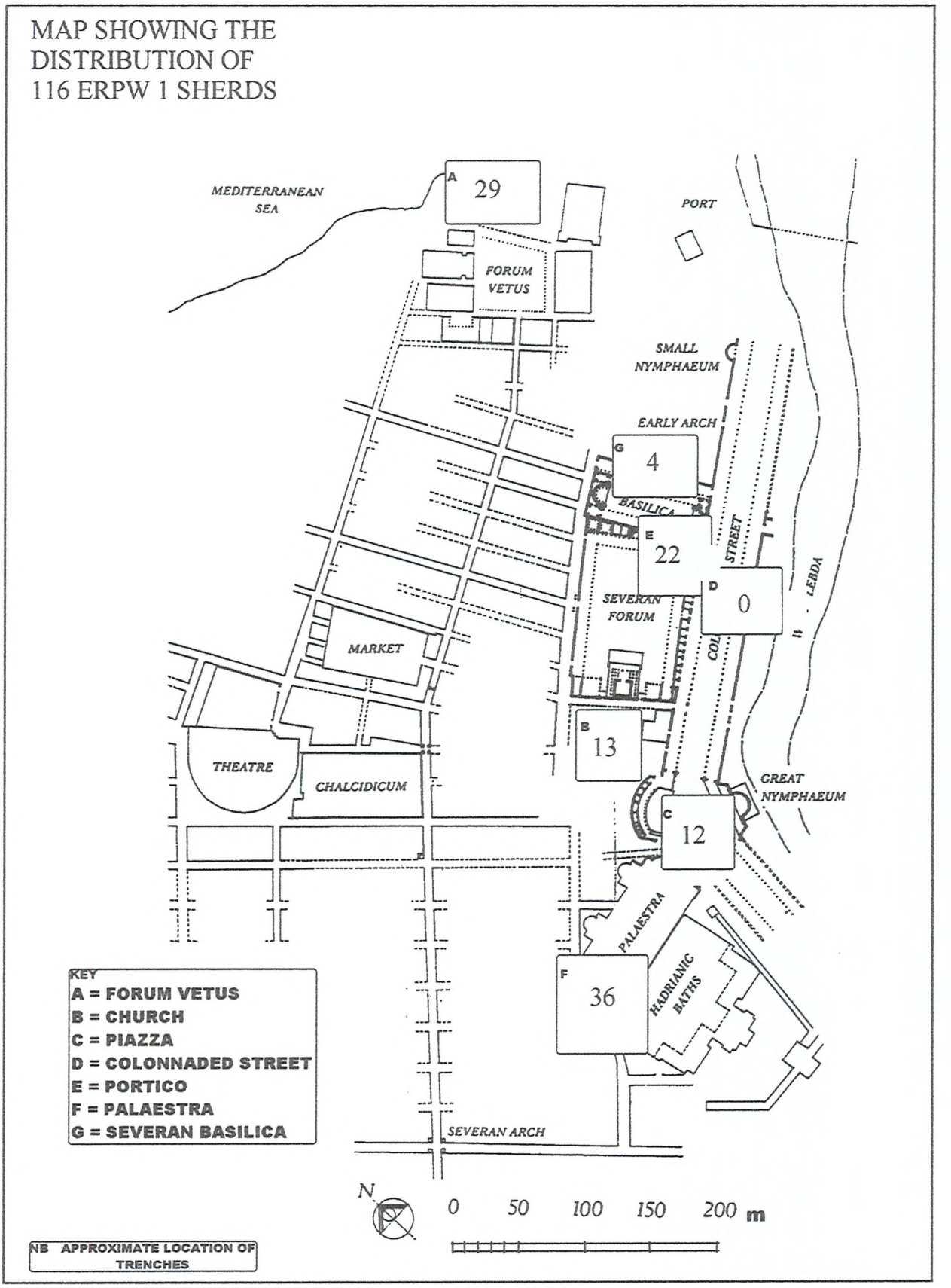


Figure 4.23 - Showing counts as percentages of total pottery recovered per location.

The largest number of ERPW 1 bowls came from the Palaestra trenches and perhaps significantly when these counts were expressed as a percentage of the total sherds recovered per location they accounted for some 7% of it. The ERPW 1 was then analysed using chi squared and once again data from the Severan Basilica and Colonnaded Street had to be omitted (see appendix 3H). Again the test result agrees that there was something unusual about how the ERPW 1 was distributed across the trenches. At Sabratha (Dore 1989: 197) these bowls have appeared in contexts dated from the third century BC to the sixth century AD. Such a long period of production would explain why the sherds were found in all areas of the town. Town plan 7 shows the distribution of the ERPW 1 sherds.



Town plan 7 - Showing distribution of ERPW 1 sherds.

Pantellerian ware.

Another distinctive coarseware pottery type is a group of 31 sherds of the characteristic Pantellerian ware. Table 4.26 and Figure 4.24 shows their dispersal across the trenches and that 11 of these sherds (some 35% of the total) were located in the Palaestra trenches. Given this

distribution pattern the suggestion that these wares might have contained special imported food substances suitable for street selling had to be rejected as known forms were dominated by kitchen type vessels but possibly their thermal resistance properties made them especially useful (Peacock 1982: 79-80).

Table 4.26 - Showing distribution of Pantellerian ware.

PANTELLERIAN WARE					
LOCATION	COUNT	% OF TOTAL	LOCATION	COUNT	% OF TOTAL
LM FV	8	0.6	PORTICO	3	0.3
CHURCH	3	1.2	PALAESTRA	11	2.2
PIAZZA	4	0.3	SEV. BAS	0	0
COL. ST.	2	5.7	TOTAL	31	

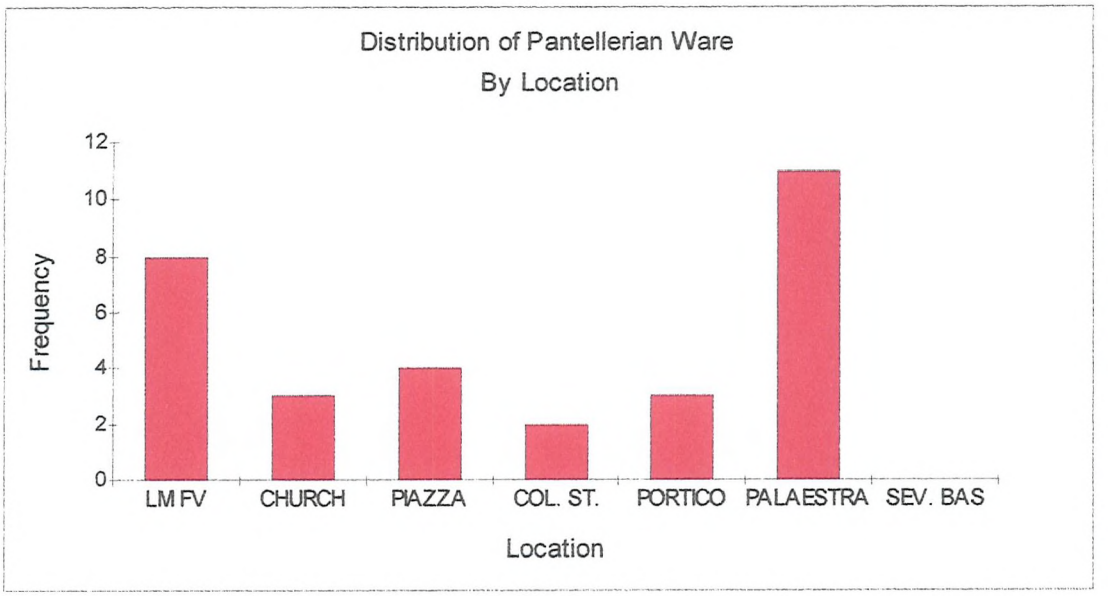


Figure 4.24 - Showing distribution of Pantellerian Ware by location.

However when the counts of Pantellerian sherds were expressed as a percentage of the total sherds for a given location, see Figure 4.25, there were proportionally more Pantellerian sherds from the Colonnaded Street trenches than from the Palaestra.

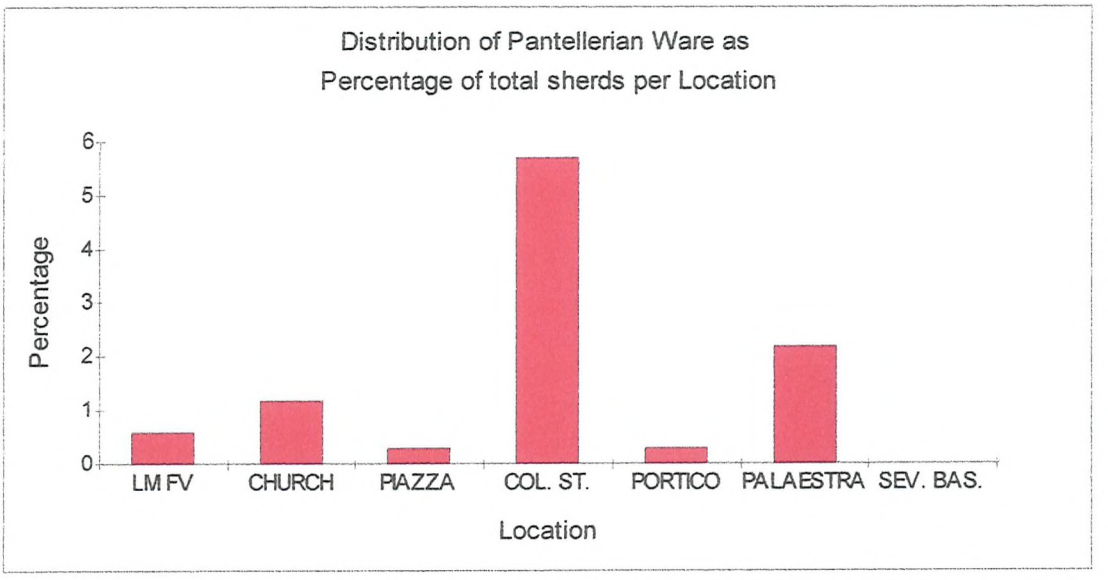


Figure 4.25 - Showing distribution of Pantellerian ware as percentage of total pottery recovered per location.

Nevertheless it needs to be remembered that only very small quantities of Pantellerian sherds were

involved, some 0.7% of the total pottery assemblage. Once again a chi squared test was considered inappropriate due to the small sample sizes.

Distribution summary for other major coarseware groups.

Table 4.27 provides a distribution summary for some of the other coarseware groups which are perhaps worth examining and which have been judged to be homogeneous in some attribute. (The abbreviated codes are explained below and in appendix 2 (see CD-ROM).

Table 4.27 - Showing distribution summary of some of the major pottery groups.

LOCATION	HANDLES	RLB	LIDS	BSH	MORT	UNG	JUG	PAN	RA	IB
LM FV	36	0	51	200	1	9	15	8	7	9
CHURCH	11	0	21	17	0	7	8	3	5	0
PIAZZA	56	7	157	112	1	0	27	4	93	61
COL. ST.	0	0	1	1	0	0	0	2	0	0
PORTICO	27	1	74	50	3	0	22	3	78	5
PALAESTRA	9	4	24	26	2	1	15	11	7	1
SEV BAS	1	0	0	1	0	0	0	0	0	0
JWP	1	0	4	0	0	0	1	0	1	2
TOTAL	141	12	332	407	7	17	88	31	191	78
WEIGHT	4220	975	10520	5309	1755	213	3303	1165	5570	1600
LOCATION	A. HANDLES	LBW	CAS	WSM	BRAZ	SV	CUP	CVW	BASE	BB
LM FV	32	8	3	40	44	5	9	4	57	7
CHURCH	15	0	6	1	11	1	1	1	19	7
PIAZZA	74	14	23	5	48	3	5	21	100	135
COL. ST.	8	0	0	0	0	0	0	0	2	4
PORTICO	27	9	19	2	34	2	0	5	62	74
PALAESTRA	30	2	9	1	32	2	1	5	28	16
SEV BAS	4	0	0	0	0	0	0	0	1	0
JWP	0	0	0	0	0	0	0	0	0	0
TOTAL	190	33	60	49	169	13	16	36	269	243
WEIGHT	24669	4450	2180	1175	9180	510	262.5	1048.5	12970	15515

Handles

The category 'handles' has been divided into two groups, amphorae and non-amphorae handles. The majority of handles, for both groups, were recovered from the Piazza; and together they represented some 8.4% of the total pottery recovered from that area. Both a count total and a weight total are given in Table 4.27. However, it should be noted that in some cases the handles still had attached to them a portion of body sherd therefore the weight totals should be read with caution.

Bowls, basins and dishes.

The category 'IB' represents 78 bowls/dishes which have in-turned rims, the majority of which, some 78%, were found in the Piazza. These bowls were also present at Sabratha and were dated there to the first century BC and are similar in shape to Hayes's ARS form 181. The group 'BB' represents 243 bowls/basins, which have flange rims, were also present in the Sabratha assemblage. Once again the largest number, 135 (56%), came from the Piazza trenches. Another group of bowls 'RLB' was distinguishable from the 'BB' group as these rim sherds had moulded, beaded or ridged rims. Again the majority of these sherds came from the Piazza. Coded as 'LBW', this group comprises the remains of 33 large bowls/basins. Once again the largest number some 14 (42%) came from the Piazza trenches. Another distinctive group is the 'CAS' one which is comprised of casseroles/pans, of which 23 (38%) and 19 (32%) respectively came from the Piazza and Portico trenches respectively. Once again similar examples were excavated at Sabratha.

The code 'WSM' was given to a total of 49 sherds which appeared to have been abraded or smoothed in some way. Forty of the sherds assigned to this group came from the Forum Vetus area. Given the proximity of the Forum Vetus to the sea, the smoothing could have been caused by water action or, more likely, the sherds could simply have 'rolled around' on the ground surface of the Forum. In Chapter 3 the bags of pottery collected from the Forum Vetus were discussed and the lack of detail for a number of them about where the pottery was actually recovered from was pointed out. A number of the bags had been simply recorded as LM FV i.e. Lepcis Magna Forum Vetus. Information about where the sherds were recovered from is essential in understanding the reason for the apparent 'smoothing' of these sherds and unfortunately this data is not available for all of the sherds in this group.

Braziers

A total of 169 sherds were assigned to the category 'Brazier/coarseware'. This assemblage combined together 5 smaller groups, the most easily identifiable of which being the lugs of fire baskets and their decorated rims. Identical examples were found at Sabratha. (See Sab 91.793 in Dore 1989: 135). In order to see whether the distribution across the site, according to the counts, was unusual the counts were once again expressed as a percentage of the total pottery recovered per location (see Table 4.28). The calculated percentages suggest that these sherds were fairly evenly distributed across most of the trenches with the exceptions of the Colonnaded Street, Severan Basilica and the Palaestra.

Table 4.28 - Showing the percentage distribution of brazier sherds.

Table 4.28	LOCATION	Count	% Per Location		LOCATION	Count	% Per Location
	LM FV	44	3.6		PORTICO	34	3.7
	CHURCH	11	4.3		PALAESTRA	32	6.5
	PIAZZA	48	3.1		SEV BAS	0	0
	COL. ST.	0	0		TOTAL		

A chi squared test was carried out to examine the distribution (see appendix 3I). As in previous tests the results indicate that the distribution of the brazier sherds does not appear to be random. Fewer sherds were found in the Piazza trenches than expected, 48 rather than the calculated 60 sherds, whilst a greater number of them came from the Palaestra than were expected i.e. 32 and 19 sherds respectively. A greater number of brazier sherds in the Palaestra could be linked to the provision of refreshments in this area.

Miscellaneous coarsewares

All categories of lids were summarised together. Of the 333 recovered lids nearly half of them, 157 (47%), came from the Piazza trenches. The largest number of body sherds (BSH) was excavated from the Forum Vetus trenches, some 16% of the total pottery which was recovered from there. Sherds from a total of 7 mortaria were identified and the remains of some 17 unguentaria were also present. Of these, 9 (53%) came from the Forum Vetus. There were 88 sherds classified within the 'Jug/Flagon' category irrespective of size. The majority of these sherds, some 49 (56%), came from the Piazza and Portico trenches. A further small group of pottery consisted of those which had been designated as 'cups' or small 'dishes'. Of the 16 recorded examples interestingly 9 of them came from the Forum Vetus. It is possible that some of these 'cups' could have had a votive

purpose given the number of temples located in the Forum Vetus. One of the largest coarseware groups was that of the bases. A total of 269 bases were collected, of which 100 (37%) came from the Piazza trenches. The next largest concentration, 62, 23%, came from the Portico area.

Included within the assemblage were a large number of miscellaneous rim sherds. The majority of these rims came from the Piazza area. This collection was, where possible, sub-divided into smaller groups. However sometimes a 'group' might consist of a single example and this would make any meaningful analysis difficult.

The Lamps

The last remaining distinct group of pottery yet to have its distribution examined is that of the pottery lamps. This is shown in Tables 4.29, 4.30 and Figure 4.26. The four lamp fragments which come from the JWP layer have been omitted from the figure.

Table 4.29 - Showing the distribution of lamp sherds.

LAMP DISTRIBUTION								
LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL	LOCATION	COUNT	TOTAL
1.1	1		17.1	2		26(A)1		
1.2			17.2			26(A)2		
1.3			17.3	2		26(A)3		
1.4	1		17.5	3		26(A)X	2	
1.5	2		17.7			26(B)2		
1.6						26(B)3		
1.8			18.3			26(C)		
1.11	3		18.4			26(C)1		
1.12	1		31			26(C)3	1	
1.13	3		31.1			26(C)4		
			31.2			26(B)2(C)3		
2.1			31.3			26(A)1/2		
2.3			31.4			26(D)1		
2.4			31.5		32	26(D)2		
2.7		11				27.3		
			21	2		27.5		
3.3			21.3			27.6		4
			21.4					
7.3			21.5			LM FV		
7.4			21.6			Z00012	1	
7.5			21.7			Z00013	1	
7.6	1		21.8			Z00037	1	
7.7	6		21.9			Z00043	1	
7.8			21.10	2		Z00046	1	
			21.11			Z00054	1	
8.3	1		21.12	2		Z00059	1	
8.4			21.13	5		BAG 2	8	
8.5			21.15	1		BAG 10	1	
8.6	1		21.16			BAG 20	1	
8.7			21.17	1		BAG 25	1	
8.6 & 8.7			21.18	3		BAG 26	1	
8.8			21.19			BAG 40	1	
8.9			21.18/19			BAG 45	2	
			21.22	2		BAG 50	1	
12	2					BAG 304	1	
12.1	6		22.1					
12.2			22.2					
12.3	1		22.3			ALPHA 2	1	25
12.4	2		22.5			SEV BAS.	4	4
13.6	1		22.6	4	22	JWP	4	4
14.1						TOTAL		102
14.2	4		21.101					
14.3								
14.4			23.2					
14.5			23.3	1		TABLE 4.29		

Table 4.30 - Showing the counts and the relative percentages of pottery lamp fragments per location.

LOCATION	COUNT	PERCENTAGE
LM FV	25	2
CHURCH	11	4.3
PIAZZA	32	2.1
COL. ST.	0	0
PORTICO	22	2.4
PALAESTRA	4	0.8
SEV. BAS	4	4.9
JWP	4	
TOTAL	102	

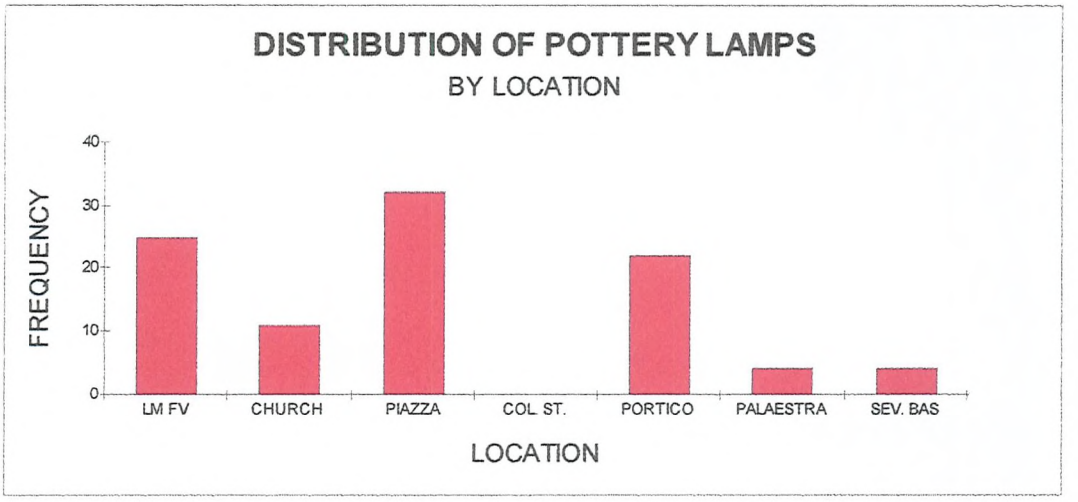


Figure 4.26 - Showing the distribution of pottery lamps by location.

The table shows that the greatest concentration of lamp fragments, not surprisingly, were recovered from the numerous Piazza trenches and, in order to see whether or not any of these counts could be considered unusual, the relative percentages of lamps per location was then calculated (see Table 4.30 and Figure 4.27).

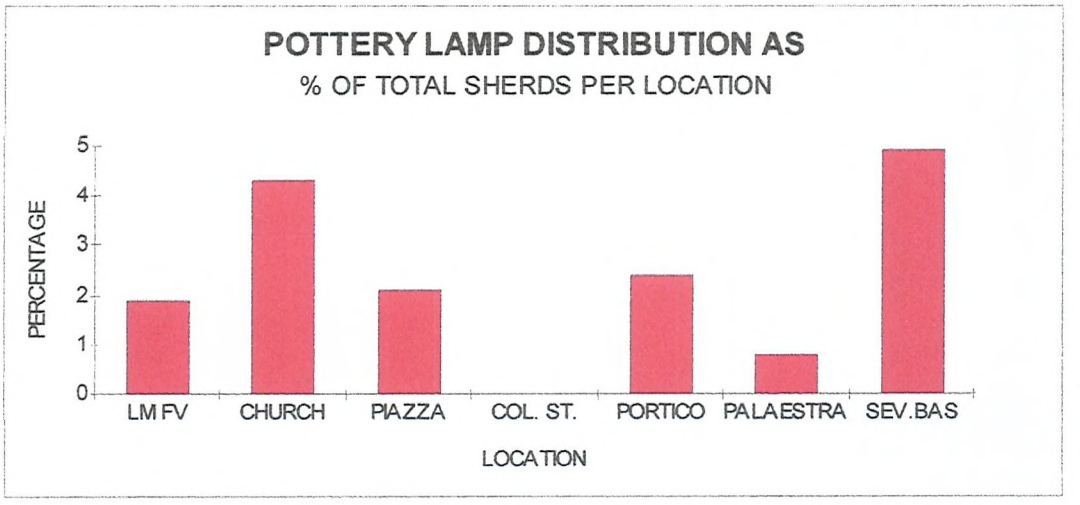
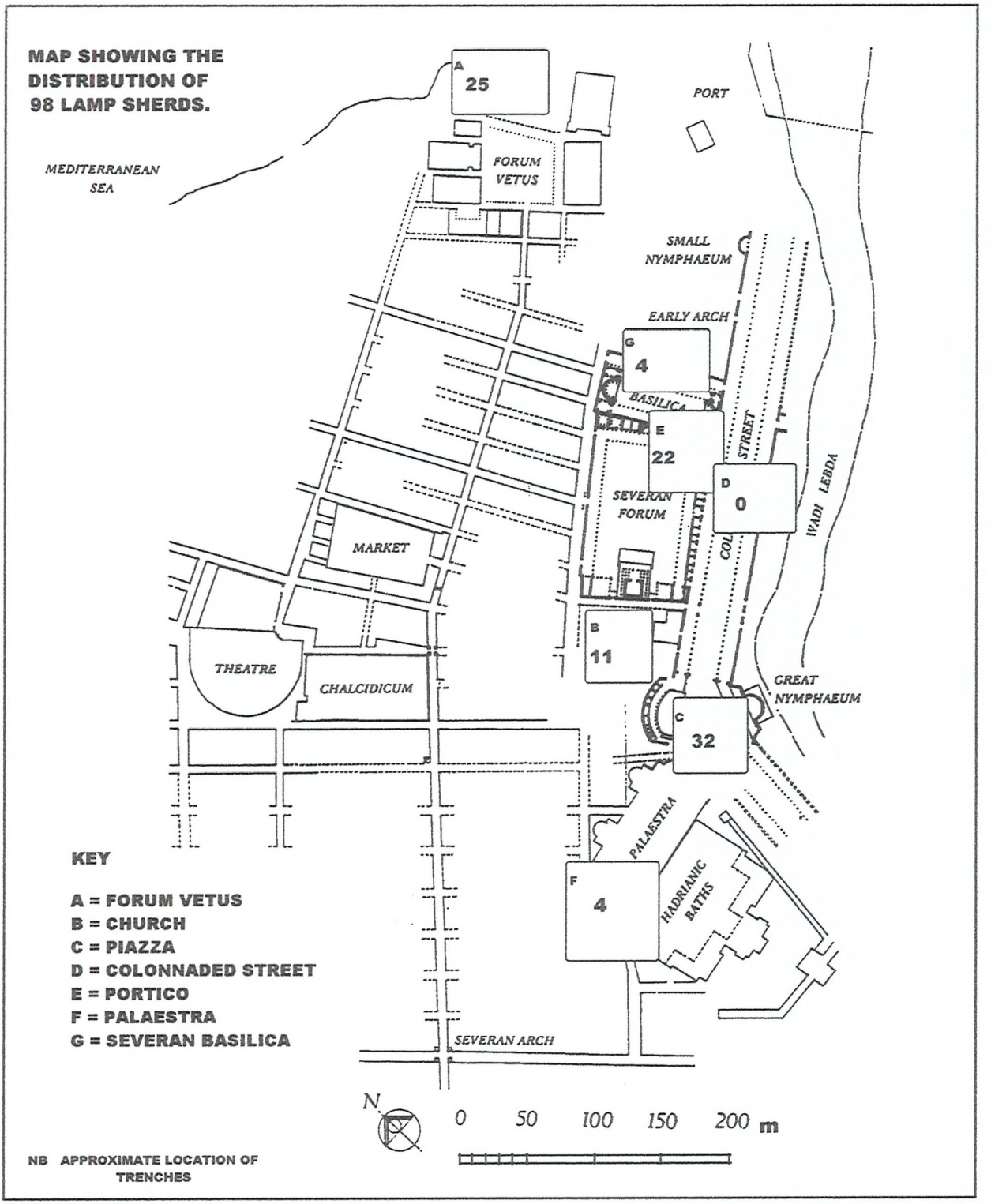


Figure 4.27 - Showing the distribution of pottery lamps as percentage of total sherds per location.

The counts, when expressed as percentages, show that relatively a greater percentage of pottery lamp fragments were recovered from the Severan Basilica and the Church trenches, approximately 5 and 4.5% respectively. One plausible explanation for these higher quantities could be in the need for extra lighting in these buildings. However, it needs to be remembered that only small numbers are actually involved. The distribution of the lamps can be seen in town plan 8.



Town plan 8 - Showing distribution of lamp sherds.

A chi squared test was carried out to test the results statistically. The null hypothesis is 'there is no difference in the way that the lamps and non-lamps were distributed across the trench locations.' (See appendix 3K for the complete test.) Due to the low expected value the data for the Severan Basilica had to be omitted. Once more the null hypothesis was rejected as the test results indicate that the distribution of the lamps was not uniform across the trenches.

Conclusions

Chapter 4 has dealt primarily with the distribution of the various categories of pottery across the excavation in simple numerical terms and an analysis was carried out to explore whether there was anything unusual about the quantity of pottery deposited at each location. Although the pottery was excavated from public spaces much of the pottery would originally have been domestic waste and would have included rubbish from the *popinae* (shops) and *tabernae* (bars). A great deal of the domestic rubbish would have been removed from people's homes and it is not unreasonable to suggest that it found its way into public buildings as rubble and fill, but it would be difficult to assess how far the sherds had travelled from the place at which they were originally disposed of.

In order to compare the distribution of pottery collected across a disparate number of trenches in different locations the counts for the various categories were converted into percentages of the total pottery recovered in each location. By converting the counts to percentages it makes it easier to see whether there was anything unusual about the way the pottery was deposited across the site. These calculations have shown, for example, that some groups of pottery, like the amphorae, were distributed fairly evenly across the different excavation areas possibly indicating that they were not being 'dumped' in designated areas in the town.

Table 4.31 summarises the distribution of the seven major groups of pottery across the excavations and this data is illustrated in Figure 4.28. Because of the small numbers the JWP data and the glazed lump information has been omitted from the graph.

Table 4.31 - Showing the distribution of the seven major groups of pottery across the site.

LOCATION	Amphorae	Coarse	Fine	FC	Lamp	TWW	Glazed	TOTAL	WEIGHT
LM FV	310	647	233	9	25	12	0	1236	36024
CHURCH	39	154	50	3	11	0	0	257	9928.5
PIAZZA	251	988	180	102	32	0	1	1554	73445
COL. ST.	23	10	0	2	0	0	0	35	3520
PORTICO	117	585	113	71	22	0	0	908	48470.5
PALAESTRA	135	287	61	3	4	0	0	490	26705.5
SEV. BAS	32	31	12	0	4	0	2	81	4118
JWP	0	10	4	3	4	0	0	21	462.5
TOTAL	907	2712	653	193	102	12	3	4582	202674

At five of the seven locations, six if JWP is included, it can be seen that the largest group was, perhaps not surprisingly, that of the coarsewares. However, in the samples obtained from the Colonnaded Street and the Severan Basilica, which interestingly were both numerically small, the largest category was that of the amphorae; this represented some 66% (23 out of 35 sherds) and 40% (32 out of 81 sherds) respectively of the total pottery recovered in those locations.

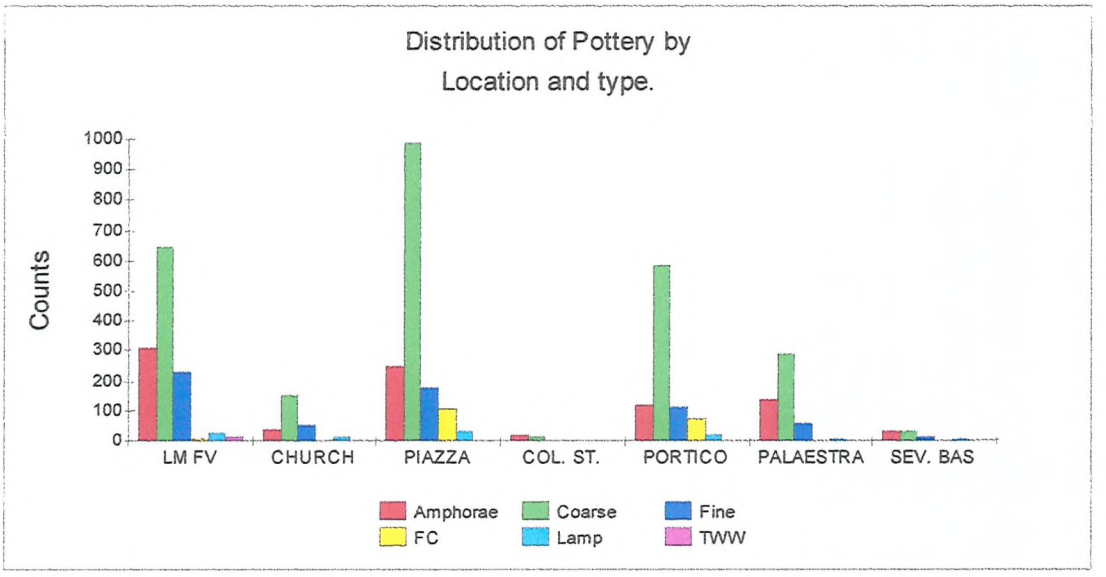


Figure 4.28 - Showing the distribution of the six major groups of pottery across the site.

In order to investigate how each type of pottery was distributed across the eight locations the counts were converted into percentages and are shown in Table 4.32 and illustrated in Figure 4.29.

Table 4.32 - Showing the percentage distribution of pottery by location for each pottery type.

LOCATION	Amphorae	Coarse	Fine	FC	Lamp	TWW	Glazed
LM FV	34.2	23.9	35.7	4.66	24.5	100	0
CHURCH	4.3	5.7	7.66	1.55	10.8	0	0
PIAZZA	27.7	36.4	27.6	52.8	31.4	0	33.3
COL. ST.	2.5	0.37	0	1.04	0	0	0
PORTICO	12.9	21.6	17.3	36.8	21.6	0	0
PALAESTRA	14.9	10.6	9.34	1.55	3.92	0	0
SEV. BAS	3.5	1.14	1.84	0	3.92	0	66.7
JWP	0	0.37	0.61	1.55	3.92	0	0
TOTAL	100	100	100	100	100	100	100

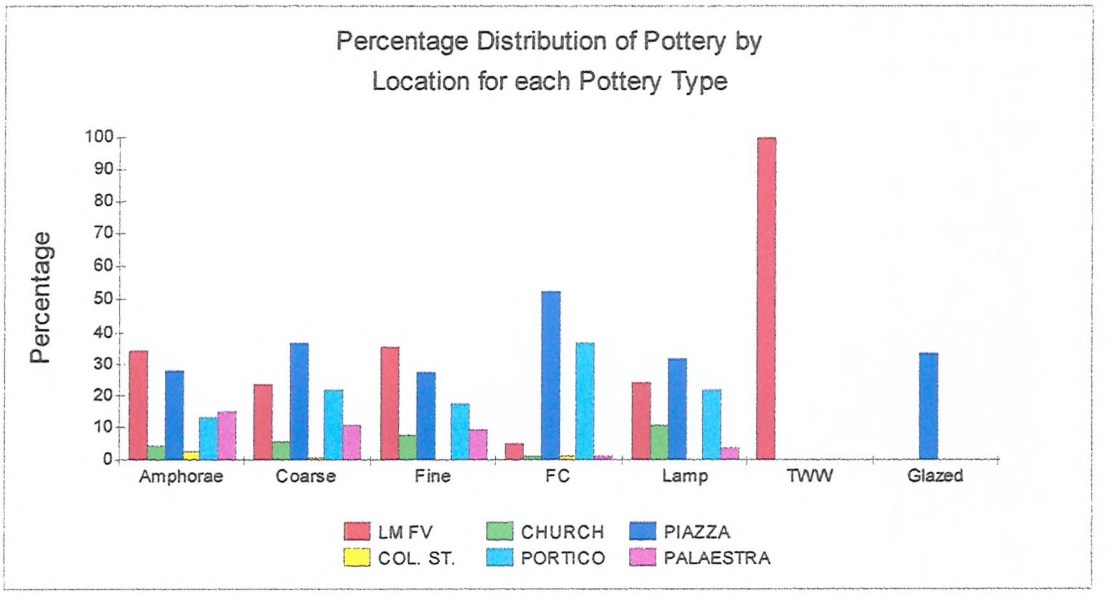


Figure 4.29 - Showing the percentage distribution of pottery by location for each pottery type

The largest percentage of amphoras and finewares came from the Forum Vetus. The largest percentage of lamps, coarsewares and fine/coarsewares appeared in the Piazza trenches. All of the TWW sherds appeared in the Forum Vetus whilst 66% (2 of the 3 sherds) of the glazed lumps came from the Severan Basilica.

In order to investigate how the 7 types of pottery were distributed across each of the 7 locations the counts were converted into percentages and these are shown in Table 4.33 and Figure 4.30.

Table 4.33 - Showing the percentage distribution of pottery by type for each location.

LOCATION	Amphorae	Coarse	Fine	FC	Lamp	TWW	Glazed	Total %
LM FV	25.1	52.3	18.8	0.7	2	1	0	100
CHURCH	15.2	60	19.5	1.2	4.3	0	0	100
PIAZZA	16.2	63.6	11.6	6.6	2.1	0	0.06	100
COL. ST.	65.7	28.6	0	5.7	0	0	0	100
PORTICO	12.9	64.4	12.4	7.8	2.4	0	0	100
PALAESTRA	27.6	58.6	12.4	0.6	0.8	0	0	100
SEV. BAS	39.5	38.3	14.8	0	4.9	0	2.5	100

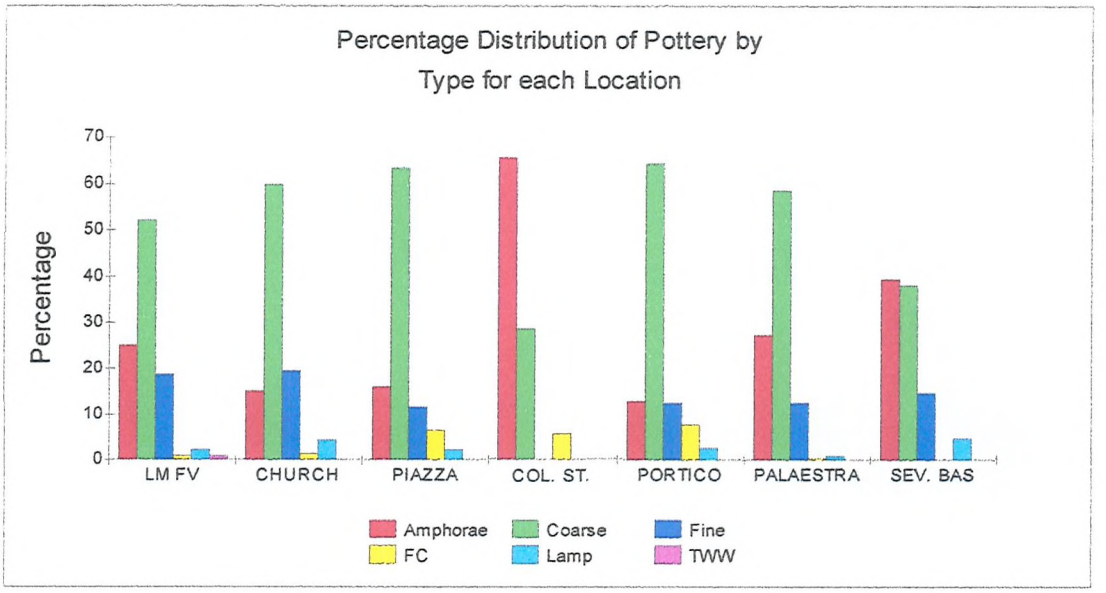


Figure 4.30 - Showing the percentage distribution of pottery by type for each location.

The figures illustrate that for 5 of the 7 locations the largest percentage was that of the coarsewares. For the Colonnaded Street and Severan Basilica, as already seen, the amphorae were present in the largest percentage, whilst the largest percentage of coarsewares and fine/coarse wares came from the Portico trenches. The largest percentage of finewares came from the Church excavations. The largest percentage of lamps came from the Severan Basilica. The complete collection of TWW wares, as recorded in the table above, came from the Forum Vetus.

The data from Table 4.31 was then used to carry out a chi squared test to compare the distribution of the major types of pottery across the different locations. The complete test can be found in appendix 3J. The null hypothesis was that "the distribution across the trenches is the same for all types of pottery". The alternative hypothesis is "the distribution across the trenches is not the same for all types of pottery." In this table the categories of fine and fine coarse have been combined together because expected values need to be greater than 5 for a chi squared test to be appropriate. The data for the locations Severan Basilica and Colonnaded Street once again were omitted for the reasons stated above. Interesting results were found for the Forum Vetus amphorae; some 310 sherds were recovered from there which is greater than the expected value of 235 sherds. From the Portico trenches 117 amphora sherds were found which was lower than the calculated expected value of 174 whilst 135 amphorae came from the Palaestra which was greater than the expected

value of 94. The test also shows that there were less coarsewares in the Forum Vetus than expected whilst there were actually less observed fine/fine coarse in the Palaestra than the expected figure. For the lamps the observed number was 4 whilst the expected figure was 10. Because of the significantly high value of chi squared we reject the null hypothesis and conclude that the distribution of the different kinds of pottery across the different locations was not the same for all types of pottery.

The apparent discrepancy between some of the sets of figures may perhaps be explained partly by the chronological and spatial development of the town, with the focus of the town moving away from the Forum Vetus to the Severan parts of the town in the late second century to third century AD as the town expanded in size.

The calculation of Pearsons' product moment correlation coefficient demonstrated that either counts or weights could be used in the analysis of the pottery assemblage since there was very high positive correlation between them. The chi squared test proved useful in confirming that there was an apparent difference in the way that some of the finewares were distributed across the various locations. Likewise, the bar charts have also provided a useful tool in displaying, at a glance, the differences and similarities between, for example, the distributions of the various groups of pottery. The inclusion of the town plans illustrated from which parts of the town the various types of pottery were recovered, or indeed recorded from where they were absent.

As discussed earlier, the proportions of different pottery types found in a given area of a town may be influenced by the type of activity that was carried out there. For example the Palaestra, which was attached to the baths, was the place in which some of the citizens went to carry out physical exercise and to socialise. In the Baths and Palaestra refreshments were available to purchase from vendors. Seneca (Moral Epistles 1 vi. 1-2) wrote about living over a bathing establishment. 'It disgusts me to enumerate the varied cries of the sausage dealer and confectioner and of all the peddlers of the cook shops, hawking their wares, each with his own peculiar intonation.' There may have been fewer requirements for fine table-wares on which to serve food when more utilitarian pottery or even wooden vessels would suffice; wine may have been dispensed from amphorae into jugs and cups. Similarly over half of the lamps excavated came from the Piazza and Portico trenches. A possible explanation for this might be due to these locations being situated on one of the routes to the harbour, via the Colonnaded Street, and that premises in these locations required extra artificial lighting, possibly in the popinae and tabernae. However another factor worth considering, as referred to above, is that as there were actually more trenches located in the Piazza area than elsewhere, see Table 4.2, one might expect a wider range of pottery types and quantities to be found there compared to other locations which had fewer trenches. The method of converting counts into percentages to enable comparisons between the relative quantities of the

different types of pottery at each location, see Table 4.32 above, proved useful.

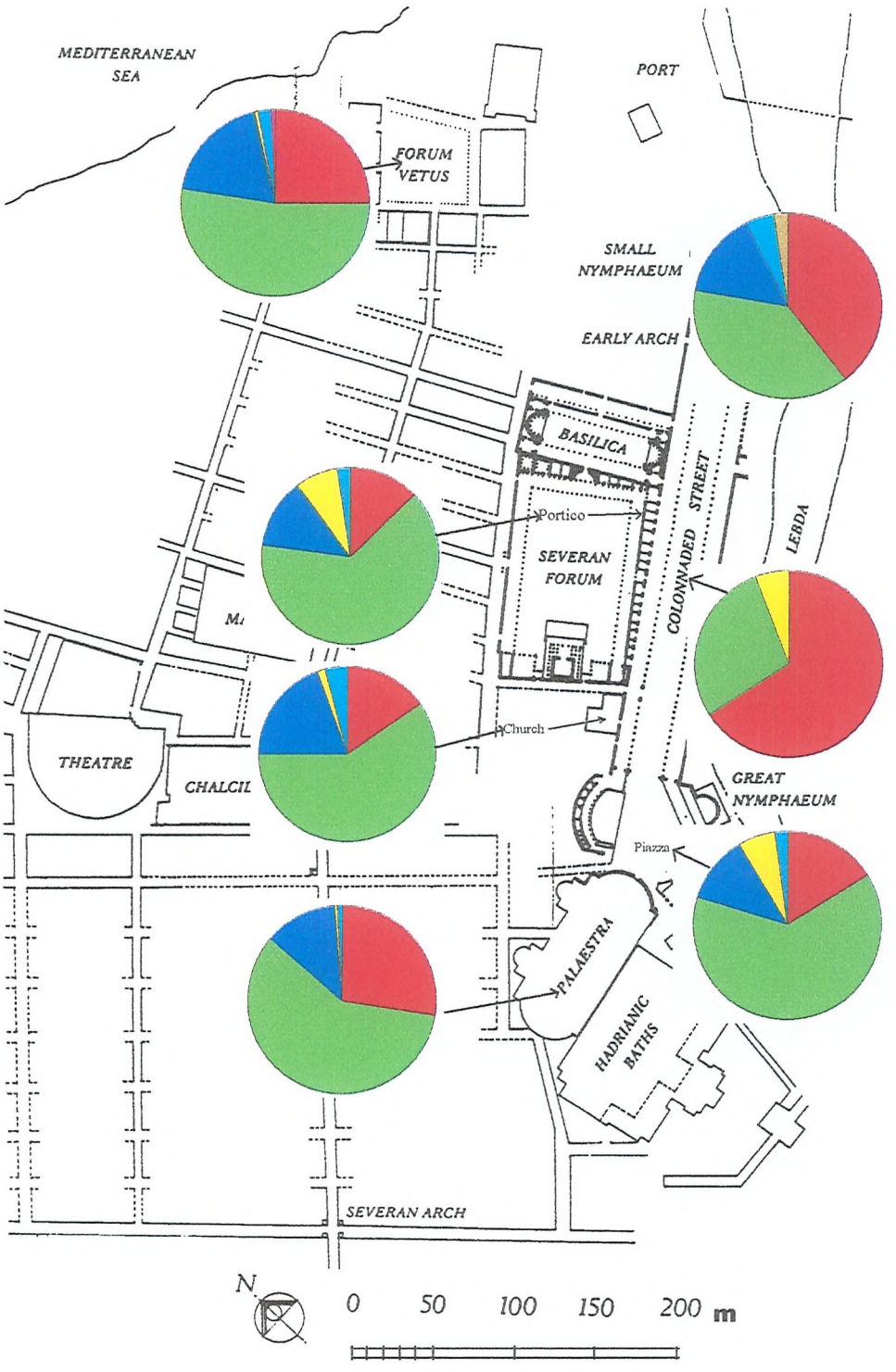
The deposition of the finewares appears to concur with the chronological development of the town (see Chapter 1) as the earlier Black Gloss wares were almost exclusively recovered from the Forum Vetus. Similarly, later finewares, such as Eastern Sigillata 'A' and the Italian Sigillatas have been shown to have had a wider distribution across the site. In contrast to the Black Gloss wares, 96% of the ARS wares were excavated from the 'newer' parts of the town. Of the 4% which did come from the Forum Vetus 11 of the 16 sherds could be dated; six of the sherds came from the first to third centuries AD and 5 could be dated to the fourth to seventh centuries AD (see Chapter 5). By the Byzantine period the town had contracted in size and a defensive wall had been built around the Forum Vetus which could explain the presence there of the later ARS forms.

It is worth taking into consideration whether or not the positioning of the trenches in other parts of the town would have produced very different proportions and types of pottery. Sinopli points out that 'if one excavates in elite residential areas of an urban site and recovers high frequencies of elaborately decorated ceramics, one cannot assume that these occur in all areas of the site in similarly high frequencies' (1991: 55). Would the percentages of the various Lepcis Magna finewares, for example, have been any different if the trenches had been located elsewhere? As stated above, the 1990's excavations - located outside of the Forum Vetus - did not produce any Black Gloss wares. Therefore when conclusions about the nature of the pottery assemblage and its implication for trade are made it needs to be remembered that the pottery evidence may not be a truly representative sample of what was present in the town. Caveats, such as those described by Orton, Tyers and Vince (1993: 166-167) when quantifying and describing pottery assemblages, will need to be taken into account.

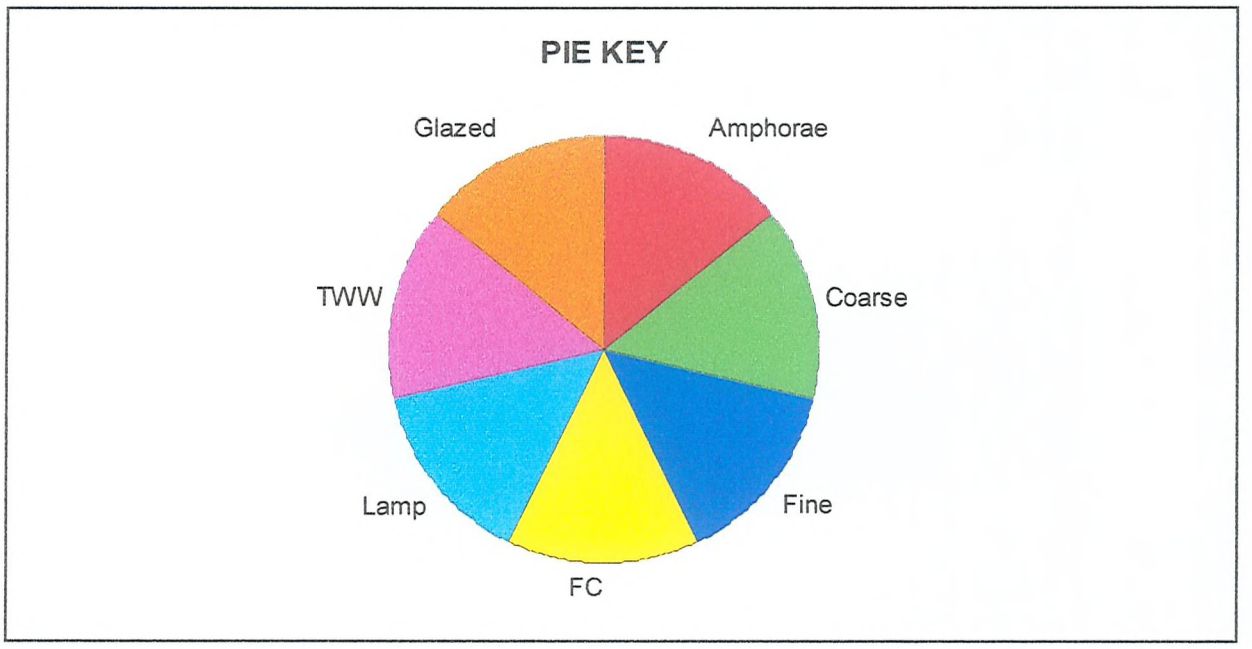
In the above analysis the pottery has been examined in homogeneous groups irrespective of date and location of manufacture. In Chapter 5 the forms and centres of production for the pottery will be investigated in greater detail to see what additional information this can reveal about Lepcis Magna's trading patterns and where possible individual chronological distributions will be investigated.

Chapter Five - The Pottery.

In chapter four the distribution of the major sherd groups across the site were examined in detail and their general distribution across the site are shown in the town plan below.



The distribution of the seven major groups of pottery across the site was given in table 4.31.



The primary aim of this chapter is to look at the major groups of pottery; their forms will be identified and their place and dates of manufacture noted, wherever possible. Descriptions and forms have been have been included within the chapter but fabric descriptions have generally been recorded in appendix 9 (see CD-ROM). The distribution of the pottery forms across the empire will also be examined. Statistical testing of the data will be carried out where it is deemed necessary and feasible. The analysis should help answer questions about some of the possible trading links that Lepcis Magna had with other parts of the Roman Empire and place the Lepcis Magna pottery assemblage in context.

Lepcis Magna had been a port for a number of centuries before it came under Roman influence and the town seems to have flourished. The prevailing weather conditions, as already stated in chapter one, of the Mediterranean would have been important in Lepcis Magna's trading links with other parts of the Roman Empire. Whether Lepcis Magna was involved more with the western or the Eastern Empire in long distance exchange will be explored by examining and identifying the pottery assemblage. As Fulford (1989: 169-191) says 'Transport by sea not only offered the opportunity for the most economical long distance movement of bulk commodities such as grain, olive oil and wine - the staples of the ancient world - but it also presented a greater range of possible destinations.'

Fulford has compared the trading patterns of Cyrenaica and Tripolitania, in particular Sabratha. As previously cited, the prevailing weather conditions of this part of the North African coast seem to have been an important factor as possibly did the historical antecedents of the towns for trade (1989: 169-191). The Tripolitanian towns, as recorded in chapter one, had Phoenician and then Punic beginnings, in contrast, Cyrenaica had Greek origins being 'colonised' by the Theran Greeks

as early as the seventh century BC. Fulford concludes his research by suggesting that although both areas shared the same coastline the archaeological evidence, including pottery, suggested that they were trading more with regions situated to the north of them respectively than with each other. In the case of Cyrenaica, according to Fulford, they appeared to have had closer links with Crete, Greece and the Aegean. The Sabrathan evidence, according to Fulford, suggests trade contacts were stronger with Tunisia, Sicily and western Italy (1989: 169-191).

Certain caveats will have to be kept in mind when dealing with the imported pottery. For instance, the presence of a particular type of pottery on a site does not necessarily prove that there was a direct trade link between the point of origin and the final destination of the pottery. It is possible that small quantities of finewares may have travelled a long way before they reached their final destination. However, due to the fragile nature of some of the finewares this increases the probability of direct trading links. Written evidence survives in the form of a guide for traders from the Red Sea, the 'Periplus Maris Erythraei' (Casson 1989), which suggests that whilst some ships sailed directly to their destination, others sailed from port to port buying and selling goods as they travelled.

5.1 The Amphorae (ANK, ARM and ASP).

The first group of pottery to be examined in detail will be that of the amphorae. Amphorae are of particular importance to study as they provide information about the long distance transportation of agricultural produce. Fulford highlights the importance of studying the distribution of amphorae in order to 'understand the trade in archaeologically invisible perishable commodities' like olive oil (1989: 169-191). In the introduction to 'Southampton University Roman Amphorae: a digital resource: Keay and Williams 2005' (henceforth Keay and Williams: 2005) amphorae are described as providing 'direct evidence for inter-regional and long-distance movement of agricultural products within the empire' and that they were 'designed to transport agricultural produce over long distances, particularly by sea'; some of the amphora form shapes were so designed for stacking in the hold of ships 'with their spikes occupying the voids between amphorae in the layer below'. The introduction also suggests that amphorae besides providing information about the economy of the empire, also tells us about the 'tastes and dietary preferences of sectors of society' (Keay and Williams: 2005).

As already explained in chapter four, the quantification and identification of the amphora rims and bases whilst recorded in the same tables may sometimes be interpreted separately. However the use of 'stacked' bar charts may resolve the dilemma of analysing separately what may after all be parts of the same vessels. After a close visual examination all of the rim sherds which were judged to belong to the same vessel were given the same record number. However, it was far more difficult to decide whether or not some of the bases belonged to the same vessel as the rims. Hence

they have been catalogued separately. Another reason for this separation was to enable a statistical comparison between the two assemblages of Lepcis Magna and Sabratha to be carried out in chapter six, avoiding any distortion in the statistics by overestimating the number of vessels actually present.

In the following amphora analysis only the rims and bases will be used for form identification and interpretation purposes. Table 5.0 lists the counts and percentages of different sherd parts.

Table 5.0 - Showing counts and percents of different amphora sherd parts.

Amphorae	Counts	Percent
Rims	221	24.3
Handles	190	20.9
Body	382	42.1
Bases	60	6.6
Neck	7	0.8
Plug	1	0.1
Lids	46	5.1
Total	907	

Although numerically the body sherds formed the largest group it was decided not to include them for analysis as it was more difficult to be precise as to how many individual amphora were actually represented by them, whereas with the amphora rims and bases it was somewhat easier to judge which pieces belonged together. An over-estimate, or under-estimate, of vessels present in the pottery assemblage would serve to bias any statistics generated. It is, however, worthwhile noting that this strategy has limitations as certain amphora forms and fabrics were present only as body sherds e.g. British Bi (Peacock and Williams Class 43), Palestinian (Peacock and Williams Class 46), a small ridged amphora and a 'pinched handled' Benghazi Mid Roman Amphora 4. A single possible 'plug' (APG) from the base of an amphora was recovered from the Forum Vetus excavations. The fabric FB 311 was not local (see appendix 9 on the CD-ROM).

Amphorae Necks (ANK)

A group of 7 sherds were identified as being part of amphora necks. Unfortunately it was only possible to identify one sherd as being part of a distinctive 'Hollow Foot' amphora; the remaining sherds were unidentifiable. Table 5.1 provides the details of the sherds.

Table 5.1- Showing details of amphora neck sherds.

Location		Description	Form	Fabric
Portico	ANK1	Internal rim dimension 6 cm.	N/I	FB A1
Palaestra	ANK2	Rim too small to measure.	N/I	FB A2
Forum Vetus	ANK3	Internal rim dimension 10 cm.	N/I	FB A3
Forum Vetus	ANK4	Internal rim dimension 13 cm.	N/I	FB A4
Piazza	ANK5	Rim too small to measure.	N/I	FB A5
Piazza	ANK6	Internal rim dimension 10 cm.	Sabratha 20 Hollow Foot	FB A6
Portico	ANK7	Internal rim dimension 8 cm.	N/I	FB A7

Amphora rims and bases.

Table 5.2 (see CD ROM) has been abstracted from the pottery database and it records the sherd forms, locations, fabrics and time periods when the amphorae were thought to be in production. Additional information about individual sherds, which may not feature in the following analysis, can be found in the database. The amphorae designated as ARM LM 1-19 represent 27 amphora rims which, have proved difficult to cross-reference to other known amphora forms, and they could therefore be considered as new forms, or as variants of recognised forms; however it is worth

noting that when the pottery fabric was examined a number of these amphorae seem to have been manufactured locally. A caveat worth considering is whether or not some of the vessels identified as 'flagons' should really be classified as small amphorae. This is particularly difficult to resolve when dealing with relatively small sections of rims and possibly with new forms. Similarly, a small group of sherds, included within the LM 1-19 group, which had beaded rims, could possibly have been classified as flagons.

Although it would be ultimately desirable to fully document where else in the empire the amphorae forms present in the Lepcis Magna assemblage were found, for the purpose of this study the typology below simply records whether the amphorae were also present in the North African assemblages of Benghazi, Leptiminus, Sabratha and ULVS. Keay and Williams (2005) provides a wide-ranging geographical distribution of the major Roman amphorae forms.

The Amphora Typology.

The following amphora typology describes the forms which were present in the Lepcis Magna assemblage. The prefixes 'ARM' stands for amphora rims and 'ASP' stands for amphora spikes/feet. For example sherd ARM 159 was identified as being part of an 'Almagro 54' type amphora. The code 'ARM 159' relates to that particular sherd and its record in the database. It is important to note that the Lepcis Magna amphora rim diameters were measured internally. In the typology description it is also recorded whether or not the sherds have been drawn and these illustrations can be found at the end of the section, the drawings are ordered numerically. The related pottery fabric descriptions have been recorded separately in appendix 9 (see CD-ROM).

Almagro 54 - Peacock and Williams Class 49. **See illustration on page 142.** The rim form of this cylindrical amphora is described as being 'beaded with a simple rounded lip with a rim diameter ranging from 10-11 cm; full vessel height as 40-83 cm and its capacity as 20 - 25 litres. The date range is given as probably from the third through to the sixth centuries AD and they were manufactured in the Levant.' (Keay and Williams: 2005). The Lepcis Magna sherd, ARM 159, had an internal rim diameter of 10 cm and an external rim of 11.5 cm; its fabric was described as FB A13 and is shown in drawing ARM 159. The form was also found at Benghazi. (Riley 1979: 219-223.)

Beirut 2.2. **See illustration on page 145**. Keay and Williams (2005) describe this amphora form as having 'a triangular rim shape formed by two straight angled sides resembling two partial sides of a triangle; rim diameters 8-10 cm, but their full vessel height was not known. The production dates are given as first century AD primarily early to c. AD 70+ and that they were made in the Levant.' (Keay and Williams 2005). There was one vessel in the Lepcis Magna assemblage, ARM 210, which had an internal rim diameter of 10 cm and its fabric was recorded as FB A33. See drawing ARM 210.

Beirut 3.2. See illustration on page 143. Amphora form Beirut 3.2 also has a triangular rim shape. Again the 'full vessel height is not known; the date of production is thought to be between the late

first century to mid-second century AD and that they were manufactured in the Levant.' (Keay and Williams 2005). Three rims were identified at Lepcis Magna; ARM 164, ARM 170 and ARM 182. Their rims measured 12 cm in diameter. For fabric description see FB A41 and for rim drawing see ARM 182.

Beltran I - Dressel 8 - Peacock and Williams Class 17. **See illustration on page 148.** 'This form has a bell shaped mouth with a thickened short rim which has a concave outer face. Rim diameters were given as ranging from 18-22 cm; full vessel heights from 80-90 cm but their capacities are not known.' (Keay and Williams: 2005). These Spanish amphorae were thought to be manufactured from the late first century BC to the early second century AD. (Peacock and Williams 1986: 120-121). Only the spike of this amphora, ASP 8 was present in the Lepcis Magna assemblage. See drawing ASP 8 and fabric description FB A95.

Beltran II - IV - Dressel 14 Peacock and Williams Class 20. **See illustration on page 151.** This amphora form 'has a thickish beaded rim and ovoid handles with a shallow groove down the centre. The cylindrical body has a long hollow spike.' Keay and Williams (2005). There were sherds from three vessels in the Lepcis Magna assemblage, ARM 148, ASP 18 and ASP 19. The Lepcis rim had an internal rim of 12 cm and external rim diameter of 16 cm. Beltran IIA-IIB had rim diameters in the range 16- 22 cm, full vessel heights of 90-110 cm and capacities of 30-35 litres (Keay and Williams: 2005). They were thought to be in production from the first to the third centuries and were manufactured in Spain/Portugal. (Peacock and Williams 1986: 126-127). For fabric descriptions see FB A108 for ASP 18 and ASP 19 and fabric FB A52 for ARM 148. See drawing ASP 19. Form also found at Benghazi. (Riley 1979: 160-161.)

Beltran 80. **See illustration on page 152.** There was a sherd of one vessel, possibly of this form, in the Lepcis Magna assemblage. This form was present only as a hollow spike ASP 23. For fabric description see FB A103 and for drawing see ASP 23. These amphorae were thought to have been manufactured from the fourth to the sixth centuries AD in Palestine. (Beltran Lloris 1978: 227.)

Benghazi Mid Roman Amphorae 5 - Zeest 80. This form has a vertical rim flattened on top and has two external deep grooves below the rim. There was one sherd in the Lepcis collection which had an external rim diameter of 11 cm and external rim of 17 cm. For fabric description see FB A9 and for drawing see ARM 186. The Benghazi example had a rim diameter of 18 cm. The source was given as the Aegean/Black Sea and the amphorae were thought to have been produced in the third century. The form was also found at Benghazi. (Riley 1979: 188.)

Benghazi Late Roman Amphorae 10 - British B IV - Carthage Late Roman Amphora 3. **See illustration on page 149.** 'The rim of this amphora is gently rounded' (Keay and Williams: 2005). It has a long slender neck with two short strap handles. (Williams and Peacock 1986: 188-190). Rim diameters were given as ranging from 4-5 cm and full vessel heights from 46-68 cm; these Asia Minor amphorae were thought to be manufactured from the first to sixth centuries AD. (Keay and Williams: 2005). This form was present at Lepcis Magna as a hollow foot, ASP 9, and as a number of body sherds. See drawing ASP 9 and fabric description FB A100. The form also found

at Benghazi. (Riley 1979: 229-230.)

Clausentum AR3. See illustration on page 146. 'Clausentum AR3 has a saucer-shaped in-turned rim above an expanded neck which is rilled inside' Cotton and Gathercole 1958: 110). The date range is given as third century to mid to late fourth century (Cotton and Gathercole 1958: 110). There was one example, ARM 219, in the Lepcis Magna assemblage which had a rim with internal diameter of 16 cm and an external diameter of 18 cm. The full vessel height is not known. See drawing ARM 219 and fabric description FB A8; the probable source was Tunisia.

Dressel 7-11 - Peacock and Williams Class 16. See illustrations on pages 142 and 147. The rim of this form is flaring and the spike is solid. These Spanish amphorae were in production from the late first century BC to first century AD (Peacock and Williams 1986: 117-119). Rim diameters varied from 18-22 cm and vessel heights from 75-90 cm but their capacities are not known. (Keay and Williams: 2005). There were three sherds in the assemblage ASP 2, ARM 160 and ARM 198. See drawing ASP 2, ARM 160 and fabrics ASP 2-FB A107, ARM 160-FB A20, ARM 198-FB A34. NB the identification of ARM 160 as a Dressel 7-11 was not confirmed by the examination of its fabric. The form was also present at Benghazi. (Riley 1979: 159-160.)

Dore 15. See illustrations on pages 133 and 134. This form possibly related to Keay XXIVA, characterised by a tooled rebate on the external face of the rim. (Dore 1992: 132).There were sherds of two vessels in the assemblage; ARM 77 and ARM 84 which had internal rim diameters from 11-12 cm. Full vessel heights are not known. See fabric FB T 29 and drawings ARM 77 and ARM 84. The fabric suggests a Tunisian/Tripolitanian source. These amphorae were also found in Leptiminus.

Egloff 172 - Peacock and Williams Class 53. See illustration on page 136. This amphora form has no distinct rim as such as it merged into the neck. Rim diameters ranged from 10-12 cm and vessel heights from 72-90 cm; the amphorae were manufactured in Egypt from the late fourth century to the mid-sixth century (Keay and Williams: 2005). There was one example ARM 113 in the Lepcis Magna assemblage which had a rim diameter of 10 cm. For fabric description see FB A10 and drawing ARM 113.

Furrowed Rim - Gauloise 12 - Peacock and Williams Class 55. See illustration on page 137. The thick rim of this form has two grooves running around its top. The body of this amphora is wide, round and bag-shaped or globular and rim measurements varied from 7-18 cm in diameter, heights from 24-50 cm and capacities from 35-40 litres. (Keay and Williams: 2005). The rim of one of these amphorae, ARM 128, was found in Lepcis Magna and its internal rim measured 12 cm in diameter and its external rim dimension measured 15.5 cm. See fabric description FB A15 and drawing ARM 128.

Gauloise 3 - Peacock and Williams Class 29. A base, ASP 44, of this Gaulish amphora was found at Lepcis Magna. The amphora had a narrow flat base with a small foot ring. See fabric description FB A106. The amphorae were in production in the first century AD (Keay and Williams: 2005). The rim becomes gently wider towards the top and diameters ranged from 13-14

cm, full vessel heights from 57-64 cm and capacities from 25-30 litres; the body was wide, round and bag-shaped or globular in shape. (Keay and Williams: 2005).

Gauloise 4 - Peacock and Williams Class 27. See illustrations on pages 136, 152 and 153. The rim is fairly thick with a rounded rim and the base is narrow with a small foot ring; rim diameters measured 11-13 cm; vessel heights 60-69 cm but their capacities are unknown. (Keay and Williams: 2005). These amphorae were in production from the mid-first century to the third century. There were sherds of 8 vessels in the assemblage, ASP 30, 31, 34, 35, 36 and ARM 117, 156 and 166. The Lepcis rims had diameters of 9 cm and external diameter 11.5 cm. For fabrics see ASP 30-FB A29 B; ASP 31-FB A29 C; ASP 34, 35, 36-FB A 29A; ARM 117-FB A40; ARM 156-FB A19; ARM 166-FB A29 A. See drawing ARM 117, ASP 30, ASP 34, and ASP 36.

Keay XIX - Almagro 51A and B. See illustration on page 147. 'The rim is noticeably thickened in the form of a collar around the neck of the amphora; the body tapers downwards: it is wider at the top. Rim diameters range from 9-11 cm, full vessel height 60-94 cm and capacity up to 10 litres.' (Keay and Williams: 2005). This Spanish amphora form was present only as a short spike ASP 4 in the pottery assemblage. See fabric descriptions FB A102 and drawing ASP 4.

Keay XXXV A. A rim, ARM 81, of this form was present in the pottery assemblage. 'The rim is gently rounded and the body of the amphora is cylinder-shaped, displaying little curvature. In general the rims measured from 13-14 cm; full vessel heights ranged from 107-114 cm, however their capacities are unsure. The amphorae were manufactured in Tunisia from the late fourth to mid-sixth century.' (Keay and Williams: 2005.) The Lepcis Magna example had an internal rim diameter of 10 cm and an external rim measurement of 13 cm. See fabric FB A77.

Keay XL. See illustration on page 136. The rim of this Tunisian amphora form is described as being gently rounded, with rim diameters measuring 13 cm. However capacities and vessel heights are not known. The amphorae were manufactured from the fourth to the fifth centuries. (Keay and Williams: 2005). The Lepcis Magna internal rim measurement was 11 cm. See fabric descriptions FB A73 and drawing ARM 116.

Paphos 5 - Hayes Roman Amphora Type 5. See illustration on page 145. There was a rim of one of these eastern Mediterranean amphorae in the assemblage, ARM 218. The in-turned rim had an internal rim diameter of 14 cm and 18 cm externally. The amphora found in Beirut had an internal rim measurement of 13.5 cm and c. 17 cm externally and was thought to have been manufactured during the second century (Reynolds 1997-1998: 94). See fabric description FB A11 and drawing ARM 218.

Richborough 527 - Peacock and Williams Class 13. See illustration on page 136. Amphora rim ARM 115 was an example of this particular form. 'The most typical vessel comprises a large thick rounded rim with short, chunky semi-circular, ridged, handles and a small solid spike.' (Keay and Williams: 2005). The Lepcis Magna amphora had a large thick rounded rim which measured 12 cm internally and 15 cm externally. The capacity of these amphorae has been measured as being from 15-30 litres and they were manufactured in the first century on Lipari (Keay and

Williams: 2005). See fabric description FB A83 and drawing ARM 115.

Sabratha Form 1 - Corinthian. See illustrations on pages 142, 147 and 152. These Corinthian made amphorae had low flaring rims and their spikes were solid. Sabratha Form 1A rims measurements ranged from 12-16 cm and were in production from the fifth century to the first century BC. (Keay 1989: 6-11.) Sabratha Form 1G rims measured from 10-13 cm and were dated to the third century BC. (Keay 1989: 6-11.) There were sherds from four vessels found at Lepcis Magna, ARM 168, ARM 212, ASP 3 and ASP 32. The Lepcis rim measured 10 cm. For fabric descriptions see FB A43 for ASP 3, ASP 32 and ARM 212 and FB A36 for rim ARM 168. For drawings see ARM 168, ASP 3 and ASP 32. The form was also present at Sabratha (Keay 1989: 6-11) and Benghazi (Riley 1979: 130-131).

Sabratha Form 3-4 - Hole Mouth - Benghazi Hellenistic Amphora 10. See illustrations on pages 139 and 152. 'This type of amphora has a very tall cylindrical body (over 1 m high), a total absence of shoulder and a sharply in-turned rim.' Riley (1979: 136 in Lloyd (Ed.) 1979). These Tunisian forms were manufactured from the fourth to second centuries BC. (Riley 1979: 136 in Lloyd (Ed.) 1979). There were sherds from eight vessels in the Lepcis assemblage and they are listed here with their pottery fabrics: ASP 22-FB A24E, ARM 133-FB A24A, ARM 134-FB A24B, ARM 199-FB A24A, ARM 201-FB A24B, ARM 203-FB A24A, ARM 205-FB A24C, ARM 206-FB A24D. For drawings see ARM 133, ARM 134 and ASP 22. Internal rim diameters measured 8-12 cm in diameter. The form was also present at Sabratha (Keay 1989: 12-22) and Benghazi (Riley 1979: 136).

Sabratha Form 6 - Greco/Italic - Peacock and Williams Class 2. See illustration on page 140. This form is described as having 'a triangular-rim, cylindrical neck and sharply carinated shoulder; the ovoid handles are attached below the rim and on to the shoulders.' (Keay and Williams: 2005). There were sherds from two vessels in the assemblage, ARM 145 and ARM 211. ARM 145's internal rim measured 16 cm in diameter and 20.5 cm externally. In general the rims measured 20-21 cm; they were 82-83 cm in height and their capacities ranged from 20-25 litres. (Keay and Williams: 2005). These Italian amphorae were manufactured from the fourth century and second century BC. (Keay and Williams: 2005). For fabric description see FB A12 and for drawing see ARM 145. The form was also present at Sabratha (Keay 1989: 23-24) and Benghazi (Riley 1979: 131-133).

Sabratha Form 7 - Van der Werff 3 - Benghazi Hellenistic Amphora 13. See illustrations on pages 133, 135, 141 and 144. 'The general form has a long cylindrical body with two small handles on the side and a flaring rim.' (Keay and Williams: 2005). In general the rims ranged from 11-14 cm in diameter; vessel heights from 55-86 cm but their capacities are unknown. (Keay and Williams: 2005). The Lepcis Magna internal rims measured 10-14 cm. The vessels range in date from late third century BC to the first century BC. (Keay and Williams: 2005). There were 9 of these sherds in the Lepcis Magna assemblage and they are listed here with their fabrics: Sabratha 7B, ARM 112-FB A67.

Sabratha 7C, ARM 73-FB T29, ARM 74-FB T29, ARM 75-FB T29, ARM 149-FB T34.

Sabratha 7F, ARM 93-FB A87, ARM 108-FB A28, ARM 200-FB A62.

Sabratha 7M, ARM 78-FB A25.

For drawings see ARM 73, ARM 75, ARM 78, ARM 108, ARM 149 and ARM 200. The form was also present at Sabratha (Keay 1989: 24-29) and Benghazi (Riley 1979: 138).

Sabratha Form 8C - Van der Werff 1 - Benghazi Hellenistic Amphora 12. See illustrations on pages 132, 140 and 141. 'The general type has a long cylindrical body with two small handles on the side and a flaring rim.' (Keay and Williams: 2005). In general the rims measured 19-27 cm; full vessel heights ranged from 100-110 cm but their capacities are unknown. (Keay and Williams: 2005). Three Lepcis Magna sherds ARM 58, ARM 140 and ARM 153 shared the same fabric FB A25. They were manufactured in Tunisia from the first half of the second century BC to the first century AD. (Keay and Williams: 2005). The Lepcis Magna rims had internal rim measurements 14-16 cm and external measurements from 17-20.5 cm. See drawings ARM 58, ARM 140 and ARM 153. The form was also present at Sabratha (Keay 1989: 29-30) and Benghazi (Riley 1979: 137:138).

Sabratha Form 9 - Van der Werff 2. See illustration on page 141. 'The general form has a long cylindrical body with two small handles on the side and a flaring rim. In general the rims measured 16-21 cm; full vessel heights up to 84 cm but their capacities are unknown. The form was manufactured from the first half of the second century BC to the first century BC.' (Keay and Williams: 2005). There were three Lepcis Magna vessels in this group. The Lepcis rims measured internally from 16-21 cm and external measurement c. 18 cm. ARM 152 was classified as a Sabratha 9D and was made from fabric FB A42; ARM 146 and ARM 147 as Sabratha 9 L's and fabric FB A25. See drawings ARM 146 and ARM 147. The form was also present at Sabratha (Keay 1989: 30-35).

Sabratha Form 7-9 - Van der Werff 1 - 3

Spikes of two amphorae spikes ASP 25, fabric FB T35, and ASP 26, fabric FB A62 were also identified.

Sabratha Form 11 - Dressel 1A and 1B - Peacock and Williams Class 3-4. See illustrations on pages 142 and 148. 'The rim is noticeably thickened in the form of a collar around the neck of the amphora; there is a solid spike at the base of the amphora. These Italian amphorae are thought to have been in production from the last quarter of second century BC to first century BC.' (Keay and Williams: 2005). There were sherds of three vessels in the assemblage which are listed here with their fabrics; ASP 5-FB A18, ARM 104-FBA 50 and ARM 163-FB A32. The rim diameters ranged from 17-18 cm and full vessel height ranging from 97-117 cm. (Keay and Williams: 2005). The Lepcis Magna rim diameter was 16 cm internally and 19 cm externally. See drawings ARM 163 and ASP 5. The form was also present at Sabratha (Keay 1989: 36-38).

Sabratha Form 13 - Dressel 2-4 - Benghazi ERA 4 - Peacock and Williams Class 3-4. See illustrations on pages 134, 137, 141, 144, 145 and 146. The rim of this form is described as

beaded and with a simple rounded lip. 'The handles are distinctive as they are bifid and formed from two rods, appearing as a figure-8 in section. There is a solid spike at the base of the amphora.' (Keay and Williams: 2005). The rim diameters measured from 14-16 cm, heights from 95-108 cm and capacities 20-25 litres. (Keay and Williams: 2005). The amphorae were in production from the late first century BC to the mid-second century. There were sherds from seven vessels in the collection and they are listed here with their fabrics. ASP 1-FB A18, ARM 83-FB A47, ARM 118-FB A38, ARM 151-FB A35, ARM 157-FB A21, ARM 207-FB A18 and ARM 217-FB A18. The rims ranged from 9-12 cm internally and from 11.5-15 cm externally. With the exception of ARM 83, which seems to have been made from a western Mediterranean fabric, the sherds appear to have been manufactured in Italy. See drawings ARM 83, ARM 118, ARM 151, ARM 207, ARM 217 and ASP 1. The form was also present at Sabratha (Keay 1989: 38-39), Benghazi (Riley 1979: 149-151) and ULVS (Mattingly 1996: 361).

Sabratha Form 14 - Beltran II A - Peacock and Williams Class 18 -19. See illustration on page 150. 'This form has thick beaded rims and hollow spikes. In general the rims measured 20-25 cm; full vessel heights were from 80-110 cm but their capacities are unknown. They were manufactured from the first to the second centuries in Spain.' (Keay and Williams: 2005). There was a spike ASP 17 in the assemblage; see fabric FB A105 and drawing ASP 17. The form was also present at Sabratha (Keay 1989: 39).

Sabratha Form 16 - Tripolitanian I-III - Benghazi Early Roman Amphora 11A, 11B and Mid Roman Amphora 14.

As this form was the most numerous in the amphora assemblage, accounting for 45% of the rims and bases, it was decided to present the information about the drawings and fabric numbers in table form for easy reference. The form was also present at Sabratha (Keay 1989: 40-43), Benghazi (Riley 1979: 164-168 and 198-199) and ULVS (Mattingly 1996: 355-357).

Benghazi Early Roman Amphora 11A. See illustrations on pages 132, 143 and 144. This form is described by Riley in this way: 'The neck is fairly high and slightly conical. The rim is thickened and concave on the outer face. There are two handles from the top of the neck to the shoulder, and there is often (but not always) an indentation on the inside neck where the handle joins the neck. The body is long and cylindrical and the base is conical and hollow.' (1979: 166). The Benghazi rims measured from 14-18 cm (Riley 1979: 166-167). The letter 'P' indicates that the sherd has been printed.

Benghazi Early Roman Amphora 11A

ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG
ARM18	FB A63		ARM48	FB A66		ARM87	FB A67		ARM121	FB A76	
ARM27	FB A62		ARM60	FB A66		ARM88	FB A89		ARM123	FB A90	
ARM35	FB A60		ARM61	FB A65		ARM89	FB A80		ARM135	FB A70	
ARM41	FB A62		ARM62	FB A65		ARM91	FB A81		ARM187	FB A39	P
ARM42	FB A62		ARM63	FB A66		ARM98	FB T35		ARM188	FB A66	P
ARM43	FB A62		ARM69	FB A49	P	ARM99	FB A67		ARM193	FB A62	
ARM44	FB A62		ARM70	FB A62		ARM100	FB A79		ARM202	FB A62	
ARM45	FB A66		ARM71	FB A66		ARM105	FB A61				
ARM46	FB A66		ARM72	FB A62		ARM107	FB A69				
ARM47	FB A66		ARM76	FB A86		ARM109	FB A62				

Benghazi Early Roman Amphora 11A.

ID	Fabric	
ARM19	FB T35	Small version.
ARM53	FB A66	Possible variant.
ARM106	FB T35	Possible variant.
ARM142	FB A72	Possible variant.

Benghazi Early Roman Amphora 11B. See illustrations on pages 129, 130 and 140. This form is described by Riley in this way: 'This rim form has a short neck and everted rim which is thickened and convex on the outer face with a narrow groove below the lip. This form has two handles on the body below the shoulder.' (1979: 167). The Benghazi rims measured from 16-17 cm (Riley 1979: 167-168).

Benghazi Early Roman Amphora 11B												
ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	
ARM1	FB A62	P	ARM6	FB A62	P	ARM11	FB T29		ARM194	FB A62		
ARM2	FB A62	P	ARM7	FB A62		ARM13	FB A62		ARM195	FB A62		
ARM3	FB A62	P	ARM8	FB A62		ARM14	FB T29		ARM196	FB T34		
ARM4	FB T29		ARM9	FB A62		ARM16	FB A62	P	ARM197	FB A62		
ARM5	FB A62		ARM10	FB A62		ARM141	FB A62	P				

Benghazi Early Roman Amphora-11B Variant. See illustrations on pages 129, 130 and 138.

ID	Fabric	DWG	
ARM12	FB A62	P	Possible variant.
ARM15	FB A62	P	Possible variant.
ARM139	FB T35	P	Possible variant.

Benghazi Early Roman Amphora 11A-11B. See illustrations on pages 150.

ID	Fabric	DWG
ASP15	FB A62	P
ASP45	FB A62	

Benghazi Mid Roman Amphora 14. See illustrations on pages 130, 131, 132, 134 and 135. Riley describes this form in this way: 'This is a later version of Early Roman Amphora 11 and shares a similar general shape, fabric and origin. The handles as with Early Roman Amphora 11B, on the shoulder; the rim is thickened but with a sharp groove on the outer face, in contrast to the gentler concave groove in Early Roman Amphora 11A.' (1979: 198). The Benghazi rims measured from 14-19 cm (Riley 1979: 198-199).

Benghazi Mid Roman Amphora 14												
ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	
ARM17	FB A68	P	ARM32	FB A62		ARM52	FB A36	P	ARM97	FB A55	P	
ARM20	FB T35		ARM33	FB A71		ARM54	FB A66		ARM101	FB A68	P	
ARM21	FB T35		ARM34	FB A71		ARM55	FB A66		ARM103	FB A82		
ARM22	FB T35		ARM36	FB A62		ARM57	FB A66	P	ARM120	FB A66		
ARM23	FB A62		ARM37	FB A62		ARM59	FB A66		ARM143	FB A66		
ARM24	FB A62	P	ARM38	FB A62		ARM64	FB A66		ARM144	FB A55		
ARM26	FB A62	P	ARM39	FB A36	P	ARM65	FB A66		ARM184	FB A62		
ARM28	FB T35		ARM40	FB A62	P	ARM82	FB A71	P	ARM185	FB A66		
ARM29	FB A91	P	ARM49	FB A78		ARM90	FB A88	P	ARM190	FB A66		
ARM30	FB A62		ARM50	FB A70	P	ARM94	FB A66		ARM204	FB T35		
ARM31	FB A62	P	ARM51	FB A66	P	ARM95	FB A66					

Benghazi Mid Roman Amphora 14 variants. See illustrations on pages 133 and 135.

Benghazi Mid Roman Amphora 14 variants												
ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	
ARM25	FB A62		ARM79	FB A82	P	ARM102	FB T35		ARM124	FB A58		
ARM56	FB A70		ARM96	FB A53	P	ARM119	FB A66					

See illustrations on pages 149 and 151.

Tripolitanian I-II These have hollow conical spikes.												
ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	ID	Fabric	DWG	
ASP10	FB A62		ASP13	FB A62	P	ASP21	FB A66	P	ASP39	FB A62		
ASP11	FB A62		ASP14	FB A62	P	ASP27	FB A62		ASP40	FB A62		

See illustration on page 150.

Benghazi Mid Roman Amphora 14 - Tripolitanian III - plug of clay in spike.		
ID	Fabric	DWG
ASP12	FB A62	
ASP16	FB A66	P

Sabratha Form 17 - Keay III A and B - Africana I - Peacock and Williams Class 33. See illustrations on pages 132 and 137. 'The shape of this rim is convex on the outer face and concave on the inside face and the spike is solid. In general the rims measured 12-14 cm; full vessel heights range from 90-97 cm and their capacities were from 35-40 litres These Tunisian amphorae were manufactured from the early second century to the fourth century.' (Keay and Williams: 2005). There were sherds from six vessels ARM 66, ARM 67, ARM 68, ARM 110, ARM 122 and ARM 138. The Lepcis Magna rim diameter measured 11-12 cm internally and 12-14 cm externally. The first five sherds shared the same fabric FB T35 whilst ARM 138 was made from fabric FB A64. For drawings see ARM 67, ARM 68 and ARM 122. The form was also present at Sabratha (Keay 1989: 43), ULVS (Mattingly 1996: 359-360) and Benghazi (Riley 1979: 202-203).

Sabratha Form 18 - Keay IV - Africana II - Peacock and Williams Class 34. See illustrations on pages 148 and 154. 'The rim type of this Tunisian amphorae form is described as being beaded with a simple rounded lip. The body of the amphora is cylinder-shaped, displaying little curvature and there is a solid spike at the base of the amphora. Their rim diameters ranged from 13-15 cm, their heights 94-105 cm and capacities from 60-65 litres. The amphorae were in production from the late second century to the fourth century.' (Keay and Williams: 2005). There were the remains of six vessels in the assemblage; ARM 167, ARM 181, ASP 6, ASP 7, ASP 38 and ASP 41. The Lepcis Magna example measured 10 cm internally and 12 cm externally. The spikes shared the same fabric FB T35, ARM 167-FB A57 and ARM 181-FB A37. See drawings ASP 6, ASP 38 and ASP 41. The form was also present at Sabratha (Keay 1989: 44), ULVS (Mattingly 1996: 359-360) and Benghazi (Riley 1979: 204-205).

Sabratha Form 19 -Keay I - Mauretanian Dressel 30. See illustrations on pages 153.
The hollow base of this form was found in the assemblage. 'The rim is noticeably thickened in the form of a collar around the neck of the amphora; the body tapers downwards: it is wider at the top.' (Keay and Williams: 2005). In general the rims measured 11-12 cm, full vessel heights 65-66 cm and capacities 20-25 litres. (Keay and Williams: 2005). The amphorae were manufactured in Algeria in the third century. See fabric FB A104 and drawing ASP 37. The form was also present at Sabratha (Keay 1989: 44) and Benghazi (Riley 1979: 195-196).

Sabratha Form 21 - Keay XXV C - Africana 3B - Beltran 64. See illustration on page 154.
The rim of this amphora 'flares out sharply, in a more pronounced manner than an everted rim.

There is a solid spike at the base of the amphora. In general the rims measured 12-13 cm; full vessel heights were from 107-112 cm and their capacities were from 20-25 litres.' (Keay and Williams: 2005). These Tunisian amphorae were in production from late third century to mid-fifth century. (Keay 1989: 46.) There were sherds of two vessels present at Lepcis ARM 165 and ASP 42. Their fabrics were FB A44 and FB A62 respectively. The internal rim measured 12 cm and externally measured c. 14 cm. See drawings ASP 42. The form was also present at Sabratha (Keay 1989: 46).

Sabratha Form 22.

The amphora is described as 'being small with a short stubby neck, gently flared rim and handles with an elliptical profile.' (Keay 1989: 46.) There was one rim in the assemblage, ARM 161 and its internal rim diameter was 8-9 cm. The full vessel height and capacity are not known. Its fabric was recorded as FB A23. Possible source Tripolitania. These amphorae were thought to have been manufactured from the third to the fifth centuries. The form was also present at Sabratha (Keay 1989: 46).

Sabratha Form 27 - Keay LIII - Benghazi LRA 1 - British B ii -Peacock and Williams Class 44. **See illustrations on pages 138.** 'In general the amphora rims were gently rounded and measured 9-11 cm; full vessel heights were from 50-58 cm but their capacities are unknown. The amphorae were manufactured in Cilicia from the fifth to seventh centuries.' (Keay and Williams: 2005). The Lepcis Magna example ARM 130 had internal rim diameter 7 cm and external rim diameter 7.5 cm. See drawing ARM 130 and fabric description FB A92. The form was also present at Sabratha (Keay 1989: 48) and at Benghazi (Riley 1979: 212-216).

Sabratha Form 29 - Benghazi MRA 1-Agora M 254 - Peacock and Williams Class 40 A and B. **See illustrations on pages 143.** The amphora rim form is biconical and form B is thickened and slightly in-turned at the top. The flat base has a foot ring. 'In general the rims measured 9 cm; full vessel heights from 54-55 cm and capacities from 15-20 litres. The amphorae were manufactured between the first to fourth centuries AD; type A may come from north Africa, perhaps Tripolitania and type B possibly Sicily.' (Keay and Williams: 2005). There were sherds of 21 vessels in the assemblage; rims ARM 171, 172, 173, 174, 175, 176, 177 and 178 and bases ASP 33, 46, 47, 48, 49, 50, 51, 52, 53, 54, 57, 58 and 59. The Lepcis Magna internal rim dimensions ranged from 6-8 cm and external measurements c. 6-9 cm. All sherds shared the same fabric FB A30 except for ARM 171 which was classified as FB A31. See drawings ARM 171 and ARM 172. The form was also present at Sabratha (Keay 1989: 50) and Benghazi (Riley 1979: 177-180).

Sabratha Form 34A Tripolitanian Beaded Rim. **See illustrations on pages and 134 and 140.** The amphora rims are described as 'small and beaded and have pronounced upper ridges' (Keay

1989: 51). There were sherds of three vessels in the Lepcis Magna assemblage-ARM 85, ARM 86 and ARM 137. The rims had internal rim diameters of 12-14 cm and external rims c. 13-14.5 cm. The Sabratha example measured 14 cm internally and c. 16 cm externally. The dating for the vessels at Sabratha was given as late first century BC to third century AD. (Keay 1989: 51.) All three Lepcis Magna sherds were drawn. ARM 85 and ARM 86 were made from fabric FB T29 and ARM 137 from FB T35. The form was also present at Sabratha (Keay 1989: 51-52).

Additional unassigned amphora forms ARM LM 1-19.

ARM LM 1, 4, 6, possible imitations of Beltran IIB. See illustrations on pages 137, 142 and 144. The following four sherds were possible imitations of Beltran IIB forms. The Lepcis examples have 'rounded' everted rims with evidence of where the handles were applied directly onto the rims. Rim 191 was slightly more 'pointed' in shape. There were sherds of four vessels in the assemblage listed here with their fabrics ARM 162 (Form ARM LM 1)-FB A54, ARM 191 (Form ARM LM 4)-FB A51, ARM 127 (Form ARM LM 6), -FB A17, and ARM 189 (Form ARM LM 6)-FB A17. The fabrics suggest a Spanish origin. The internal rim diameters measured from 14-16 cm. The vessel heights and capacities are not known. For drawings see ARM 127, ARM 162 and ARM 191. ARM 192, see drawing, was also classified as being an imitation Beltran IIB.

ARM LM 2

The next three rims shared similarities with Sabratha form 34A.

ARM LM 2A Cf. Sabratha 34A.

This form has a rolled beaded rim and is similar to Sabratha's 34A's, (Keay 1989: 51), which was small and beaded and had a pronounced upper ridge. The Lepcis Magna internal rim diameter was 12 cm; its vessel height and capacity are not known. There was one sherd in the assemblage, ARM 179 and its fabric was Tripolitanian and classified as FB T34.

ARM LM 2B Cf. Sabratha 34A. See illustration on page 141. This form has an undercut beaded rim; it was more 'hooked' than the previous example. Its internal rim dimension was 12 cm in diameter but the vessel height and capacity are unknown. There was one example in the assemblage, ARM 154. Its Tripolitanian fabric was described in FB T29 and it is shown in drawing ARM 154.

ARM LM 2C Cf. Sabratha 34A.

This form also has an undercut beaded rim. Its internal rim dimension was 12 cm in diameter but once again the vessel height and capacity are unknown. There was one example in the assemblage ARM 221. Its Tripolitanian fabric was described in FB T29.

ARM LM 3. See illustration on page 133. This form has an everted rim and its internal rim

dimension was 16 cm. The vessel height and capacity are unknown. There was a sherd of one vessel in the collection ARM 80, its fabric was described as FB A48 but its source was not identified. See drawing ARM 80.

ARM LM 5. **See illustration on page 138.** **This small** amphora ARM 131 had a rounded bead rim. The ridged handles were sited 3.5 cm below the rim and there was a groove running around the body of the amphora, some 10 cm below the rim. The surface finish was generally poor. The internal rim diameter measured 5 cm and 7 cm externally. Vessel height and capacity are no known. For drawing see ARM 131 and for fabric description see FB A 84. Its source was not identified.

ARM LM 7. This rim sherd ARM 155 had an overhanging rim and may part of a Sabratha Form 7, Van der Werff 3, but because of the fragmented nature of the sherd it was not possible to assign it conclusively to a specific form. The internal rim diameter was measured at 12 cm. Its fabric was classified as FB T35 originating in Tripolitania/Tunisia.

ARM LM 8. This rim sherd, ARM 158, was similar to Benghazi D101 which was classified as being Hellenistic to third century in date (Riley 1979: 144 in Lloyd (Ed.) 1979). The rim was a pronounced triangular shape but because of the unevenness of the sherd it was not possible to measure the Lepcis Magna rim accurately. The Benghazi rim sherd measured c. 16 cm. The fabric is described as FB A14 and was probably made in Tripolitania.

ARM LM 9 - Beaded rim. **See illustrations on pages 139 and 145.** **A** group of six rims were placed within this group and they shared the same attribute of beaded rims. However it is possible that the vessels were flagons rather than small amphorae. Four of the rims ARM 136, ARM 169, ARM 213 and ARM 214 shared the same fabric FB T34. Two other rims ARM 215 and ARM 216 were put into fabric groups FBA 26 and FB A27 respectively. The fabrics suggest that the sherds were manufactured in Tripolitania. The rim diameters varied in size from 8-14 cm. Vessel heights and capacities are unknown. For drawings see ARM 136, ARM 214 and ARM 215.

ARM LM 10 **See illustration on page 139.** **This** small amphora ARM 132 has a near vertical rim and the two handles were attached just below the rim. The rim measured 6 cm internally and 8.25 cm externally. The vessel height and capacity are unknown. The fabric FB A85 suggests that it may have been manufactured in Tunisia. For drawing see ARM 132.

ARM LM 11. **See illustration on page 135.** This form has an undercut rim and shared attributes with Sabratha form 34X (Keay 1989: 57). The Lepcis Magna rim measured 12 cm internally. The vessel height and its capacity are not known. There was a sherd from one vessel, ARM 111, in the

assemblage. Its fabric is described as FB T35 which suggests that it may have been manufactured in Tripolitania or Tunisia. For drawing see ARM 111.

ARM LM 12. **See illustration on page 146.** This form has a rolled over rim. The internal diameter of the rim measured 14 cm. The vessel height and capacity are unknown. There was one sherd ARM 220 in the Lepcis Magna assemblage. For drawing see ARM 220 and for pottery fabric description see FB T34. The analysis of the fabric suggests that the vessel was manufactured in Tripolitanian.

ARM LM 13. This rim sherd, ARM 180, was similar to Benghazi D103 which was thought to be Hellenistic in date (Riley 1979: 144 in Lloyd (Ed.) 1979). The rim was approximately vertical with a concave outer face and was slightly concave on its inner face. As the rim sherd was very small it was not possible to measure it accurately. The vessel height and capacity are unknown. The Benghazi rim sherd measured c. 13 cm. The fabric is described as FB T13 and was probably made in Tripolitania.

ARM LM 14. This small sherd ARM 183 had a slightly flared rim and may possibly be from an Africana I amphora. The rim was too small to measure accurately and therefore has not been drawn. The fabric FB T35 suggests that the amphora may have been manufactured in Tripolitania or Tunisia.

ARM LM 15. **See illustration on page 135.** This amphorae rim was biconical in shape and its internal rim dimension measured 13 cm. There was a single sherd from one vessel ARM 92 in the collection. The height and capacity of this form are unknown. An examination of its fabric FB A59 suggested that it may have been manufactured in the eastern Mediterranean. For drawing see ARM 92.

ARM LM 16. **See illustration on page 137.** This rim sherd was similar to Beirut form 7.1. Cf. Beirut 247.309 (Reynolds 1997-1998: 87, 109). The Lepcis Magna rim also measured c.10 cm internally; the height and capacity of the form are unknown. There was a sherd from a single vessel in the collection ARM 125. For fabric description see FB A75; its origins are uncertain but if the form is correctly identified then it may be a Levant fabric. For drawing see ARM 125.

ARM LM 17. **See illustration on page 141.** This small amphora rim has a concave outer face and is possibly a variant of Benghazi Early Roman Amphora 11A. (Riley 1979: 166 in Lloyd (Ed.) 1979). The Lepcis Magna rim diameter measured 8 cm. The height and capacity of the vessel are unknown. There was the sherd from one vessel in the assemblage ARM 150; see drawing ARM 150 and fabric FB T34. The fabric suggests a Tripolitanian origin.

ARM LM 18. See illustration on page 145. The narrow rim is concave on its upper surface. This rim sherd was similar to Beirut form 1. Cf. Beirut 220.282 (Reynolds 1997-1998: 85, 207). The Lepcis Magna rim measured 10 cm internally; the height and capacity of the form are unknown. There was a sherd from a single vessel in the collection ARM 209. For fabric description see FB A56; its origin is uncertain but if the form is correctly identified then it may be a Levant fabric. For drawing see ARM 209.

ARM LM 19. See illustrations on pages 145. This small amphora which had an everted over-hanging rim was also similar to Beirut form 1. Cf. Beirut 220.282 (Reynolds 1997-1998: 85, 207). The Lepcis Magna rim measured 9 cm internally; the height and capacity of the form are unknown. There was a sherd from a single vessel in the collection ARM 208. For fabric description see FB A74; its origin is uncertain but if the form is correctly identified then it may be a Levant fabric. For drawing see ARM 208.

Amphora forms and regions of production.

Using data from table 5.2 (See CD-ROM) the centres of production and the forms of the amphorae will now be considered and the summarised results are shown in table 5.3A. The table illustrates that it is the local Tripolitanian and other North African forms that dominate the statistics. The table shows that 13 sherds out of a total of 60 sherds, some 22%, of the identified amphora bases were of Sabratha form 29 (Peacock and Williams Class 40). However, this form was once thought to have been manufactured in North Africa (Peacock and Williams 1991: 175), but Tomber (2003: 107) places their production in Sicily. However Rizzo (Keay and Williams: 2005) believes that whilst Type B was probably manufactured in Sicily, he has assigned Type A - a Tripolitanian source. Which ever region of manufacture for these forms turns out to be the correct ones will not change the overall dominance in the Lepcis Magna assemblage by the locally produced forms; indeed a Tripolitanian origin will only increase it. The second largest group of bases was also a local Tripolitanian form.

Table 5.3A - Showing forms, counts and regions of manufacture of the amphora rims.

Table 5.3A				
FORM	FORM	SOURCE	BASE	RIM
ALMAGRO 54	P & W CLASS 49	PALESTINE	0	1
BEIRUT 2.2?		LEVANT	0	1
BEIRUT 3.2		LEVANT	0	3
BELTRAN I	DRESSEL 8 P & W CLASS 17?	SPAIN	1	0
BELTRAN II-IV	DRESSEL 14 P & W CLASS 20	SPAIN/ PORTUGAL	2	1
BELTRAN 80 ?		PALESTINE	1	0
B MRA 5	ZEEST 80	AEGEAN/BLACK SEA	0	1
B.LRA 10	BRITISH B1V P & W CLASS 45	ASIA MINOR	1	0
CLAUSENTUM AR3		TUNISIA ?	0	1
DORE TYPE 15 LMIN	RELATED TO KEAY XXIV A ?	TUNISIA	0	2
DRESSEL 7-11	P & W CLASS 16	SPAIN	1	2
EGLOFF 172	P & W CLASS 53	EGYPT	0	1
GAULOISE 3	P & W CLASS 29 ?	GAUL	1	0
GAULOISE 4	P & W CLASS 27	GAUL	5	3
GAULOISE 12	P & W CLASS 55 FURROWED RIM	GAUL	0	1
KEAY XIX?	ALMAGRO 51	SPAIN	1	0
KEAY XL		TUNISIA	0	1
KEAY XLIV ?		TUNISIA?	0	1
KEAY XXVI C ?		TUNISIA	0	1
KEAY XXXV A		TUNISIA	0	1
PAPHOS 5	HAYES ROMAN AMPHORA TYPE 5	EASTERN MEDITERRANEAN	0	1
RICHBOROUGH 527	P & W CLASS 13	LIPARI	0	1
SABRATHA 1		GREECE / CRETE	2	2
SABRATHA 3-4	HOLE-MOUTH B.H.A.10	TUNISIA	1	7
SABRATHA 6	GRECO-ITALIC	ITALY/SICILY	0	2
SABRATHA 7B	B. HELLENISTIC AMPHORA 13 VDW 3	TRIPOLITANIA	0	1
SABRATHA 7C	B. HELLENISTIC AMPHORA 13 VDW 3	TRIPOLITANIA TUNISIA	0	4
SABRATHA 7F - 7M	B. HELLENISTIC AMPHORA 13 VDW 3	TUNISIA	0	4
SABRATHA 8C	B. HELLENISTIC AMPHORA 12 VDW 1	TUNISIA	0	3
SABRATHA 9D - 9L	VAN DER WERFF 2	TUNISIA	0	3
SABRATHA 7-9 B.	HELLENISTIC AMPHORA 13 VDW 3	TUNISIA	2	0
SABRATHA 11	P & W CLASS 4 DRESSEL 1B	ITALY	1	2
SABRATHA 13	P & W CLASS 10 DRESSEL 2-4	ITALY	1	5
SABRATHA 13	P & W CLASS 10 DRESSEL 2-4	W. MEDITERRANEAN	0	1
SABRATHA 14	P & W CLASS 19 BELTRAN II-IV	SPAIN	1	0
SABRATHA 14 IMIT	BELTRAN IIB IMIT	SPAIN	0	2
SABRATHA 16	ERA 11A - MRA 14	TRIPOLITANIA	12	110
SABRATHA 16	ERA 11A - MRA 14	TUNISIA	0	3
SABRATHA 17	P & W CLASS 33 AFRICANA I PICCOLO	TUNISIA/TRIPOLITANIA	0	6
SABRATHA 18	P & W CLASS 34 AFRICANA II GRANDE	TUNISIA	4	2
SABRATHA 19	MAURITANIAN DRESSEL 30 KEAY I ?	ALGERIA	1	0
SABRATHA 20	P & W CLASS 47 HOLLOW FOOT	E. MEDITERRANEAN	1	0
SABRATHA 21	KEAY XXV C	TUNISIA	0	1
SABRATHA 21	KEAY XXV VAR 3 ?	TUNISIA	1	0
SABRATHA 22		NORTH AFRICA TRIPOLITANIA?	0	1
SABRATHA 27	P & W CLASS 44 BRITISH BII KEAY LIII	CILICIA	0	1
SABRATHA 29	P & W CLASS 40 B. MRA 1A	SICILY	13	8
SABRATHA 34A	MISC TRIPOLITANIAN	TRIPOLITANIA	0	3
ARM LM 1	P & W CLASS 19 BELTRAN IIB IMIT	SPAIN	0	1
ARM LM 2A	SABRATHA 34A?	TRIPOLITANIA	0	1
ARM LM 2B	SABRATHA 34A?	TRIPOLITANIA	0	1
ARM LM 2C	SABRATHA 34A?	TRIPOLITANIA	0	1
ARM LM 3		N/I	0	1
ARM LM 4	P & W CLASS 19 BELTRAN IIB IMIT	SPAIN ?	0	1
ARM LM 5		GAUL?	0	1
ARM LM 6	P & W CLASS 19 BELTRAN IIB IMIT	SPAIN	0	1
ARM LM 6	P & W CLASS 19 BELTRAN IIB IMIT	SPAIN	0	1
ARM LM 7	SABRATHA 7 VDW 3?	TUNISIA/TRIPOLITANIA	0	1
ARM LM 8	CF. BENGHAZI D101	TRIPOLITANIA ?	0	1
ARM LM 9	BEADED RIM	TRIPOLITANIA	0	6
ARM LM 10		TUNISIA ?	0	1
ARM LM 11	CF. SABRATHA 34X	TUNISIA/TRIPOLITANIA	0	1
ARM LM 12		TRIPOLITANIA	0	1
ARM LM 13	CF. BENGHAZI 103	TRIPOLITANIA	0	1
ARM LM 14	CF. BEIRUT 82.61 AFRICANA I PICCOLO	TUNISIA/TRIPOLITANIA	0	1
ARM LM 15		E. MEDITERRANEAN?	0	1
ARM LM 16	CF. BEIRUT 7.1	N/I	0	1
ARM LM 17	CF. E.R. AMPHORA 11A SMALL VAR	TRIPOLITANIA	0	1
ARM LM 18	CF. BEIRUT 1 (SEE BEIRUT 220.282)	N/I	0	1
ARM LM 19	CF. BEIRUT 1 (SEE BEIRUT 220.282)	N/I	0	1
N/I BASE		E. MEDITERRANEAN	1	0
N/I BASE		N/I	2	0
N/I BASE		NORTH AFRICA	4	0
			60	221

(NB see page 118.)

Table 5.3B provides a detailed breakdown of the Tripolitanian amphora simply recorded as

Sabratha form 16 in table 5.3A. The table reveals that there were almost equal quantities of ERA 11A and MRA 14 rims present in the collection, but more ERA 11A/11B than MRA 14 bases.

Table 5.3B - Showing forms of Tripolitanian amphora rims and bases.

FORM	COUNT	REGION	FORM	COUNT	REGION
	RIM		BASE	BASE	
TRIPOLITANIAN	1	TRIPOLITANIA	T. B. ERA 11A/11B	10	TRIPOLITANIA
T. B. ERA 11A	36	TRIPOLITANIA			
T. B. ERA 11A SMALL	1	TRIPOLITANIA			
T. B. ERA 11A VAR	2	TRIPOLITANIA			
T. B. ERA 11A VAR ?	1	TRIPOLITANIA			
T. B. ERA 11B	19	TRIPOLITANIA			
T. B. ERA 11B VAR ?	3	TRIPOLITANIA			
T. B. MRA 14	41	TRIPOLITANIA	T. B. MRA 14	2	TRIPOLITANIA
T. B. MRA 14	3	TUNISIA			
T. B. MRA 14 VAR	6	TRIPOLITANIA			

In this next section table 5.4A and figures 5.1A and 5.1B summarise the data from table 5.3A which recorded the regions of manufacture of the amphorae where known.

Table 5.4A - Showing the regions where the amphorae were manufactured.

COUNTRY	CODE	RIM CNT	PERCENT	BASE CNT	PERCENT
AEGEAN/BLACK SEA	A	1	0.5	1	1.7
CILICIA	B	1	0.5	0	0
CRETE	C	1	0.5	0	0
EGYPT	D	1	0.5	0	0
E.MED	E	1	0.5	1	1.7
W. MED	F	1	0.5	0	0
GAUL	G	5	2.3	6	10
GREECE	H	1	0.5	2	3.3
ITALY/AEGEAN	I	1	0.5	0	0
ITALY/SICILY	J	2	1	0	0
ITALY	K	8	3.6	2	3.3
LIPARI	L	1	0.5	0	0
NORTH AFRICA	M	1	0.5	0	0
PALESTINE	N	5	2.3	1	1.7
SICILY	O	8	3.6	13	21.7
SPAIN	P	7	3.2	7	11.7
TRIPOLITANIA	Q	131	59.3	12	20
TUNISIA	R	38	17.2	8	13.3
N/I	S	7	3.2	7	11.7
TOTAL		221		60	

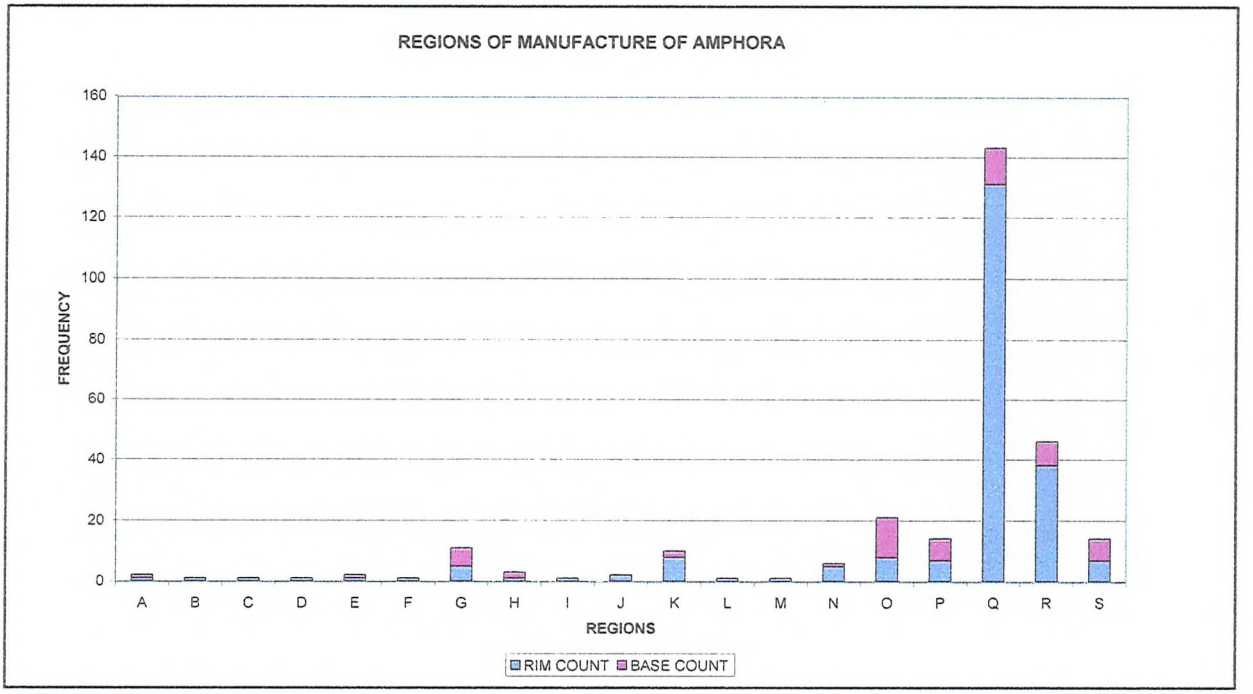


Figure 5.1A - Showing regions of manufacture of amphorae.

The table also shows that the counts have been converted into percentages to enable a more direct comparison to be made between the rims and bases. The table shows that a total of 77 % of the

recovered amphora rims were judged to be of North African manufacture with 59% of them being made in Tripolitania itself. This Tripolitanian figure could increase to 62% dependant on the correct identification of the place of manufacture of Sabratha form 29. The collection of amphora bases as was shown above was dominated by those amphora made in Sicily, which assumes that the Tomber identification reported above was the correct one rather than a Tripolitanian source. However if the Tripolitanian origin is the correct one then their 22% should be added to the 20% which have already been assigned a local Tripolitanian origin. Of the remaining amphora bases, which were not produced locally, these were dominated by those made in the western part of the Mediterranean. Mattingly (1995: 140) has identified a number of Tripolitanian kiln and oil processing sites which may account for the apparently high ratio of locally made amphorae to imported ones.

Figure 5.1B combines the data in percentage terms and illustrates that for the largest groups Tripolitanian manufactured forms nearly 60% were rims and a further 20% were bases.

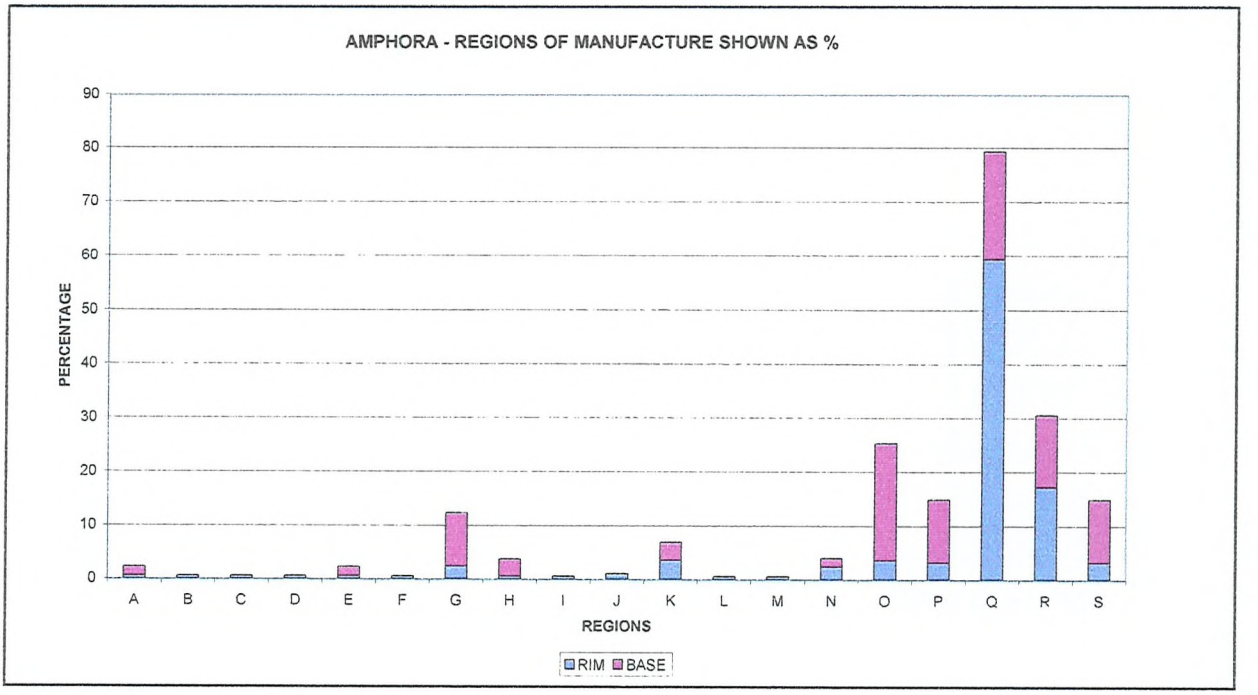


Figure 5.1B - Showing regions of manufacture of amphorae as a percentage.

As the assemblage is dominated by the locally manufactured Tripolitanian I-III forms, in the next table 5.4B these amphorae have been removed from the statistics and new counts and percentages calculated. Other Tripolitanian made forms, such as Sabratha 7C (Van der Werff 3), have been left in this data as well as those Tripolitanian I-III forms made in Tunisia. The recalculated table 5.4B and figure 5.2A illustrate that by excluding the Tripolitanian I-III data, there were now proportionally more Tunisian made amphorae present in the assemblage and equal quantities of Sicilian and Tripolitanian wares. However, if as recorded above, the Sabrathan form 29 were indeed made in Tripolitania rather than Sicily the Tripolitanian group would be almost equal in size to the Tunisian group.

Table 5.4B - Showing the regions where the amphorae were manufactured, excluding Tripolitanian forms I - III.

COUNTRY	CODE	RIM CNT	PCENT	BASE CNT	PERCENT
AEGEAN/BLACK SEA	A	1	0.9	1	2.1
CILICIA	B	1	0.9	0	0
CRETE	C	1	0.9	0	0
EGYPT	D	1	0.9	0	0
E.MED	E	1	0.9	1	2.1
W. MED	F	1	0.9	0	0
GAUL	G	5	4.5	6	12.5
GREECE	H	1	0.9	2	4.2
ITALY/AEGEAN	I	1	0.9	0	0
ITALY/SICILY	J	2	1.8	0	0
ITALY	K	8	7.2	2	4.2
LIPARI	L	1	0.9	0	0
NORTH AFRICA	M	1	0.9	0	0
PALESTINE	N	5	4.5	1	2.1
SICILY	O	8	7.2	13	27.1
SPAIN	P	7	6.3	7	14.6
TRIPOLITANIA	Q	21	18.9	0	0
TUNISIA	R	38	34.2	8	16.7
N/I	S	7	6.3	7	14.6

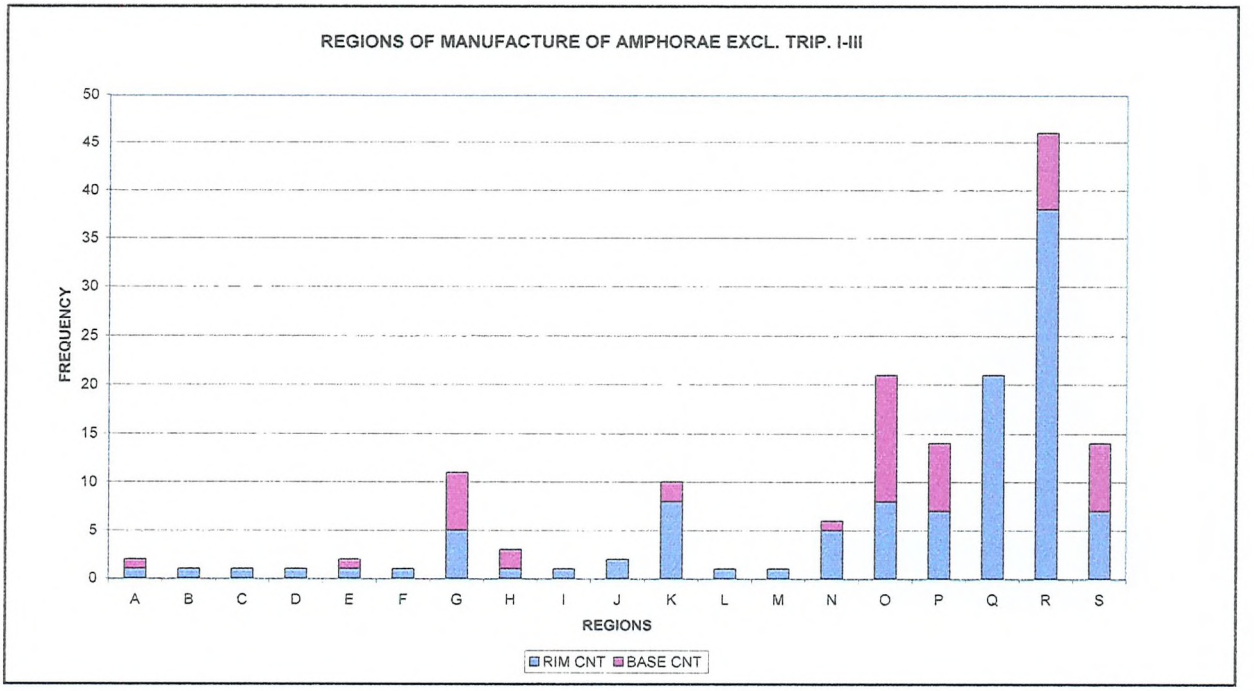


Figure 5.2A - Showing regions of manufacture of amphorae excluding Tripolitanian I - III.

Figure 5.2B illustrates that when the data is expressed in percentage terms the Tunisian amphorae account for approximately 51% of the sample compared to just 19% from Tripolitania, but the Tripolitanian figure would, given the above mentioned provisos, then be slightly larger recording 53% of the assemblage. The counts of the amphora rims and bases were then examined together, irrespective of dates of manufacture, and an assumption has been made that they came from different vessels.

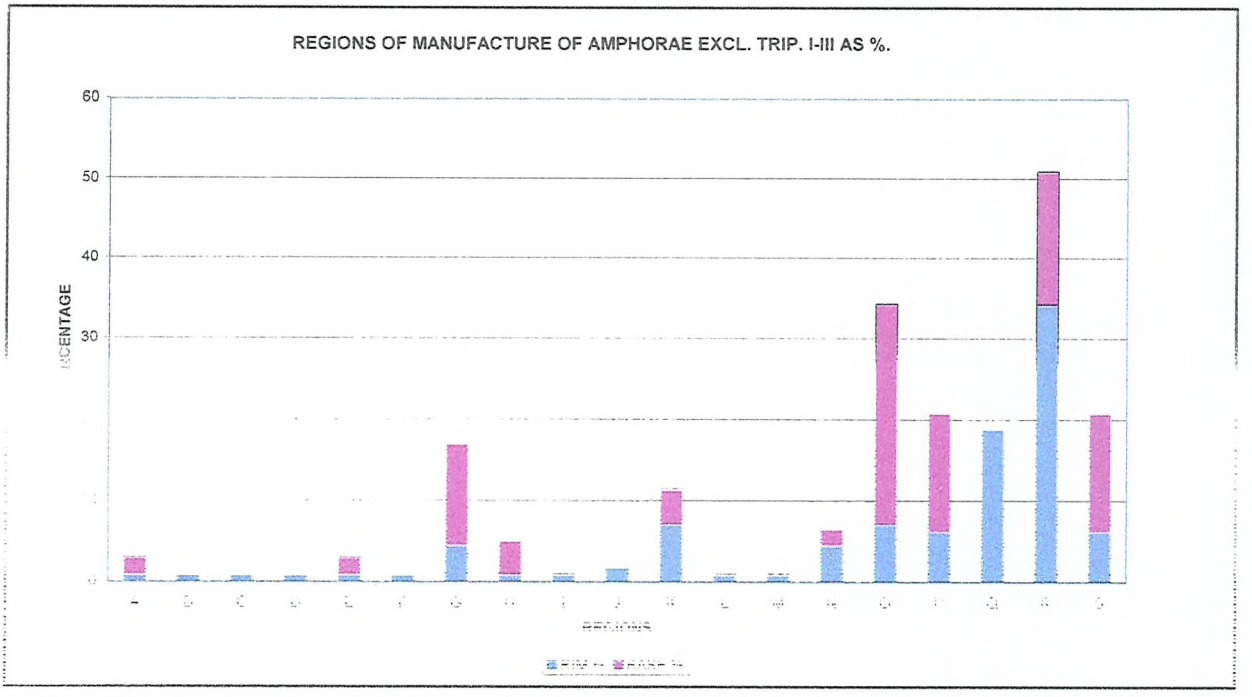


Figure 5.2B - Showing regions of manufacture of amphorae excluding Tripolitanian I - III expressed as a percentage.

This data was then grouped together by region, see table 5.5A and figure 5.3A, to compare the numbers of amphorae coming from the different parts of the empire.

Table 5.5A - Showing which regions of the empire the amphorae came from.

REGION	WEST EMPIRE	ITALY	N.AFRICA	EAST EMPIRE	N/I	TOTAL
RIM COUNT	13	20	170	11	7	221
BASE COUNT	13	15	20	5	7	60

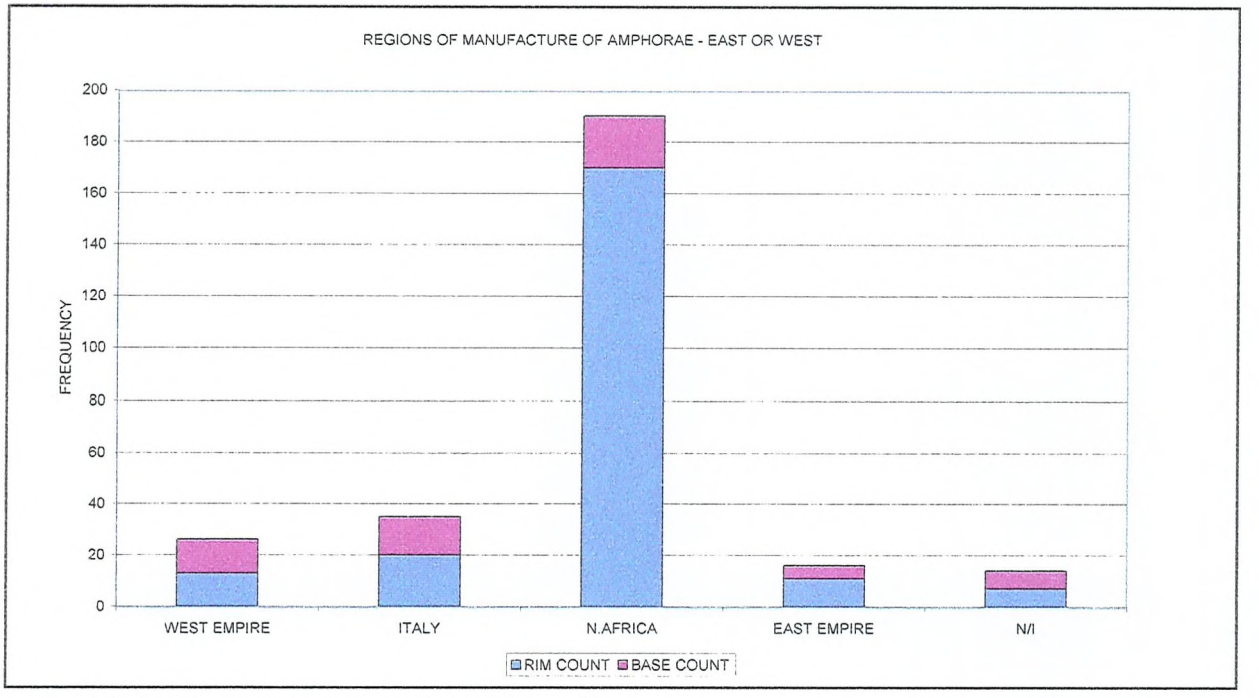


Figure 5.3A - Showing regions of manufacture - East or West.

The results show that after combining the two sets of data, as expected after the earlier analysis, the amphora assemblage is dominated by the North African produced wares. Fulford (1989: 173) has argued that 'the overall ratio of local to imported pottery will give an insight into the degree of

dependence of the site in question on inter-regional traffic in staples.' Applying this argument to the Lepcis Magna results suggests that Lepcis Magna was certainly self sufficient in certain essential commodities. The graph also shows that the number of vessels manufactured in the 'western' empire was marginally greater than the number coming in from the 'eastern' empire, which could perhaps be explained by the weather and prevailing sea conditions of the Mediterranean.

This is perhaps not too surprising as the waters to the east of Lepcis Magna around the Gulf of Sirte were regarded as being hazardous to small ships. The geographical location of Tripolitania perhaps made trade with Sicily and Italy via Pantelleria, for example, safer than trading with the Eastern Empire at certain times of the year. The presence of a number of Pantellerian coarseware sherds in the pottery assemblage does suggest that ships were operating between the two places, however whether this was a direct trade or not cannot be confirmed. Table 5.5A above also revealed that, when the Tripolitanian, Tunisian amphorae and the, as of yet, unidentified amphorae are excluded, the majority of the remaining amphorae seem to have been manufactured in the western part of the Mediterranean.

In table 5.5B the data for the locally produced Tripolitanian amphorae have been excluded and new frequencies and percentages calculated to see what effect this would have on the data.

Table 5.5B - Showing which regions of the empire the amphorae came from excluding Tripolitanian forms I - III.

REGION	RIM COUNT	PERCENT	BASE COUNT	PERCENT
WEST EMPIRE	13	11.7	13	27.1
ITALY	20	18	15	31.3
N.AFRICA	60	54.1	8	16.7
EAST EMPIRE	11	9.9	5	10.4
N/I	7	6.3	7	14.6
TOTAL	111		48	

This new data is then shown in figures 5.3B and 5.3C.

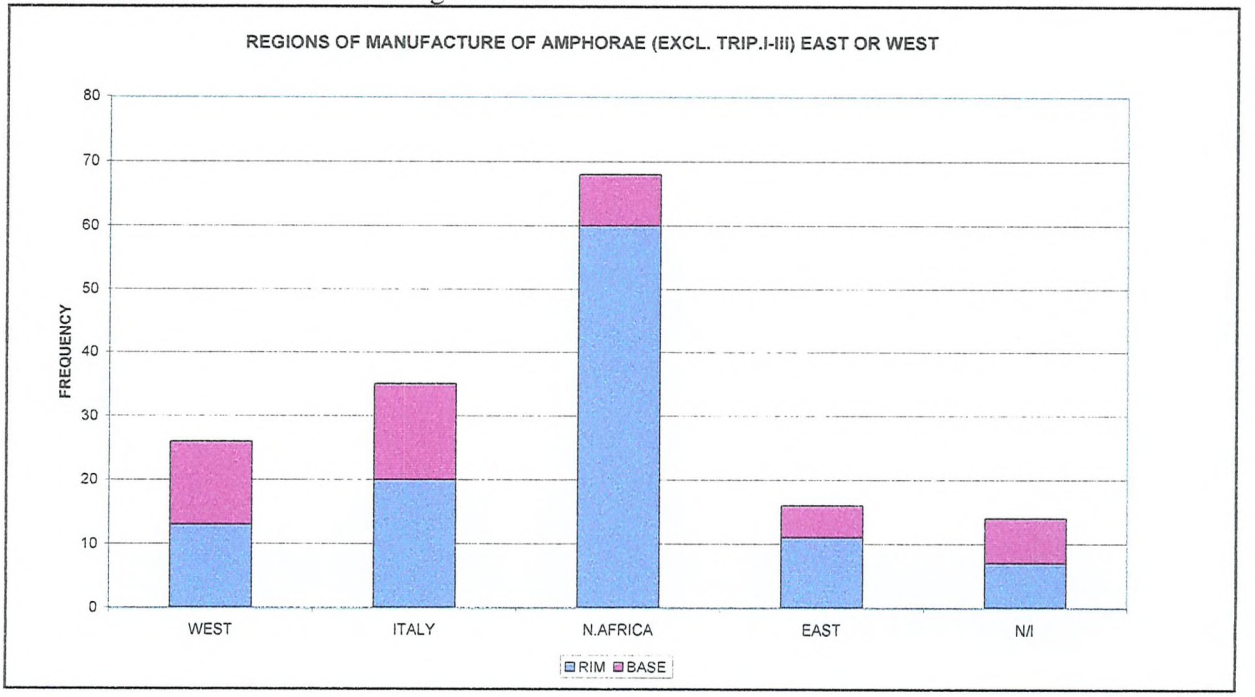


Figure 5.3B - Showing regions of manufacture - East or West excluding Tripolitanian I-III.

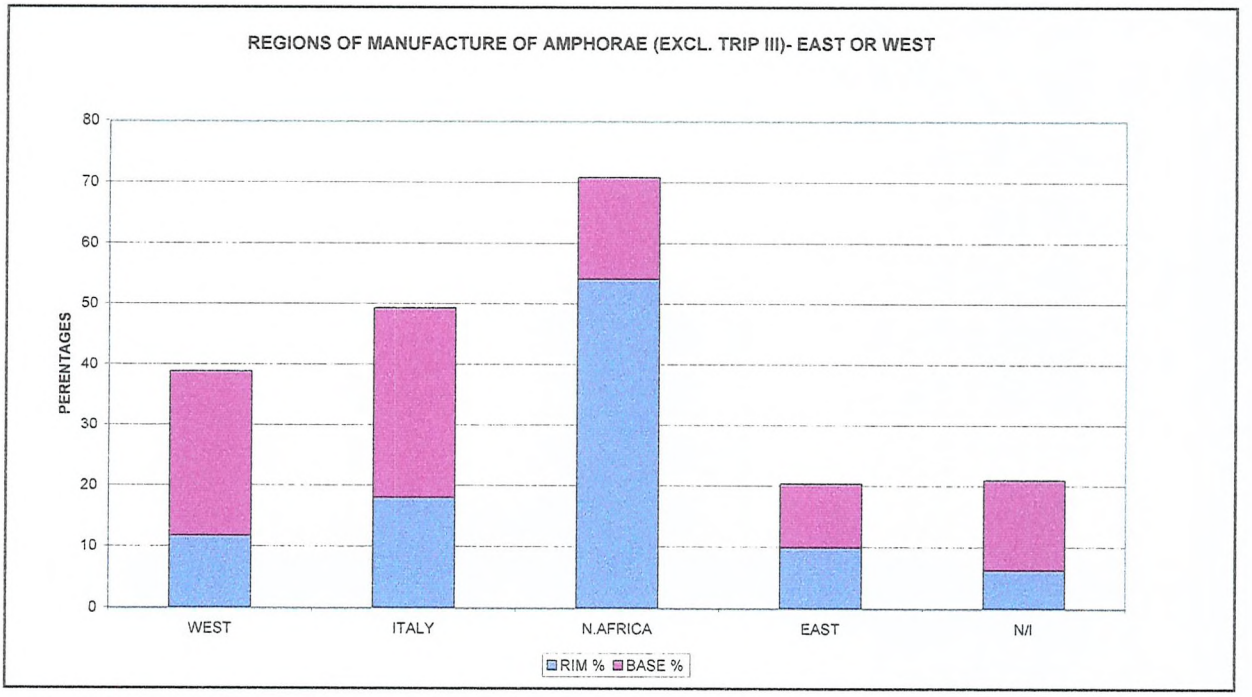


Figure 5.3C - Showing regions of manufacture - East or West excluding Tripolitanian I-III expressed as a percentage.

The results show that despite the removal of the Tripolitanian amphorae data the assemblage is still dominated by the North African produced forms.

The sources for Beirut forms 2 and 3 were initially incorrectly recorded as being from Palestine instead of the Levant; Beltran II -IV as Italy instead of Spain/Portugal and the Paphos 5 as Tunisia instead of Eastern Mediterranean. However it was decided to leave the tables unchanged as these inaccuracies would have no significant effect on the overall statistics calculated.

Amphora contents.

If the relative importance and wealth of a town was judged solely on the presence of imported goods then a very simplistic interpretation of this amphora data might suggest that the town of Lepcis Magna was not very important, as the proportion of imported amphora seems to be low, when compared to the quantity of locally produced amphora. However this basic interpretation does not take into account when the amphorae were produced or what their actual contents were. It is, after all, the contents of the amphorae that were important to the purchasers and not the containers as such and if good quality local products were already available then there would be no real need to import other alternative supplies other than as a display of conspicuous wealth.

Table 5.6 lists, in detail, the principal contents of the amphorae where known.

Table 5.6 - Showing the principal contents of the amphorae (rims and bases) where known.

FORM	CODE	BASE	PERCENT	RIM	PERCENT	CONTENTS
BELTRAN I	A	1	1.7	0	0	FISH SAUCE
BELTRAN II-IV	B	2	3.3	0	0	FISH PRODUCTS
BELTRAN 80	C	1	1.7	0	0	N/I
B. MRA 5	D	0	0	1	0.45	N/I
B. LRA 10	E	1	1.7	0	0	N/I
BEIRUT 2.2	F	0	0	1	0.45	WINE
BEIRUT 3.2	G	0	0	3	1.4	WINE
CLAUSENTUM AR3	H	0	0	1	0.45	N/I
DORE 15	I	0	0	2	0.9	N/I
KEAY XIX?	J	1	1.7	0	0	FISH SAUCE
KEAY XXV VAR 3	K	1	1.7	0	0	FISH SAUCE, OLIVE OIL
KEAY XXVI C	L	0	0	1	0.45	N/I
KEAY XXXV A	M	0	0	1	0.45	FISH SAUCE, WINE
KEAY XLIV	N	0	0	1	0.45	N/I
KEAY XL	O	0	0	1	0.45	OLIVE OIL
PAPHOS 5	P	0	0	1	0.45	N/I
RICH 527	Q	0	0	1	0.45	DRIED FRUITS ALUM
DRES 7-11	R	1	1.7	2	0.9	FISH SAUCE
DRES 14	S	0	0	1	0.45	FISH SAUCE
GAUL. 3	T	1	1.7	0	0	WINE?
GAUL. 4	U	5	8.3	3	1.4	WINE
ALMAGRO 54	V	0	0	1	0.45	WINE,OLIVE OIL, SESAME OIL?
EGLOFF 172	W	0	0	1	0.45	WINE
FURROWED RIM	X	0	0	1	0.45	N/I
SABRATHA 1	Y	2	3.3	2	0.9	OLIVE OIL
SABRATHA 3-4	Z	1	1.7	7	3.2	WINE
SABRATHA 6	a	0	0	2	0.9	WINE
SABRATHA 7	b	0	0	7	3.2	N/I
SABRATHA 7	c	0	0	2	0.9	N/I
SABRATHA 8	d	0	0	3	1.4	FISH SAUCE
SABRATHA 9	e	0	0	3	1.4	WINE?
SABRATHA 7-9	f	2	3.3	0	0	N/I
SABRATHA 11	g	1	1.7	2	0.9	WINE, MISC
SABRATHA 13	h	1	1.7	5	2.3	WINE
SABRATHA 13	i	0	0	1	0.45	WINE
SABRATHA 14	j	2	3.3	0	0	FISH PRODUCTS
SABRATHA 14 imit	k	0	0	2	0.9	FISH PRODUCTS?
SABRATHA 16	l	12	20	110	49.8	OLIVE OIL
SABRATHA 16	m	0	0	3	1.4	OLIVE OIL
SABRATHA 17	n	4	6.7	4	1.8	FISH PRODUCTS, OLIVE OIL
SABRATHA 17 VAR	o	0	0	2	0.9	FISH PRODUCTS, OLIVE OIL
SABRATHA 18	p	0	0	2	0.9	OLIVE OIL, FISH PRODUCTS
SABRATHA 20	q	1	1.7	0	0	N/I
SABRATHA 21	r	0	0	1	0.45	FISH SAUCE, WINE
SABRATHA 22	s	0	0	1	0.45	N/I
SABRATHA 27	t	0	0	1	0.45	OLIVE OIL?
SABRATHA 29	u	13	21.7	8	3.6	WINE?
SABRATHA 34&35	v	0	0	3	1.4	N/I
LM 1-20	w	7	11.7	27	12.2	N/I
TOTAL		**60**		**221**		

The data for the rims and bases has been recorded separately, but their combined totals can be seen in table 5.7A.

Table 5.7A - Showing regions and contents of amphorae where known.

AMPHORA CONTENTS	OLIVE OIL					WINE			
	RIM	BASE	TOTAL	PERCENT		RIM	BASE	TOTAL	PERCENT
TRIPOLITANIA	110	12	122	55.2		0	0	0	0
N.AFRICA/TUNISIA	6	0	6	2.7		10	1	11	5
NON AFRICAN	3	2	5	2.3		27	21	48	21.7
	FISH PRODUCTS					OTHER			
	RIM	BASE	TOTAL	PERCENT		RIM	BASE	TOTAL	PERCENT
TRIPOLITANIA	0	0	0	0		0	0	0	0
N.AFRICA/TUNISIA	11	6	17	7.7		0	0	0	0
NON AFRICAN	5	6	11	5		1	0	1	0.5

The data has been grouped into 3 geographical areas. (See table 5.3A for regions.) Due to the small size of some of the categories it was decided to group together data for all of the non-African regions (see figure 5.3D). The data was also shown as percentages (see figure 5.3E). The amphorae have been regarded as a homogeneous group, irrespective of their chronological production. The information for these tables has come from a number of different original sources

including amphora stamps and actual contents such as dried fruits, which have survived in situ in vessels which, have been recovered from the sea and subsequently published.

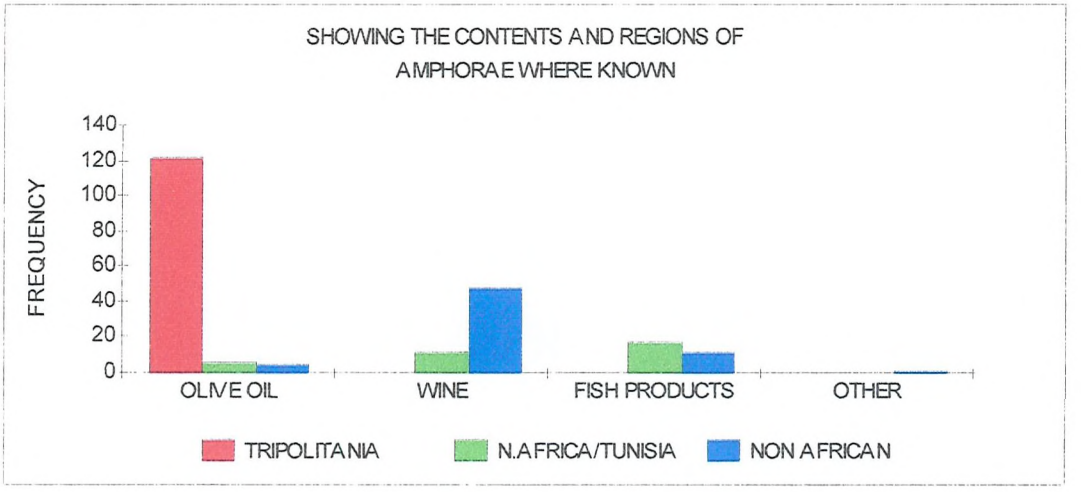


Figure 5.3D - Showing the contents and regions of amphorae where known.

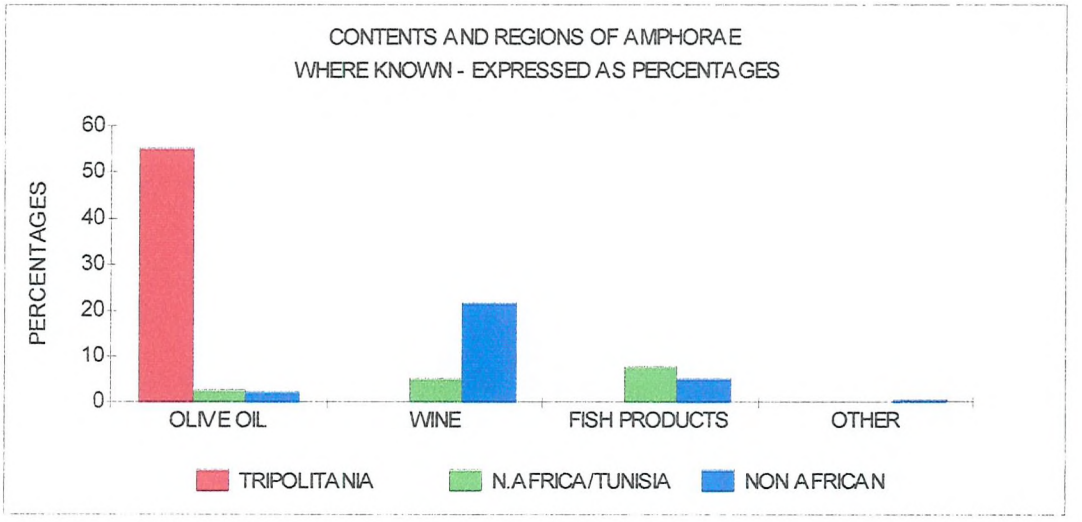


Figure 5.3E - Showing the contents and regions of amphorae where known expressed as a percentage.

Both figures illustrate how the collection was dominated by the Tripolitanian olive oil amphorae which accounted for 55% of the total identified amphora assemblage. Non-African wine carrying amphorae were the next largest group accounting for 22% of the sample. The data was then re-examined in table 5.7B and figure 5.3F to show the relative proportions within each regional group.

Table 5.7B - Showing the relative proportions of contents within each regional group.

AMPHORA CONTENTS	OLIVE OIL	OLIVE OIL%	WINE	WINE %	FISH PRODUCTS	FISH PRODUCTS %	OTHER	OTHER %
TRIPOLITANIA	122	91.7	0	0	0	0	0	0
N.AFRICA/TUNISIA	6	4.5	11	18.6	17	60.7	0	0
NON AFRICAN	5	3.8	48	81.4	11	39.3	1	100
TOTAL	133		59		28		1	

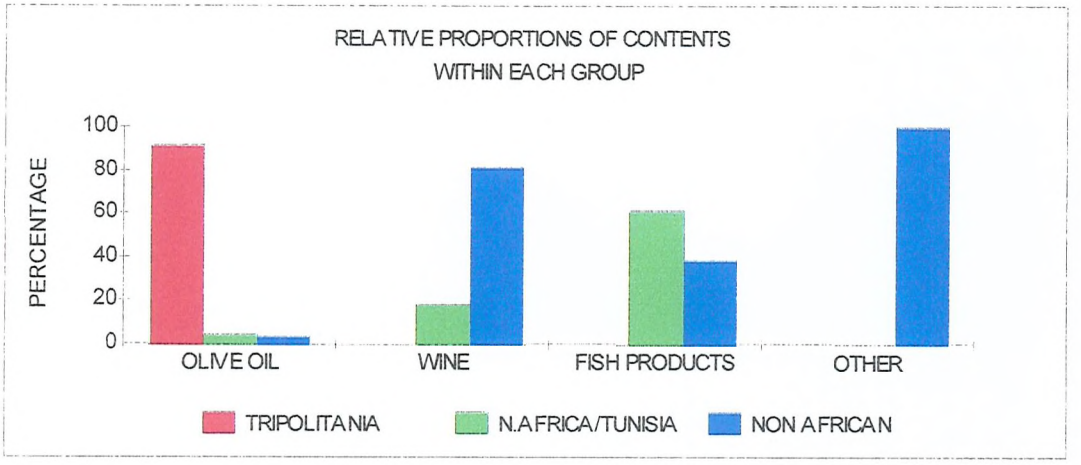


Figure 5.3F - Showing relative proportions of contents within each group.

As expected the olive oil data is dominated by local produce; wine by non-African supplies and fish products by North African provisions. Although the 'other' category looks statistically important the data only refers to the contents of a single amphora.

Although only 173 of the total amphora rim assemblage and 48 amphora bases so far have had their probable original contents identified, the table is dominated by the locally produced amphorae which were believed to have been used to transport olive oil. Only 59, some 27% of the identified amphorae, were thought to have been used for containing wine. This low number could perhaps be because:

a) The people of Lepcis Magna were not great wine drinkers (possibly for religious regions or was wine not a drink for ordinary people but reserved for the elite only?). However there is literary evidence to show that Lepcis Magna was involved in wine making (Mattingly 1995: 155) and the appearance of wine related images on mosaics illustrates the ritual and domestic consumption of wine.

b) Perhaps wine was being transported and stored in some other type of vessel such as barrels; which are known to have been used for the shipment of Rhineland wines (Cool 2007: 30), or wineskins which have not survived in the archaeological record, and that the wine production was for local consumption only. According to Garnsey and Saller (1990: 54) it is not yet possible to assess the effect of barrels replacing pottery vessels. Russel (2007: 144) reports that dolia were also used for the bulk transportation of wine. However, no sherds in the Lepcis Magna assemblage were identified as coming from dolia.

c) Were some of the Tripolitanian amphorae used for wine and not olive oil - as already referred to earlier - the examination of residues in amphorae suggests that some were being used to carry a variety of foodstuffs. Fish and other marine products were being processed to the west of Tripolitania (Mattingly 1995: 155).

d) Were the wine amphorae being dumped in an area of the town which was not part of the 1951 excavations and are therefore yet to be found - making a Lepcis Magna equivalent of Rome's Monte Testaccio; where thousands of amphorae were dumped or could empty amphorae have been used as hard core in buildings? At Caesarea Maritima, for example, 'a new quarter of the Byzantine city was built on a foundation level comprised solely of amphorae. It stands over seven metres high, with houses perched on top.' (Reynolds 1997-1998: 58). Reynolds goes on to suggest that because of the large size of the sherds used that 'they must have been collected from one or several sights specifically devoted to the disposal of empty amphorae.' (1997-1998: 58).
e) Were the people of Lepcis Magna perhaps making their own beverages and storing them in re-used amphorae. However, Cotton (1981: 26) suggests that whilst wine amphorae could be re-used after cleaning this was not possible for those amphorae which had originally contained olive oil or fish sauce.
f) Were the amphora classified as Sabratha 29 (Peacock and Williams 40, Agora M254), whose contents had not been identified, actually made for the transportation of wine (see below). Or
g) Was another beverage such as beer being consumed instead/as well? Written evidence has survived at Vindolanda in the form of a list of servants which included the names of maltsters and brewers (Cool 2007: 30).

Probably the most likely explanation for the apparent dearth of wine amphorae lies in the correct identification of amphora contents. Indeed recent work (Keay and Williams: 2005) shows what was traditionally believed to be the contents of Tripolitanian II amphorae, olive oil, is now thought to have been wine (Bonifay 2004) or even fish-sauce (Panella: 2001). Lepcis Magna was according to Haynes famous for its production of garum 'a relish made from fish sauce' (1981: 53). Similarly, the Sabratha 29 (Agora M 254) amphorae are now indeed thought to have been for carrying wine; (Keay and Williams: 2005). Recent archaeological examination of amphora residues suggests that the same amphora forms were being used to carry a variety of different foodstuffs (Mattingly and Hitchner 1995: 201); if this was indeed the case, then there could be implications for what is generally believed about the export of wine and olive oil throughout the empire.

Another caveat worth remembering is that the amphora assemblage may only be a subset of the original amphora assemblage some of which could have been re-cycled in antiquity. One such use for amphorae was as containers for cremated human ashes. These amphorae would then have been buried outside of the town. Consequently these re-used amphorae would be excluded from the towns' pottery assemblage as all of the Lepcis Magna trenches were within the confines of the town. Amphorae which had been painted with Punic religious symbols were also used to contain 'the non-human remains of the pyre, such as charcoal, the bed and offerings', this Punic tradition 'is attested at Leptis as late as the second century AD' (Fontana 2001: 169) These amphorae would also have been interred outside of the town.

Chronological production of the amphorae.

In this next section, see table 5.8, the date ranges of the amphorae as represented by their identified rims and bases are considered. This procedure has been carried out in order to see when the majority of the amphorae were being produced and whether the ratio of locally produced amphorae to imported amphorae changed through time. In the table the 'X's' record the centuries during which manufacture of that type of amphora is known to have taken place. For example the Sabratha form 1G was in production between the sixth and second centuries BC. The table 5.8 shows that the majority of the amphorae were manufactured in the second half of the time period.

Table 5.8 - Showing the dates of manufacture of the amphorae.

FORM		COUNT	DATE RANGE IN CENTURIES												
			BC						AD						
	BASE	RIM	6	5	4	3	2	1	1	2	3	4	5	6	7
AMALGRO 54		1										X	~~	X	
BELT I	1							X	~~	X					
BELT 80	1											X	~~	X	
BELT II-IV	2								X	~~	X				
B. LRA 10	1								X	~~	~~	~~	~~	X	
B. MRA 5		1									X				
BEIRUT 2.2		1								X					
BEIRUT 3.2		3							X	X					
CLAUSENTUM AR3		1									X	X			
DRES 14		1							X	~~	X				
DRES 7-11	1	2						X	X						
EGLOFF 172		1										X	~~	X	
FURROW RIM		1								X	X				
GAUL 3	1								X						
GAUL 4	5	3							X	~~	X				
KEAY XIX ?	1											X	X		
KEAY XL		1										X	X		
KEAY XLIV		1										X	~~	~~	X
KEAY XXV C		1									X	~~	X		
KEAY XXV VAR 3	1										X	~~	X		
KEAY XXVI C		1												X	X
KEAY XXXV A		1										X	~~	X	
RICH 527		1							X						
SABRATHA 1	2		X	~~	~~	~~	X								
SABRATHA 1A		1	X	~~	~~	~~	X								
SABRATHA 1G		1	X	~~	~~	~~	X								
SABRATHA 3-4	1	7			X	X									
SABRATHA 6		2			X	~~	X								
SABRATHA 7B		1				X	~~	X							
SABRATHA 7C		3				X	~~	X							
SABRATHA 7C		1				X	~~	X							
SABRATHA 7F		3				X	~~	X							
SABRATHA 7M		1				X	~~	X							
SABRATHA 7-9	2					X	~~	X							
SABRATHA 8C		3					X	~~	X						
SABRATHA 9D		1					X	~~	X						
SABRATHA 9L		2					X	~~	X						
SABRATHA 11	1	2						X							
SABRATHA 13	1	6						X	~~	X					
SABRATHA 14	2								X	X					
SABRATHA 16	12	113							X	~~	~~	X			
SABRATHA 17	4	4								X	~~	X			
SABRATHA 17 VAR		2									X	X			
SABRATHA 18		2								X	~~	X			
SABRATHA 20	1										X	X			
SABRATHA 22		1									X	~~	X		
SABRATHA 27		1											X	~~	X
SABRATHA 29	13	8							X	~~	~~	~~	X		
SABRATHA 34A		3							X	~~	~~	X			
TOTAL	53	189													

To investigate whether the ratios of imported to locally produced amphorae changed through time a chi squared test was set up using the data from tables 5.2 and 5.8. The complete chi squared test is given in appendix 4A. (See CD-ROM.) The null hypothesis is that, 'the ratio of imported to

locally produced amphorae was the same for different time periods'. For the purpose of the test the time period was split into 'early' and 'late'. The division was set half way through the time period, which is between the end of the first century BC and the start of the first century AD. For those amphorae which spanned the time divide they were split equally between the two time periods.

After the test was carried out the result was found to be significant at the 5% level so therefore we can reject the null hypothesis and conclude that the ratio of locally produced amphorae to imported amphorae did indeed change through time. The data from the tables, see appendix 4A on the CD-ROM, shows the change from imported amphorae, including Tunisian ones, during the first half of the time period to be replaced in the second half of the time period by the locally produced Tripolitanian amphorae. One possible explanation for this is that as the local production of olive oil increased the demand and need for 'imported' olive oil decreased.

Table 5.9A - Defining time periods.

CODE		DATE RANGE
EMP	Early/mid Punic	Mid/late 5th century B.C. - Late third/early 2nd. century B.C.
LP	Late Punic	Late3rd/early 2nd century B.C. - Late 1st century B.C.
EI	Early Imperial	Late 1st century B.C. - End 3rd century A.D.
LI	Late Imperial	Early 4th century A.D. - Mid 5th century A.D.
VB	Vandal Byzantine	Fifth century A.D. - Early 7th century A.D.

Using tables 5.9A and 5.8 the data was grouped into time periods and shown in table 5.9B.

Table 5.9B - Showing chronology of amphorae.

	FORM	L.M. BASE	L.M. RIM		FORM	L.M. BASE	L.M. RIM
EARLY / MID PUNIC 450-200BC	SABRATHA 1	2	2	EARLY IMPERIAL 25BC-AD300	B. MRA 5	0	1
	SABRATHA 3-4	1	7		B. LRA 10	1	0
	SABRATHA 6	0	2		BEIRUT 2.2	0	1
	TOTAL	3	11		BEIRUT 3.2	0	3
					RICHBOROUGH 527	0	1
LATE PUNIC 200-25 BC	SABRATHA 7	0	9		DRES 7-11	1	2
	SABRATHA 8	0	3		DRES 14	0	1
	SABRATHA 9	0	3		GAUL 3	1	0
	SABRATHA 7-9	2	0		GAUL 4	5	3
	SABRATHA 11	1	2		FURROW RIM	0	1
	TOTAL	3	17		TOTAL	44	153
EARLY IMPERIAL 25BC-AD300	SABRATHA 13	1	6	LATE IMPERIAL - VANDAL AD 300-600	SABRATHA 21	0	1
	SABRATHA 14	2	0		SABRATHA 22	0	1
	SABRATHA 14 imit	0	2		SABRATHA 27	0	1
	SABRATHA 16	12	113		BELT 80	1	0
	SABRATHA 17	4	4		KEAY XIX ?	1	0
	SABRATHA 17 var	0	2		KEAY XXV VAR 3	1	0
	SABRATHA 18	0	2		KEAY XXVI C	0	1
	SABRATHA 20	1	0		KEAY XXXV A	0	1
	SABRATHA 29	13	8		KEAY XL	0	1
	SABRATHA 34 & 35	0	3		ALMAGRO 54	0	1
	BELT I	1	0		EGLOFF 172	0	1
	BELT II-IV	2	0		TOTAL	3	8

This data was then summarised in table 5.10A and shown graphically in figure 5.4.

Table 5.10A - Summary of chronology.

PERIOD	BASE	RIM	BASE + RIM
EARLY / MID PUNIC	3	11	14
LATE PUNIC	3	17	20
EARLY IMPERIAL	44	153	197
LATE IMPERIAL -VANDAL	3	8	11
TOTAL	53	189	242

The graph illustrates that the largest number of amphorae present at Lepcis Magna were manufactured during the Early Imperial period.

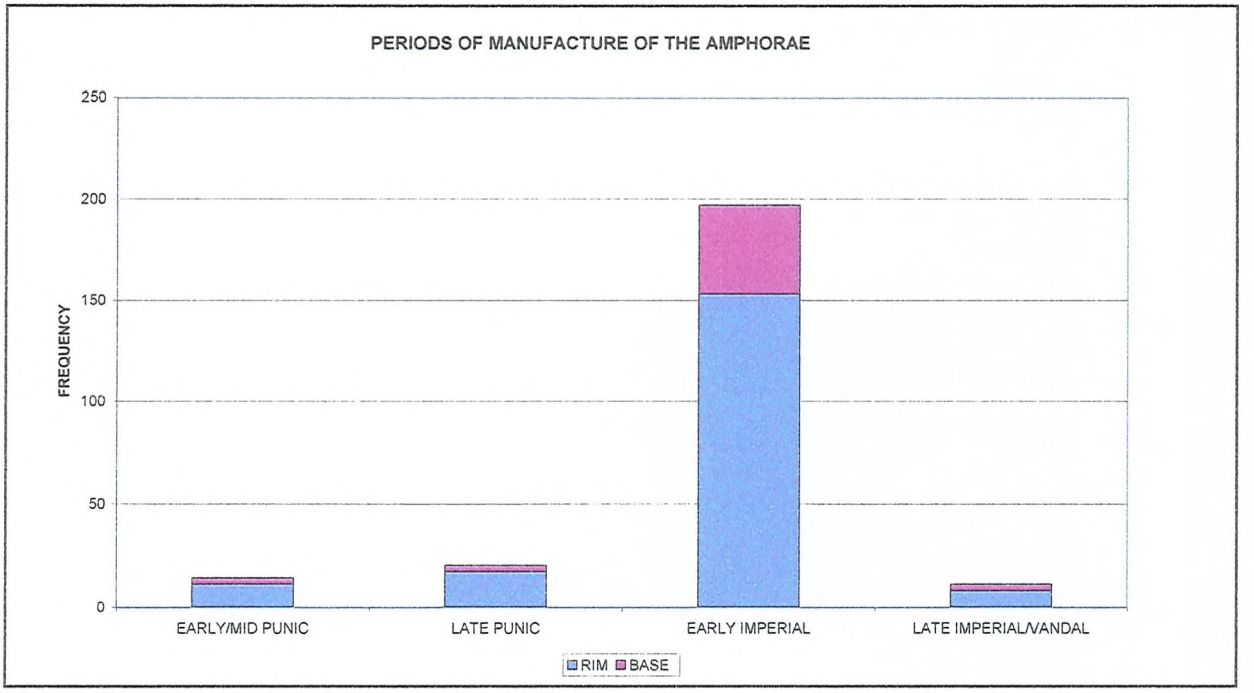


Figure 5.4 - Showing periods of manufacture of the amphorae.

The data from table 5.8, which stated the date-range of manufacture of amphorae, was rearranged into table 5.10B to show the chronological pattern of the amphora forms found at Lepcis Magna irrespective of which trenches they were actually excavated from. The identified amphora forms range in date from the sixth century BC to the sixth century AD with the majority of forms being manufactured during the first to fourth centuries AD.

Table 5.10B - Showing date-range of manufacture of amphorae.

FORM	DATE RANGE IN CENTURIES												
	BC						AD						
	6	5	4	3	2	1	1	2	3	4	5	6	7
SABRATHA 1	X	~~	~~	~~	X								
SABRATHA 3-4			X	X									
SABRATHA 6			X	~~	X								
SABRATHA 7				X	~~	X							
SABRATHA 8C					X	~~	X						
SABRATHA 9					X	~~	X						
SABRATHA 11						X							
DRESSEL 7-11						X	X						
SABRATHA 13						X	~~	X					
BELTRAN I						X	~~	X					
GAULOISE 3							X						
RICHBOROUGH 527							X						
SABRATHA 14							X	X					
BEIRUT 3.2							X	X					
BELT II-IV							X	~~	X				
DRESSEL 14							X	~~	X				
GAULOISE 4							X	~~	X				
T. B. ERA 11A							X	~~	~~	X			
T. B. ERA 11B							X	~~	~~	X			
T. B. MRA 14							X	~~	~~	X			
T. B. MRA 14							X	~~	~~	X			
TRIPOLITANIAN							X	~~	~~	X			
SABRATHA 34A							X	~~	~~	X			
SABRATHA 29							X	~~	~~	~~	X		
B. LRA 10							X	~~	~~	~~	~~	X	
BEIRUT 2.2								X					
SABRATHA 18								X	~~	X			
B. MRA 5									X				
SABRATHA 17									X	X			
SABRATHA 20									X	X			
SABRATHA 21									X	~~	X		
SABRATHA 22									X	~~	X		
KEAY XXV C									X	~~	X		
KEAY XIX ?										X	X		
KEAY XL										X	X		
ALMAGRO 54										X	~~	X	
BELTRAN 80										X	~~	X	
KEAY XXXV A										X	~~	X	
EGLOFF 172										X	~~	X	
KEAY XLIV										X	~~	~~	X
SABRATHA 27											X	~~	X
KEAY XXVI C												X	X

Amphora distribution by time and location.

The amphora data was then analysed to see how the supply of amphora changed through time and by location across the town. The combined results, for the rim and base data, are shown in table 5.11 and illustrated in figure 5.5.

Table 5.11- Showing summary of chronology by location.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	LI/VB
FORUM VETUS	8	4	2	0	1	10	15	0	1
CHURCH	5	0	0	0	1	2	3	0	0
PIAZZA	0	0	0	1	6	8	83	1	4
COL. STREET	0	0	0	0	1	0	3	0	0
PORTICO	2	0	0	0	2	10	39	0	1
PALAESTRA	0	0	0	1	4	8	18	1	0

A complete breakdown of the data is given in appendices 5 (rims) and 6 (bases) on the CD-ROM. The graph highlights the fact that the majority of the amphorae were made during the Early Imperial - Late Imperial time period and came from the Portico and Piazza trenches.

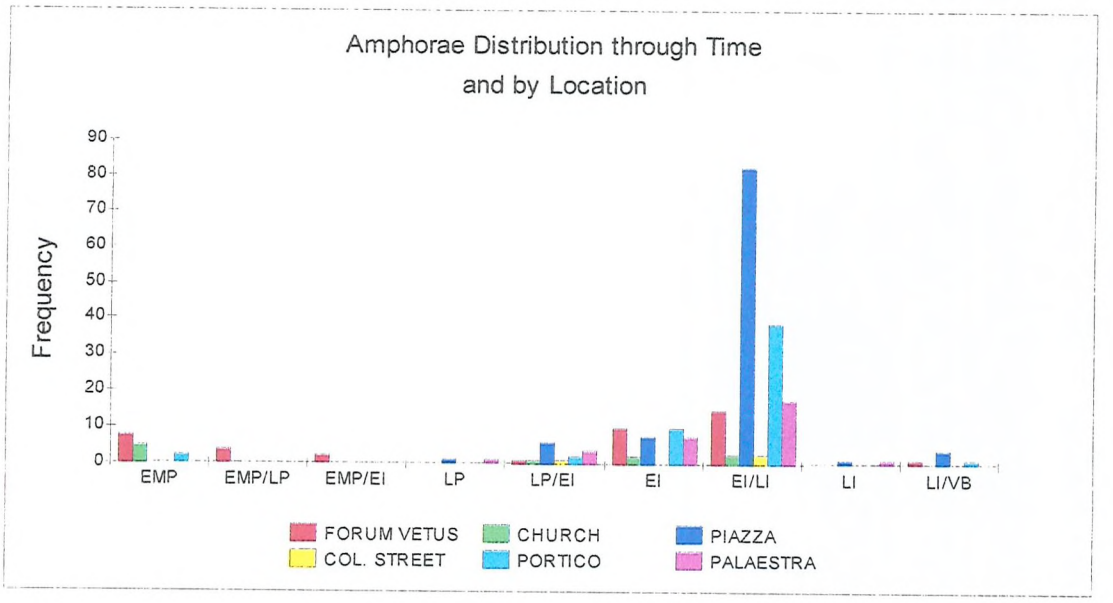
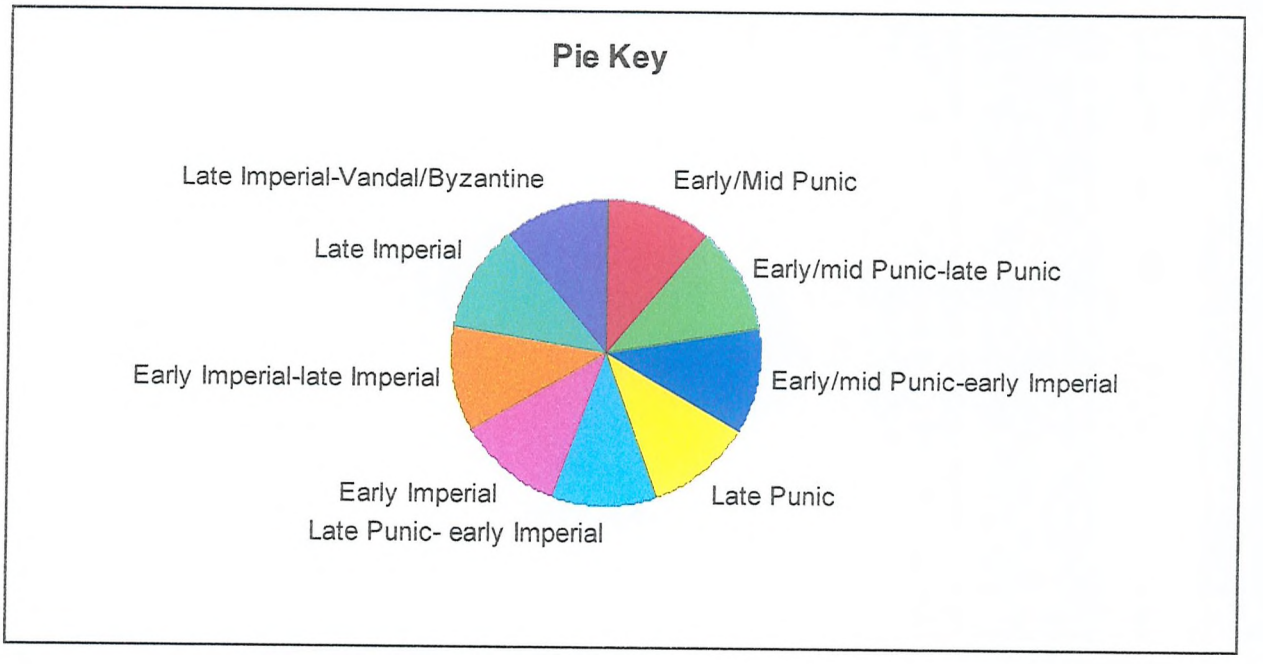


Figure 5.5 - Showing amphorae distribution through time and by location.

This data has also been presented as a series of pie charts shown on a location map of the town. (See table 5.11 for data.)



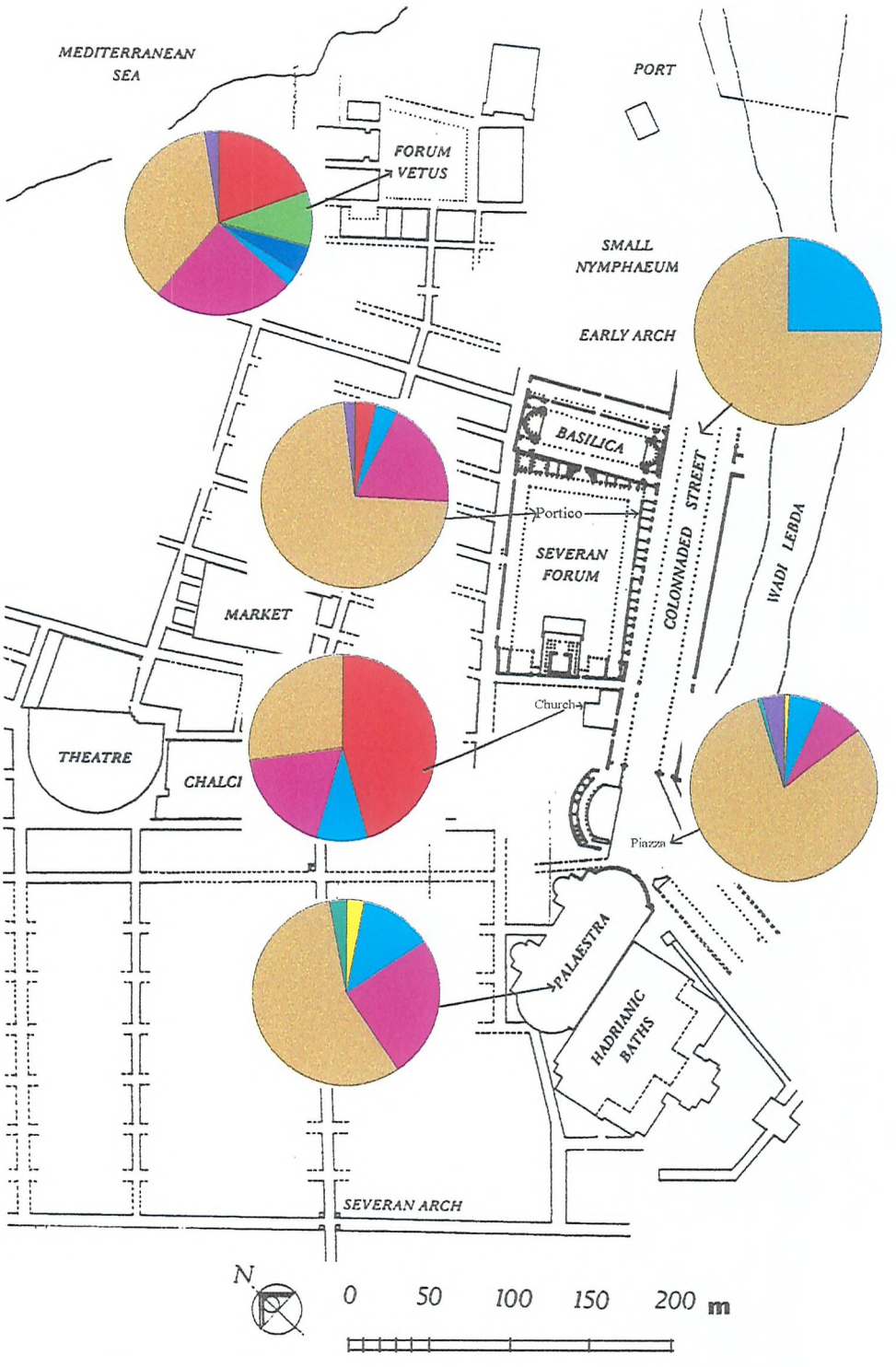
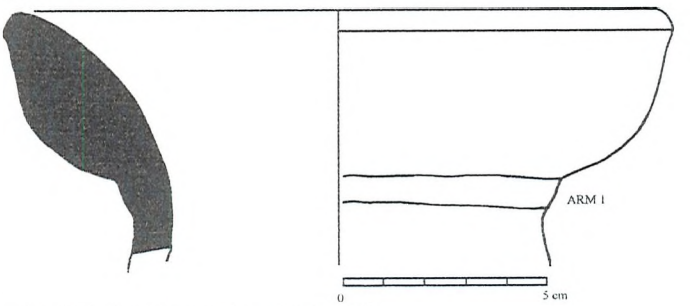


Figure 5.6 - Showing distribution of amphorae through time and by location.

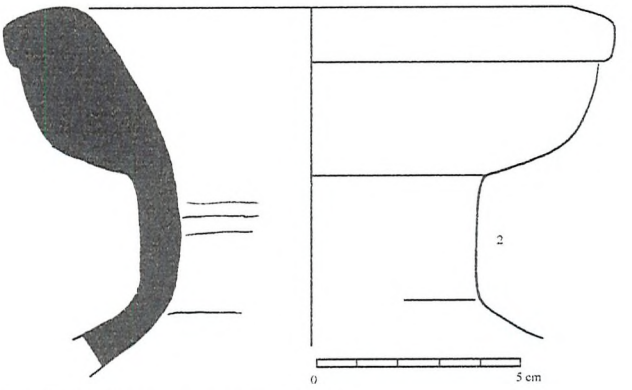
The amphorae drawings.

As it was considered unnecessary to present all sherd drawings in this chapter and in order to avoid confusion the numbers stated on the printed drawings refers to their particular record in the database and to their descriptions in the relevant tables.

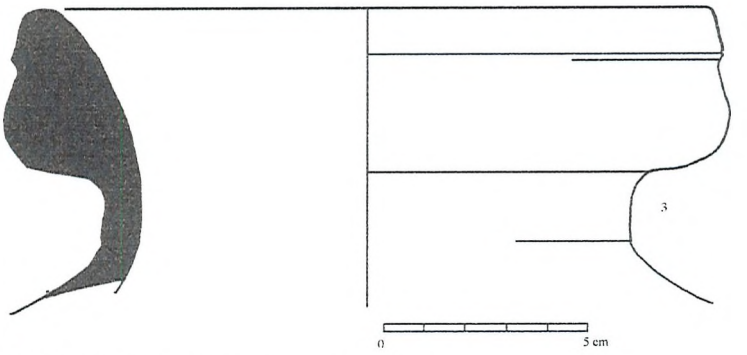
ARM 1 Tripolitanian - Benghazi Early Roman Amphora 11B



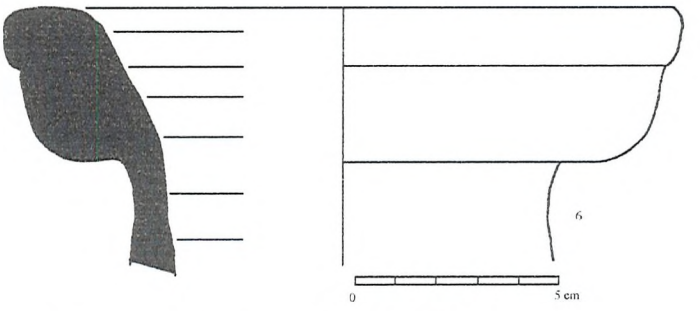
ARM 2 Tripolitanian - Benghazi Early Roman Amphora 11B



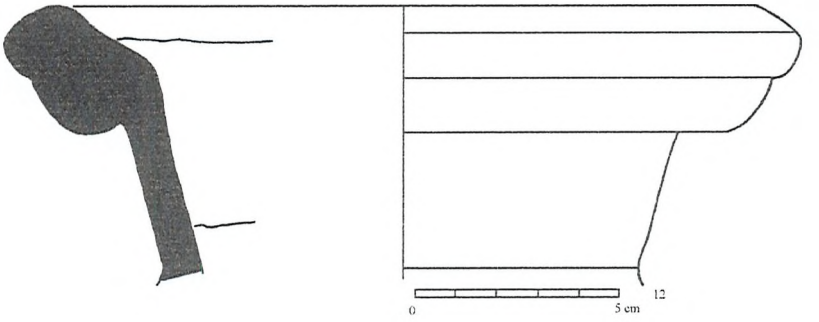
ARM 3 Tripolitanian - Benghazi Early Roman Amphora 11B



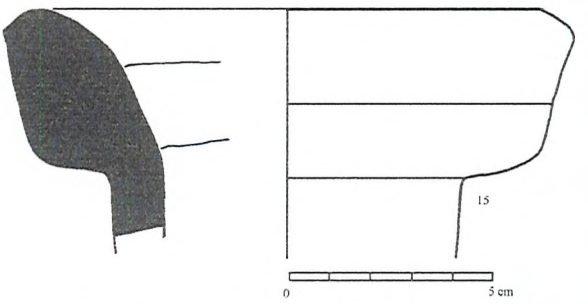
ARM 6 Tripolitanian - Benghazi Early Roman Amphora 11B



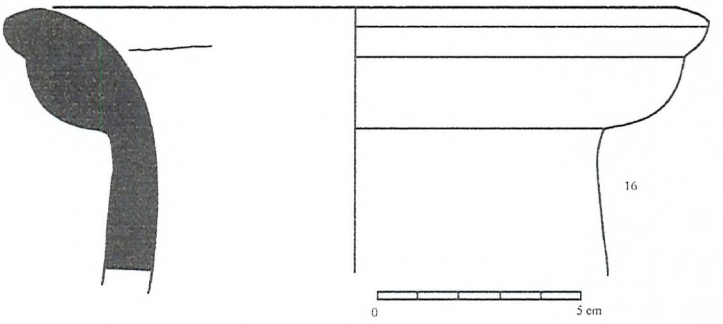
ARM 12 Tripolitanian - Benghazi Early Roman Amphora 11B Variant?



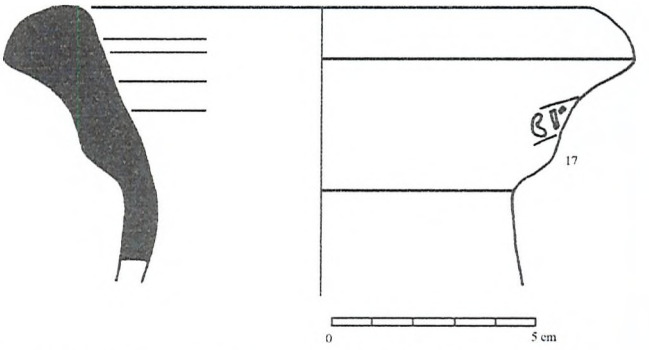
ARM 15 Tripolitanian - Benghazi Early Roman Amphora 11B Variant?



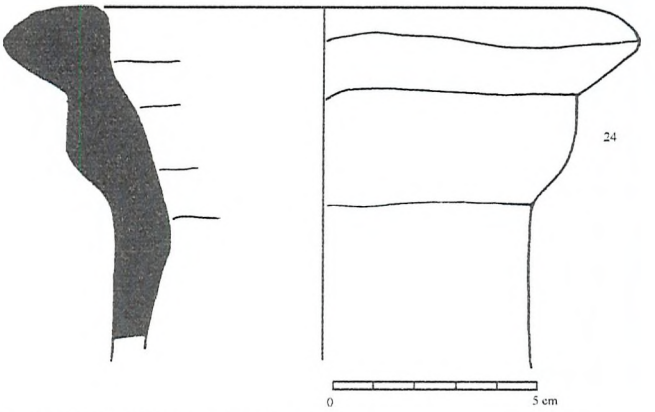
ARM 16 Tripolitanian - Benghazi Early Roman Amphora 11B



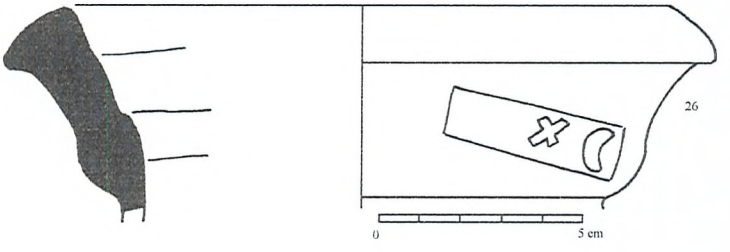
ARM 17 Tripolitanian - Benghazi Mid Roman Amphora 14



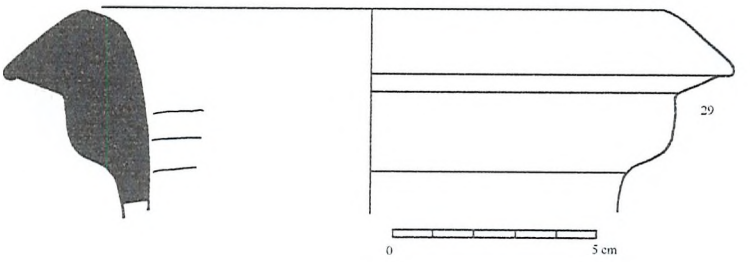
ARM 24 Tripolitanian - Benghazi Mid Roman Amphora 14 Variant?



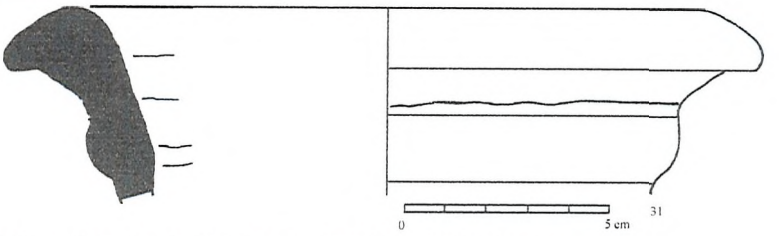
ARM 26 Tripolitanian - Benghazi Mid Roman Amphora 14



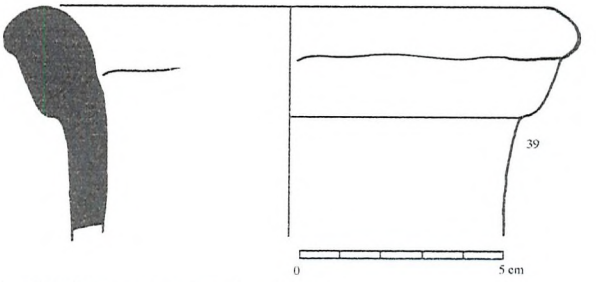
ARM 29 Tripolitanian - Benghazi Mid Roman Amphora 14



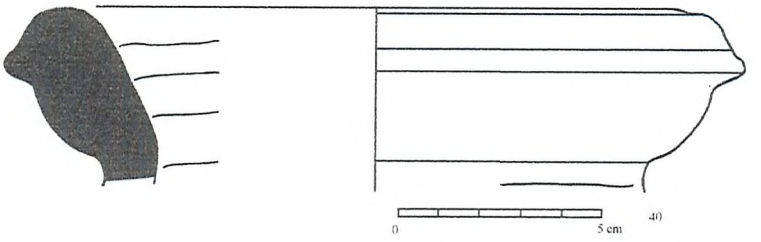
ARM 31 Tripolitanian - Benghazi Mid Roman Amphora 14



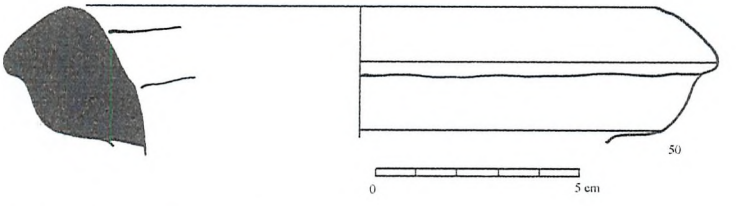
ARM 39 Tripolitanian - Benghazi Mid Roman Amphora 14 Variant?



ARM 40 Tripolitanian - Benghazi Mid Roman Amphora 14



ARM 50 Tripolitanian - Benghazi Mid Roman Amphora 14



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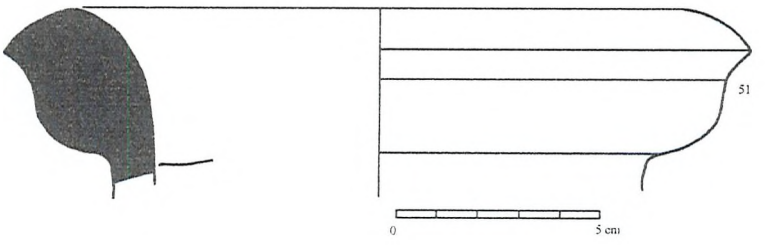
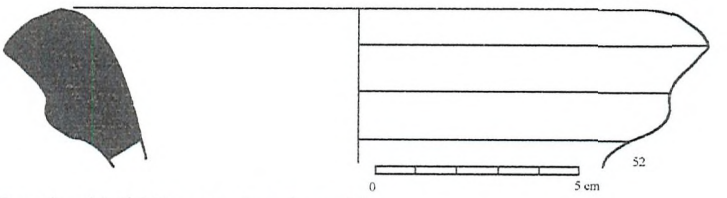
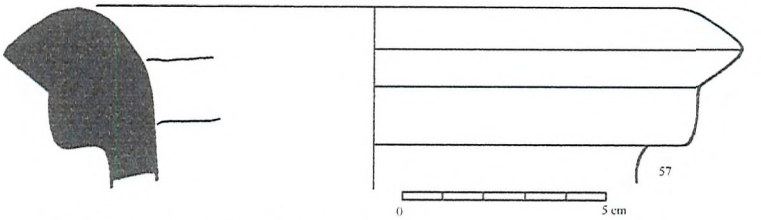


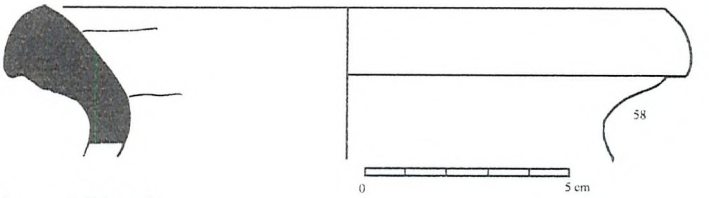
ARM 52 Tripolitanian - Benghazi Mid Roman Amphora 14.



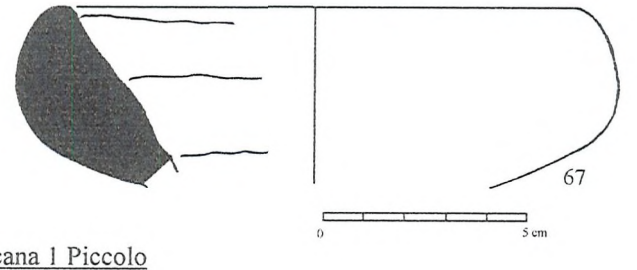
ARM 57 Tripolitanian - Benghazi Mid Roman Amphora 14.



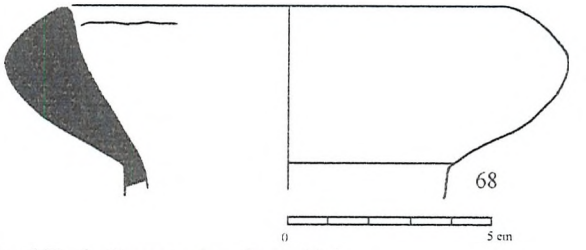
ARM 58 Sabratha 8C Benghazi Hellenistic Amphora 12 VDW 1.



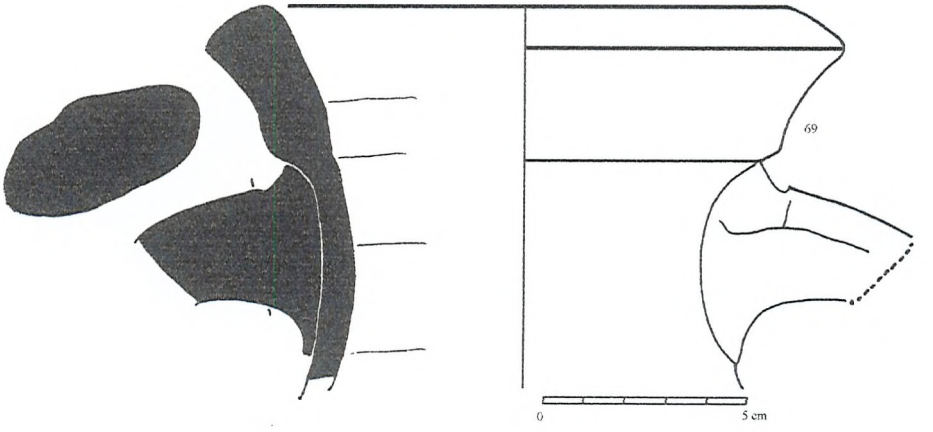
ARM 67 Sabratha 17 Africana 1 Piccolo



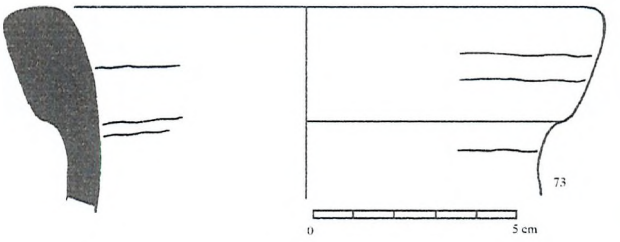
ARM 68 Sabratha 17 Africana 1 Piccolo



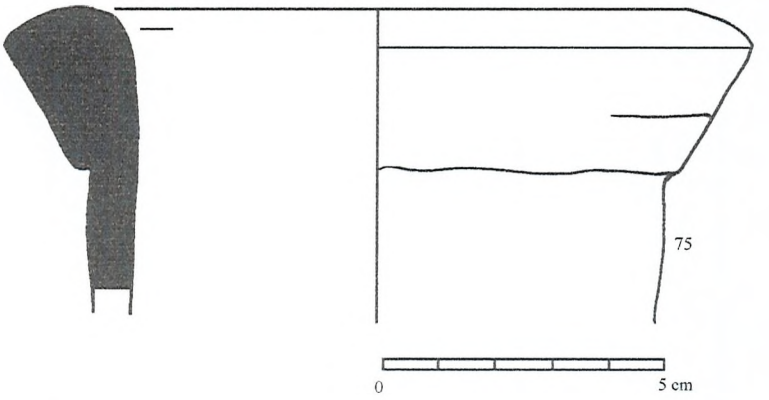
ARM 69 Tripolitanian - Benghazi Early Roman Amphora 11A



ARM 73 Sabratha 7C Benghazi Hellenistic Amphora 13 VDW 3



ARM 75 Sabratha 7C Benghazi Hellenistic Amphora 13 VDW 3



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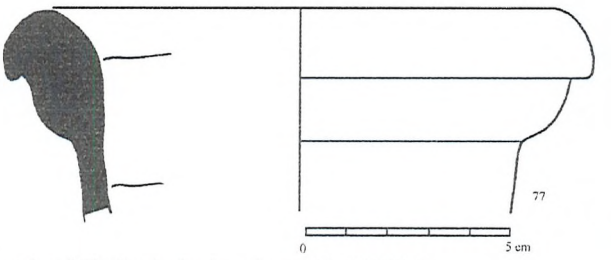
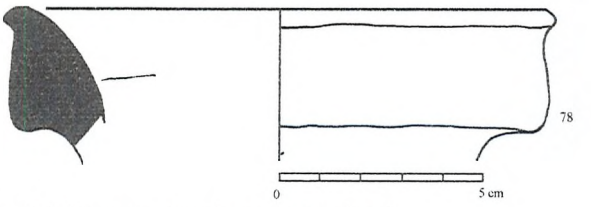
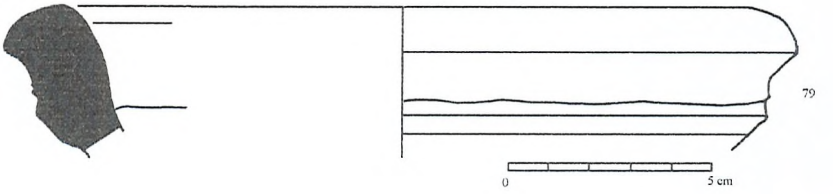


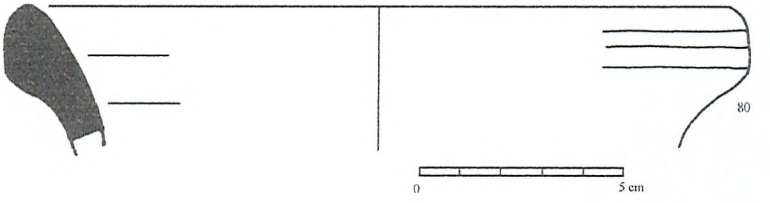
ARM 78 Sabratha 7M Benghazi Hellenistic Amphora 13 VDW 3.



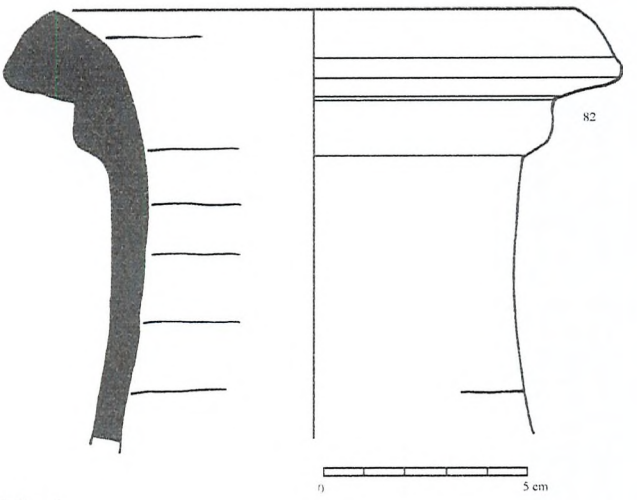
ARM 79 Tripolitanian - Benghazi Mid Roman Amphora 14 Variant?



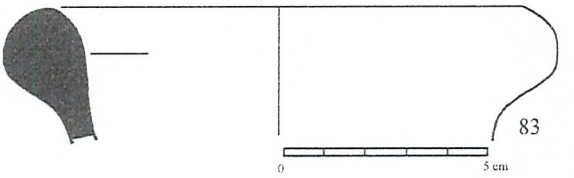
ARM 80 LM 3.



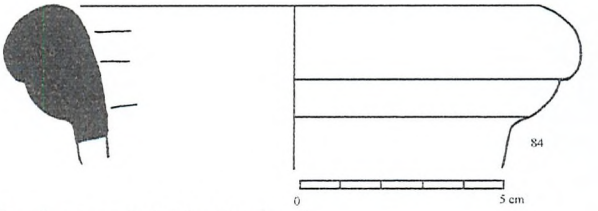
ARM 82 Tripolitanian - Benghazi Mid Roman Amphora 14



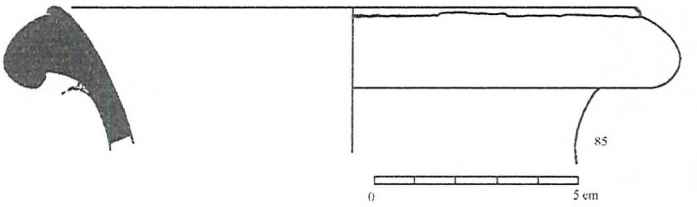
ARM 83 Sabratha 13 Dressel 2 - 4



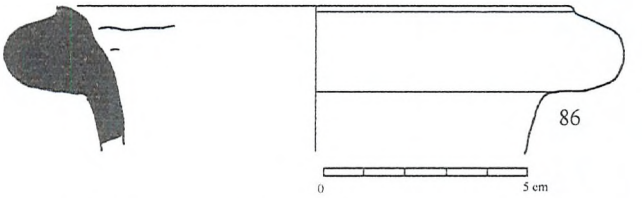
ARM 84 Dore Type 15



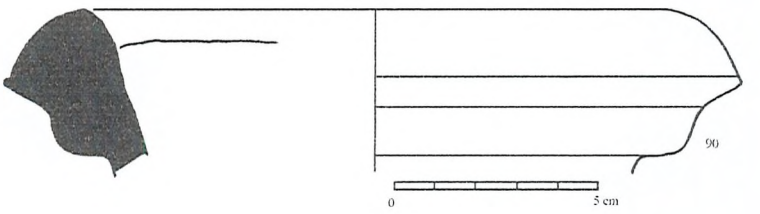
ARM 85 Sabratha 34A Tripolitanian Beaded Rim Variant?



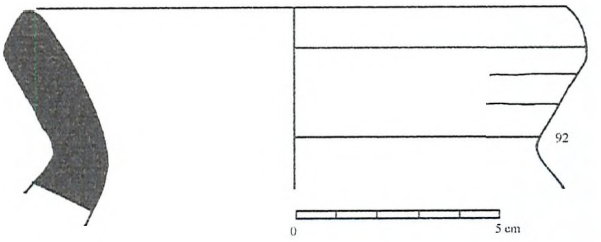
ARM 86 Sabratha 34A Tripolitanian Beaded Rim



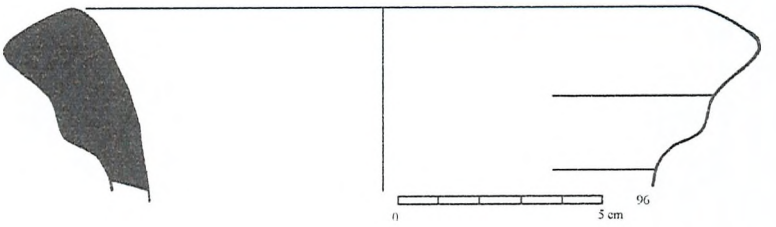
ARM 90 Tripolitanian - Benghazi Mid Roman Amphora 14



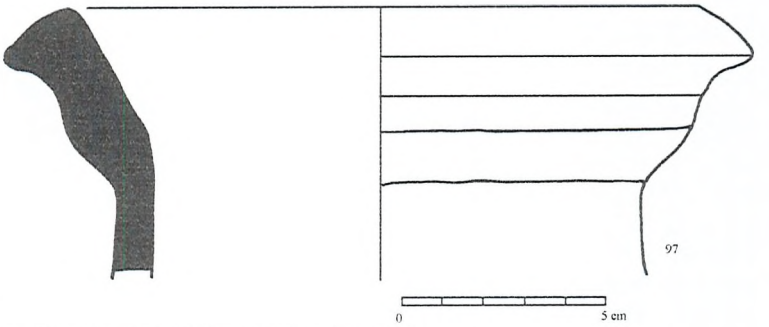
ARM 92 LM 15



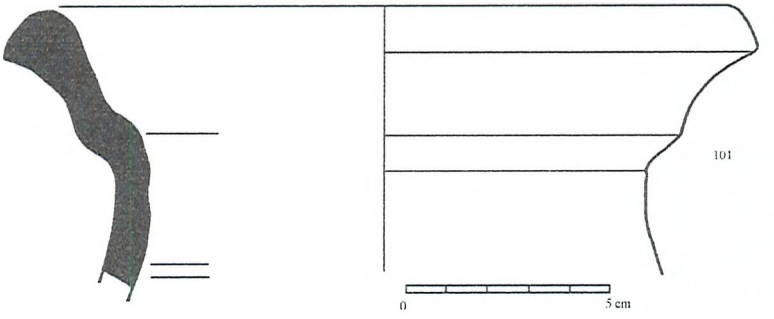
ARM 96 Tripolitanian - Benghazi Mid Roman Amphora 14 Variant?



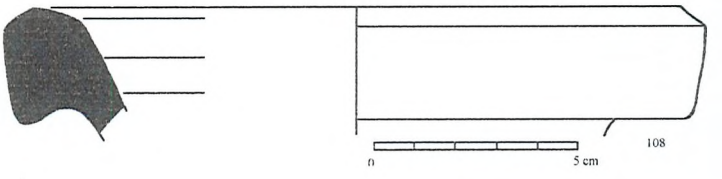
ARM 97 Tripolitanian - Benghazi Mid Roman Amphora 14.



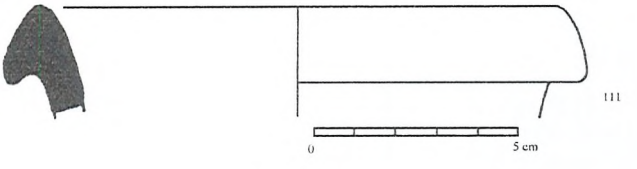
ARM 101 Tripolitanian - Benghazi Mid Roman Amphora 14.



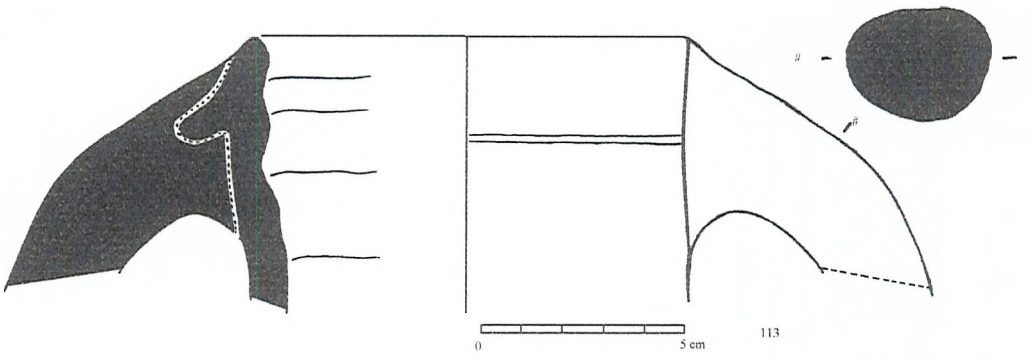
ARM 108 Sabratha 7F Benghazi Hellenistic Amphora 13 VDW 3



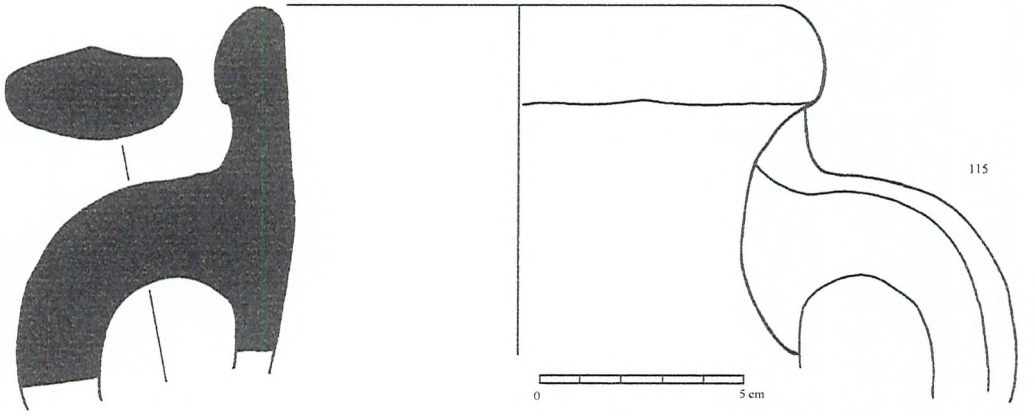
ARM 111 LM 11



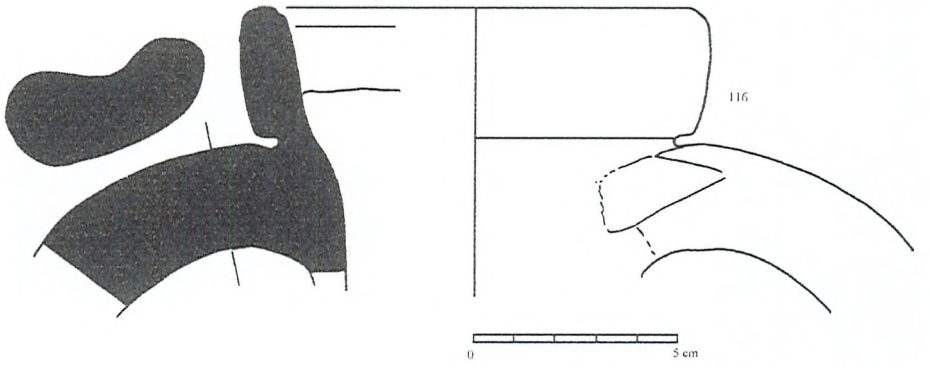
ARM 113 Egloff 172



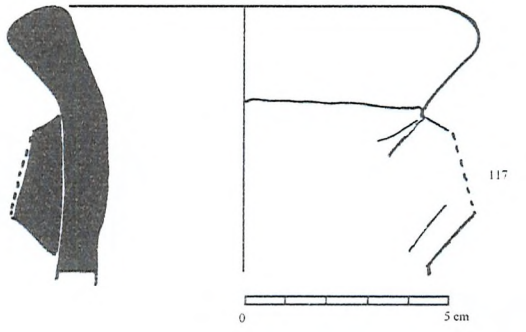
ARM 115 Richborough 527



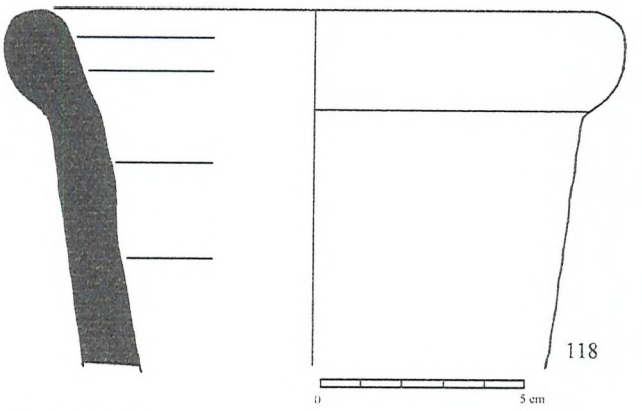
ARM 116 Keay XL



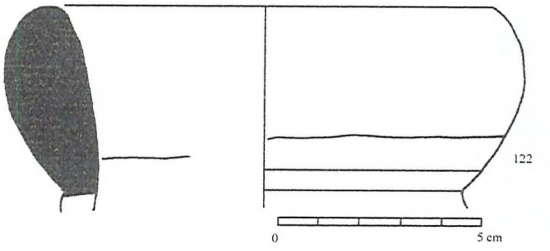
ARM 117 Gauloise 4



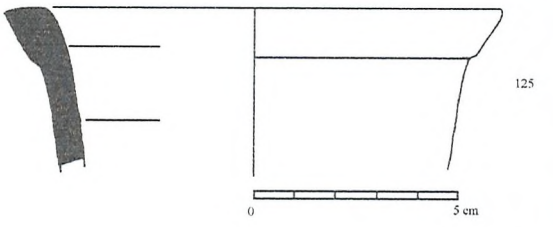
ARM 118 Sabratha 13 Dressel 2 -4



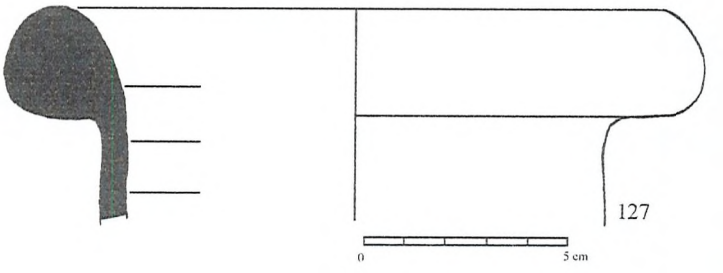
ARM 122 Sabratha 17 Africana 1 Piccolo.



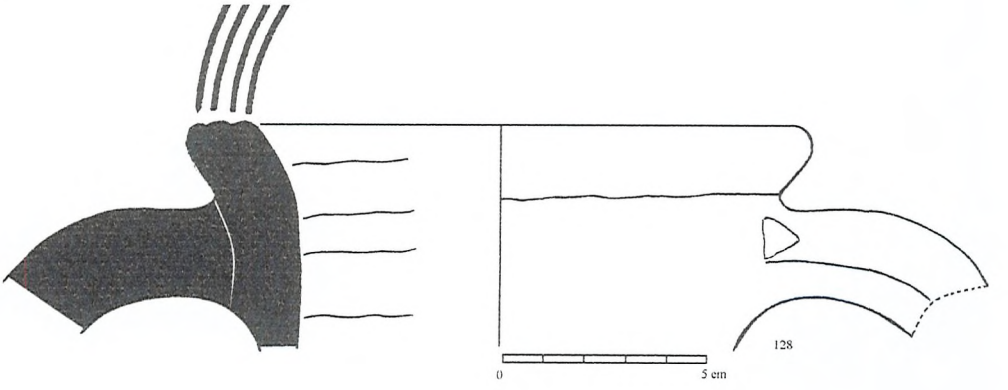
ARM 125 LM 16.



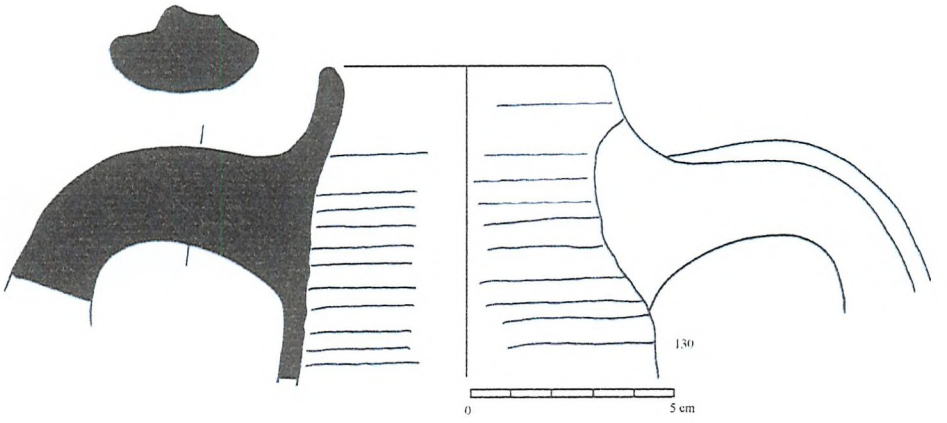
ARM 127 LM 6.



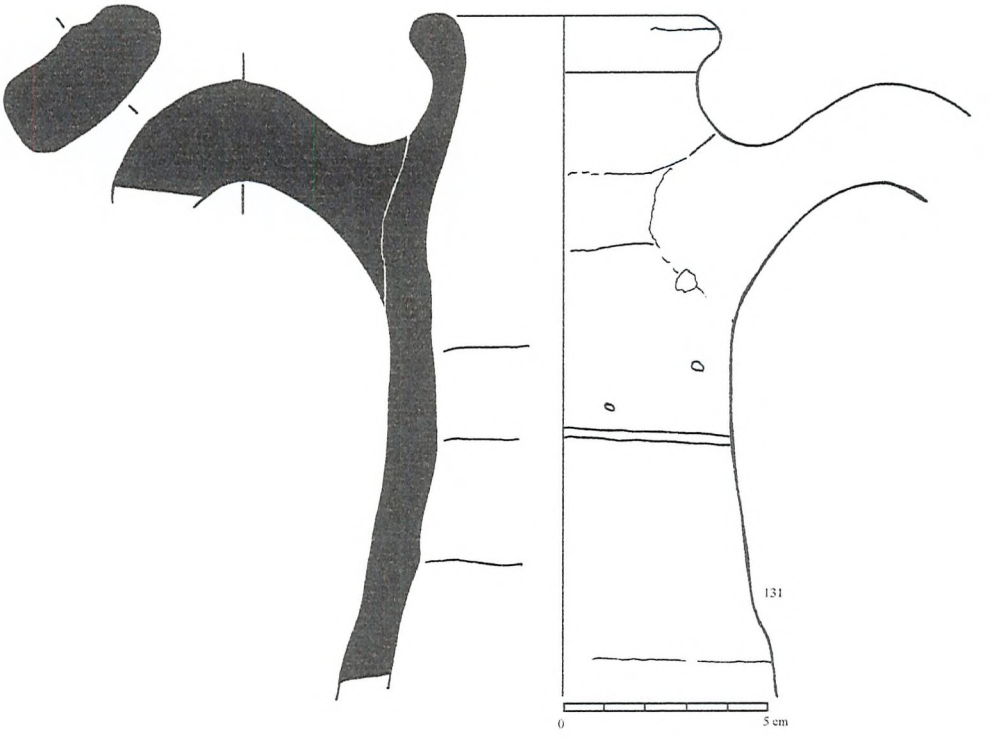
ARM 128 Gauloise 12.



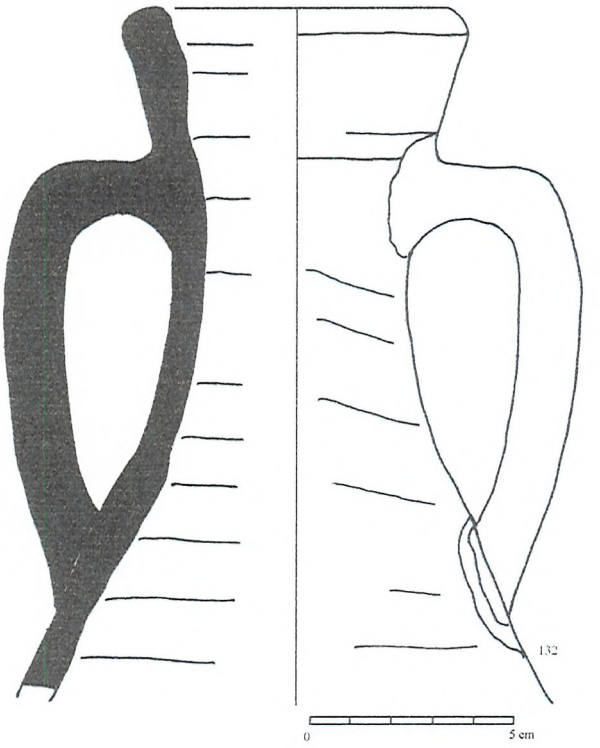
ARM 130 Sabratha 27 British B II



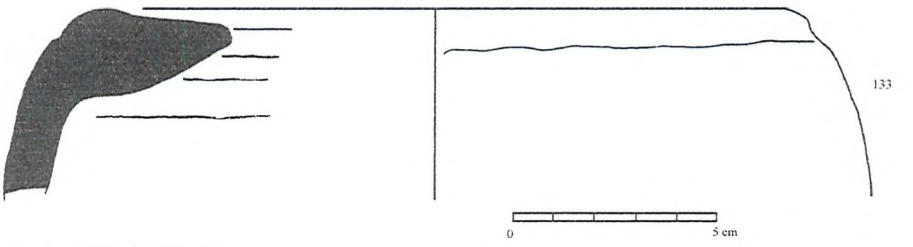
ARM 131 LM 5.



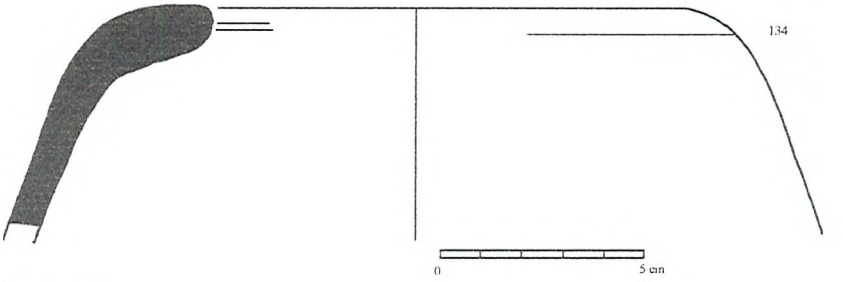
ARM 132 LM 10



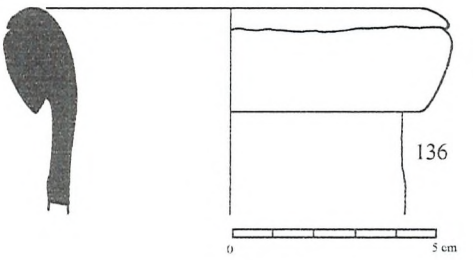
ARM 133 Sabratha 3 - 4 Hole-Mouth.



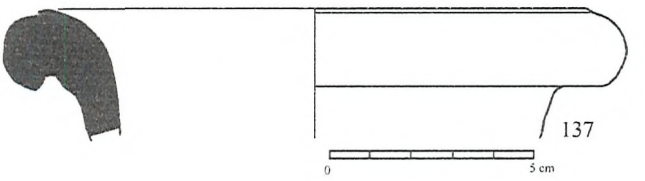
ARM 134 Sabratha 3 - 4 Hole-Mouth.



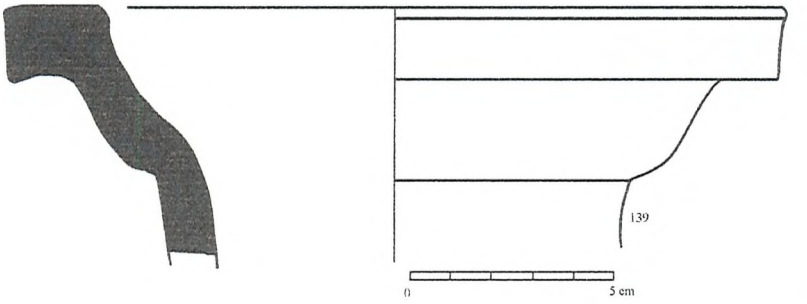
ARM 136 LM 9 - Beaded Rim.



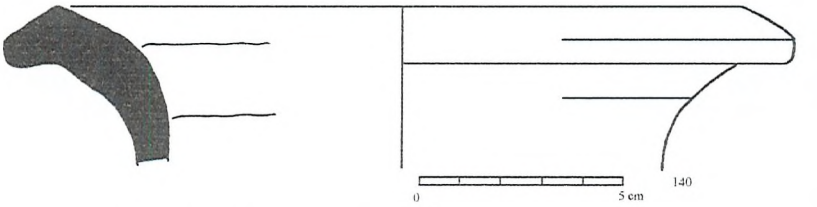
ARM 137 Sabratha 34A Tripolitanian Beaded Rim Variant?



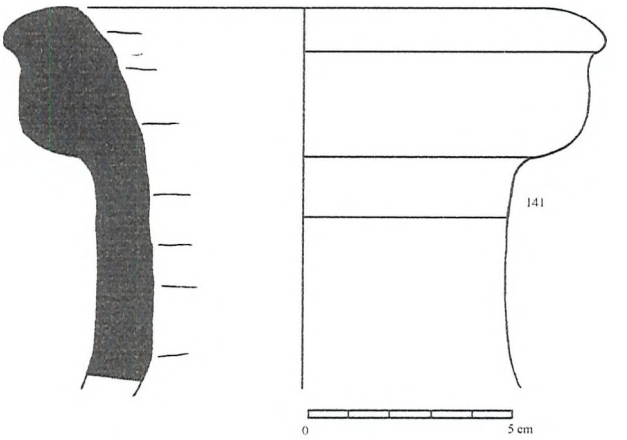
ARM 139 Tripolitanian - Benghazi Early Roman Amphora 11B Variant.



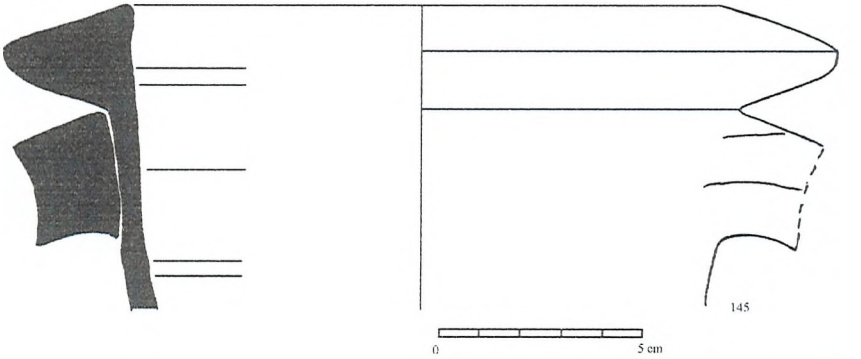
ARM 140 Sabratha 8C Benghazi Hellenistic Amphora 12 VDW 1.



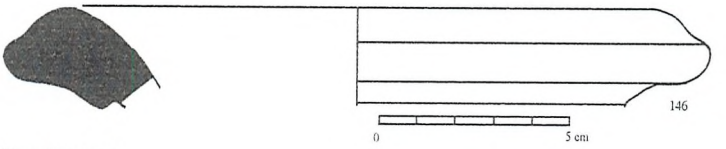
ARM 141 Tripolitanian - Benghazi Early Roman Amphora 11B.



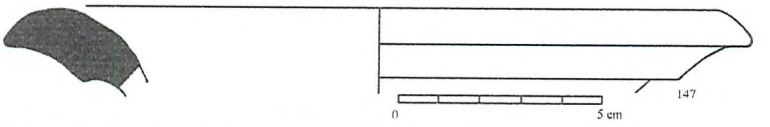
ARM 145 Sabratha 6 Greco-Italic



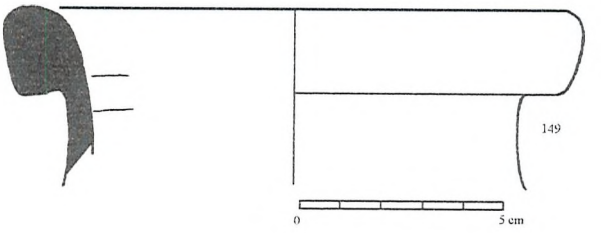
ARM 146 Sabratha 9L VDW 2



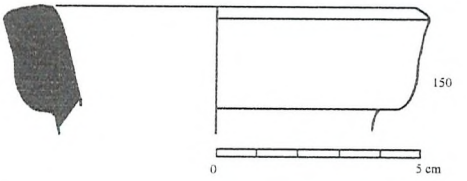
ARM 147 Sabratha 9L VDW 2



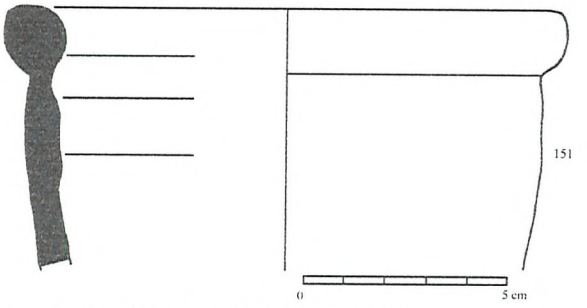
ARM 149 Sabratha 7C Benghazi Hellenistic Amphora 13 VDW 3



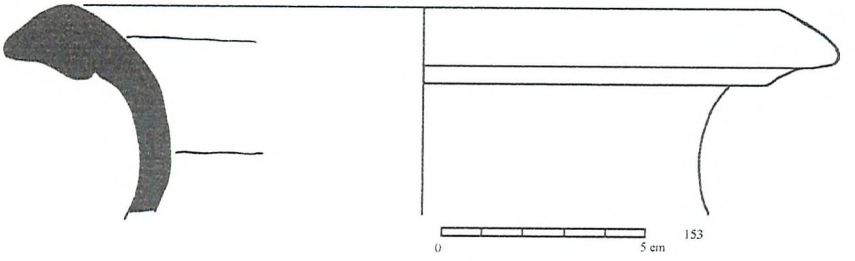
ARM 150 LM 17



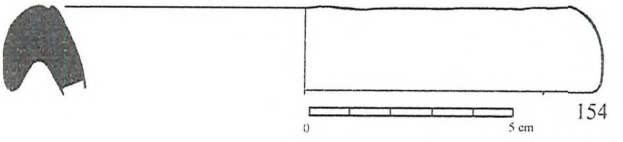
ARM 151 Sabratha 13 Dressel 2 - 4



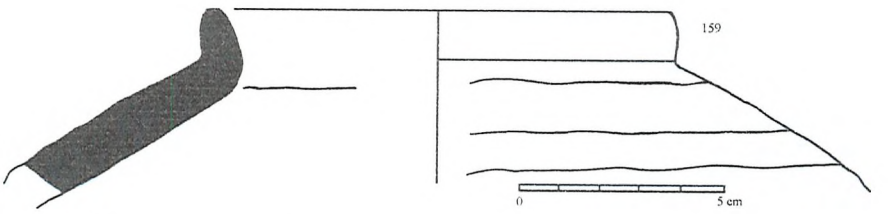
ARM 153 Sabratha 8C Benghazi Hellenistic Amphora 12 VDW 1



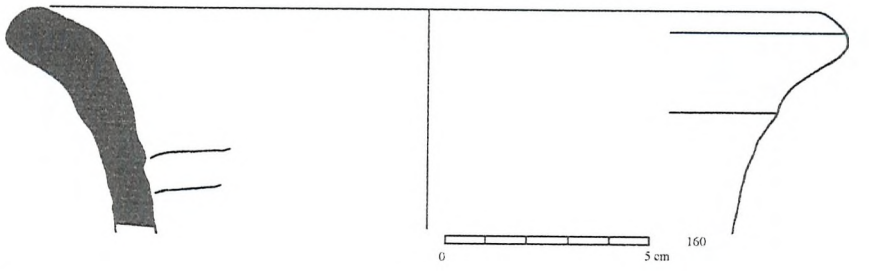
ARM 154 LM 2B



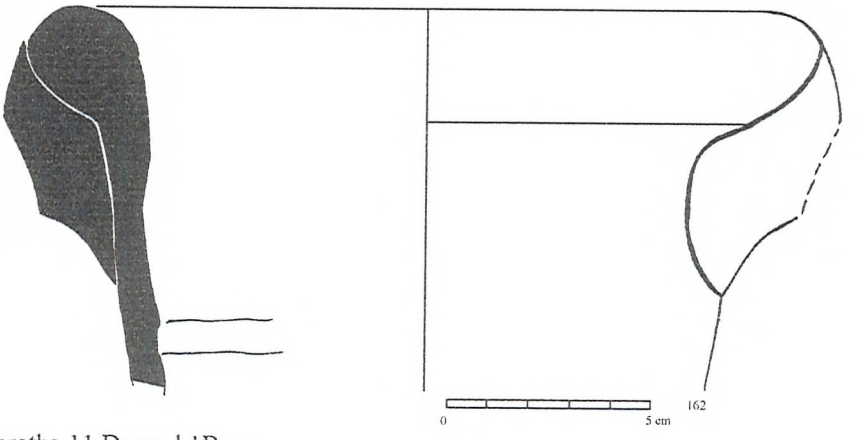
ARM 159 Almagro 54



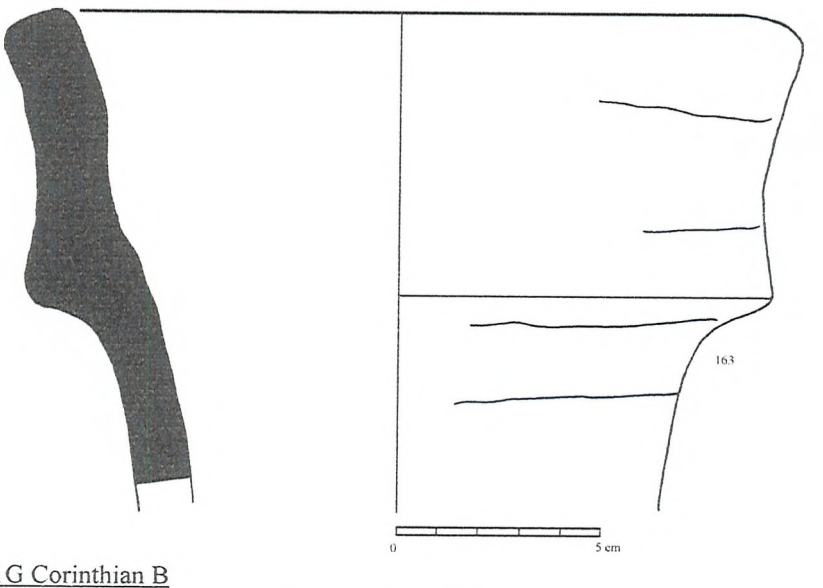
ARM 160 Dressel 7 - 11?



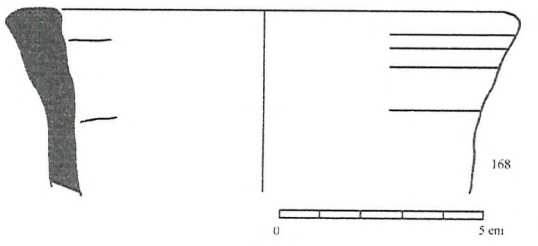
ARM 162 LM 1



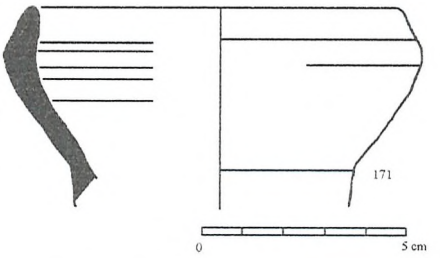
ARM 163 Sabratha 11 Dressel 1B



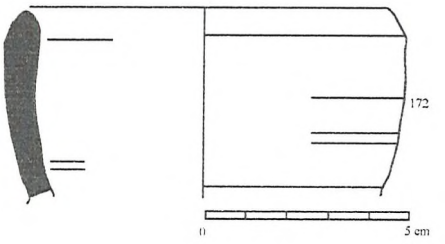
ARM 168 Sabratha 1G Corinthian B



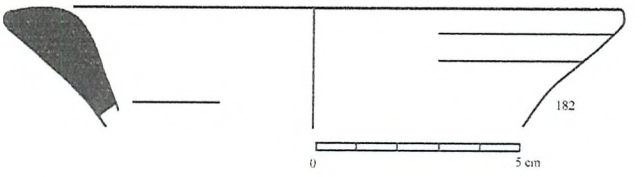
ARM 171 Sabratha 29 Benghazi Mid Roman Amphora 1.



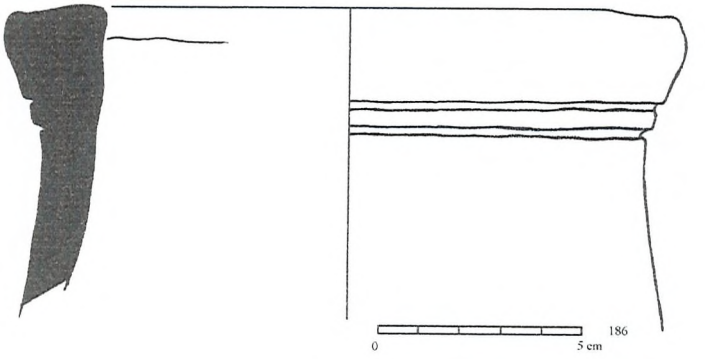
ARM 172 Sabratha 29 Benghazi Mid Roman Amphora 1.



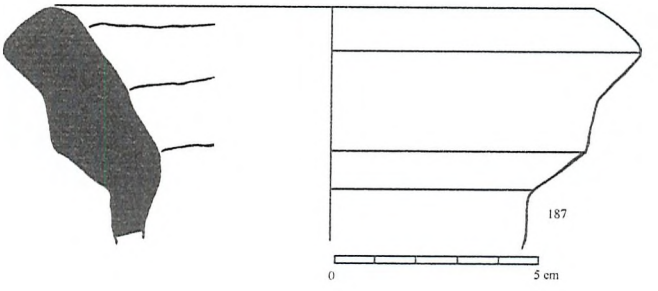
ARM 182 Beirut 3.2.



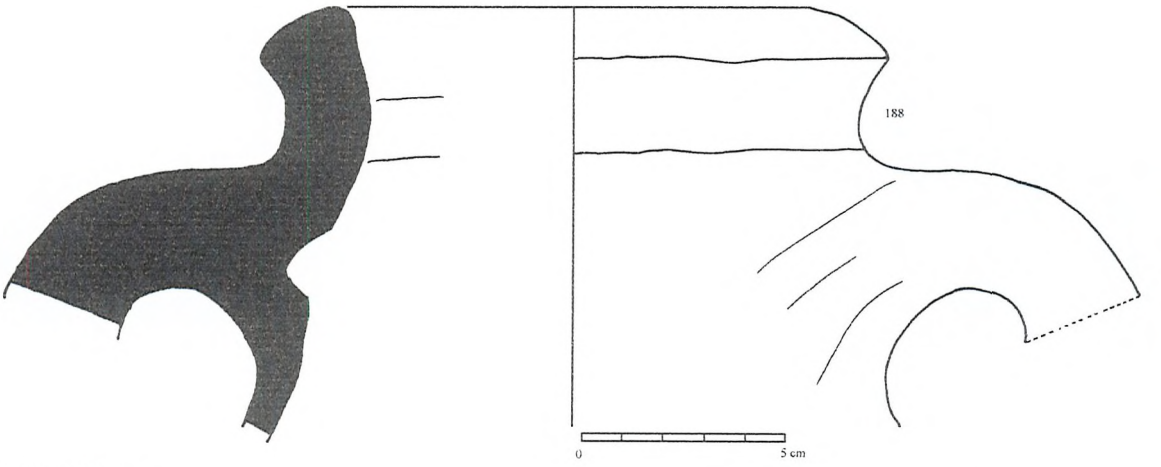
ARM 186 Benghazi Mid Roman Amphora 5.



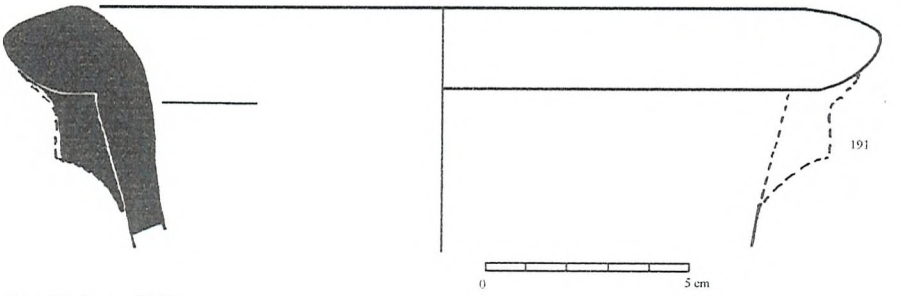
ARM 187 Tripolitanian - Benghazi Early Roman Amphora 11A.



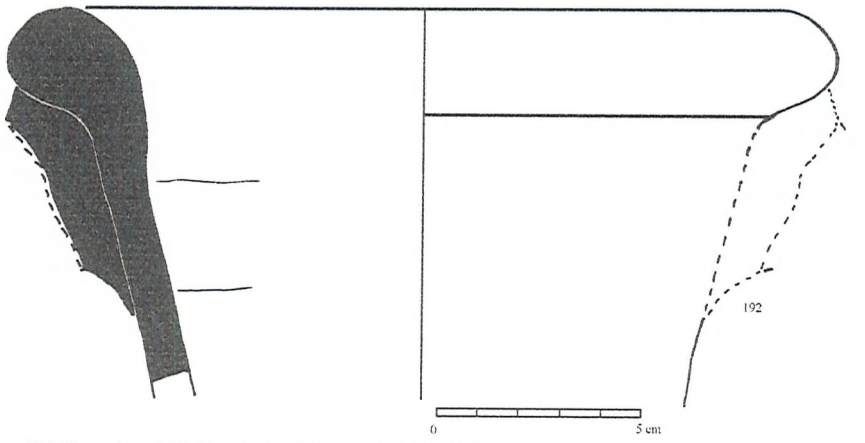
ARM 188 Tripolitanian - Benghazi Early Roman Amphora 11A



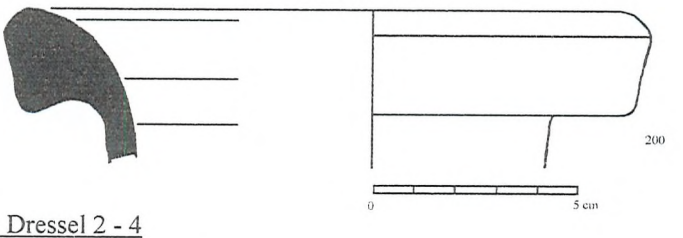
ARM 191 LM 4



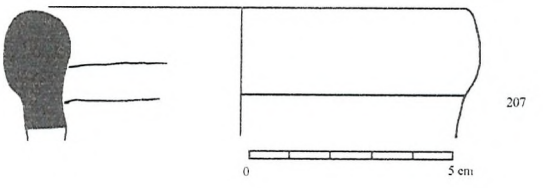
ARM 192 Imitation Beltran II B



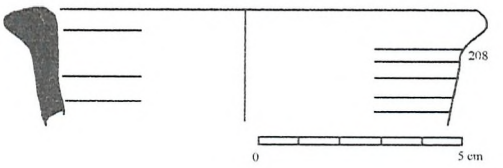
ARM 200 Sabratha 7F Benghazi Hellenistic Amphora 13 VDW 3



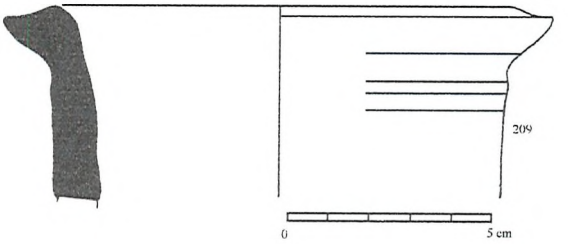
ARM 207 Sabratha 13 Dressel 2 - 4



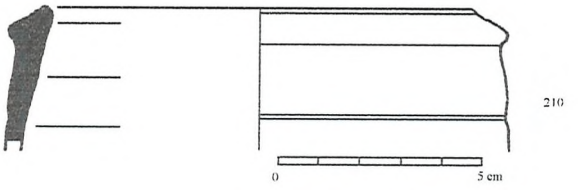
ARM 208 LM 19



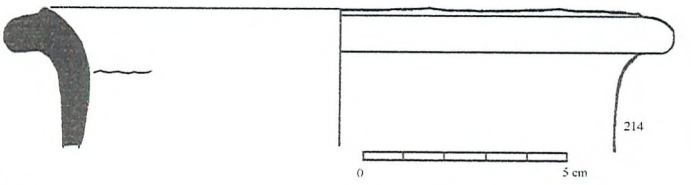
ARM 209 LM 18



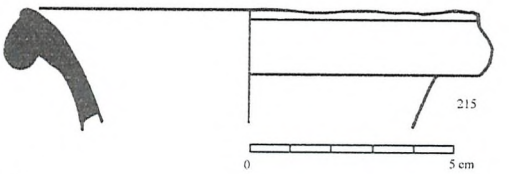
ARM 210 Beirut 2.2?



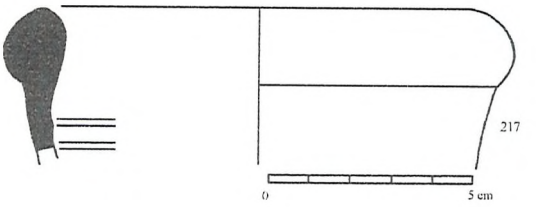
ARM 214 LM 9 Beaded Rim



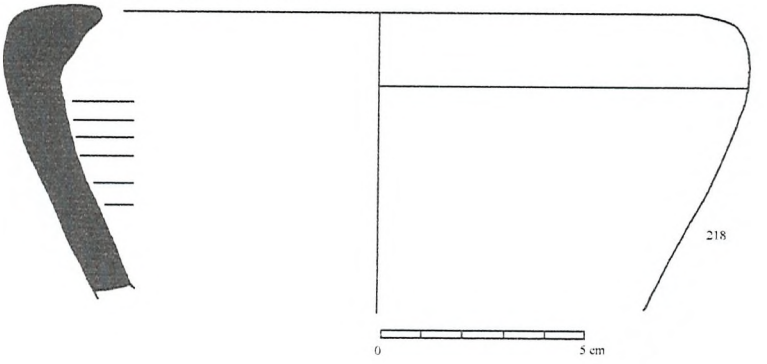
ARM 215 LM 9 Beaded Rim



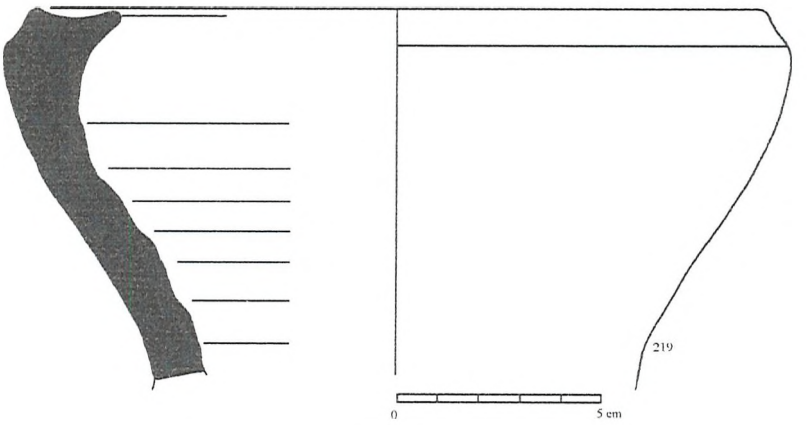
ARM 217 Sabratha 13 Dressel 2 - 4



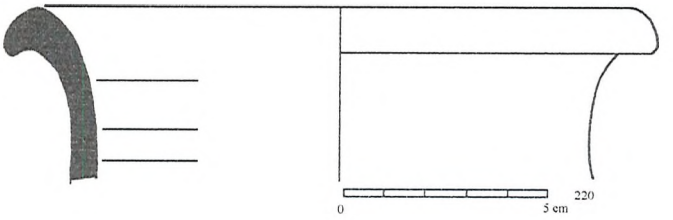
ARM 218 Paphos 5 Hayes Roman Amphora Type 5



ARM 219 Clausentum AR 3

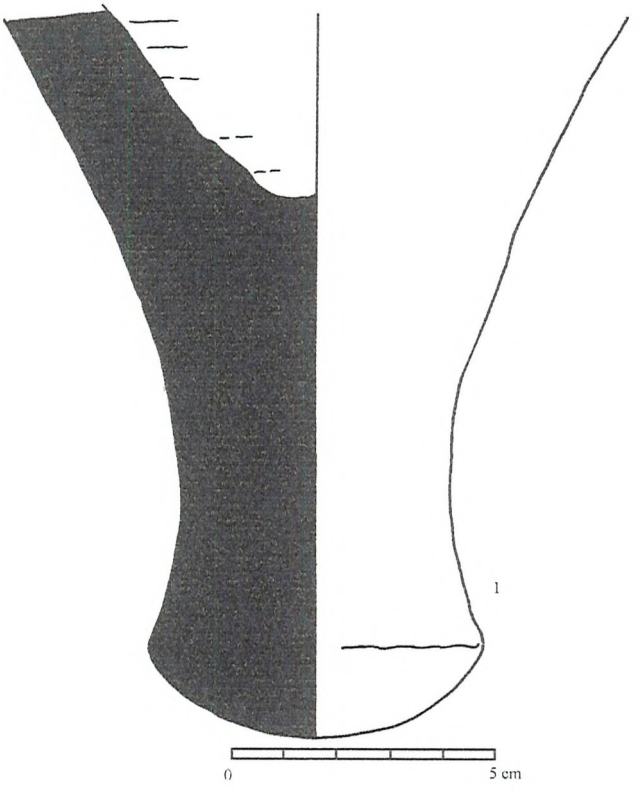


ARM 220 LM 12

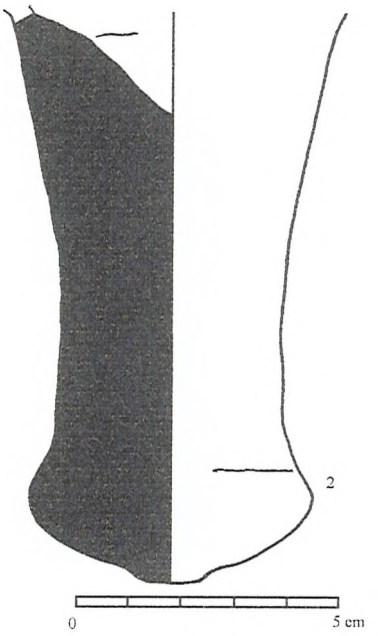


Amphora spikes/bases

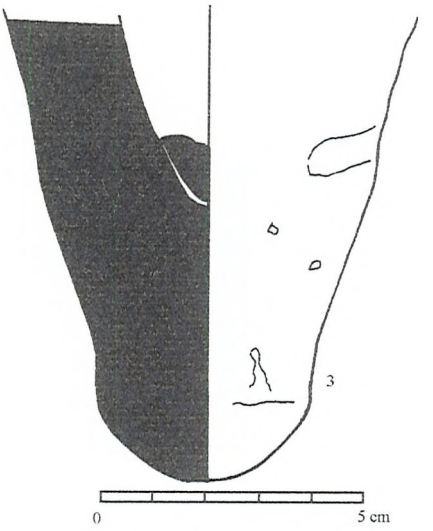
ASP 1 Sabratha 13 Dressel 2 - 4



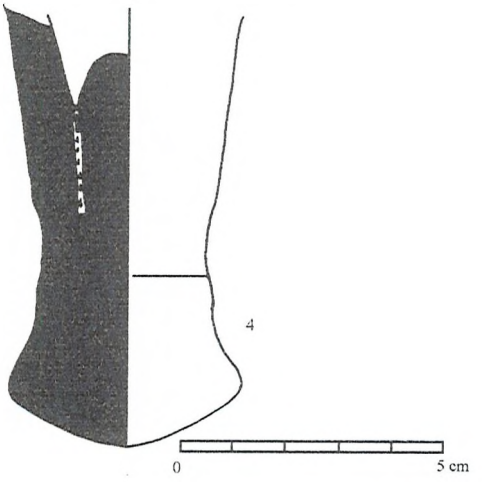
ASP 2 Dressel 7 - 11



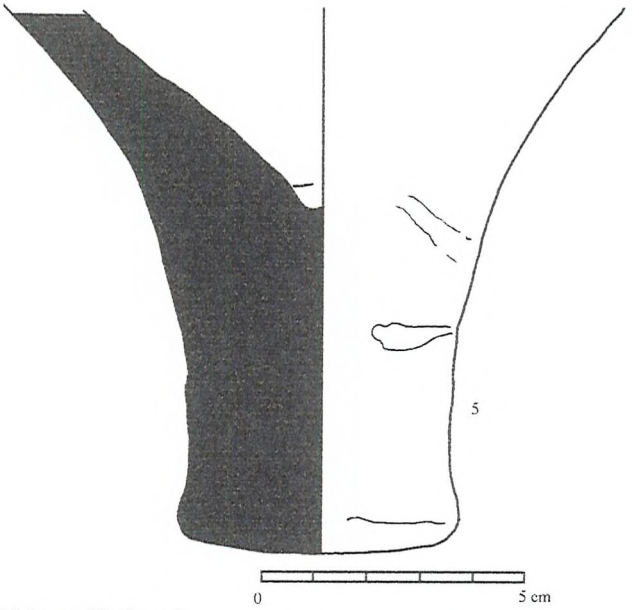
ASP 3 Sabratha 1 Corinthian B



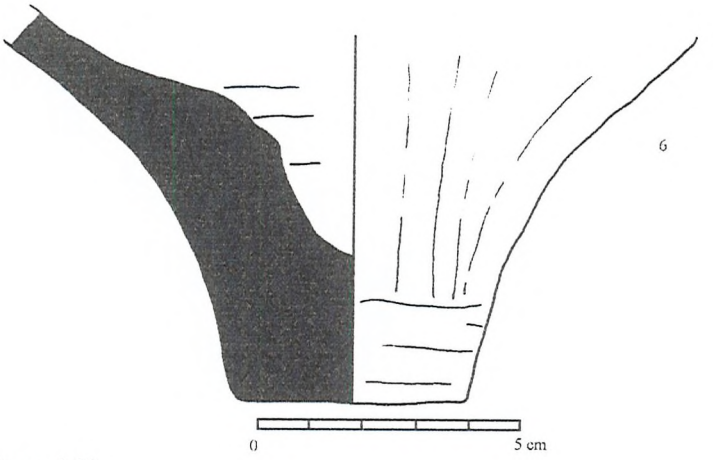
ASP 4 Almagro 51



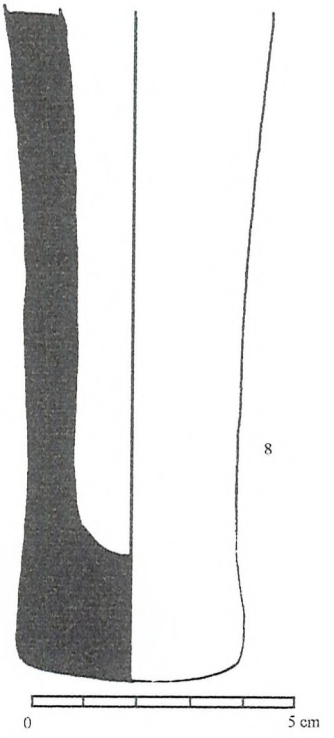
ASP 5 Sabratha 11 Dressel 1B.



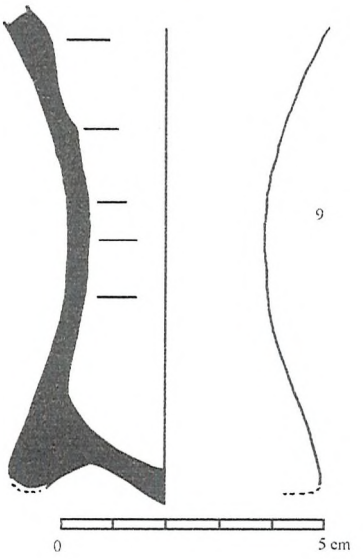
ASP 6 Sabratha 18 Africana II Grande



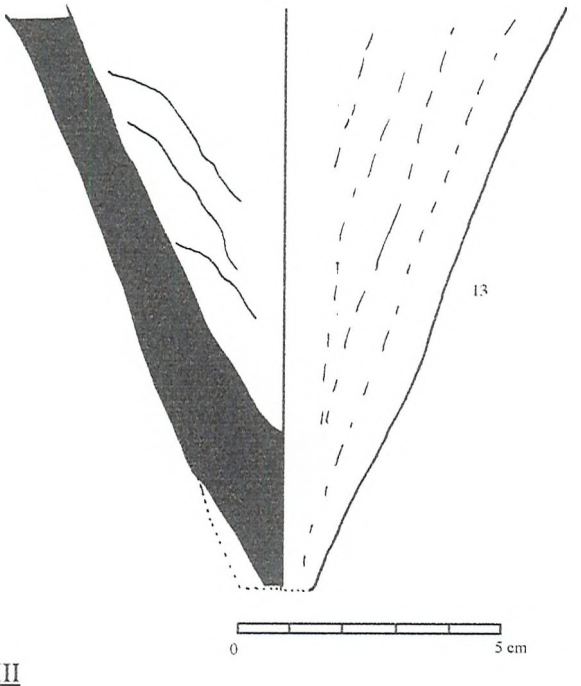
ASP 8 Beltran I Dressel 8?



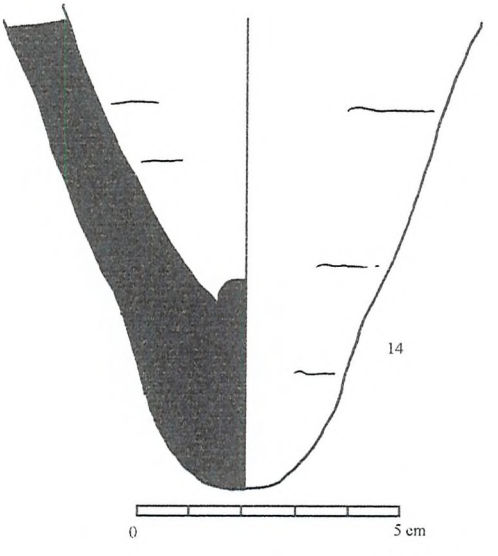
ASP 9 British B IV Benghazi Late Roman Amphora 10



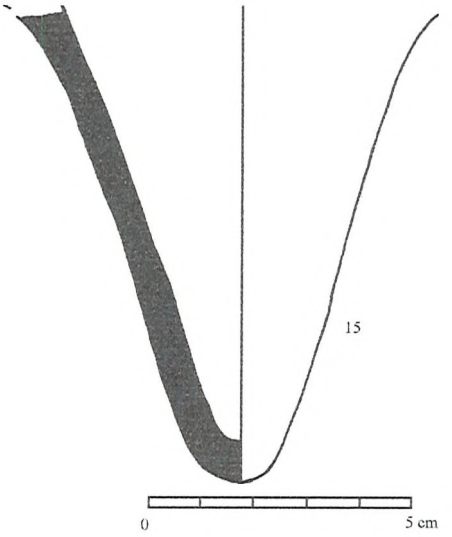
ASP 13 Tripolitanian I - II



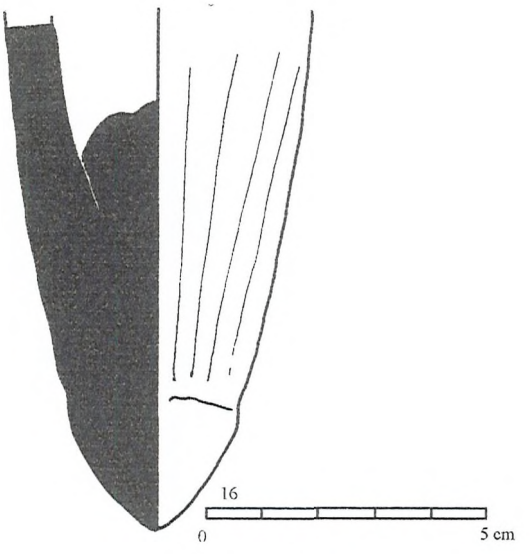
ASP 14 Tripolitanian I - III



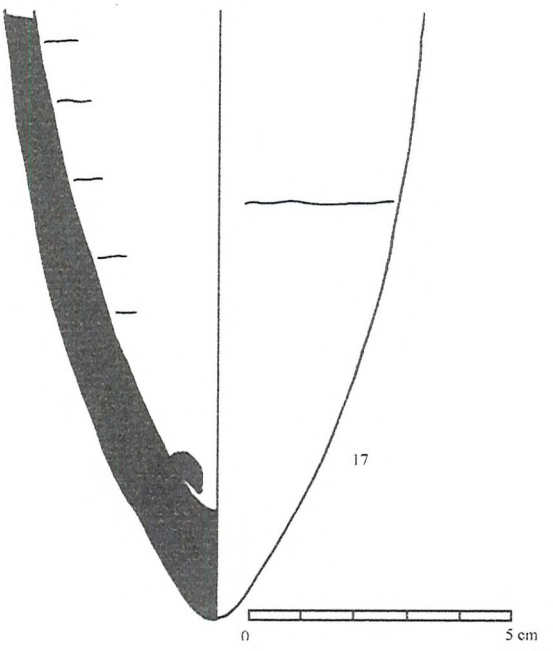
ASP 15 Tripolitanian I - II



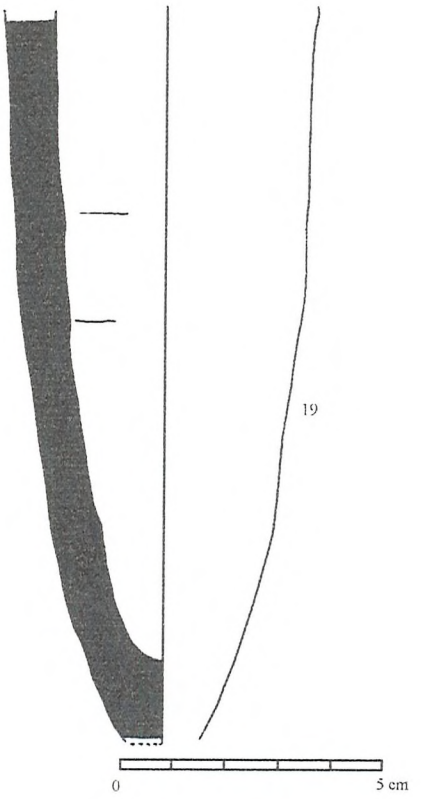
ASP 16 Tripolitanian III



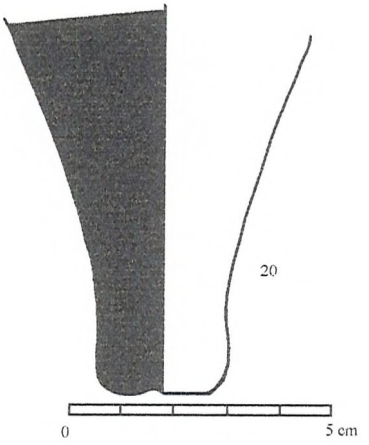
ASP 17 Sabratha 14 Beltran II - IV



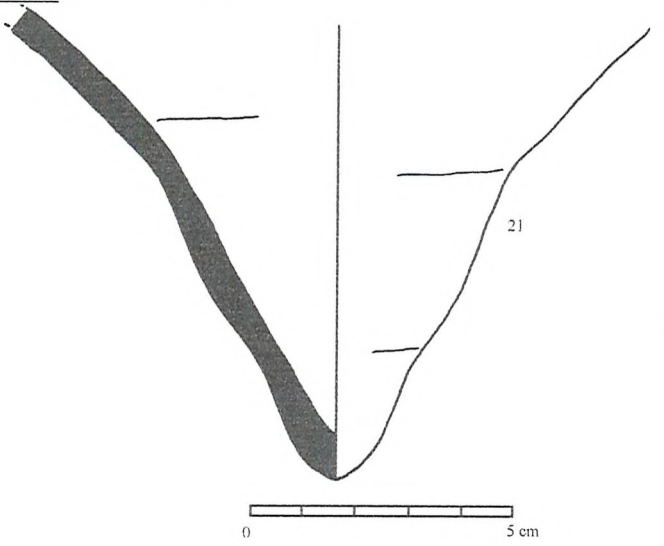
ASP 19 Beltran II - IV Dressel 14.



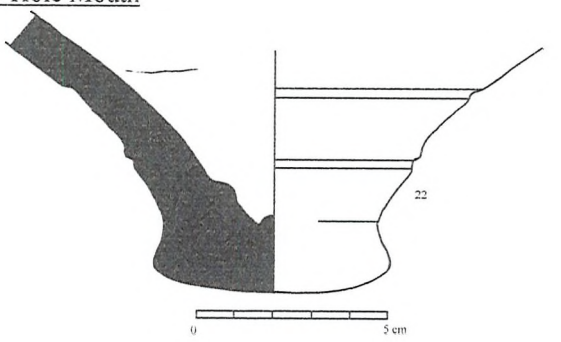
ASP 20 Form not identified.



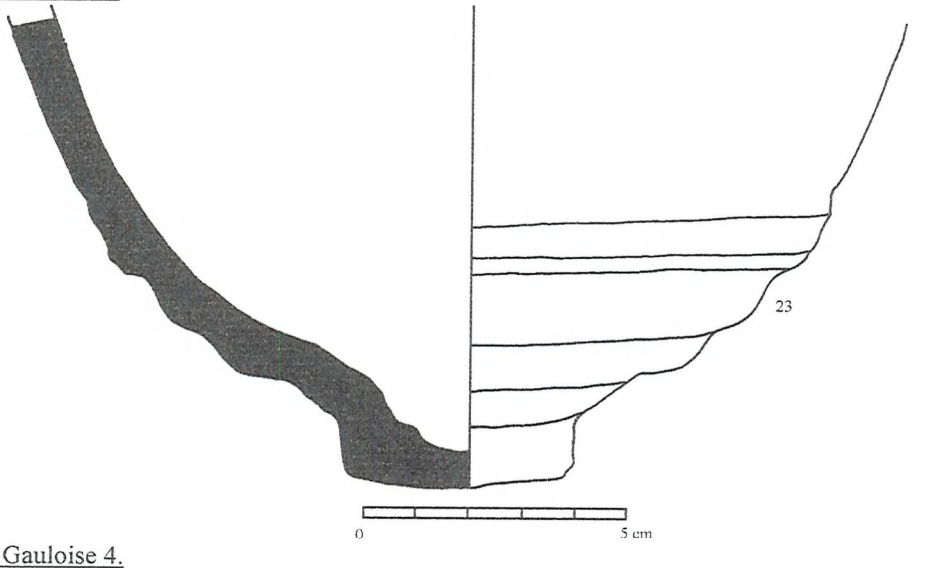
ASP 21 Tripolitanian I - II



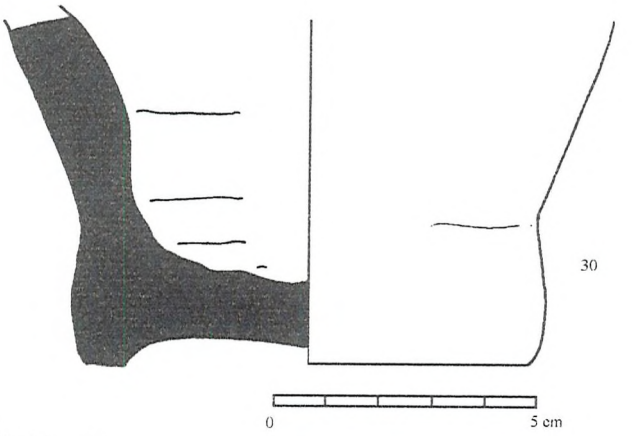
ASP 22 Sabratha 3 - 4, 37D Hole Mouth



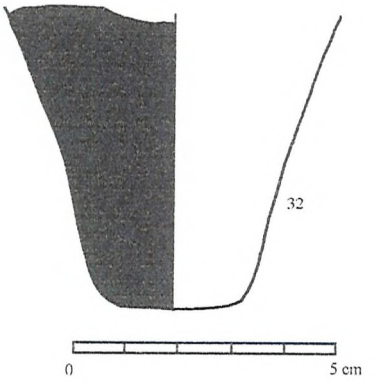
ASP 23 Beltran 80



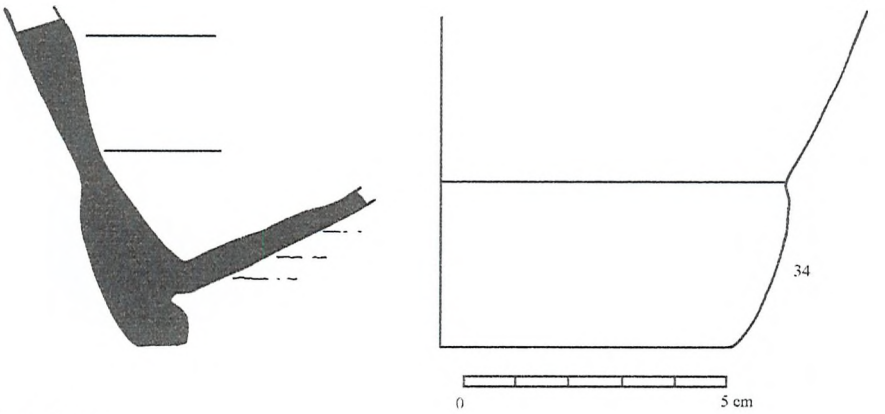
ASP 30 Gauloise 4.



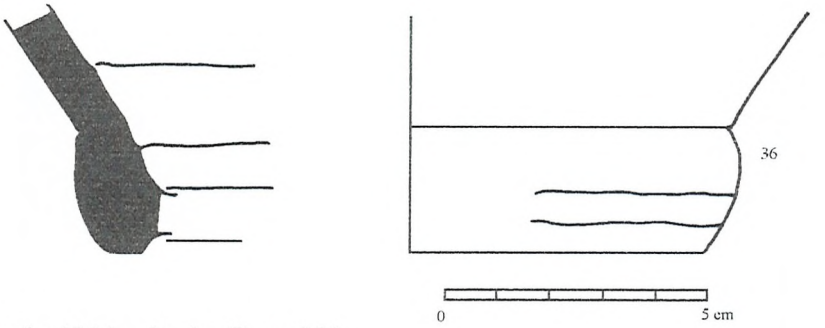
ASP 32 Sabratha 1 Corinthian B.



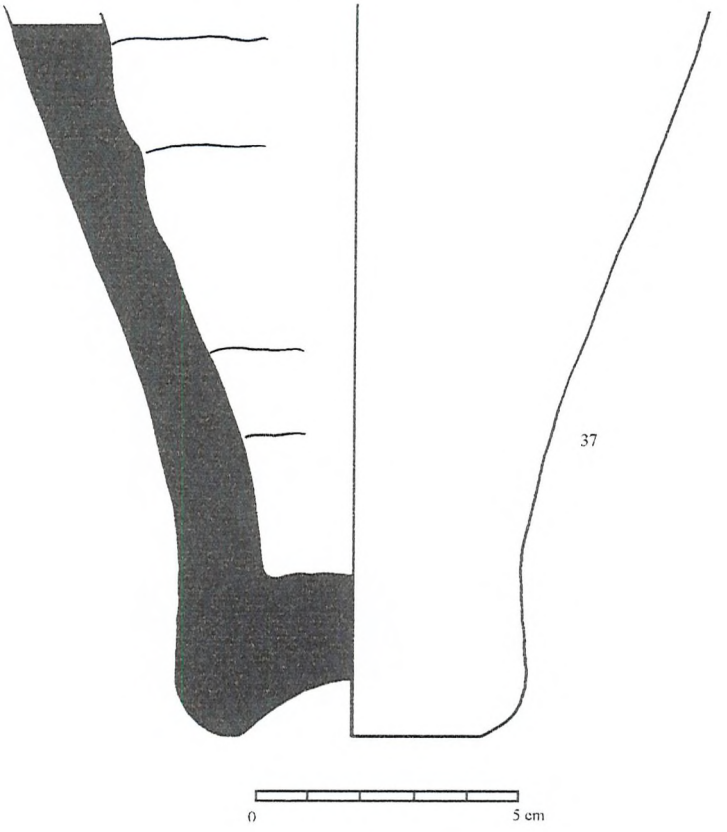
ASP 34 Gauloise 4



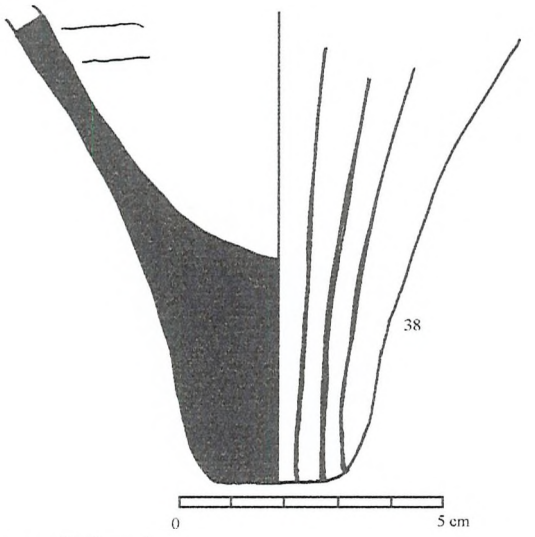
ASP 36 Gauloise 4



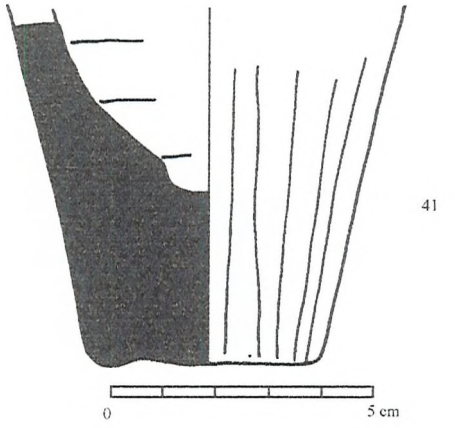
ASP 37 Sabratha 19 Mauritanian Dressel 30.



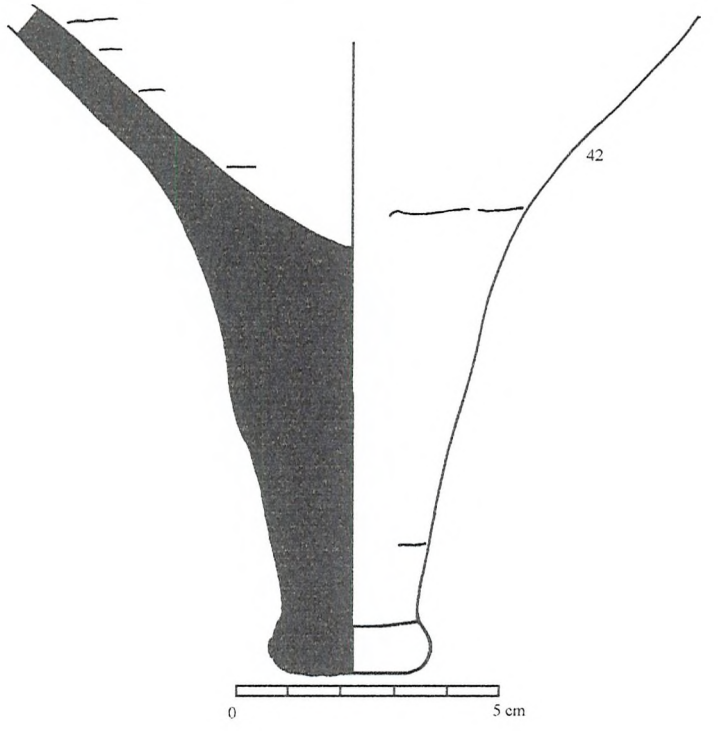
ASP 38 Sabratha 18 Africana II Grande



ASP 41 Sabratha 18 Africana II Grande



ASP 42 Sabratha 21 Keay XXV Variant 3?



5.2 - The finewares - African Red Slip wares (ARS).

The largest group of finewares present in the Lepcis Magna assemblage were the African Red Slip wares. They were produced in the neighbouring region of Tunisia, as it is now known. Table 5.12 shows the relative counts for the different parts of the vessels recovered.

Table 5.12 - Showing counts of different ARS sherd parts.

ARS	COUNT	PERCENT
RIMS	255	63.3
BODY	86	21.3
BASES	62	15.4
TOTAL	403	

The rims account for some 63% of the total ARS recovered, which might suggest, as previously stated, that the assemblage may have been biased towards keeping diagnostic rim sherds.

The African Red Slip ware forms.

Table 5.13 (see CD-ROM) has been abstracted from the pottery database and it records the specific locations, forms and time periods when the ARS forms were thought to be in production. The majority of ARS sherds have been identified and allocated Hayes form numbers (Hayes: 1972) where appropriate and are described in the following way. (The Lepcis measurements were taken from the inside of the rims and the inside of the bases.)

Hayes 3.

Form 3 is described as a dish with a shallow curved floor, broad convex rim and a small low foot often decorated with barbotine leaf decoration on rim. (Hayes 1972: 21-25.)

Hayes 3B.

Form 3B has barbotine decoration on the rim but unlike form 3A there is no groove. The forms date to the last quarter of first century to mid-second century. (Hayes 1972: 21-25.) There were a total of six sherds in the assemblage, ARS 13, 14, 15, 16, 17 and 21. The Lepcis Magna internal rim dimensions measured from 16-18 cm.

Hayes 3B small. See illustration on page 172 and 173.

The diameter of the small size vessels measured c. 10-11 cm. (Hayes 1972: 21-25.) There were a total of two sherds in the Lepcis Magna collection ARS 12 and 19 and their rims measured from 10-12 cm internally. For drawings see ARS 12 and ARS 19.

Hayes 3 C. See illustrations on pages 173 and 178.

The form of this dish was similar to that of 3B but there was no decoration on the rims. The diameter of the medium sized vessels measured c. 16-21 cm. The forms were thought to be in production from the early to mid-second century. (Hayes 1972: 21-25.) There were a total of seven sherds in the Lepcis Magna collection; ARS 10, 11, 20, 173, 273, 358 and 364 and their rims measured 16 cm internally and from 20-21 cm externally. For drawings see ARS 20 and ARS 364.

Hayes 3 C small. See illustration on page 172.

This form was that of an undecorated small dish and is classified as a smaller version of Hayes 3C. The diameter of the small sized dishes ranged from c. 10-11 cm and were thought to be in production from the early to mid-second century. (Hayes 1972: 21-25.) There was a total of three sherds in the Lepcis Magna collection; ARS 18, 222 and 357; their rims measured 10-12 cm and for drawing see ARS 18. Form also found at Sabratha, ULVS and Benghazi.

Hayes 4A.
This type was a dish with a flaring wall bearing mouldings at top and bottom, and an internal moulding at junction with floor. It had a small foot and a sloping floor. There was a groove on the inside of the rim. Form 4A has a rouletted circle on the floor; occasionally rouletting on the moulding separating wall from floor. The diameters ranged from c. 15-19 cm. The form was thought to be in production from the late first century to the early second century. (Hayes 1972: 25-26.) There was one sherd of this form in the assemblage ARS 243, this was a base.

Hayes 4A or 4B. See illustration on page 173.
Dish 4B was similar to 4A but it was without the rouletting. It was broader and shallower than type A. The diameters of 4A measured c. 15-19 cm and up to 21.5 cm for form 4B. The forms were thought to be in production from the late first century to the mid-second century. (Hayes 1972: 25-26.) There were two sherds in the assemblage ARS 22 and ARS 352 but due to the size of the Lepcis Magna sherds it was difficult to differentiate between the variants. The rims measured 18 cm internally. For drawing see ARS 22. Form also found at Sabratha, ULVS and Benghazi.

Hayes 5.
This form is described as a dish with a sloping wall, slim rim-roll with the foot as for form 4. There was a rouletted circle on the floor and a groove on top of the rim. (Hayes 1972: 26-29.)

Hayes 5B.
This form had a rouletted circle on the floor and a groove on top of the rim. The diameters of measured c. 15-17 cm and there was also a small size which measured 12-13 cm. The forms were thought to be in production from the first century to the second century. (Hayes 1972: 26-29.) There was one sherd in the collection, ARS 315 but its sherd was too small to measure or draw accurately. Form also found at Sabratha and ULVS.

Hayes 6.
Hayes 6 is a dish with a broad flat rim, shallow curved body, slightly carinated and has a small low foot. Hayes 6A has a rouletted circle on the floor whilst Hayes 6B is plain. The diameters range from c. 19-22 cm. The forms were thought to be in production from the mid to the end of the second century. (Hayes 1972: 29-31.) Form also found at Sabratha, ULVS and Benghazi.

Hayes 6B variant. See illustration on page 172.
There was a single sherd of this form in the assemblage ARS 2 which had an internal rim measurement of 14 cm and an outside measurement of 18 cm. (Hayes 1972: 29-31.) For drawing see ARS 2.

Hayes 6A or 6B. See illustrations on pages 172 and 177.
Owing to the size of the Lepcis Magna sherd it was difficult to differentiate between the variants. There were seven sherds in the assemblage placed into this category. ARS 1, 4, 5, 6, 252, 353, and 359. For drawings see ARS 1, 4, 5 and 252.

Hayes 6A or 6B variant.
Once again due to the sherd size of ARS 44 and ARS 318 it was difficult to differentiate between the forms and they were too small to measure accurately or to draw.

Hayes 6C. See illustration on page 172.
A deeper dish-variant of small type with diameter measuring c. 11-12 cm. The form was thought to

be in production in the second century. (Hayes 1972: 29-31.) There was one sherd in the Lepcis collection, with internal diameter measuring 10 cm. See drawing ARS 9.

Hayes 6C variant? See illustration on page 177.

Sherd ARS 134 was classified as possibly being a variant of Hayes 6C. There was one sherd in the Lepcis collection, with internal diameter measuring 10 cm. For drawing see ARS 134.

Hayes 7. See illustration on page 173.

This form is that of a bowl with a steep wall curving into a sloping floor; thickened or rolled rim and a low foot. On the outside there are two or three zones of rouletting, divided by a groove half way up the wall. Type B has a plain interior.... the rim tends to be heavy and rolled, the body more angular. The diameters range from c. 16-23 cm and date from the early to mid-second century. (Hayes 1972: 31-33.) There was one sherd in the Lepcis magna assemblage, ARS 32 and it had a rim diameter of c. 18 cm. For drawing see ARS 32. Form also found at Sabratha, ULVS and Benghazi.

Hayes 8. See illustration on page 173.

The form of Hayes 8 was a carinated bowl with straight flaring wall, sloping floor and a small foot. There was large convex moulding below the rim, with a small ridge below, matched by two corresponding grooves on the inside. Type 8A had rouletted decoration; two or three lines on moulding below rim, single (sometimes double) lines above and below carination (often rather deeply impressed, forming a continuous groove). The form was thought to be in production from the last quarter of the first century to the third quarter of the second century. The diameters range from c. 12.5-23 cm. (Hayes 1972: 33-35.) There were 12 sherds in the Lepcis Magna assemblage: ARS 24, 25, 26, 27, 28, 29, 30, 33, 34, 35, 36 and 263. Their rim diameters ranged from 16-20 cm. For drawing see ARS 24. Form also found at Sabratha, ULVS and Benghazi.

Hayes 9. See illustrations on pages 173 and 174.

This form is of a bowl with curved body, plain rounded rim and a small foot. There were two grooves on the outside below the rim. Type A has band of rouletting between the grooves; occasionally on lower part of body. Diameters range from c. 15-21 cm. The form was thought to be in production from the start of the second century to the third quarter of the second century. (Hayes 1972: 35-37.) There were five sherds of this form in the collection ARS 31, 37, 38, 39 and 41. Their rim diameters ranged from 14-18 cm. For drawings see ARS 31, 37 and 38.

Hayes 9B. See illustration on page 174.

Type B is plain and diameters range from c. 13-17. The form was thought to be in production in the second half of the second century. (Hayes 1972: 35-37.) There were three sherds found in Lepcis Magna; ARS 40, 42 and 43. Their rims measured 14 cm. For drawing see ARS 42. Form also found at Sabratha, ULVS and Benghazi.

Hayes 10.

Hayes 10 was a large carinated bowl with sloping wall and heavy knobbed rim. The floor was curved with a small foot. Type A has rouletted decoration on the lower rim and moulding below the carination. Diameters range from c. 32-48 cm. The form was thought to be in production in the second century. (Hayes 1972: 37-38.) There was one sherd in the assemblage ARS 23 with rim

diameter 30 cm. Form also found at Sabratha and Benghazi.

Hayes 14. See illustration on page 174.

This form is of a bowl with straight sloping or vertical wall, sloping floor and a small low foot; more or less carinated. Type A-fairly deep with wall sloping outwards curving into floor. Diameters range from c. 16-20 cm. The form was thought to be in production in the mid-second century. (Hayes 1972: 39-41.) There were three sherds found at Lepcis Magna ARS 48, 50 and 51. Their rim diameters ranged from 14-16 cm. For drawing see ARS 48. Form also found at Sabratha and Benghazi.

Hayes 16. See illustration on page 174.

Hayes 16 was a small dish with low flaring wall, sloping floor, small low foot and slightly carinated. Diameters ranged from c. 13-16.5 cm. The form was thought to be in production from the mid-second century to the start of the third century. (Hayes 1972: 41-42.) There were eight sherds in the Lepcis assemblage ARS 46, 47, 49, 55, 56, 57, 342? and 343? Their rim diameters ranged from 14-16 cm. For drawing see ARS 57. Form also found at Sabratha and ULVS.

Hayes 18. See illustration on page 174.

Hayes 18 was a shallow dish with a broad almost flat floor, low steep wall and low foot of small diameter. Diameters range from c. 19-27 cm. The form was thought to be in production in the early third century. (Hayes 1972: 43.) There were two sherds in the Lepcis Magna collection ARS 58 and 346. Their rim diameters ranged from 22-26 cm. For drawing see ARS 58. Form also found at Sabratha, ULVS and Benghazi.

Hayes 23A See illustration on page 174.

This form is of a casserole with outward-sloping wall and slightly rounded bottom, separated by a more or less pronounced flange. The bottom is covered with fine grooves or ridges. Type A was fairly small and shallow with a plain rim. Diameters range from c. 14-18 cm. The form was thought to be in production from the early to mid-second century. (Hayes 1972: 45-48.) There were three sherds in the Lepcis collection ARS 59, 60 and 294. Their rim diameters ranged from 14-16 cm. For drawing see ARS 59.

Hayes 23B. See illustrations on pages 174 and 175.

Type B was larger and deeper, with more projecting flange, and internal rim-roll. Diameters range from c. 20-30 cm. The form was thought to be in production from the mid-second century to the early third century. (Hayes 1972: 45-48.) There were sherds from six vessels in the collection ARS 61, 64, 69, 274, 340 and 341. Their rim diameters ranged from 18-27 cm. For drawing see ARS 61 and 64. Form 23 found at Sabratha, ULVS and Benghazi.

Hayes 23A or 23 B?

Due to the size and shape of some of the sherd it was difficult to differentiate between the variants. There were seven such sherds in the collection ARS 62, 63, 65, 67, 68, 70 and 360.

Hayes 27. See illustrations on pages 175 and 176.

Hayes 27 was a dish with a broad flat floor and flaring wall, curving upwards to a more or less vertical rim and a low foot close to edge of floor, there were two sets of grooves on the floor. Diameters range from c. 20-28 cm. The form was thought to be in production from the third

quarter of the second century to the first quarter of the third century. (Hayes 1972: 49-51.) There were four sherds in the assemblage ARS 113, 116, 117 and 118. Their rim diameters ranged from 22-26 cm. For drawing see ARS 113 and 117. Form also found at ULVS and Benghazi.

Hayes 29.

This form is of a dish with a broad flat floor, low curved wall and low foot of small diameter. The rim was short and flattened bearing a groove near inner edge. The wall was marked off from the floor by a small external flange, with corresponding inset on inside. Diameters range from c. 21-27 cm. The form was thought to be in production in the early third century. (Hayes 1972: 52.) There was one rim sherd in the Lepcis Magna assemblage ARS 84 whose diameter measured 24 cm. Form also found at Sabratha and Benghazi.

Hayes 30. See illustration on page 176.

Hayes 30 is a large dish with flat floor supported on small foot at its outer edge a low curving wall and knobbed rim. There is an offset over the foot. The diameter of the rim measured c. 29 cm. The form was thought to be in production in the first half of the third century. (Hayes 1972: 52.) There was a single sherd in the collection ARS 132. The rim diameter measured 24 cm. For drawing see ARS 132. Form also found at Benghazi.

Hayes 31. See illustration on page 178.

This form is that of a large dish with steep straight wall and flat floor, plain rim and a small foot of large diameter. Sometimes there are two grooves on the floor. The diameters range from c. 20-34 cm. The form was thought to be in production from the early to mid-third century. (Hayes 1972: 52-53.) There were a total of 13 sherds in the Lepcis Magna assemblage ARS 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 139 and 317. Their rim diameters ranged from 20-26 cm. For drawing see ARS 317. Form also found at Sabratha, ULVS and Benghazi.

Hayes 32. See illustration on page 175.

This form is of a dish with a broad flat floor, sloping wall and a short flat rim and a small foot of large diameter. On the inside there is a slight inset at the junction of wall and floor. Diameters range from c. 23-32 cm. The form was thought to be in production from early to mid-third century. (Hayes 1972: 55.) There were seven sherds in the collection ARS 94, 95, 96, 98, 131, 168 and 348. Their rim diameters ranged from 22-31 cm. For drawings see ARS 94 and 98. Form also found at Sabratha, ULVS and Benghazi.

Hayes 33. See illustration on page 176.

Hayes 33 is a plate which is a shallow version of form 32. Diameters range from c. 22-30 cm. The form was thought to be in production from early to the mid-third century. (Hayes 1972: 55-56.) There were nine sherds present in the assemblage ARS 91, 97, 99, 114, 115, 133, 169, 171 and 223. Their rim diameters ranged from 22-30 cm. For drawing see ARS 133.

Hayes 32 or 33.

Due to the shape and size of some of the sherds it was difficult to differentiate between forms 32 and 33. There were a total of 14 sherds in the collection; ARS 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112 and 200 were placed into this category.

Hayes 48.
This form is a plate with a broad flat floor from which springs a convex everted rim; sometimes a slight wall with a minute bevelled foot under outer edge of floor. Type A had a more or less horizontal rim. Diameters range from c. 17-50 cm. The form was thought to be in production from the first quarter of third century to third quarter of third century. (Hayes 1972: 65-67.) There was one sherd in the collection ARS 137 which had a rim diameter of 21 cm. Form also found at Sabratha, ULVS and Benghazi.

Hayes 50.
This is a large dish with broad flat floor and high straight wall rising at an angle to a plain rim; there is a bevelled foot under the edge of the floor. (Hayes 1972: 69-73.)

Hayes 50A. See illustration on page 176.
Type A with steep wall and broad floor. Diameters range from c. 20-40 cm. The form was thought to be in production from the second quarter of third century to end of first quarter of fourth century. (Hayes 1972: 69-73.) There were five sherds in the Lepcis Magna assemblage ARS 121, 122, 123, 361 and 369. Their rim diameters measured c. 20 cm. For drawing see ARS 122.

Hayes 50B. See illustration on page 178.
Type B had more flaring wall and proportionally smaller base (sometimes lacking the small foot). Diameters ranged from c. 20-40 cm or smaller. The form was thought to be in production from the second quarter of the third century to end of first quarter of fourth century. (Hayes 1972: 69-73.) There was one sherd in the collection ARS 370 and its rim diameter was 20 cm. For drawing see ARS 370. Form also found at Sabratha, ULVS and Benghazi.

Hayes 58A. See illustration on page 175.
This form is a flat based dish generally large, with curved wall and short flat rim. The lower part of wall generally provides the resting surface; the broad slightly hollow base is marked off by a small inset (sometimes a tiny foot). Diameters range from c. 22-42 cm. The form was thought to be in production from the late third century to the last quarter of the fourth century. (Hayes 1972: 93-96.) There were seven sherds in the assemblage ARS 3, 83, 85, 86, 87, 88 and 276. Their rim diameters ranged from 24-32 cm. For drawing see ARS 83. Form also found at Sabratha and Benghazi.

Hayes 32/58A.
This dish is similar to form 32 but it has a flat base and flaring walls which meet the floor at an angle. Diameters range from c. 26-28 cm. The form was thought to be in production from the last quarter of the third century to the end of the first quarter of the fourth century. (Hayes 1972: 95-96.)There were two sherds in the collection ARS 93 and 130. The Lepcis Magna rims measured 26 cm. Form also found at ULVS.

Hayes 61.
This form is a flat based dish with vertical or slightly incurved rim, flattened on outside to give more or less triangular profile. (Hayes 1972: 100-107.)

Hayes 61A.
Hayes 61A was a dish with incurved or vertical rim, with external chamfer meeting wall at a sharp

angle which was generally shallow with a broad floor. Diameters range from c. 22-41 cm. The form was thought to be in production from the first quarter of the fourth century to the first quarter of the fifth century. (Hayes 1972: 100-107.) There were the remains of three vessels in the collection ARS 125, 253 and 362. Their rim diameters ranged from 22-24 cm. Form also found at Sabratha and Benghazi.

Hayes 87.

This form was a dish with a shallow floor, low heavy foot and knobbed or hooked rim, flattened on the inside or top. The rim diameters ranged from c. 25-28 cm. The form was thought to be in production from the second half of the fifth century to early sixth century. (Hayes 1972: 135-136.) There was one sherd in the assemblage ARS 388 and its rim diameter measured 25 cm. Form also found at Sabratha, ULVS and Benghazi.

Hayes 99. See illustration on page 178.

Hayes 99 was a bowl of almost hemispherical shape with a heavy rolled rim and flaring tapering foot which was generally rather low. The diameters ranged from c. 14-21 cm. The form was thought to be in production in the sixth century. (Hayes 1972: 152-155.) There was one sherd ARS 316 in the Lepcis Magna collection and its rim diameter measured 18 cm. For drawing see ARS 316. Form also found at Sabratha, ULVS and Benghazi.

Hayes 101. See illustration on page 177.

This particular form was that of a footed dish with shallow floor, low wall and high stemmed foot which flared outwards at base. The diameters ranged from c. 15-17 cm. The form was thought to be in production from the mid to late sixth century. (Hayes 1972: 156.) There was only one sherd in the collection ARS 266 and its rim diameter measured 16 cm. For drawing see ARS 266. Form also found at Benghazi.

Hayes 105. See illustration on page 176.

This form was that of a large plate with shallow sloping floor terminating in a heavy knobbed rim and it had a rounded foot of medium height. Diameters ranged from c. 30-42 cm and the form was thought to be in production from the last quarter of the sixth century to the third quarter of the seventh century. (Hayes 1972: 166-169.) There were the remains of two vessels in the collection ARS 126 and 128. Their rim diameters measured 30 cm. For drawing see ARS 126. Form also found at Sabratha, ULVS and Benghazi.

Hayes 105 variant. See illustration on page 176.

There was one sherd in the assemblage ARS 127 which was classified as being a Hayes 105 variant and its diameter was c. 30 cm. For drawing see ARS 127.

Hayes 133. See illustration on page 178.

This form was a miniature mug, jar-shaped, with low bead-rim and a flat base with the handle on body. The diameter measured c. 4.2 cm. There was a sherd from one vessel in the collection. (Hayes 1972: 179.) The rim diameter measured 4 cm. For drawing see ARS 332.

Hayes 181. See illustration on page 178.

Hayes 181 was a dish with a broad flat base and a curved wall of roughly quarter-round profile curving inwards a little at the rim. There was a slight groove or offset at junction of floor wall.

Diameters ranged from c. 21-36 cm. The form was thought to be in production from the second half of the second century to the first half of the third century. (Hayes 1972: 200-201.) There were 49 of these sherds in the assemblage: ARS 138, 140, 141, 142, 143, 144, 145, 146, 147, 148, 162, 170, 189, 214, 254, 265, 267, 289, 290, 291, 292, 293,295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 344, 365, 366, 399, 401 and 402. Small version ARS 71. Their rim diameters ranged from 20-30 cm. For drawing see ARS 306. Form also found at Sabratha, ULVS and Benghazi.

Hayes 181 Variant 1. See illustration on page 179.

This form was an early variant of a smaller size dish with more flaring walls. The Tripoli example had a diameter of c.16.5 cm. The form was thought to be in production in the first century. There were a total of 17 sherds in the Lepcis Magna assemblage: ARS 374, 377, 378, 379, 380, 381, 382, 383, 384, 386, 135? 394? 395? 396? 397? 398? and 400. Their rim diameters measured c. 16 cm. ARS 71 was a slightly smaller version with a rim diameter of 14 cm. For drawing see ARS 386.

Hayes 181 Variant 2. See illustration on page 178 and 179.

A total of six sherds ARS 372, 373, 375, 376, 385 and 387 classified within the variant group were slightly larger in diameter and a little deeper and have therefore been designated as H 181 Variant 2. Their rim diameters ranged from 20-24 cm. For drawing see ARS 373 and 384.

Hayes 182. See illustration on page 177 and 179.

This form is a lid of flattened domed shape, with hooked rim, curved on the outer surface and burnished on top. Diameters range from c. 22-33 cm. The form was thought to be in production from the second half of the second century to the first half of the third century. There were a total of 54 sherds in the Lepcis assemblage. (Hayes 1972: 201-203.) Their rim diameters ranged from 22-29 cm. ARS 92, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 163, 164, 184, 257, 264, 270, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 334, 335, 339, 345, 349, 350, 354, 389, 403. For drawings see ARS 151 and ARS 389. Form also found at Sabratha, ULVS and Benghazi.

Hayes 183. See illustration on page 177.

This form was a deep casserole with flat or sagging base, more or less vertical wall, with a short concave rim. Diameters range from c. 14-18 cm. The form was thought to be in production during the second or third century. (Hayes 1972: 203.) There were two sherds in the Lepcis Magna collection ARS 165 and 167 and their rim diameters measured 16 cm. For drawings see ARS 165 and ARS 167. Form also found at Sabratha, ULVS and Benghazi.

Hayes 184.

This form was a shallow casserole with sagging base, slightly convex and small concave bead-rim. Diameters range from c. 11-16 cm. The form was thought to be in production in the second or third century. (Hayes 1972: 203-204.) There was one sherd in the collection ARS 136 but the sherd was too small to measure or draw. Form also found at Sabratha and Benghazi.

Hayes 185 Variant. See illustration on page 177.

Hayes form 185 was a casserole lid which had a shallow domed shape with a low flat knob which had a thickened rolled rim. The diameters ranged from c.12-17 cm. (Hayes 1972: 204.) There was

a sherd ARS 166 possibly coming possibly from a larger variant of Hayes 185 in the collection which had a rim diameter of 24 cm. For drawing see ARS 166. Form also found at Sabratha and Benghazi.

Hayes 195. See illustration on page 175.

This form was a flattened domed lid which had a hooked rim. The diameter measured c. 35 cm. The form was thought to be in production from the second half of the second century to the first half of the third century. (Hayes 1972: 208.) There was a sherd from one vessel in the collection, ARS 66 and its rim diameter measured 32 cm. For drawing see ARS 66. Form also found at Benghazi.

Hayes 196. See illustration on page 175 and 176.

Hayes 196 was a large lid of conical domed shape which was fairly high with a thickened rim, convex on the outside with angle at top. The diameters ranged from c. 22. 5 to 36 cm. The form was thought to be in production from the mid-second century to the mid-third century. (Hayes 1972: 208-209.) There were sherds from four vessels in the assemblage ARS 89, 90, 124 and 261. Their rim diameters ranged from 22-26 cm. For drawings see ARS 89 and 124. Form also found at Sabratha and ULVS.

ARS LM 1.

There was a single rim sherd ARS 371, possibly from a dish or a lid, in the collection which may be a new form. The sherd was too small to measure accurately or to draw.

ARS LM 2. See illustration on page 179.

This sherd ARS 390 probably came from a dish and may possibly be a variant of Hayes 27. The dish had flaring walls which curved upwards to a more or less vertical rim; there was a groove on the inside of the rim and a groove on the outside below the rim. The diameter measured c. 16 cm. For drawing see ARS 390.

ARS LM 3. See illustration on page 179.

This was a shallow dish with grooves on its slightly rolled rim. The rim measured 18 cm. For drawing see ARS 391.

ARS LM 4. See illustration on page 179.

This sherd came from a dish or bowl with a sloping wall. There was a deep groove on the outside surface beneath the rim. The rim diameter measured 20 cm. For drawing see ARS 392.

ARS LM 5.

Sherd ARS 393 possibly came from a small cup. The rim fragment was too small to measure accurately and to draw but was thought to measure c. 5 cm.

The Sabratha pottery assemblage will be examined further in chapter six when its composition is compared and contrasted with the Lepcis Magna assemblage.

ARS forms summarised.

Table 5.14A summarises the counts and forms of the ARS sherds.

Table 5.14A - Showing counts of different ARS forms.

ARS FORMS	COUNT	ARS FORMS	COUNT	ARS FORMS	COUNT	ARS FORMS	COUNT
H 3B	8	H 9B	3	H 33	9	H 181 VAR	23
H 3C	8	H 10	1	H 32/58A	2	H 182	51
H 3C small	2	H 14A	3	H 48A	1	H 182 VAR	3
H 4A	1	H 16	8	H 50A	5	H 183	2
H 4A OR 4B	2	H 18	2	H 50B	1	H 184	1
H 5B	1	H 23A OR B	7	H 58A	7	H 185	1
H 6B	1	H 23A	3	H 61A	3	H 195	1
H 6A OR 6B	6	H 23B	6	H 87 VAR	1	H 196	4
H 6A OR 6B VA	3	H 27	4	H99	1	N/I	103
H 6C	1	H 29	1	H101	1	ARS LM	5
H 6C VAR	1	H 30	1	H 105	2	TOTAL	403
H 7B	1	H 31	13	H 105 VAR	1		
H 8A	12	H 32	7	H133	1		
H 9A	5	H 32 OR H33	14	H 181	49		

The category ARS N/I represents 103 sherds to which it has proved difficult to assign form numbers with any degree of certainty, the majority of these pieces being body sherds. It is also worth noting that only one body sherd had evidence of stamped decoration on it. The largest category of ARS forms is represented by Hayes forms 181-196, some 135 sherds, or 33%, of the total ARS assemblage. This relatively large percentage of cooking wares could possibly be explained by the fact that cooking wares may have had a shorter life span than the finewares (see chapter four). The distribution of the different forms, excluding Hayes forms 181-196, seems fairly uniform with the possible exception of forms 32, 32/33 and 33 which represent 7.5% of the total ARS sherds or 19% of the 'finer' ARS wares. These particular forms, are those of a dish and a plate respectively, and, due to the size of some of the fragments, it was difficult to be totally confidant as to which form they should be assigned. Kenrick (1985a: 350) notes that it is sometimes impossible to differentiate between the rims of Hayes forms 29, 30 and 32.

Table 5.14B shows the conversion of the counts into percentages for the ARS 'finer' wares only and this is shown graphically in figure 5.7.

Table 5.14B - Showing counts of the 'finer' ARS expressed as percentages.

ARS FORMS	CODE	COUNT	PERCENT	FORMS	CODE	COUNT	PERCENT
3B	A	8	5	29	P	1	0.6
3C	B	10	6.3	30	Q	1	0.6
4A OR 4B	C	3	1.9	31	R	13	8.1
5B	D	1	0.6	32 OR 33	S	30	18.8
6A OR 6B	E	10	6.3	32/58A	T	2	1.3
6C OR 6C VAR	F	2	1.3	48A	U	1	0.6
7B	G	1	0.6	50A	V	5	3.1
8A	H	12	7.5	50B	W	1	0.6
9A & 9B	I	8	5	58A	X	7	4.4
10	J	1	0.6	61A	Y	3	1.9
14A	K	3	1.9	87 VAR	Z	1	0.6
16	L	8	5	99	a	1	0.6
18	M	2	1.3	101	b	1	0.6
23A OR 23B	N	16	10	105 OR 105 VAR	c	3	1.9
27	O	4	2.5	133 ?	d	1	0.6
				TOTAL		160	

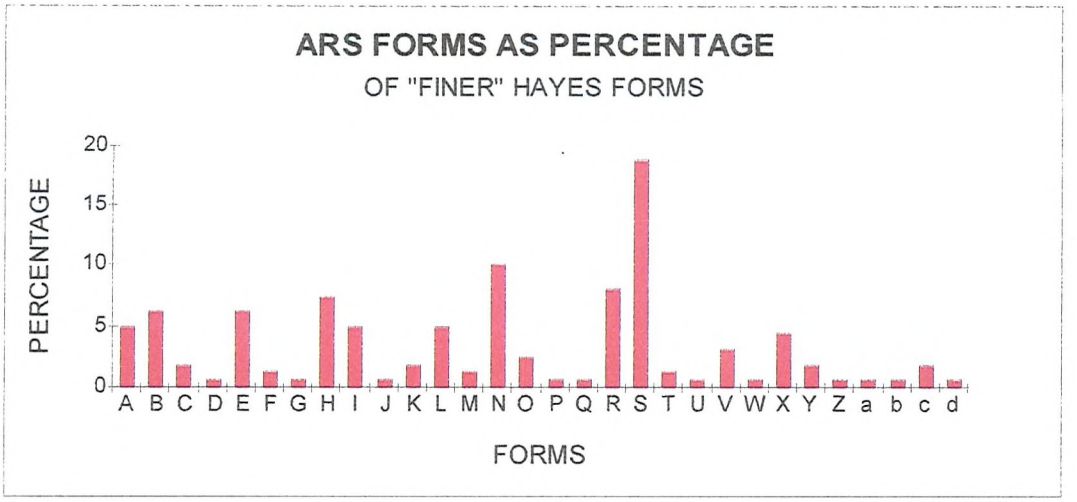


Figure 5.7 - Showing counts of the 'finer' ARS expressed as percentages.

The number of actual categories has been reduced by combining certain forms together e.g. H 32, 32/33 and 33 which were all plates and sometimes difficult to distinguish between. The spread of the ARS sherds across the different Hayes forms appears fairly evenly distributed with the possible exception of forms 32-33. However when some of the forms were combined together like H 32, 32/33 and 33 now represents some 19% of the ARS fineware. In order to see whether the ARS vessels were dominated by dishes/plates table 5.15 was constructed. The data, in this instance, includes Hayes forms 181-195.

Table 5.15 - Showing function of recovered ARS vessels.

ARS FORMS	FUNCTION	COUNT	ARS FORMS	FUNCTION	COUNT	ARS FORMS	FUNCTION	COUNT
H 3B	DISH	8	H 18	DISH	2	H99	BOWL	1
H 3C	DISH	8	H 23A OR B	CASSEROLE	7	H101	DISH	1
H 3C small	DISH	2	H 23A	CASSEROLE	3	H 105	PLATE	2
H 4A	DISH	1	H 23B	CASSEROLE	6	H 105 VAR	PLATE	1
H 4A OR 4B	DISH	2	H 27	DISH	4	H133	MUG	1
H 5B	DISH	1	H 29	DISH	1	H 181	DISH	49
H 6B	DISH	1	H 30	DISH	1	H 181 VAR	DISH	23
H 6A OR 6B	DISH	6	H 31	DISH	13	H 182	LID	51
H 6A OR 6B VAR	DISH	3	H 32	DISH	7	H 182 VAR	LID	3
H 6C	DISH	1	H 32 OR H33	DISH/PLATE	14	H 183	CASSEROLE	2
H 6C VAR	DISH	1	H 33	PLATE	9	H 184	CASSEROLE	1
H 7B	DISH	1	H 32/58A	DISH	2	H 185	CASSEROLE/LID	1
H 8A	BOWL	12	H 48A	PLATE	1	H 195	LID	1
H 9A	BOWL	5	H 50A	DISH	5	H 196	LID	4
H 9B	BOWL	3	H 50B	DISH	1	N/I		103
H 10	BOWL	1	H 58A	DISH	7	ARS LM		5
H 14A	BOWL	3	H 61A	DISH	3	TOTAL		403
H 16	DISH	8	H 87 VAR	DISH	1			

This data is summarised in the first part of table 5.16.

Table 5.16 - Showing summary of ARS vessel function, including and excluding Hayes forms 181-197.

FUNCTION	COUNT	PERCENT		FUNCTION	COUNT	PERCENT
	INCLUDES H181-196				EXCLUDES H181-196	
CASSEROLE	19	6.4		CASSEROLE	16	10
CASSEROLE LID	1	0.3		CASSEROLE LID	0	0
DISH	163	55		DISH	91	56.9
DISH/PLATE	14	4.7		DISH/PLATE	14	8.8
PLATE	13	4.4		PLATE	13	8.1
BOWL	25	8.5		BOWL	25	15.6
MUG	1	0.3		MUG	1	0.6
LID	59	20		LID	0	0
TOTAL	295			TOTAL	160	

Not surprisingly perhaps, table 5.16 shows that 55% of the identified vessels were in fact dishes. As ARS is a fineware this result should not be considered unusual, as the function of finewares is

concerned with the final presentation of food rather than for food preparation itself. The same procedure was repeated, and the results are shown in the second half of table 5.16, but this time the Hayes forms 181-196 were excluded to see if the exclusion of the less 'fine' wares made any appreciable difference to the relative percentages. It is interesting to note that the greatest difference can be seen in the lid category, the Lepcis Magna lids all seem to come from the 'less fine' ARS. The function of these lids, and their associated dishes, was probably more practical i.e. keeping food warm, rather than acting as a more decorative 'fineware', or possibly the vessels were similar to the modern tagine method of cooking whereby steam condenses inside the lid and does not evaporate away therefore making the food more tender.

The above analysis was based on all ARS sherds. In table 5.17 and figure 5.8 'rim only' statistics were compared to all ARS sherds to see whether this would produce different results.

Table 5.17 - Showing forms and counts of ARS wares.

	ARS	ALL	RIM		ARS	ALL	RIM		ARS	ALL	RIM
	FORMS	SHERDS	ONLY		FORMS	SHERDS	ONLY		FORMS	SHERDS	ONLY
CODE		COUNT	COUNT	CODE		COUNT	COUNT	CODE		COUNT	COUNT
A	3B	8	8	T	23A	3	3	m	105	2	2
B	3C	8	8	U	23B	6	6	n	105 VAR	1	1
C	3C SMALL	2	2	V	23A OR 23B	7	0	o	133 ?	1	1
D	4A	1	0	W	27	4	4	p	181	48	42
E	4A OR 4B	2	1	X	29	1	1	q	181?	1	0
F	5B	1	1	Y	30	1	1	r	181 VAR	16	15
G	6B	1	1	Z	31	13	13	s	181 VAR ?	7	0
H	6A OR 6B	6	6	a	32	7	6	t	182	50	47
I	6A OR 6B VAR ?	3	3	b	32/58A	2	2	u	182?	1	0
J	6C	1	1	c	33	9	9	v	182 VAR	3	3
K	6C VAR	1	1	d	32 OR 33	14	0	w	183	2	2
L	7B	1	1	e	48A	1	1	x	184	1	1
M	8A	12	9	f	50A	5	3	y	185	1	1
N	9A	5	5	g	50B	1	1	z	195	1	1
O	9B	3	3	h	58A	7	7	aa	196	4	4
P	10	1	1	i	61A	3	3	ab	N/I	103	3
Q	14A	3	3	j	87 VAR	1	1	ac	ARS LM	5	5
R	16	8	8	k	99	1	1			403	255
S	18	2	2	l	101	1	1				

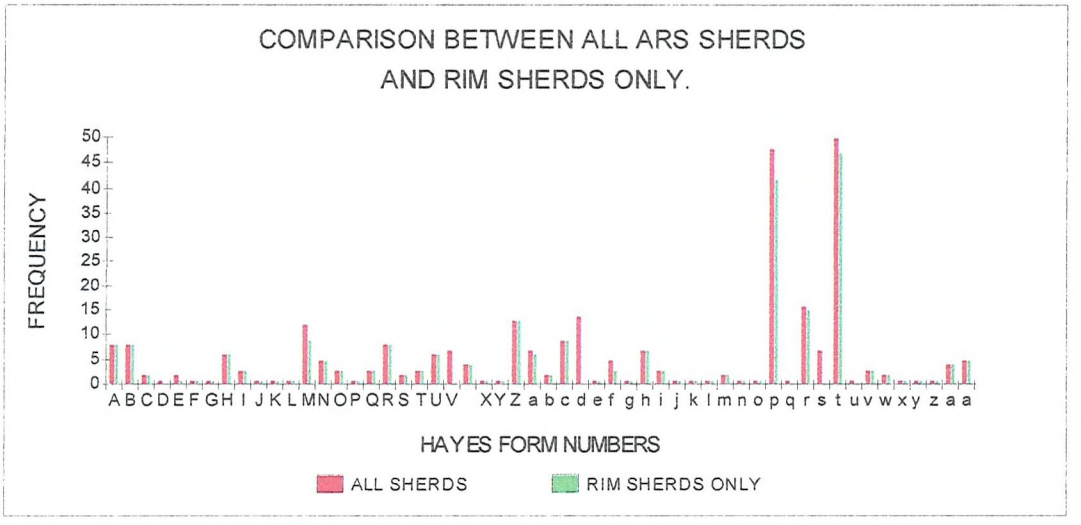


Figure 5.8 - Comparison between all ARS sherds and Rim sherds only.

Figure 5.8 suggests that the use of 'rim only' statistics did not produce any real difference but it did eliminate the problem with the Hayes group 32/33 and the number of 'not identified' forms was reduced from 103 to just 3.

The previous tables included all of the ARS vessels regardless of estimated dates of manufacture so it will be necessary to look at the forms with respect to when they were being manufactured to investigate possible changes through time. Table 5.18 tabulates the sherd forms present at Lepcis Magna and when they are believed to have been in production. It also records the rim dimensions given by Hayes.

The chronological production of ARS wares.

However, these dates have been 'forced' into 25 year slots in order to be accommodated on this table which, whilst providing a quick reference guide, might lead to some inaccuracies by suggesting that some vessels were in production for a longer/shorter time period than they actually were.

Table 5.18 - Showing chronological production of ARS wares.

	Dates				1	5	7	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
						0	5	0	2	5	7	0	2	5	7	0	2	5	7	0	2	5	7	0	2	5	7	0	2	5	7
FORMS		CNT	Rim	Dims				0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5	0	5
181 VAR	Dish	17	16.5		X	~	X																								
181 VAR 2	Dish	6																													
3B	Dish	6	10 -	11			X	~	~	X																					
3B small	Dish	2																													
3C small	Dish	3																													
3C large	Dish	1																													
4A	Dish	1	15 -	19			X	~	X																						
4A or 4B	Dish	2	15 -	19			X	~	X																						
5B	Dish	1	15 -	17			X	~	X																						
8A	Bowl	12	12.5-	23			X	~	~	~	X																				
3C	Dish	6	10 -	11				X	~	X																					
6A or 6B	Dish	7	19 -	22				X	~	~	~	X																			
6A or 6B v	Dish	2																													
6C	Dish	1																													
6C var	Dish	1																													
7B	Bowl	1	16 -	23				X	~	X																					
23A	Cass	3	14 -	18				X	~	X																					
9A	Bowl	5	15 -	21				X	~	~	X																				
10A	Bowl	1	32 -	48				X	~	~	~	X																			
23A or 23B	Cass	7	14 -	30				X	~	~	~	~	X																		
183	Cass	2	14 -	18				X	~	~	~	~	~	~	~	X															
184	Cass	1	11 -	16				X	~	~	~	~	~	~	~	X															
14A	Bowl	3	16 -	20					X	~	X																				
6B VAR	Dish	1								X	~	X																			
9B	Bowl	3	13 -	17						X	~	X																			
16	Dish	8	13 -	16.5						X	~	X																			
27	Dish	4	20 -	28						X	~	X																			
23B	Cass	6	20 -	30						X	~	~	X																		
181	Dish	48	21 -	36						X	~	~	~	X																	
181 small	Dish	1																													
182	Lid	54	22 -	33						X	~	~	~	X																	
195	Lid	1	35							X	~	~	~	X																	
196	Lid	4	22 -	26						X	~	~	~	X																	
18	Dish	2	19 -	27								X	X																		
29	Dish	1	21 -	27								X	X																		
30	Dish	1	29									X	X																		
31	Dish	13	20 -	34								X	X																		
32	Dish	7	23 -	32								X	X																		
33	Plate	9	22 -	30								X	~	X																	
32 or 33		14	23 -	32								X	~	X																	
48A	Plate	1	17 -	50								X	~	~	X																
50A	Dish	5	20 -	40									X	~	~	~	X														
32/58A	Dish	2	26 -	28											X	~	X														
58A	Dish	7	22 -	42											X	~	~	~	X												
61A	Dish	3	22 -	41													X	~	~	~	~	X									
50B	Dish	1	20 -	40														X	~	X											
99	Bowl	1	14 -	21																				X	~	~	~	~	X		
101	Dish	1	15 -	17																					X	~	~	~	X		
105	Plate	2	30 -	42																						X	~	~	~	~	X
105 var		1																													
87 var	Dish	1																													
133	Mug	1																													
185 var	Lid	1																													
N/I		103																													
LM 1 -5		5																													

To deal with this problem the 'raw' data from appendix 7 (see CD-ROM) was used. This also supplies us with information on the distribution of the ARS sherds which have been identified by trench and layer and by dates based on Hayes (1972) and Hawthorne (1998). This data was then summarised as follows in table 5.19A.

Table 5.19A - Showing dates and counts of ARS wares.

DATE	COUNT	DATE	COUNT	DATE	COUNT	DATE	COUNT
1st	24	105-200	1	205-250	18	455-525	1
75-150	8	105-225	6	220-270	1	540-610	1
80-125	2	130-175	3	230-325	2	550-660	1
80-160	11	150-250	105	230-400	4	575-675	2
80-175	2	155-200	13	280-325	2		
95-200	8	155-225	5	290-375	7		
2nd	2	160-220	4	325-450	2		
100-160	5	200-250	26	325-500	1		
105-150	12	205-225	3	425-580	1		

Even these tables present difficulties as there are clearly overlaps between a number of the time periods. To compensate for this, the mid-points were calculated for each time interval and the results obtained are shown in table 5.19B.

Table 5.19B - Showing mid-dates and counts of ARS wares.

MID DATE	COUNT	MID DATE	COUNT	MID DATE	COUNT	MID DATE	COUNT
50	24	128	12	225	26	388	2
113	8	153	1	215	3	413	1
103	2	165	6	228	18	503	1
120	11	153	3	245	1	490	1
128	2	200	105	278	2	575	1
148	8	178	13	315	4	605	1
100	2	190	5	303	2	625	2
130	5	190	4	333	7		

This data was then plotted in figure 5.9.

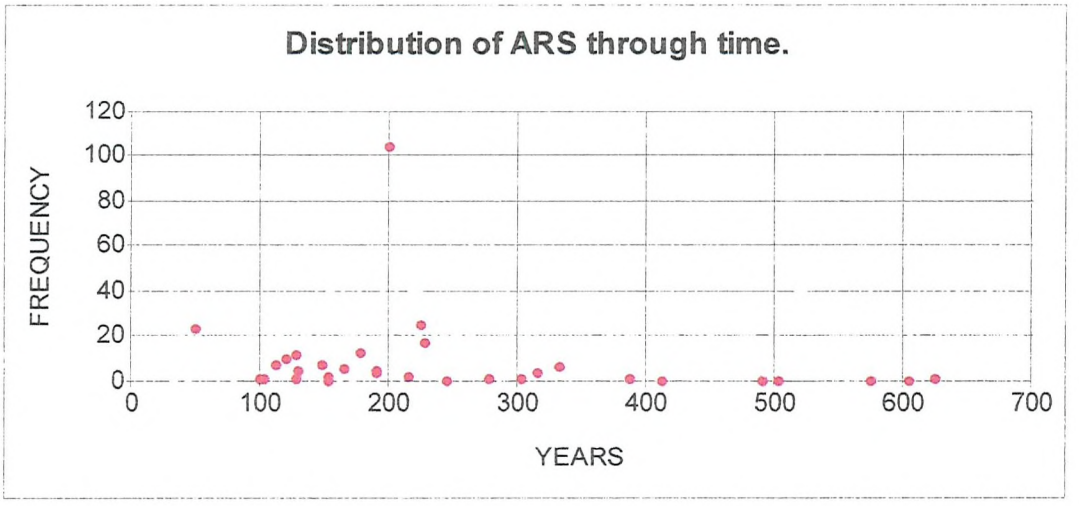


Figure 5.9 - Showing distribution of ARS through time.

The graph shows that there are examples across all time periods showing continuous trading connections and unbroken occupation of the town. However there appears to be a peak in vessel numbers in the period with mid-dates between 101-300 AD. In order to test this statistically a chi squared test was carried out and the results of which can be found in appendix 4B, see CD-ROM. The null hypothesis is that, 'the distribution of ARS sherds was uniform across all time periods'. For the purpose of the test the time period was split into centuries. For those ARS sherds which spanned the time divides they were split equally between the two adjacent time periods. The

results show that the distribution of ARS was not uniform across all time periods. To investigate further another test of significance was carried out, see appendix 4C on the CD-ROM, this time using the binomial distribution. The test results confirm that a significantly large proportion of ARS sherds were from the time period 101 to 300 AD and that the distribution of sherds was not the same across all time periods.

In table 5.19C the Hayes forms 181-196 have been removed from the analysis because, as has been previously mentioned, Hayes (1972) himself has queried whether these forms would be better classed amongst the local African fabrics rather than with the finewares.

Table 5.19C - Showing mid-dates and counts of ARS wares excluding Hayes forms 181-196.

MID DATE	COUNT	MID DATE	COUNT	MID DATE	COUNT	MID DATE	COUNT
50	24	128	12	215	3	413	1
113	8	153	1	228	18	503	1
103	2	165	6	245	1	490	1
120	11	153	3	278	2	575	1
128	2	178	13	315	4	605	1
148	8	190	5	303	2	625	2
100	2	190	4	333	7		
130	5	225	26	388	2		

The modified data, see figure 5.10, still shows a significant 'clustering' of vessels which were manufactured between 100 and 250 AD.

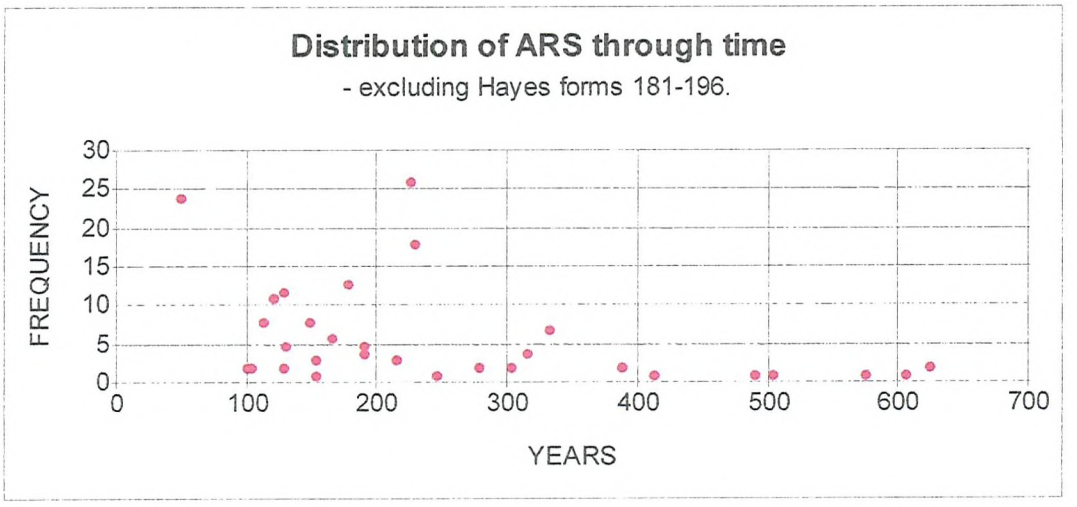


Figure 5.10 - Showing distribution of ARS through time - excluding Hayes forms 181-196.

After careful examination of the data, excluding Hayes forms 181-196, it was considered unnecessary to carry out further tests of significance.

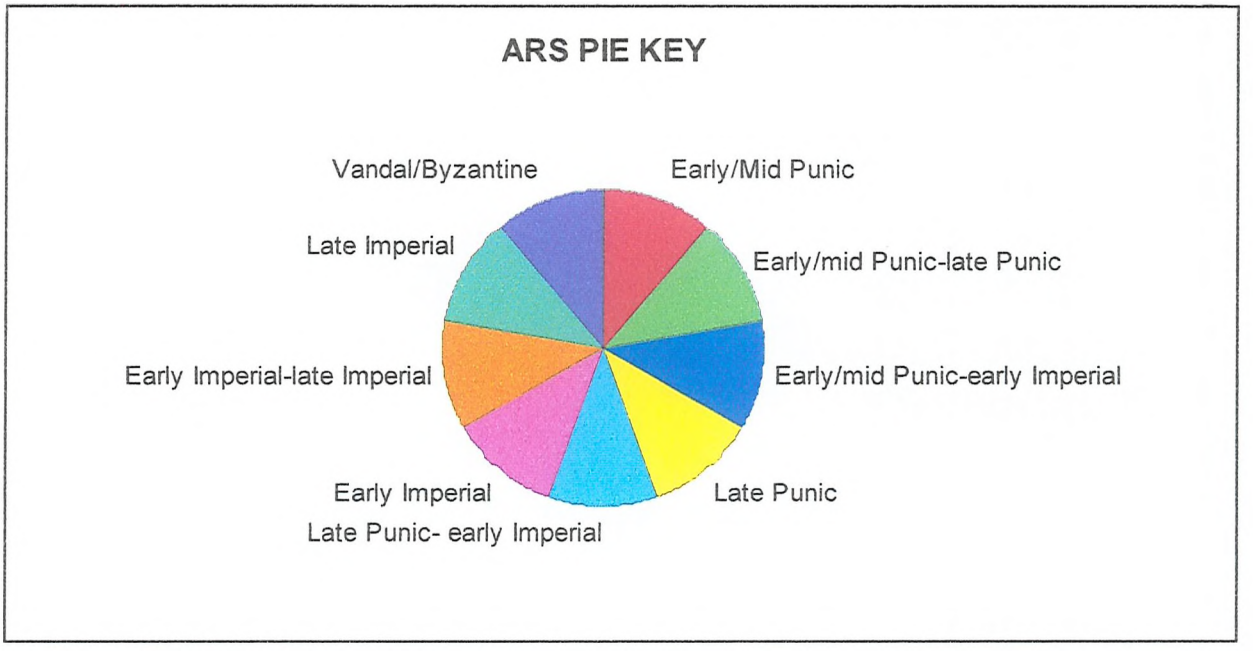
ARS distribution by time and location.

By using the 241 rim sherds which have been dated (excluding the 3 JWP sherds) and had their forms identified, the data was then used to produced figure 5.11A. However, by grouping pottery into restricted time periods some detail is being forfeited. The pie charts illustrate where the ARS pottery was deposited across the city. The charts demonstrate that the majority of the ARS sherds were produced during the early Imperial period and were found at all locations except for the

Severan Basilica. The Vandal/Byzantine pieces came from the Forum Vetus, the Piazza and the Severan Basilica trenches.

Data to accompany figure 5.11A.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	VB
FORUM VETUS	0	0	0	0	0	9	0	1	1
CHURCH	0	0	0	0	0	5	0	0	0
PIAZZA	0	0	0	0	0	123	11	0	1
COL. STREET	0	0	0	0	0	1	0	0	0
PORTICO	0	0	0	0	0	79	2	1	0
PALAESTRA	0	0	0	0	0	5	0	0	0
SEVERAN BASILICA	0	0	0	0	0	0	0	0	2



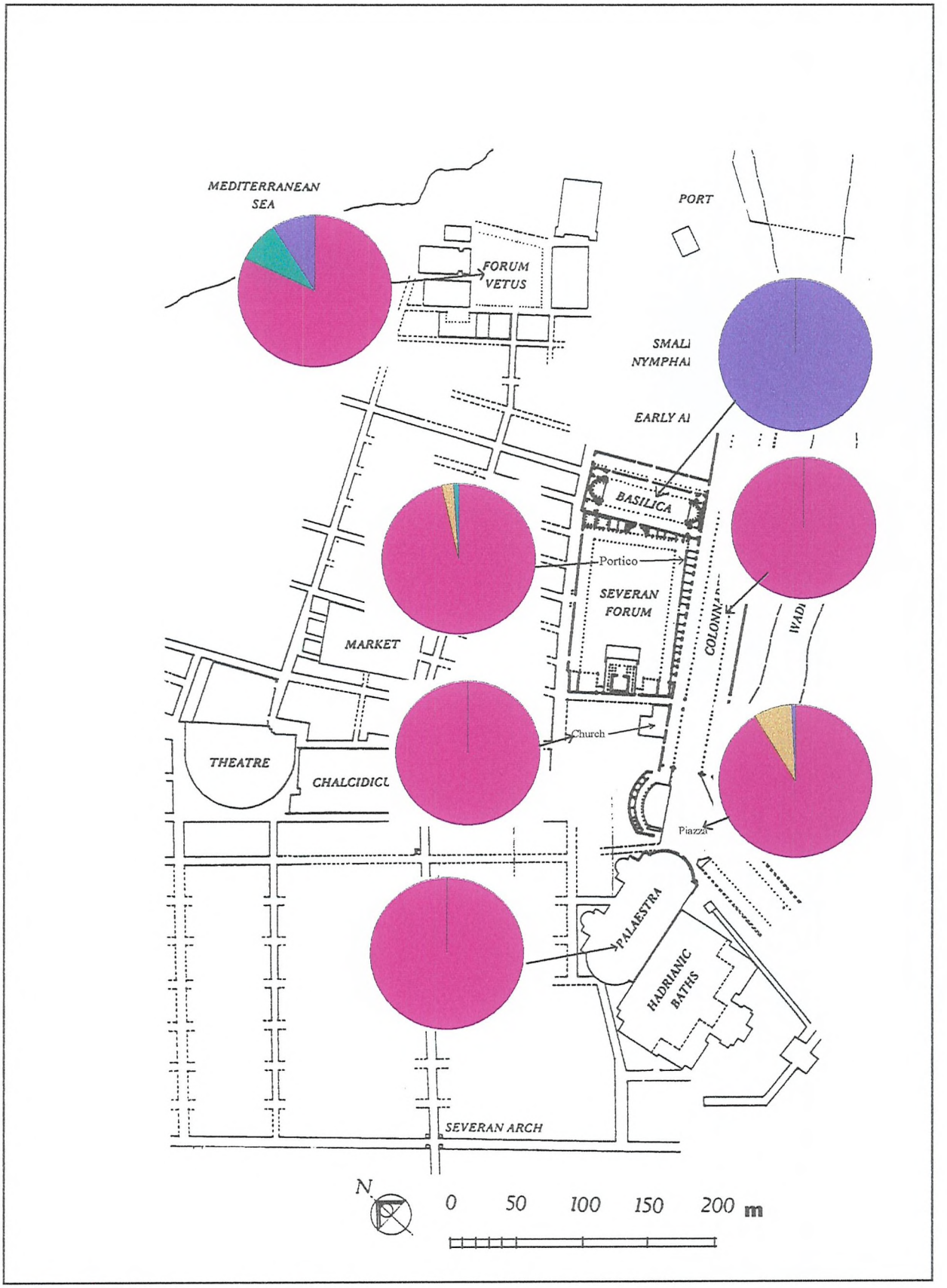
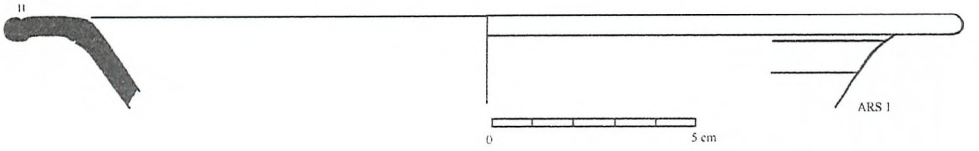
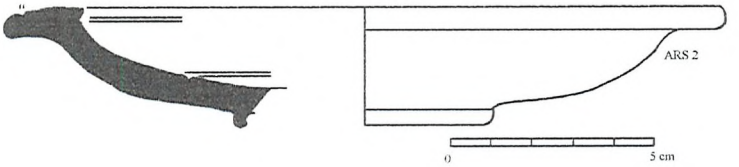


Figure 5.11A - Showing ARS distribution through time and by location.

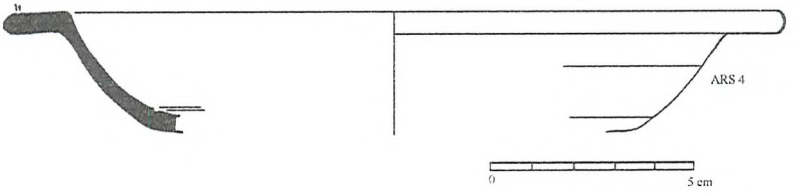
ARS 1 Hayes 6A or 6B.



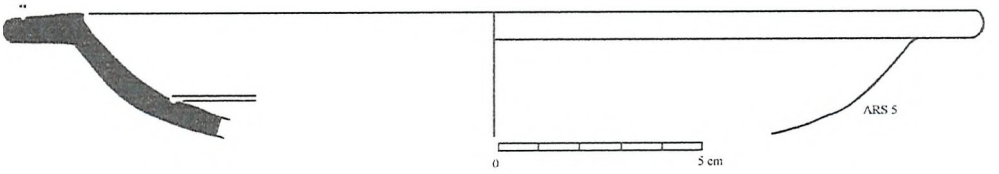
ARS 2 Hayes 6A or 6B.



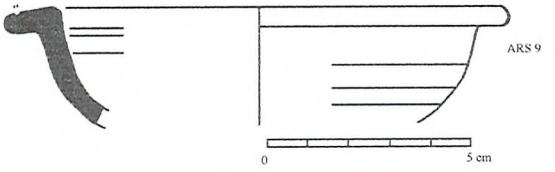
ARS 4 Hayes 6A or 6B.



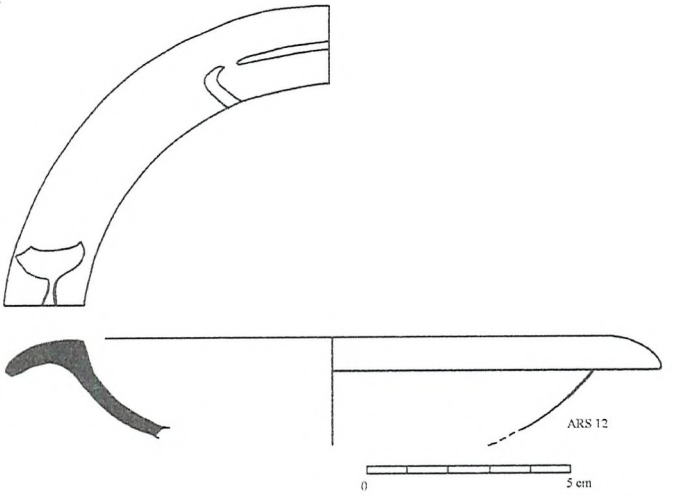
ARS 5 Hayes 6A or 6B.



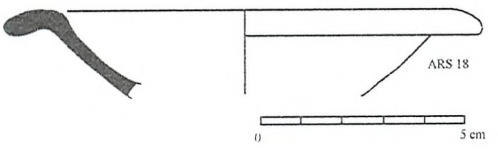
ARS 9 Hayes 6C.



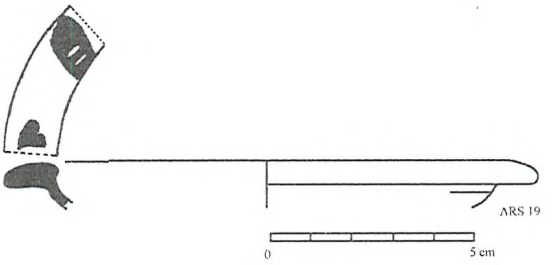
ARS 12 Hayes 3B Small.



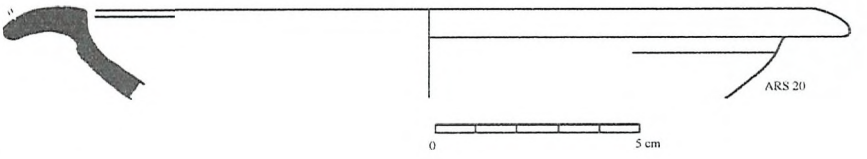
ARS 18 Hayes 3C Small.



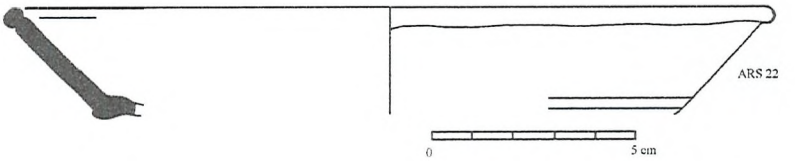
ARS 19 Hayes 3B Small.



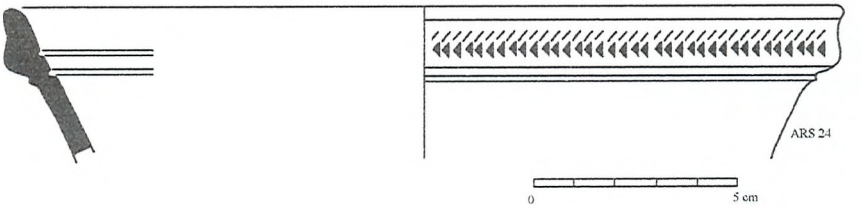
ARS 20 Hayes 3C.



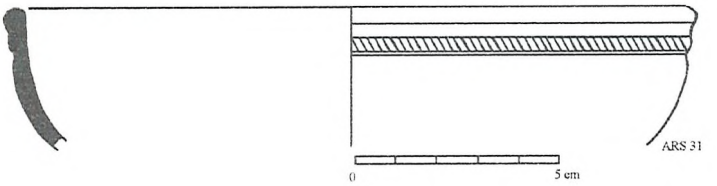
ARS 22 Hayes 4A or 4B.



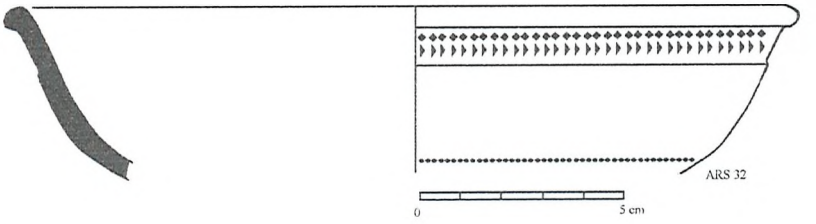
ARS 24 Hayes 8A.



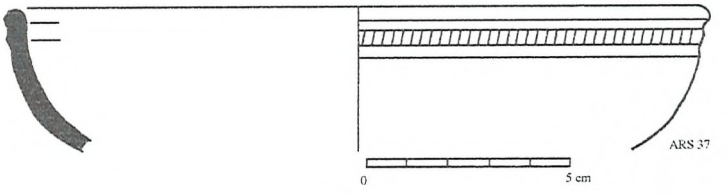
ARS 31 Hayes 9A



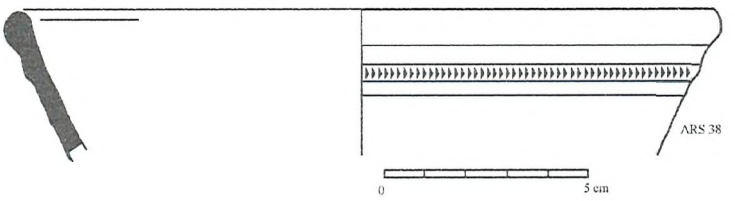
ARS 32 Hayes 7B



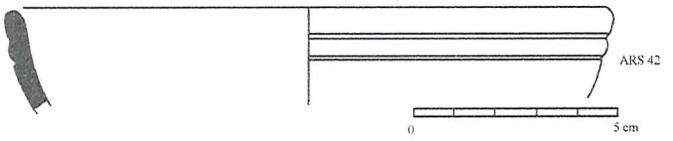
ARS 37 Hayes 9A



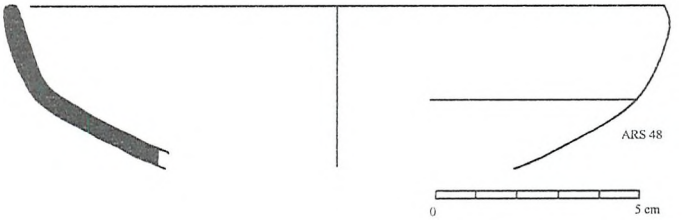
ARS 38 Hayes 9A



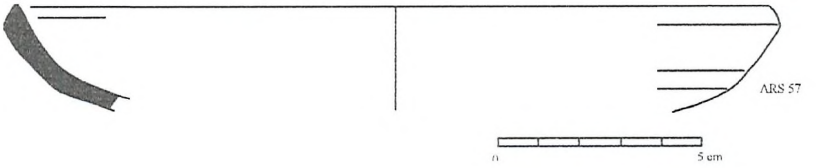
ARS 42 Hayes 9B



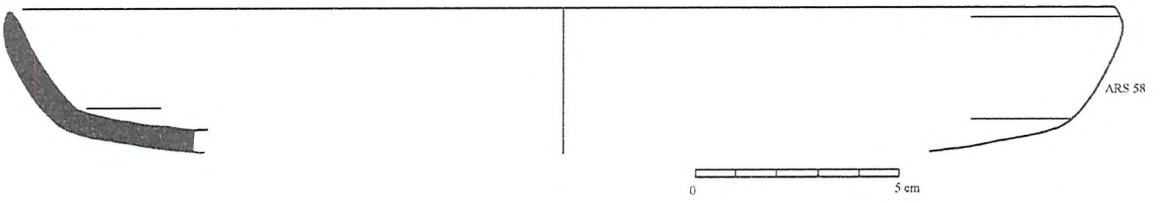
ARS 48 Hayes 14A



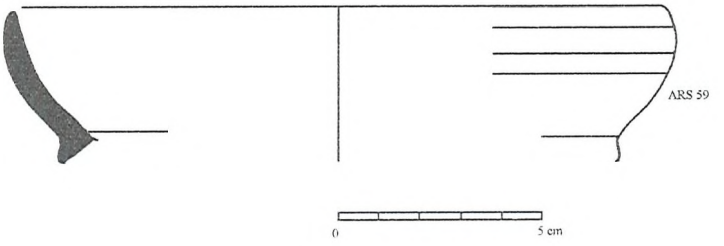
ARS 57 Hayes 16



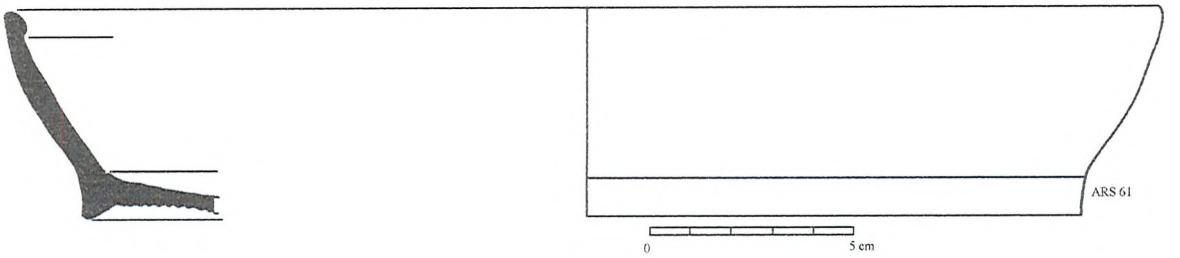
ARS 58 Hayes 18



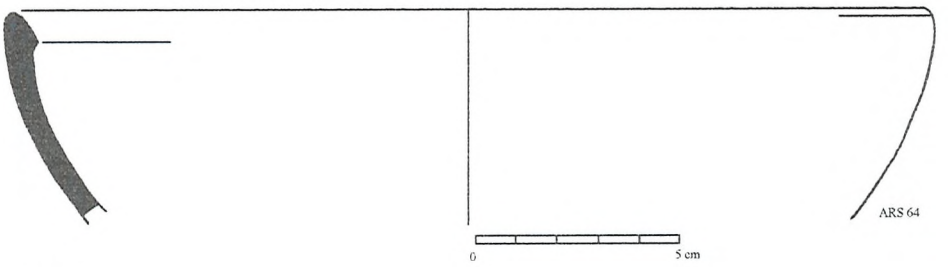
ARS 59 Hayes 23A



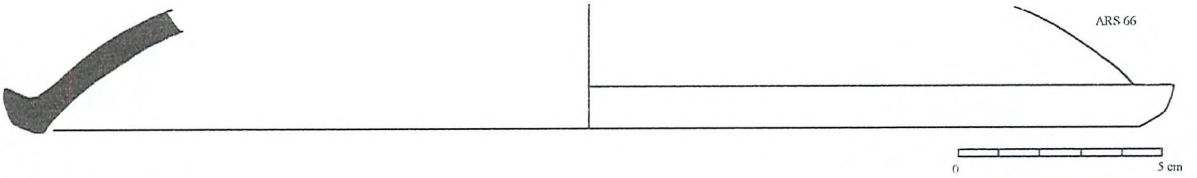
ARS 61 Hayes 23B



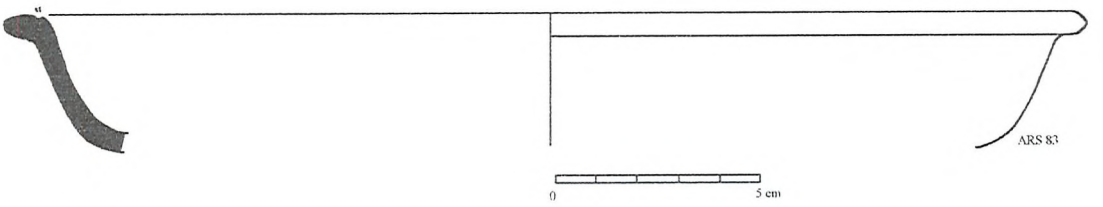
ARS 64 Hayes 23



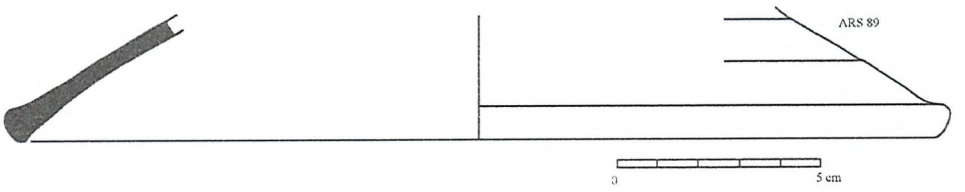
ARS 66 Hayes 195



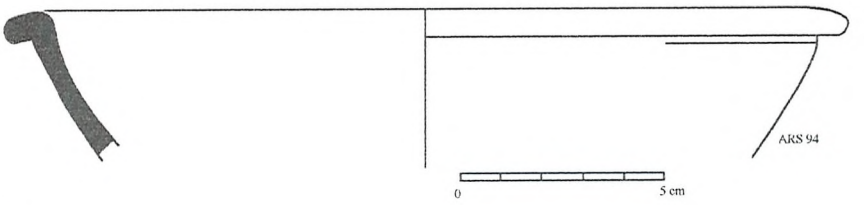
ARS 83 Hayes 58A



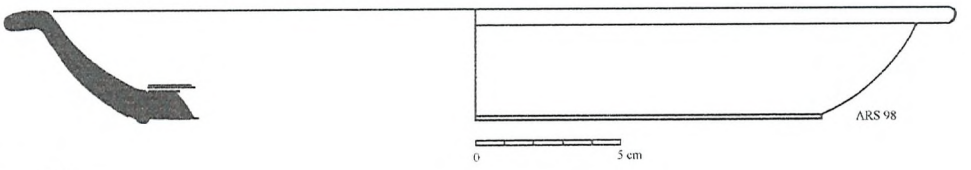
ARS 89 Hayes 196



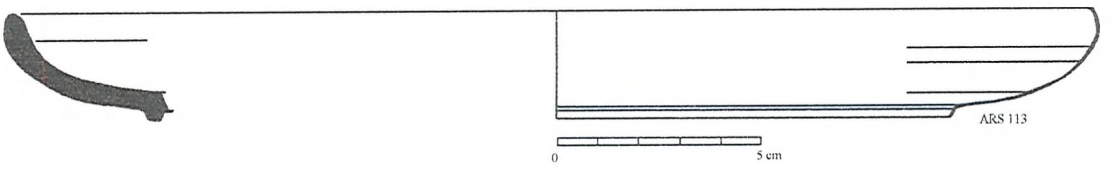
ARS 94 Hayes 32?



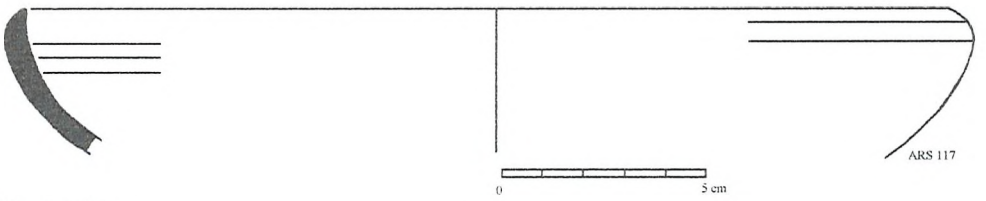
ARS 98 Hayes 32.



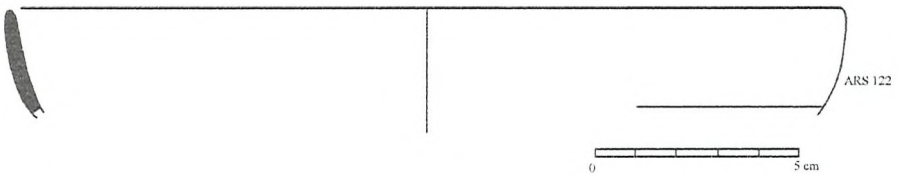
ARS 113 Hayes 27.



ARS 117 Hayes 27

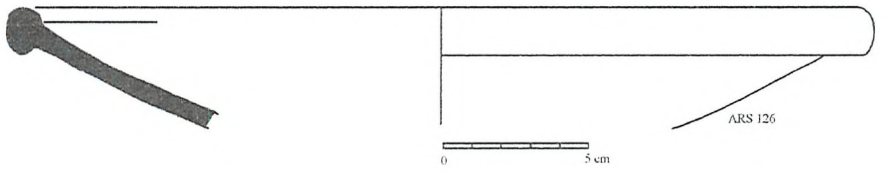


ARS 122 Hayes 50A

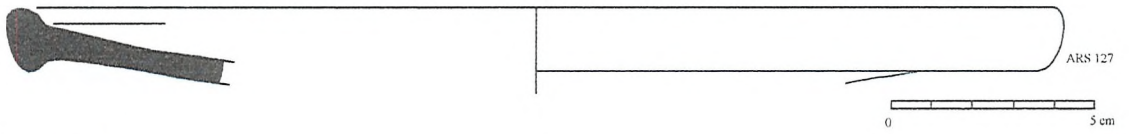


ARS 124 Hayes 196

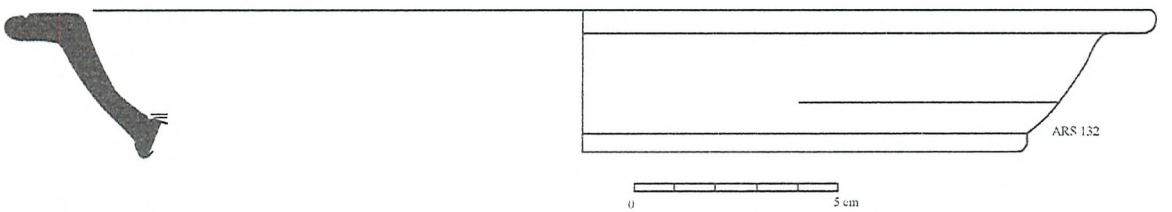
ARS 126 Hayes 105



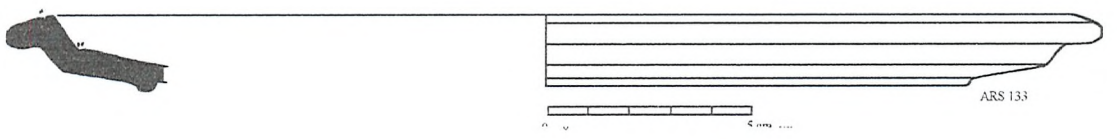
ARS 127 Hayes 105 Variant



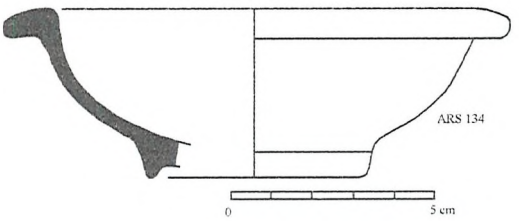
ARS 132 Hayes 30



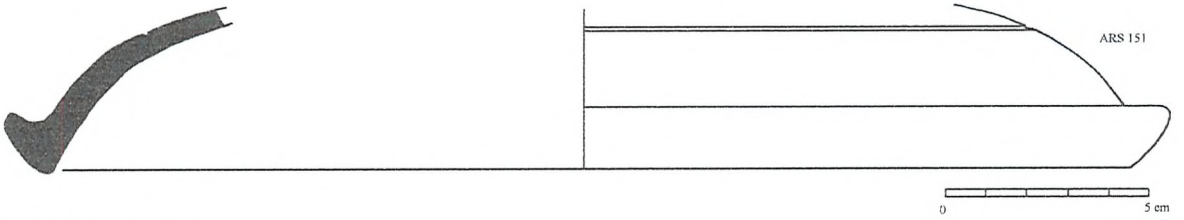
ARS 133 Hayes 33



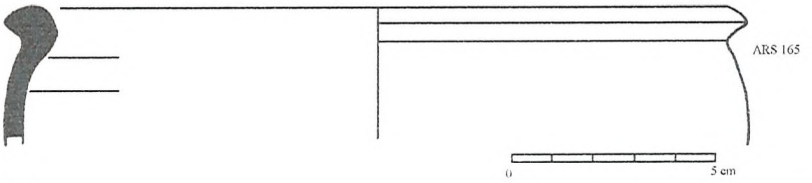
ARS 134 Hayes 6C Variant



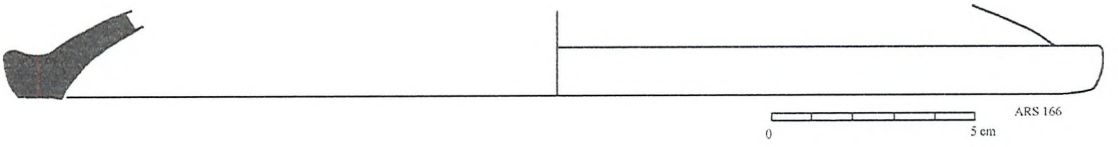
ARS 151 Hayes 182



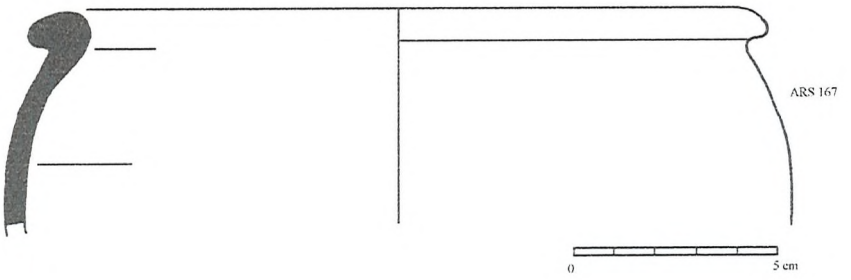
ARS 165 Hayes 183



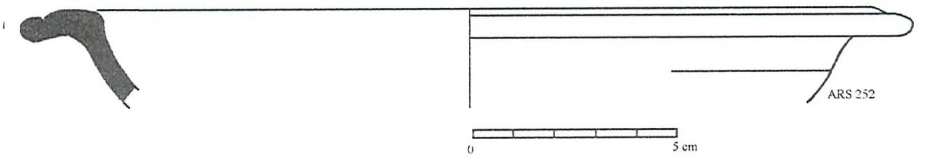
ARS 166 Hayes 185 Variant



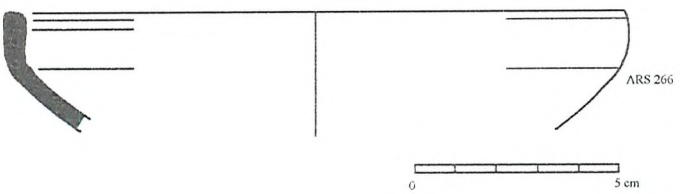
ARS 167 Hayes 183



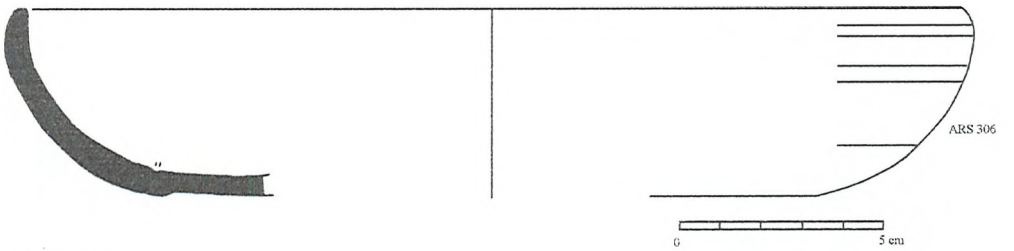
ARS 252 Hayes 6A or 6B



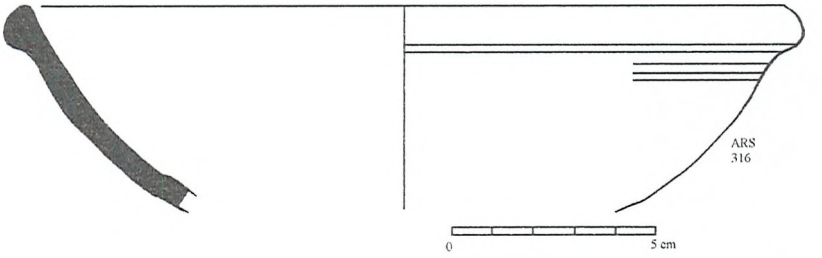
ARS 266 Hayes 101



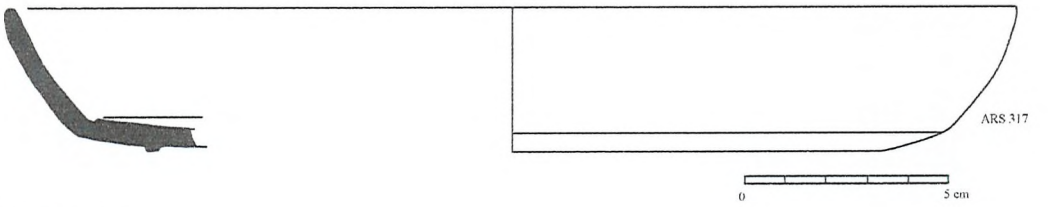
ARS 306 Hayes 181



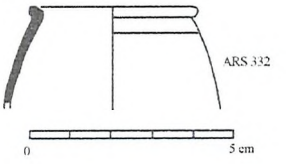
ARS 316 Hayes 99



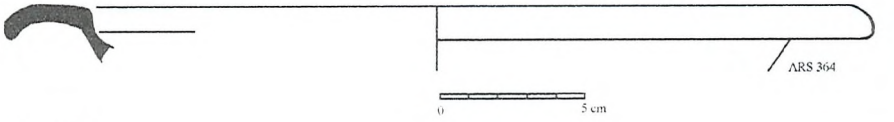
ARS 317 Hayes 31



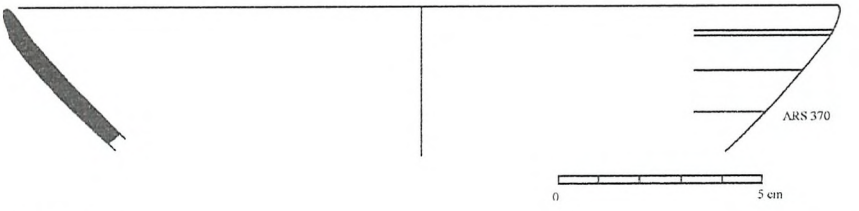
ARS 332 Hayes 133



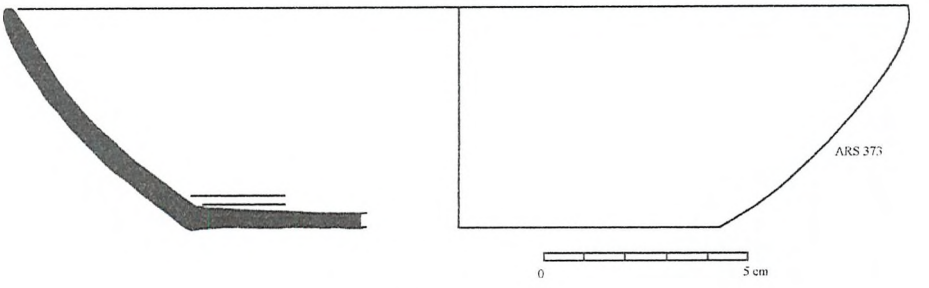
ARS 364 Hayes 3C Large



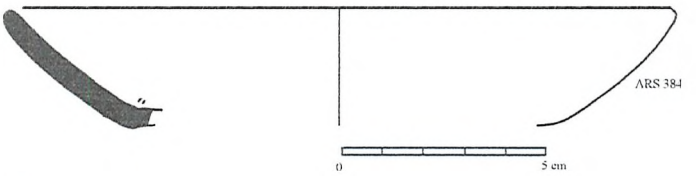
ARS 370 Hayes 50B



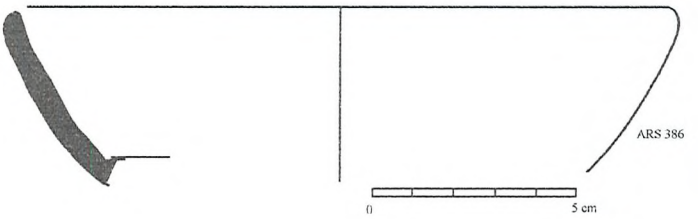
ARS 373 Hayes 181 Variant



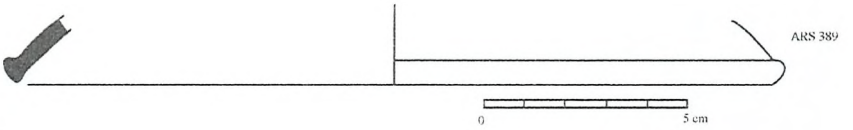
ARS 384 Hayes 181 Variant



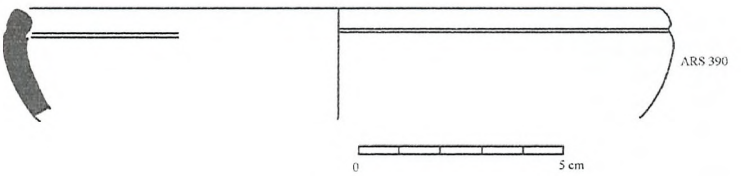
ARS 386 Hayes 181 Variant



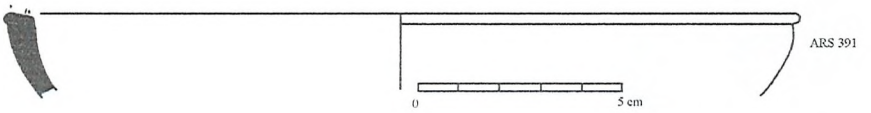
ARS 389 Hayes 182



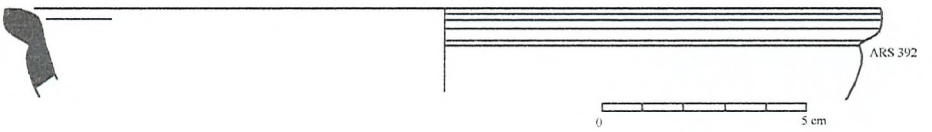
ARS 390 ARS LM 2



ARS 391 ARS LM 3



ARS 392 ARS LM 4



African Black Top ware (ABT) forms.

The majority of ABT sherds have been identified and allocated Hayes form numbers (Hayes: 1972) where appropriate and are described in the following way. The Lepcis measurements were taken from the inside of the rims.

ABT H194 See illustration on page 183.

This form was a 'casserole with a near vertical wall and rim, separated by a concave moulding, and slightly concave floor, in some cases bearing fine grooves on the underside. The form was thought to be in production from the second half of the first century AD. Diameters ranged from c. 14-25 cm.' (Hayes 1972: 207.) There was a single sherd in the assemblage, ABT 1 in the collection with rim diameter 22 cm. See drawing ABT 1 and fabric FB ABT 7.

ABT H195 Variant? See illustration on page 185.

A sherd, ABT 33, from a lid which was possibly a variant of H 195, had a hooked rim and was a

flattened dome shape. The Lepcis magna rim measured 18 cm in diameter. See drawing ABT 33 and fabric FB ABT 7. Form ABT H195 was also found at Benghazi.

ABT H196. See illustrations on pages 184 - 185.

There were 24 of these lids in the collection. The form is described as being a 'large lid of conical shape, fairly high, with slightly thickened rim, convex on outside with angle at top. The outside of rim was generally blackened from exposure in the kiln. The form was thought to be in production from the late second to the third century AD and diameters ranged from c. 22.5-36 cm.' (Hayes 1972:208.) The Lepcis Magna sherds are listed here with their fabrics. Their rims measured 18-24 cm in diameter.

ABT21	FB ABT 1	ABT26	FB ABT 6	ABT31	FB ABT 6	ABT37	FB ABT 6	ABT42	FB ABT 4
ABT22	FB ABT 6	ABT27	FB ABT 6	ABT32	FB ABT 6	ABT38	FB ABT 2	ABT43	FB ABT 1
ABT23	FB ABT 1	ABT28	FB ABT 6	ABT34	FB ABT 1	ABT39	FB ABT 1	ABT44	FB ABT 1
ABT24	FB ABT 6	ABT29	FB ABT 1	ABT35	FB ABT 1	ABT40	FB ABT 2	ABT45	FB ABT 2
ABT25	FB ABT 6	ABT30	FB ABT 7	ABT36	FB ABT 6	ABT41	FB ABT 2		

For drawings see ABT 22, 24, 25, 27, 29, 32, 35, 38, 40, 41 and 42.

ABT H197 See illustrations on page 183.

This form was a 'casserole with more or less vertical wall, rounded bottom and heavy convex rim-moulding on inside to receive a lid. Underside bears a series of small grooves or ridges; similar treatment of inside of wall, often with a stepped appearance. The form was thought to be in production from the late second to the mid-third century AD. Diameters ranged from c. 14-25 cm.' (Hayes 1972: 209.) There were 14 of these casseroles in the collection and they are listed here with their fabrics. Form ABT H197 was also found at Sabratha (Type 56), Benghazi and ULVS.

ABT3	FB ABT 5	ABT6	FB ABT 3	ABT9	FB ABT 5	ABT12	FB ABT 7	ABT18	FB ABT 5
ABT4	FB ABT 5	ABT7	FB ABT 7	ABT10	FB ABT 5	ABT16	FB ABT 5	ABT19	FB ABT 5
ABT5	FB ABT 7	ABT8	FB ABT 5	ABT11	FB ABT 5	ABT17	FB ABT 5		

The Lepcis Magna rims measured 18-22 cm in diameter. For drawings see ABT 4 and 5.

ABT LM ABT 1. See illustration on page 183.

Sherd ABT 2 may possibly be a variant of Hayes 197. Its rim measured 24 cm in diameter and it is shown in drawing ABT 2. It was made from fabric FB ABT 7.

ABT LM ABT 2. See illustration on page 185.

This sherd, ABT 46, came from a small conical domed shaped lid with rim diameter 14 cm which is shown in drawing ABT 46. It was made from fabric FB ABT 2.

ABT LM ABT 3. See illustration on page 185.

There were sherds from five lids which were also small conical shaped lids. They are listed here with their fabrics. ABT 47-FB ABT 1, ABT 48-FB ABT 5, ABT 49-FB ABT 6, ABT 50-FB ABT 7 and ABT 51-FB ABT 6. Their rim diameters measured 14-16 cm. For drawings see ABT 47 and 51.

ABT forms summarised.

It was possible to assign forms to 47 of the 51 sherds and in table 5.20 the forms have been summarised.

Table 5.20 - Showing the forms and fabrics of African Black Top wares (ABT).

Sherd	Printed	Fabric	Function	Type	Sherdpart	Rim	Base	Body	Body
ABT1	P	ABT 7	Casserole	ABT H 194	Rim	22.00	0.00	0.00	0.00
ABT2	P	ABT 7	Casserole ?	ABT LM ABT 1 CF. SAB 55.2727	Rim	24.00	0.00	0.00	0.00
ABT3	N	ABT 5	Casserole	ABT H 197	Rim	0.00	0.00	0.00	0.00
ABT4	P	ABT 5	Casserole	ABT H 197	Rim	20.00	0.00	0.00	0.00
ABT5	P	ABT 7	Casserole	ABT H 197	Rim	22.00	0.00	0.00	0.00
ABT6	N	ABT 3	Casserole	ABT H 197	Rim	22.00	0.00	0.00	0.00
ABT7	N	ABT 7	Casserole	ABT H 197	Rim	20.00	0.00	0.00	0.00
ABT8	N	ABT 5	Casserole	ABT H 197	Rim	0.00	0.00	0.00	0.00
ABT9	N	ABT 5	Casserole	ABT H 197	Rim	18.00	0.00	0.00	0.00
ABT10	N	ABT 5	Casserole	ABT H 197	Rim	18.00	0.00	0.00	0.00
ABT11	N	ABT 5	Casserole	ABT H 197 ?	Body	0.00	0.00	4.50	5.00
ABT12	N	ABT 7	Casserole	ABT H 197 ?	Base	0.00	26.00	0.00	0.00
ABT13	N	ABT 7	Casserole ?	ABT	Body	0.00	0.00	2.50	2.50
ABT14	N	ABT 8	Casserole ?	ABT	Base	0.00	22.00	0.00	0.00
ABT15	N	ABT 7	Casserole ?	ABT	Body	0.00	0.00	2.50	2.00
ABT16	N	ABT 5	Casserole	ABT H 197 ?	Base	0.00	16.00	0.00	0.00
ABT17	N	ABT 5	Casserole	ABT H 197 ?	Body	0.00	0.00	7.00	2.00
ABT18	N	ABT 5	Casserole	ABT H 197 ?	Base	0.00	20.00	0.00	0.00
ABT19	N	ABT 5	Casserole	ABT H 197 ?	Body	0.00	0.00	3.50	2.50
ABT20	N	ABT 9	Casserole	ABT	Body	0.00	0.00	4.25	1.75
ABT21	N	ABT 1	Lid	ABT H 196	Rim	24.00	0.00	0.00	0.00
ABT22	P	ABT 6	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT23	P	ABT 1	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT24	P	ABT 6	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT25	P	ABT 6	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT26	N	ABT 6	Lid	ABT H 196	Rim	24.00	0.00	0.00	0.00
ABT27	P	ABT 6	Lid	ABT H 196	Rim	20.00	0.00	0.00	0.00
ABT28	N	ABT 6	Lid	ABT H 196	Rim	18.00	0.00	0.00	0.00
ABT29	P	ABT 1	Lid	ABT H 196	Rim	18.00	0.00	0.00	0.00
ABT30	N	ABT 7	Lid	ABT H 196	Rim	18.00	0.00	0.00	0.00
ABT31	N	ABT 6	Lid	ABT H 196	Rim	24.00	0.00	0.00	0.00
ABT32	P	ABT 6	Lid	ABT H 196	Rim	20.00	0.00	0.00	0.00
ABT33	P	ABT 7	Lid	ABT H 195	Rim	18.00	0.00	0.00	0.00
ABT34	N	ABT 1	Lid	ABT H 196	Rim	24.00	0.00	0.00	0.00
ABT35	P	ABT 1	Lid	ABT H 196	Rim	24.00	0.00	0.00	0.00
ABT36	N	ABT 6	Lid	ABT H 196	Rim	20.00	0.00	0.00	0.00
ABT37	N	ABT 6	Lid	ABT H 196	Rim	20.00	0.00	0.00	0.00
ABT38	N	ABT 2	Lid	ABT H 196	Rim	0.00	0.00	0.00	0.00
ABT39	N	ABT 1	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT40	P	ABT 2	Lid	ABT H 196	Rim	24.00	0.00	0.00	0.00
ABT41	P	ABT 2	Lid	ABT H 196	Rim	18.00	0.00	0.00	0.00
ABT42	P	ABT 4	Lid	ABT H 196	Rim	18.00	0.00	0.00	0.00
ABT43	N	ABT 1	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT44	N	ABT 1	Lid	ABT H 196	Rim	22.00	0.00	0.00	0.00
ABT45	N	ABT 2	Lid	ABT H 196	Rim	20.00	0.00	0.00	0.00
ABT46	P	ABT 2	Lid	ABT LM ABT 2	Rim	14.00	0.00	0.00	0.00
ABT47	P	ABT 1	Lid	ABT LM ABT 3	Rim	16.00	0.00	0.00	0.00
ABT48	N	ABT 5	Lid	ABT LM ABT 3	Rim	14.00	0.00	0.00	0.00
ABT49	N	ABT 6	Lid	ABT LM ABT 3	Rim	14.00	0.00	0.00	0.00
ABT50	N	ABT 7	Lid	ABT LM ABT 3	Rim	16.00	0.00	0.00	0.00
ABT51	P	ABT 6	Lid	ABT LM ABT 3	Rim	14.00	0.00	0.00	0.00

ABT distribution by time and location.

By using the 40 ABT sherds which had had their forms identified and have been dated, see above, the data was then used to produce figure 5.11B.

Data to accompany figure 5.11B.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	LI/VB
FORUM VETUS	0	0	0	0	0	1	0	0	0
CHURCH	0	0	0	0	0	0	0	0	0
PIAZZA	0	0	0	0	0	24	0	0	0
COL. STREET	0	0	0	0	0	0	0	0	0
PORTICO	0	0	0	0	0	13	0	0	0
PALAESTRA	0	0	0	0	0	2	0	0	0

The pie charts illustrate where the ABT pottery was deposited across the city. The charts demonstrate that the ABT sherds were produced during the early Imperial period and were found at four locations across the town.

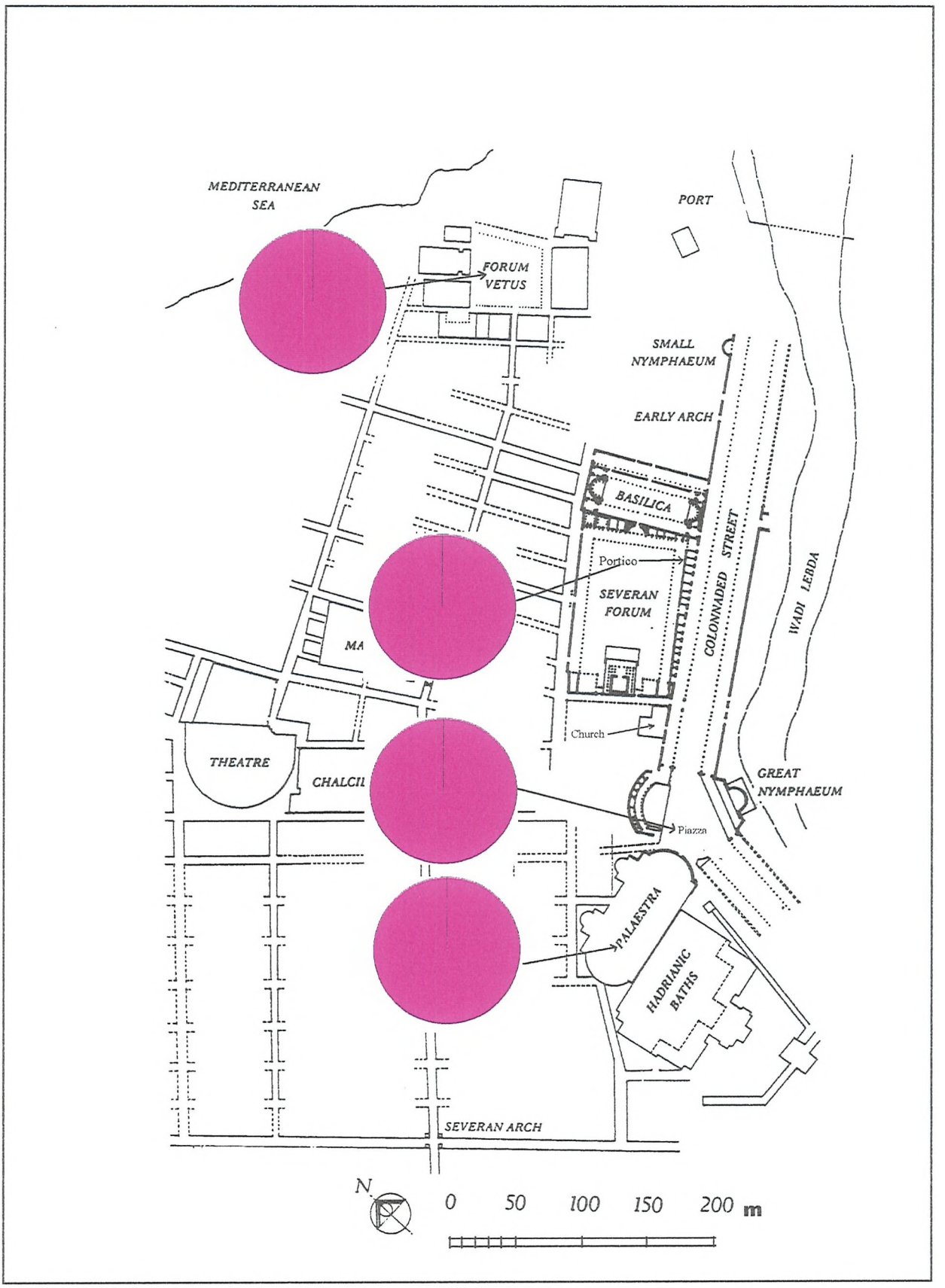
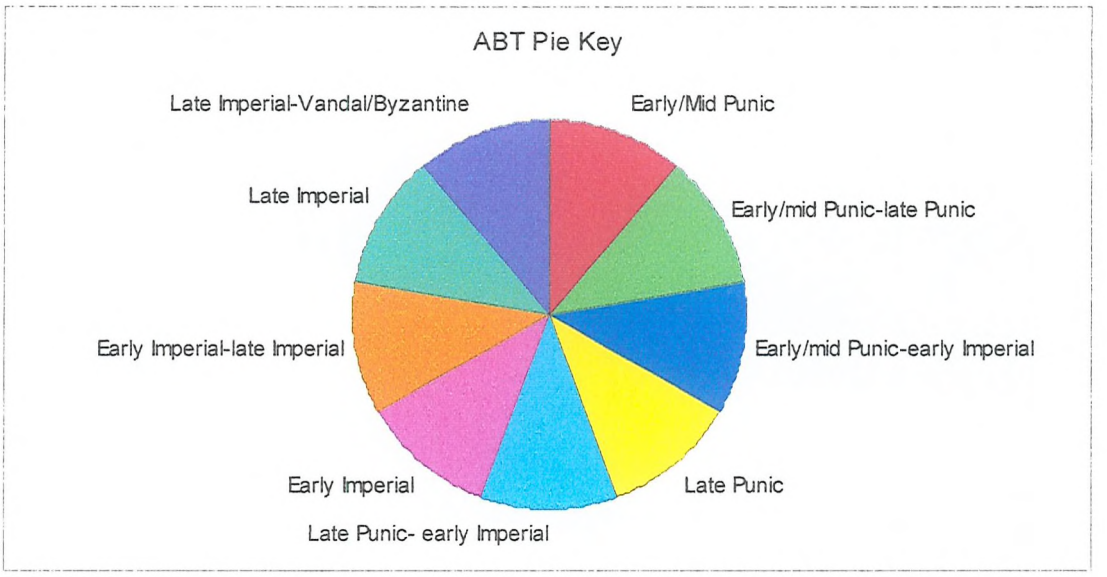
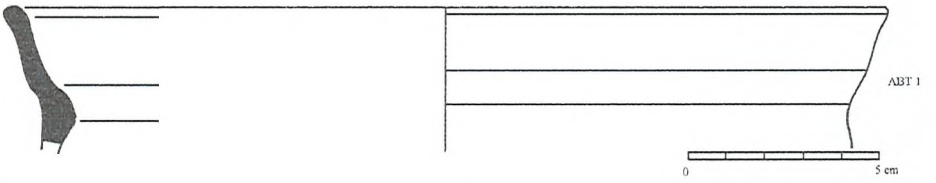


Figure 5.11B - Showing ABT distribution through time and by location.

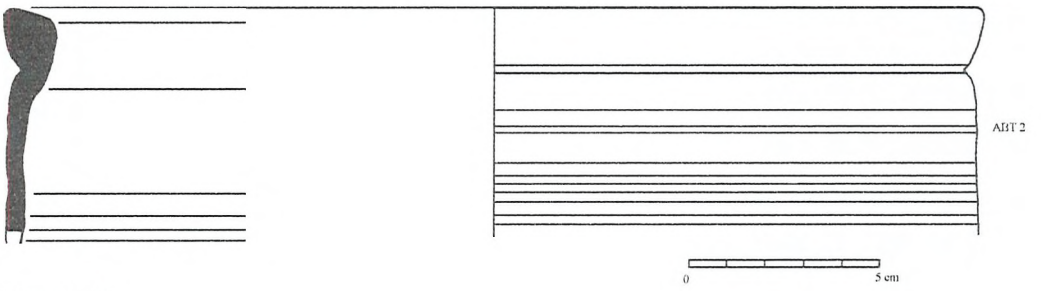


African Black Top wares (ABT).

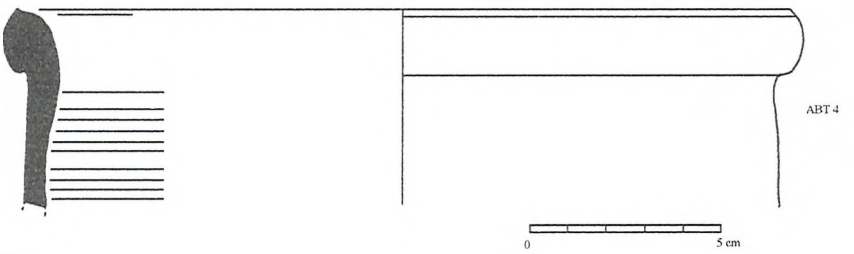
ABT 1 Hayes 194



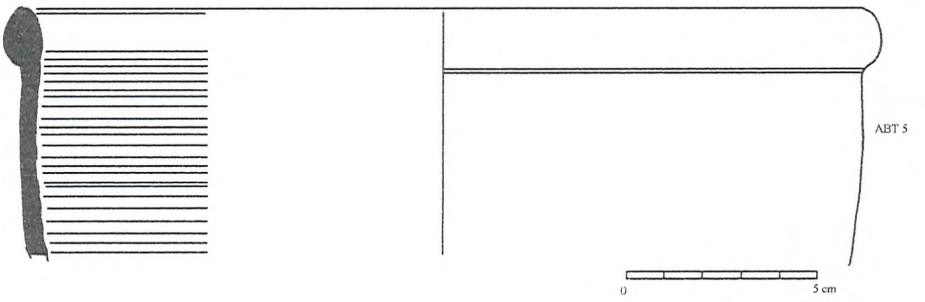
ABT 2 LM 1



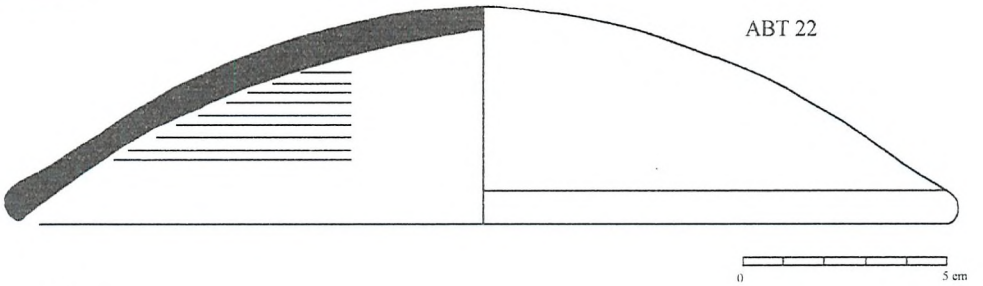
ABT 4 Hayes 197



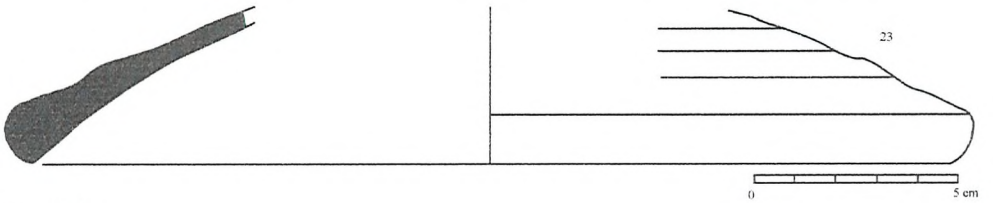
ABT 5 Hayes 197



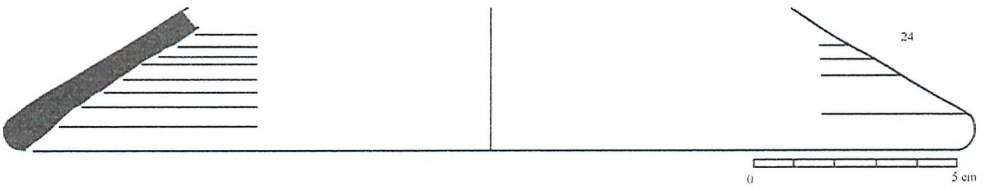
ABT 22 Hayes 196



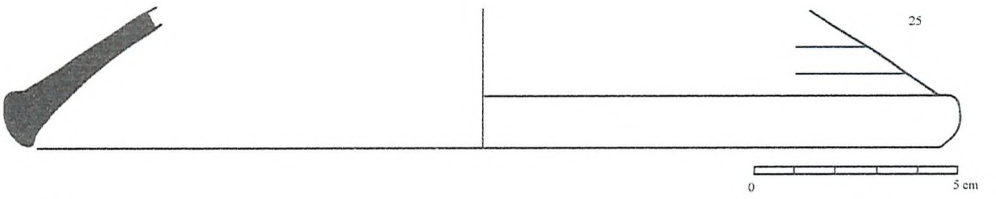
ABT 23 Hayes 196



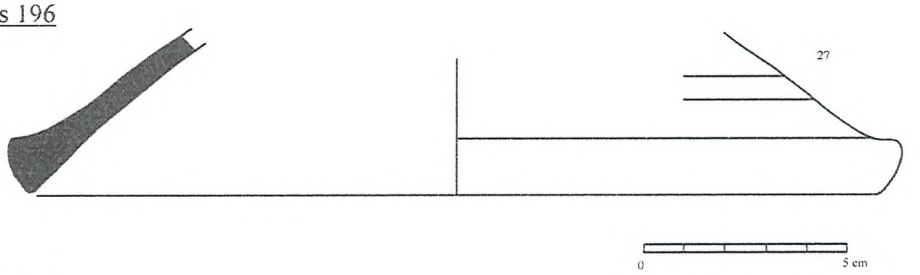
ABT 24 Hayes 196



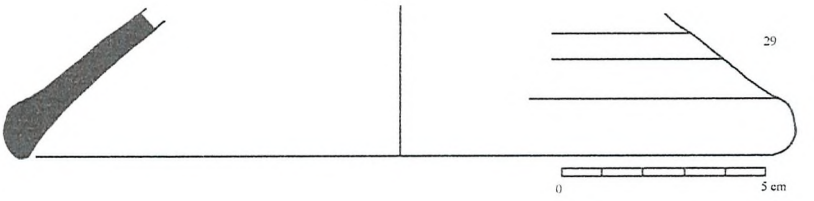
ABT 25 Hayes 196



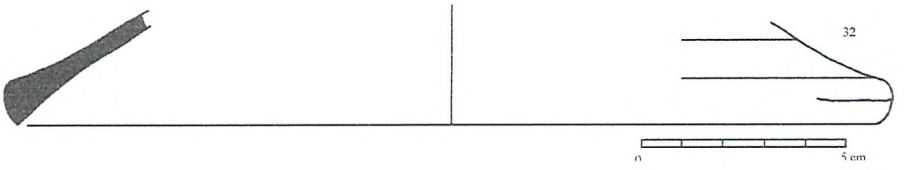
ABT 27 Hayes 196



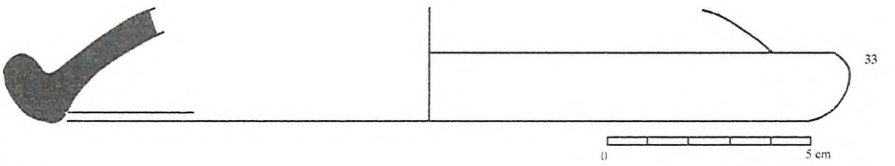
ABT 29 Hayes 196



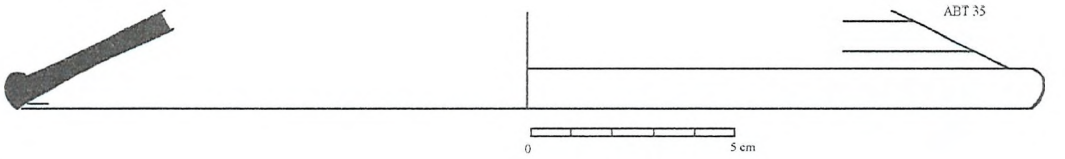
ABT 32 Hayes 196



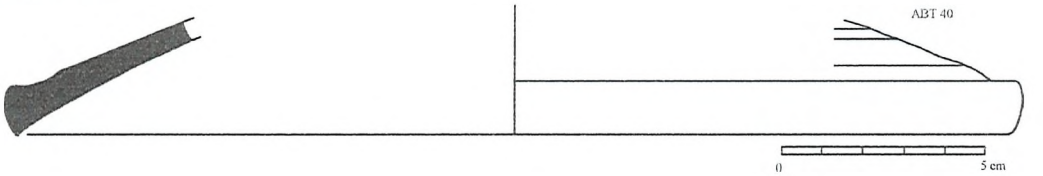
ABT 33 Hayes 195



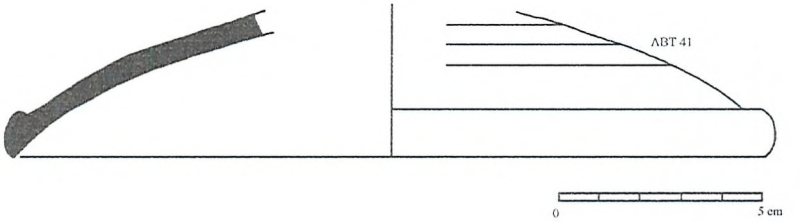
ABT 35 Hayes 196



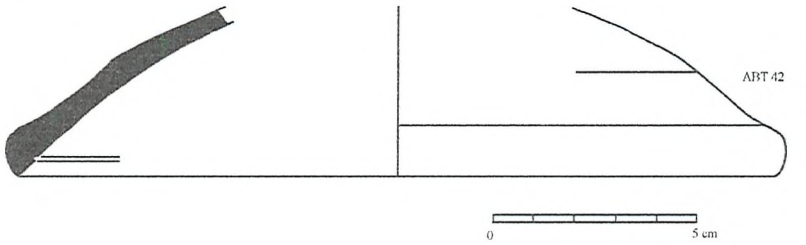
ABT 40 Hayes 196



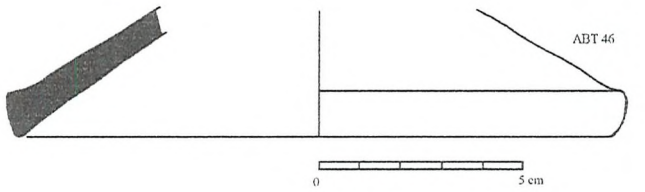
ABT 41 Hayes 196



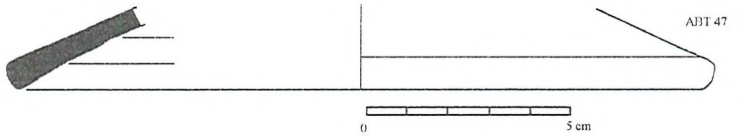
ABT 42 Hayes 196



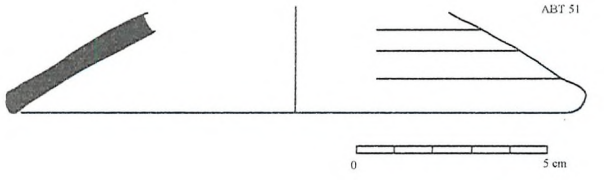
ABT 46 LM 2



ABT 47 LM 3



ABT 51 LM 3



Tripolitanian Red Slip ware (TRS).

A small group of 15 TRS sherds were also present in the Lepcis Magna assemblage and it was possible to attribute forms to 9 of the rims. The identified sherds have been dated to the mid-third to fourth century AD. Due to the size and shape of the remaining 6 sherds it was not possible to identify or assign forms to them. Information about these remaining sherds can be found in the database. See pottery fabric FB TRS.

Benghazi 693.

This form is described as a 'deep casserole with convex body, restricted mouth and short, slightly everted rim. The rim diameters measured 21 cm. The vessels were produced in the mid-third century.' (Kenrick 1985: 387-388.) There were sherds from two vessels in the Lepcis Magna assemblage; TRS 10 and 12. The rims measured 18 - 20 cm internally. For drawing see TRS 10 and 12. This form was also present in the Benghazi assemblage.

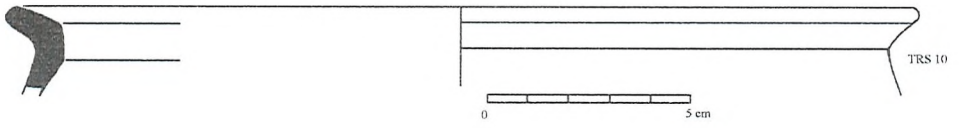
Benghazi 695 Hayes 2.

This form is described as 'dish with flat base, sloping wall and short flat rim. The diameters ranged from 27 - 39 cm. The vessels were produced in the fourth century.' (Kenrick 1985: 389-390.) There were sherds from seven vessels in the Lepcis Magna assemblage; TRS 1, 2, 3, 4, 5, 6 and 13. The rims measured 22 - 28 cm internally. For drawing see TRS 13. This form was also present at Benghazi.

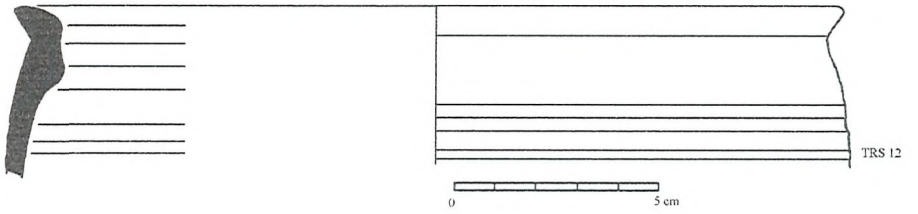
Unidentified TRS forms.

Dish TRS 8 base diameter 14 cm.
Dish TRS 9 base diameter 18 cm.
Dish TRS 11 base diameter 18 cm.
Plate TRS 7 with rouletted decoration; base diameter 22 cm.
Plate TRS 14 Unidentifiable body/base sherd measuring 5.5 x 3 cm possibly from a plate.
Plate TRS 15 Unidentifiable base sherd with base diameter 18 cm; possibly from a plate.

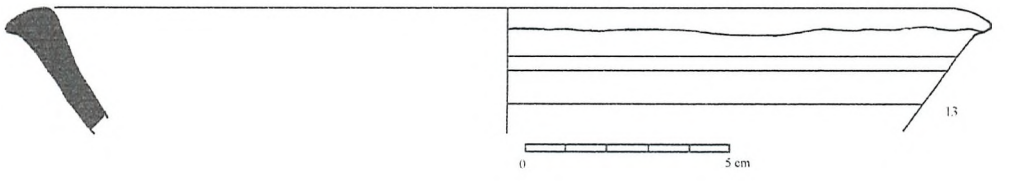
TRS 10 Berenice 693



TRS 12 Berenice 693



TRS 13 Berenice 695



Black Gloss wares.

In table 5.21 a breakdown is given of the various different parts of the recovered BGW sherds, irrespective of fabric type.

Table 5.21 - Showing counts and percentages of different BGW sherd parts.

BGW	COUNT	PERCENT
RIM	22	21.6
BODY	64	62.7
BASE	12	11.8
HANDLE	4	3.9
TOTAL	102	

Unlike the ARS assemblage, which was dominated by rim sherds, the largest group of BGW fragments was that of the body sherds. Statistically, for a fineware, this should not be regarded as unusual since, as previously stated, potentially the surface area of vessels, i.e. the body, is far greater than that of rims or bases and is therefore likely to generate more sherds when a vessel becomes broken. This large number of body sherds could also possibly indicate that all of the BGW fragments excavated were actually kept and that there was no selection being made in favour of rims. As already referred to it is possible that the Forum Vetus material was excavated at a different time and possibly all sherds were then collected and retained for future analysis.

Black Gloss ware forms.

Table 5.22 (see CD-ROM) is taken from the pottery database and it presents the locations, forms and, where known, the dates of when the vessels were thought to be in production. Descriptions of the identified BGW forms are given here. The Lepcis Magna measurements were taken from the inside of the rims and the bases. The descriptions are based on those given in Fulford and Tomber 1994. For pottery fabric description see appendix 9 on the CD-ROM.

Sabratha 6 (Fig. 11) Lamboglia 16? See illustration on page 192.

This form was a conical bowl with a plain thickened rim. The form was produced during the first century BC. The Sabratha rim diameter measured c. 18 cm. (Keay 1994: 50.) There was a possible example of this form, BGW 16, in the Lepcis Magna assemblage and its internal rim measured 14 cm. See fabric FB B4 and drawing BGW 16. This form was also present at Sabratha.

Sabratha 7.1 (Fig. 7) Lamboglia 55 Morel 2233. See illustration on page 192.

This form was a plate with a simple rolled rim and gently sloping or straight floor. The form was produced during the mid-second half of the third century BC. The Sabratha rim diameter measured c. 21 cm. (Keay 1994: 26.) There was one example BGW 43 in the Lepcis Magna assemblage and its internal rim measured 16 cm. See fabric FB B8 and drawing BGW 43. This form was also present at Sabratha.

Sabratha 7.3 (Fig. 7) Lamboglia 55 Morel 2234. See illustration on page 192.

This form was a plate with a simple rolled rim and gently sloping or straight floor. The form was produced during the mid-second BC. The Sabratha rim diameter measured c. 24 cm. (Keay 1994: 26.) There was one example, BGW 25, in the Lepcis Magna assemblage, its internal rim measured 18 cm. See fabric FB B8 and drawing BGW 25. This form was also present at Sabratha.

Sabratha 9 (Fig. 11) Lamboglia 2. See illustration on page 192.

This was a bowl with concave outer face and plain everted rim. The form was produced during the

second century BC to the first century BC. The Sabratha rim diameter measured c. 16 cm. (Keay 1994: 50.) There was one example, BGW 27, in the Lepcis Magna assemblage, its internal rim measured 16 cm. See fabric FB B4 and drawing BGW 27. This form was also present at Sabratha.

Sabratha 10.1 (Fig. 7) Lamboglia 42B. See illustrations on pages 192 and 193.
This vessel was a Kylix or hemispherical cup with a plain rim and horizontal handles attached just below the rim. The form was produced during the first half of the fourth century BC. The Sabratha rim diameter measured c. 13 cm. (Keay 1994: 28.) There were three examples, BGW 15, BGW 49 and BGW 75 in the Lepcis Magna assemblage, their internal rims measured 10-12 cm. See fabrics FB B4, FB B1 and FB B1 respectively. See drawings BGW 49 and BGW 75. This form was also present at Sabratha.

Sabratha 15.2 (Fig. 7) Lamboglia 25C. See illustrations on page 193.
This form was a small bowl with a plain incurved rim and gently flaring foot ring. The form was produced during the third and second centuries BC. The Sabratha rim diameter measured c. 7 cm. (Keay 1994: 29.) There were three examples in the Lepcis Magna assemblage, BGW 54, BGW 62 and BGW 64. The internal rims measured 8-12 cm. See fabric FB B2, FB B1 and FB B1 respectively and drawings BGW 54 and BGW 64. This form was also present at Sabratha.

Sabratha 16.1 (Fig. 8) Lamboglia 27B.
This was a medium sized bowl with plain in-turned rim and foot-ring. The form was produced during the third century BC. The Sabratha rim diameter measured c. 20 cm. (Keay 1994: 30.) There was one example, BGW 23, in the Lepcis Magna assemblage, its internal rim measured c. 12 cm. See fabric FB B1. This form was also present at Sabratha.

Sabratha 19 (Fig. 8) Lamboglia 28A. See illustration on page 192.
This form was a bowl with a carinated profile, slightly sloping floor, everted rim and an oblique foot ring. The form was produced during the second half of the third century to mid-second century BC. The Sabratha rim diameter measured c. 12-16 cm. (Keay 1994.) There was one example, BGW 30, in the Lepcis Magna assemblage, the internal rim measured 12.5 cm and the base diameter was 6 cm. See fabric FB B1. See drawing BGW 30. The floor of the bowl was decorated with palmettes. This form was also present at Sabratha.

Sabratha 19.2 (Fig. 8) Lamboglia 28A. See illustration on page 192 and 193.
This was a bowl with a carinated profile, slightly sloping floor, everted rim and an oblique foot ring. The form was produced during the second half of the third century to mid-second century BC. The Sabratha rim diameter measured c. 12 cm. (Keay 1994.) There were three examples, BGW 31, 76 and 96 in the Lepcis Magna assemblage, their internal rims measured 9-16 cm. See fabric FB B1, FB B8 and FB B8. See drawings BGW 31 and BGW 96. This form was also present at Sabratha.

Sabratha 19.4 (Fig. 8) Lamboglia 28A. See illustration on page 192.
This was a bowl with a carinated profile, slightly sloping floor, everted rim and an oblique foot ring. The form was produced during the mid-second BC. The Sabratha rim diameter measured c. 12 cm. The form was produced in the mid-second century BC. (Fulford and Tomber 1994: 33.) There was one example, BGW 26, in the Lepcis Magna assemblage, its internal rim measured 10

cm. See fabric FB B10 and drawing BGW 26. This form also present at Sabratha.

Roses form 1449. See illustration on page 192.
This was a bowl base with high footing and a floor decorated with rouletting. The form was produced during the second half of the fourth century BC. There was a sherd from one vessel in the assemblage, BGW 17 which had an internal rim diameter 14 cm. See drawing BGW 17 and fabric FB B3.

Roses form 1570 variant Lamboglia 43.
In the collection there was a handle possibly from a Kylix or hemispherical cup? The form was produced from the fourth century to the third century BC. There was a sherd from one vessel in the assemblage, BGW 41 which had an internal rim diameter 12 cm. See fabric FB B8.

Unidentified forms illustrated.

BGW LM 1 See illustration on page 191.
This was a small bowl or cup with concave 'seating' on inside of everted rim. There were sherds of one vessel in the assemblage which had a rim diameter of 10 cm and it was made from fabric FB B6. See drawing BGW 1.

BGW LM 2. See illustration on page 191.
This was a conical bowl with a plain rim. There were sherds from one vessel in the assemblage, BGW 2 and BGW 94. The rim diameter was 12 cm and it was made from fabric FB B5. See drawing BGW 2.

Miscellaneous unidentified drawn bases. See illustrations on pages 191-193.
BGW 14 Base diameter 9 cm. See fabric FB B8.

BGW 63 Base diameter 6 cm. See fabric FB B1.

BGW 85 Base diameter 6 cm. See fabric FB B1.

BGW 87 Base diameter 8 cm. See fabric FB B2.

BGW forms summarised.
Table 5.23 summarises the forms of the identified BGW. With two exceptions the forms are based on those distinguished by Lamboglia and illustrated in Keay (1994).

Table 5.23 - Showing the forms and functions of the identified BGW.

FORM	FUNCTION	COUNT
CF ROSES 1449	BOWL	1
ROSES 1570 VARIANT LAM 43	KYLIX	1
CF SABRATHA 6 (FIG.11)	BOWL	1
SABRATHA 7.1 (FIG.7) LAM 55 MOREL 2233	PLATE	1
SABRATHA 7.3 (FIG 7) MOREL 2234	PLATE	1
SABRATHA 9 (FIG. 11) LAM 2	DISH	1
SABRATHA 10.1 (FIG. 7) LAM 42B	KYLIX	3
SABRATHA 15.2 (FIG.7) LAM 25C	BOWL SMALL	3
SABRATHA 16.1(FIG.8) LAM 27B ?	BOWL	1
SABRATHA 19 (FIG. 8) LAM 28A	BOWL	1
SABRATHA 19.2 (FIG. 8) LAM 28A	BOWL	3
SABRATHA 19.4 (FIG. 8) LAM 28A	BOWL	1
N/I		84

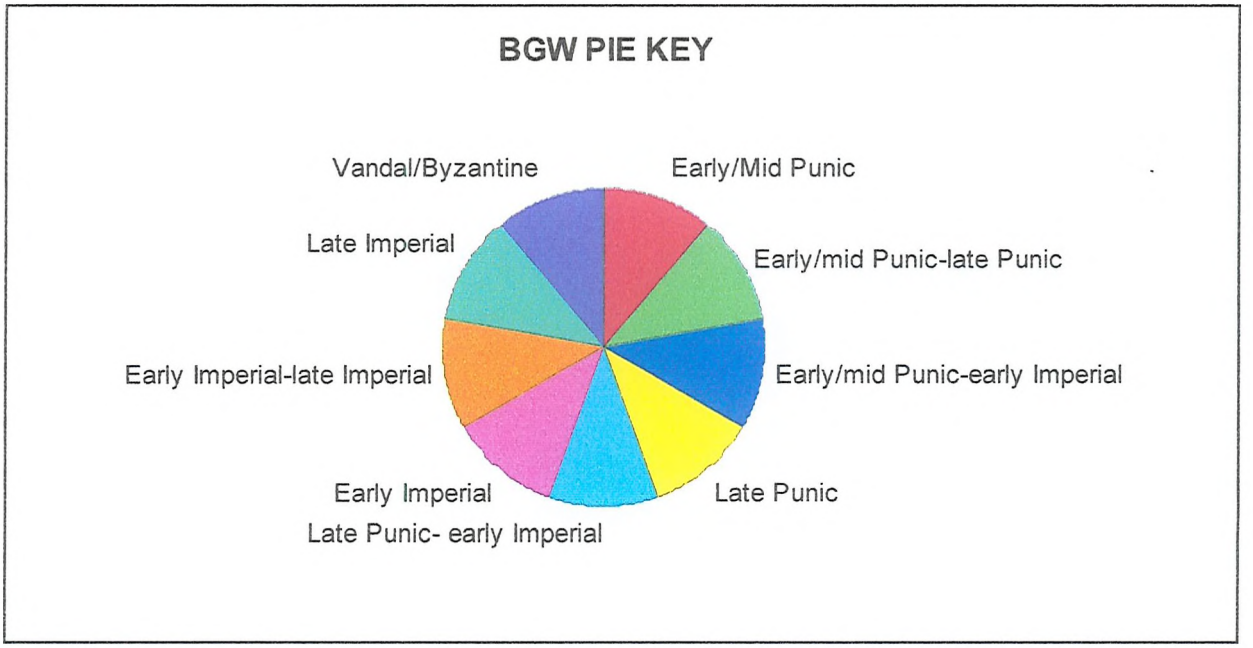
The apparent dearth of the forms identified at Lepcis Magna amongst the ULVS assemblage can probably be explained by the chronological establishment of those sites after the BGW ceased to be produced or, as will be mentioned in chapter seven, to suggest a starting date for the trading of the earliest settlements with the rest of the Roman world to the first century AD rather than the actual commencement of the sites.

Chronological production of Black Gloss wares.

Using Keay (1994) chronological data figure 5.12 was produced showing when the BGW forms were manufactured and from where the sherds were excavated from across the town. Figure 5.12 illustrates that BGW sherds were present only in the Forum Vetus and Piazza trenches and were produced from Early to late Punic times.

Data to accompany figure 5.12.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	VB
FORUM VETUS	6	0	0	10	0	0	0	0	0
CHURCH	0	0	0	0	0	0	0	0	0
PIAZZA	1	0	0	1	0	0	0	0	0
COL. STREET	0	0	0	0	0	0	0	0	0
PORTICO	0	0	0	0	0	0	0	0	0
PALAESTRA	0	0	0	0	0	0	0	0	0
SEVERAN BASILICA	0	0	0	0	0	0	0	0	0



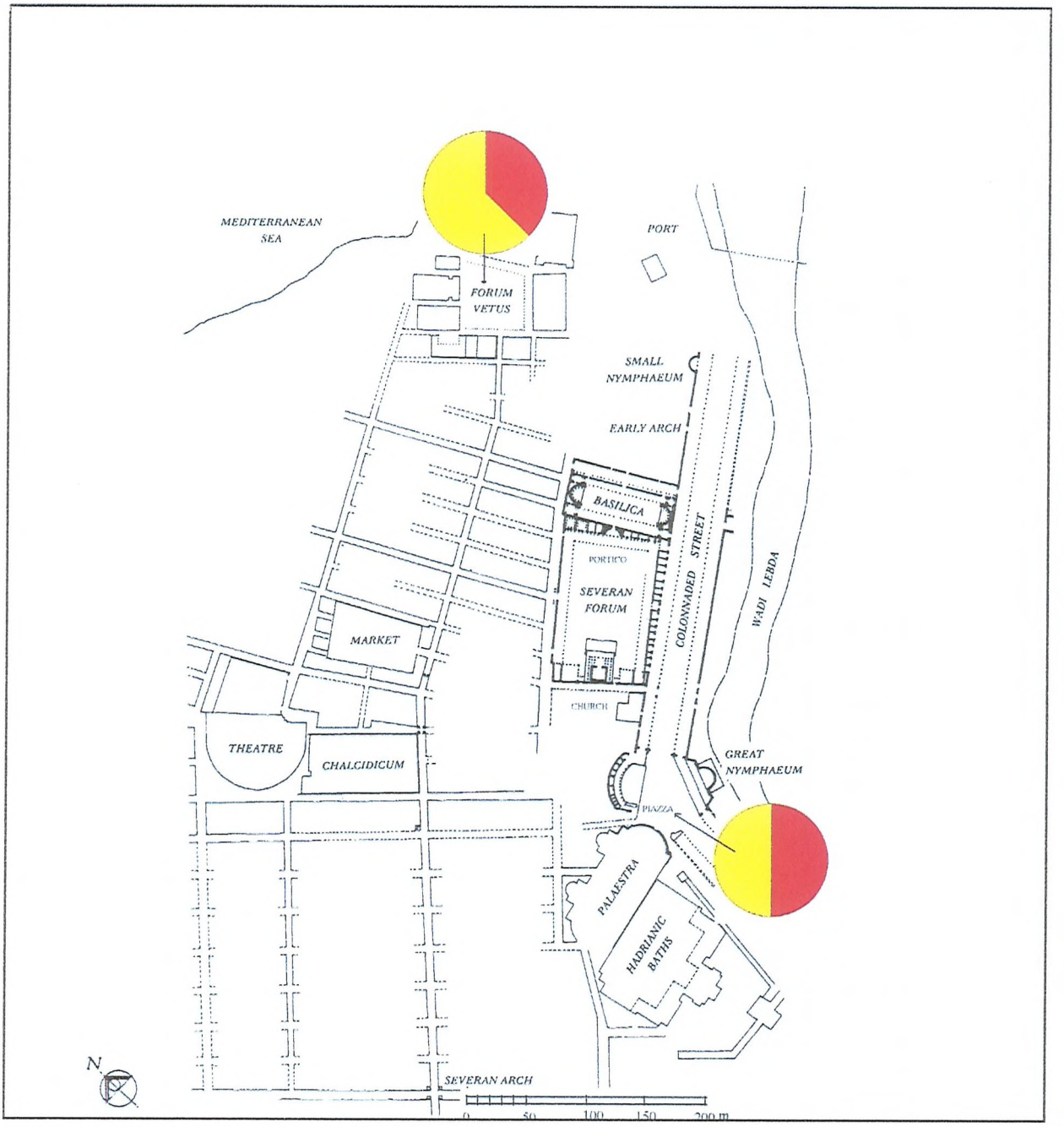
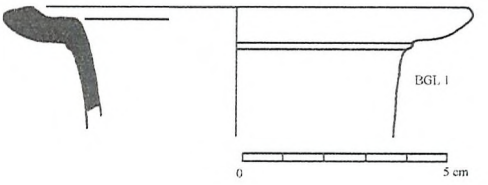
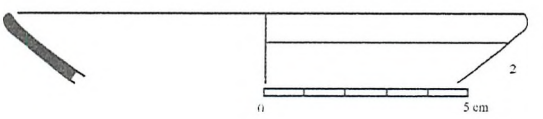


Figure 5.12 - BGW distributions through time and by location. (See key on previous page.)

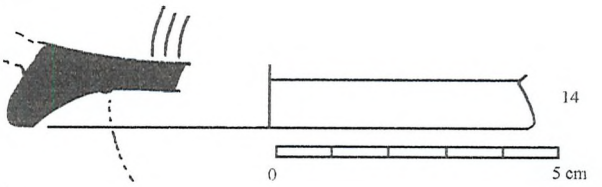
BGW 1 LM 1



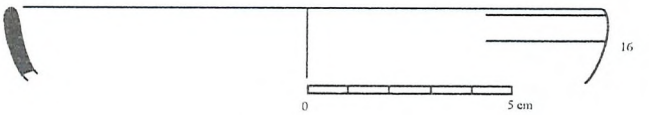
BGW 2 LM 2



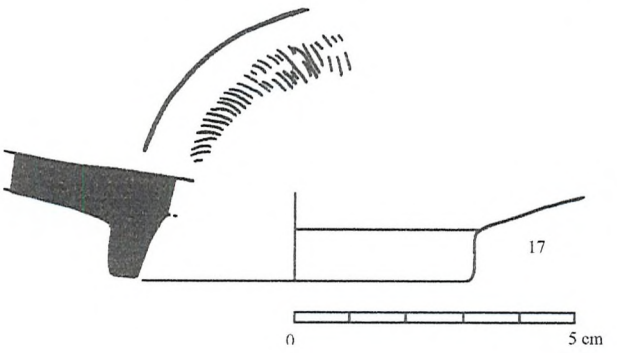
BGW 14 Form not identified



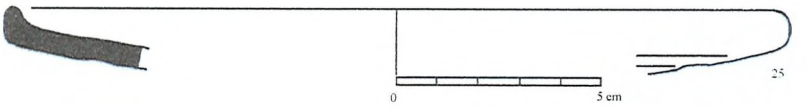
BGW 16 Cf. Sabratha Form 6



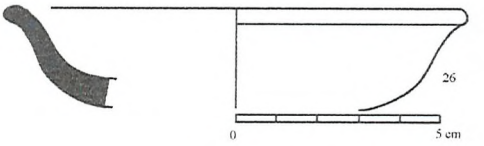
BGW 17 Cf. Roses.



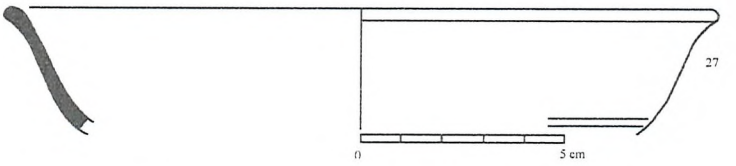
BGW 25 Sabratha 7.3



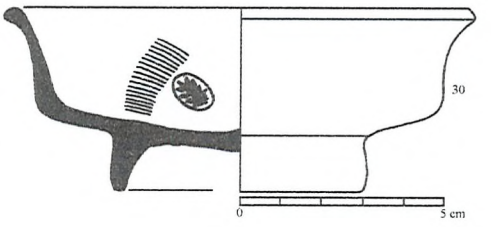
BGW 26 Sabratha 19.4



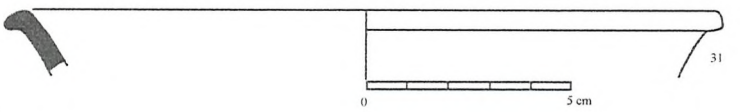
BGW 27 Sabratha 9



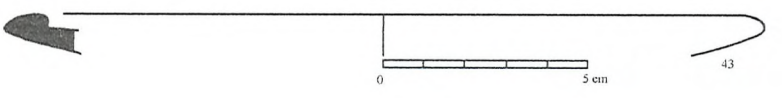
BGW 30 Sabratha 19



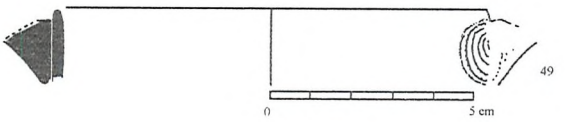
BGW 31 Sabratha 19.2



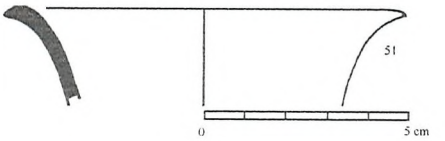
BGW 43 Sabratha 7.1



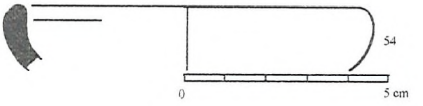
BGW 49 Sabratha 10.1



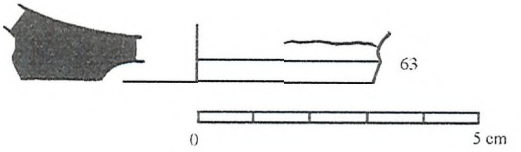
BGW 51 Form not identified



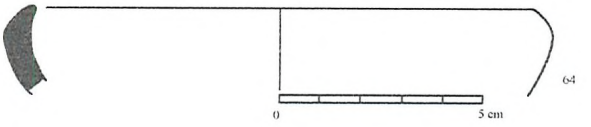
BGW 54 Sabratha 15.2



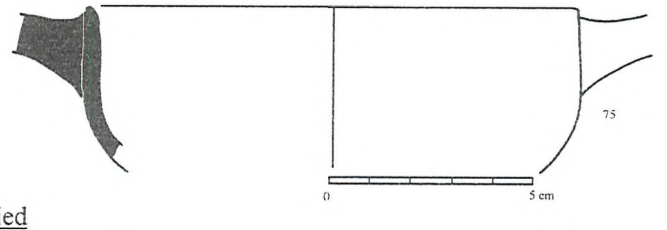
BGW 63 Form not identified



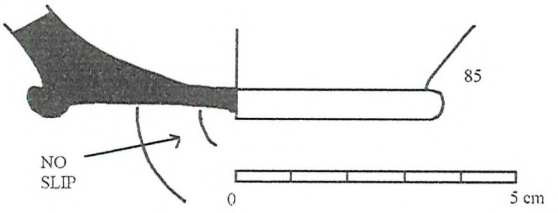
BGW 64 Sabratha 15.2



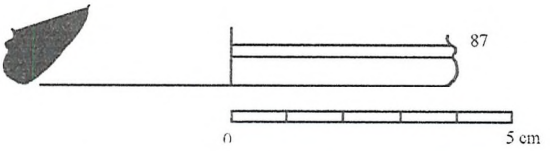
BGW 75 Sabratha 10.1



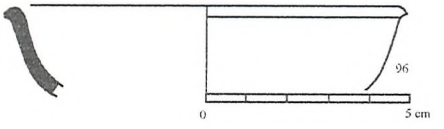
BGW 85 Form not identified



BGW 87 Form not identified



BGW 96 Sabratha 19.2



Eastern Sigillata 'A' (ESA).

In this next table, table 5.24, the relative counts and percentages of Eastern Sigillata 'A' sherd parts are shown.

Table 5.24 - Showing counts and percentages of different Eastern Sigillata 'A' sherd parts.

ESA	COUNT	PERCENT
RIM	27	18.1
BODY	67	45
BASE	54	36.2
HANDLE	1	0.7
TOTAL	149	100

This type of pottery, as referred to in chapter four is thought to have been produced in the Syrian region. Once again the largest category was that of the body sherds. For the ESA the second largest group was that of the bases, unlike the case of the BSW which had rims as its second largest class. This difference could perhaps be explained by the fact that the vessel forms of ESA recovered from Lepcis Magna tended to be dominated by plates and therefore it might be expected that more 'base' fragments would survive and be recognized.

Table 5.25A, see CD-ROM, is taken from the pottery database and it presents the locations, forms and, where known the dates of when the vessels were thought to be in production. Of the 149 sherds it was only possible to identify the forms of 25 vessels, some 17%, with any real degree of confidence. A brief description of the pottery fabric is given in appendix 9 on the CD-ROM.

Eastern Sigillata 'A' forms.

Descriptions of the identified ESA forms are given here. The Lepcis Magna measurements were taken from the inside of the rims and the bases. The descriptions are based on those given by Hayes in EAA (1981 and 1985) and described in Kenrick 1985a.

Atlante Form 4A (Benghazi 314). See illustrations on pages 200 - 202.

This form is a 'dish with flat-floor, plain up curving rim and low ring-foot of more than half the rim diameter with a broad resting-surface; sometimes there are narrow bands of rouletting on the floor which may include stamped decorations. The Benghazi rim diameters measured 14-29 cm and their heights 2.7-4 cm. They were produced between the late second century BC to c. AD 10/20.' (Kenrick 1985a: 225-227.) There were 12 sherds in the Lepcis assemblage ESA 34, 39, 54, 61, 63, 64, 77, 87, 88, 89, 119 and 138 and their rim diameters measured 14-28 cm. For drawings see ESA 34, 54, 61, 63, 64, 77, 88, 89 and 138. This form was also present in Sabratha and Benghazi.

Atlante Form 5B (Benghazi 315). See illustration on page 199.

This form is a 'bowl with heavy ring-foot, up curving wall and plain rim. The Benghazi rim diameters measured 15.6 cm and base diameter 8 cm. They were produced between the late second century BC to c. AD 10/20.' (Kenrick 1985a: 227.) There was one sherd in the assemblage, ESA 25 with rim diameter 14 cm which is shown in drawing ESA 25. This form was also present in Sabratha and Benghazi.

Atlante Form 12 (Benghazi 319). See illustration on page 202.

This form is a 'flat based dish with stepped underside, low curving wall and bead-rim; rouletting and grooves on floor. The Benghazi rim diameters measured 15.5-c. 30 cm and 2.4-2.7 cm in height. They were produced between 40 BC to AD 10.' (Kenrick 1985a: 229.) There was one sherd in the assemblage ESA 129 with rim diameter 20 cm which is shown in drawing ESA 129. This form was also present in Sabratha and Benghazi.

Atlante Form 22B (Benghazi 323). See illustrations on page 200.

This form is a 'hemispherical cup with a plain or bead rim and heavy moulded ring-foot, composed of concave and convex mouldings on the outside, a broad resting surface and a sloping inner face. The Benghazi rim diameters measured 8-16.2 cm and 6.4 cm in height. The cups were produced

from the late second century BC to c. AD 10.' (Kenrick 1985a: 230-231.) There were sherds from three vessels in the assemblage, ESA 18, 45 and 46. Their rim diameters measured 8-16 cm which is shown in drawings ESA 45 and 46. This form was also present in Sabratha and Benghazi.

Atlante Form 28 (Benghazi 325). See illustrations on page 199.

This was a 'plate with a flat floor, rising slightly towards edge, low sloping wall with convex and concave mouldings on the inside marked by offsets, and off-set or hanging lip; low broad ring-foot. The Benghazi rim diameters measured 15-c. 32 cm and the plates were 3 cm in height. The plates were produced between 10 BC to AD 15/30. '(Kenrick 1985a: 231-233.) There were sherds from two vessels in the assemblage, ESA 10 and 13. Their rim diameters measured 20-24 cm which is shown in drawings ESA 10 and 13. This form was also present in Sabratha and Benghazi.

Atlante Form 30 (Benghazi 327). See illustration on page 199.

This was a 'dish with a flat floor, straight sloping wall and small moulded rim; low square-cut ring-foot with one or more steps on the underside. Normally with overlapping bands of fine rouletting on the outside wall. The Benghazi rim diameters measured 14-15 cm and the dish measured 2.6 cm in height.' (Kenrick 1985a: 233-234.) The plates were produced between AD 10-50+. There was a sherd from one vessel in the assemblage, ESA 15 which had a rim diameter of 20 cm. For drawing see ESA 15. This form was also present in Sabratha and Benghazi.

Atlante Form 37B (Benghazi 332). See illustration on page 199.

This form was a 'large dish with gently sloping floor, high tapering ring-foot and vertical wall with a flange at bottom; rim thickened or plain. The Benghazi rim diameters measured 20-c. 32 cm and the dish was 6 cm in height. The dishes were produced from AD 60-100.' (Kenrick 1985a: 235-237.) There were sherds from one vessel in the assemblage, ESA 4 which had a base rim diameter of 11 cm. For drawing see ESA 4. This form was also present in Sabratha and Benghazi.

Atlante Form 45 (Benghazi 334). See illustration on page 202.

This form was a 'conical cup with straight or slightly convex sloping wall curving smoothly into floor, square-cut ring-foot, stepped underside and concave vertical rim. The Benghazi rim diameters measured 8-13 cm and the cups measured 3.9-8.5 cm in height. The cups were produced between AD 1/10-50/60.' (Kenrick 1985a: 237-238.) There were sherds from two vessels in the assemblage, ESA 143 and 149 which had rim diameters of 12 cm. For drawing see ESA 143. This form was also present in Sabratha and Benghazi.

Atlante Form 46 or 47? See illustration on page 199.

As this Lepcis Magna sherd existed only as a base it was not possible to differentiate between Atlante Forms 46 and 47. The diameter of the base was 5 cm and is shown in drawing ESA 17.

Atlante Form 47 (Benghazi 335). See illustration on page 202.

This form was a 'conical cup with flaring walls, vertical moulded rim, flat floor and thin, oblique ring-foot with stepped underside; tripartite division on the outside of the rim, sometimes with rouletting on the upper and lower convex mouldings; inside of rim plain or with corresponding mouldings. The Benghazi rim diameters measured 8-13 cm and the cups measured 4.3 cm in height.' The cups were produced between AD 10-60/70.' (Kenrick 1985a: 238.) There were sherds from one vessel in the assemblage, ESA 146 with rim diameters of 12 cm. For drawing see ESA

146. This form was also present in Sabratha and Benghazi.

Miscellaneous bases of dishes/plates drawn but not identifiable. See illustration on pages 199 - 201.

ESA 11 internal base diameter 14 cm. Decorated with groove on base-ring foot.

ESA 31 internal base diameter 8 cm. Decorated with rouletting on base-ring foot.

ESA 36 internal base diameter 12 cm. Decorated with groove on base-ring foot.

ESA 44 internal base diameter 11 cm. Ring foot.

ESA 58 internal base diameter 9 cm. Decorated with rouletting on base-ring foot.

ESA 60 internal base diameter 11 cm. Decorated with groove on base-ring foot.

Miscellaneous bases of plates drawn but not identifiable. See illustrations on page 201.

ESA 108 internal base diameter 14 cm. Decorated with rouletting on base-ring foot.

ESA 109 internal base diameter 10 cm. Decorated with groove on base-ring foot.

Miscellaneous cup bases drawn but not identifiable. See illustrations on pages 199 - 202.

ESA 28 internal base diameter 4 cm. Ring foot.

ESA 113 internal base diameter 8 cm. Ring foot.

ESA 118 internal base diameter 5 cm. Ring foot.

ESA forms summarised.

Table 5.25B summarises the forms of the identified ESA.

Table 5.25B - Showing forms and functions of ESA.

ESA FORM	FUNCTION	CNT
AT. FORM 4A PROTOTIPO	DISH	12
AT. FORM 5B	BOWL	1
AT. FORM 12 PROTOTIPO	DISH	1
AT. FORM 22B PROTOTIPO	CUP	3
AT. FORM 28 PROTOTIPO	PLATE	2
AT. FORM 30 PROTOTIPO	DISH	1
AT. FORM 37B PROTOTIPO	DISH	1
AT. FORM 45 PROTOTIPO	CUP	2
AT. FORM 46 OR 47 PROTOTIPO	CUP	1
AT. FORM 47 PROTOTIPO	CUP	1

By far the most numerous identified form was that of Atlante 4A, which is a dish, however the results may have been different if it had been possible to identify the forms of all of the sherds.

Chronological production of ESA forms.

In table 5.26 the dates of the identified forms have been recorded, mid-dates calculated and the results plotted in figure 5.13. The mid-dates range from 60 BC to AD 80 with the largest count of vessels dating to 53 BC.

Table 5.26 - Showing the dates of the identified ESA forms.

E.S.A. DATE	MID-DATE	COUNT
C. 10/1 B.C. - A.D. 15/30	10	2
C. 40 B.C.- A.D. 10	-15	1
C. A.D. 1/10 - 50/60	30	2
C. A.D. 10 - 50 +	30	1
C. A.D. 10 - 60/70	40	2
C. A.D. 60 - 100	80	1
LATE SECONDBC CENTURY TO C. A.D. 10/20	-53	13
LATE SECONDBC CENTURY TO C. A.D.10	-58	3
TOTAL		25

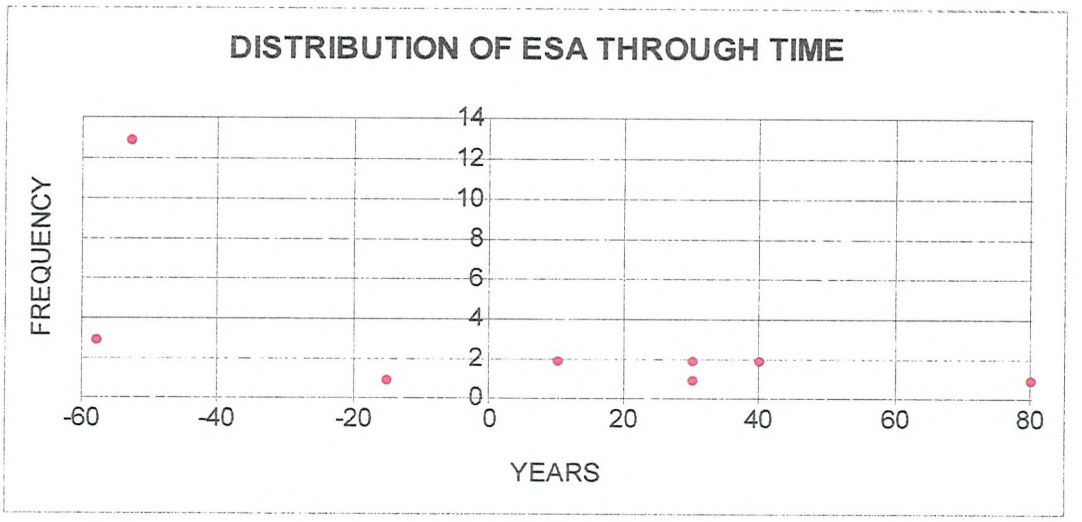
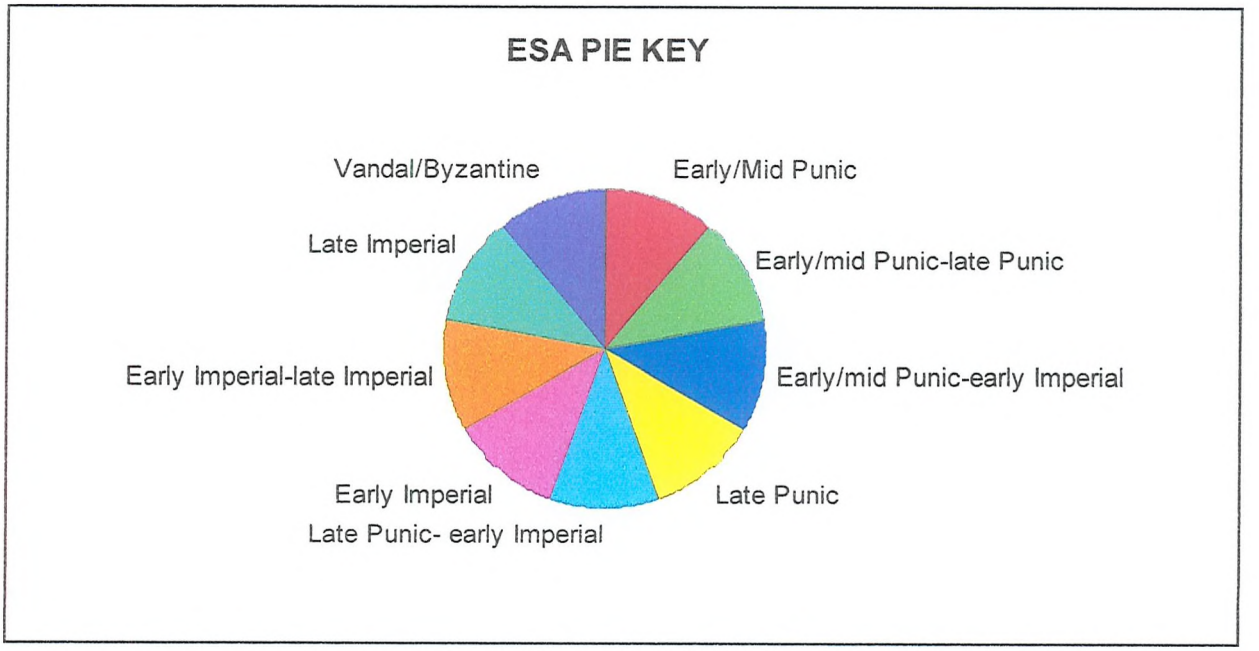


Figure 5.13 - Showing distribution of ESA through time.

Figure 5.14 illustrates where the identified and dateable ESA vessels came from. All of these sherds were dated to the late Punic-early Imperial period. However, it needs to be remembered that these data were generated from a small sample. One ESA sherd was recorded as coming from beneath the Forum Vetus pavement, but unfortunately it was an un-diagnostic sherd, possibly the foot-rim of a plate or bowl. The pavement was laid in the middle of the first century AD (Ward-Perkins 1994: 373) which does provide the sherd with a *terminus post quem.*

Data to accompany figure 5.14.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	VB
FORUM VETUS	0	0	0	0	9	0	0	0	0
CHURCH	0	0	0	0	2	7	0	0	0
PIAZZA	0	0	0	0	1	1	0	0	0
COL. STREET	0	0	0	0	0	0	0	0	0
PORTICO	0	0	0	0	0	0	0	0	0
PALAESTRA	0	0	0	0	5	0	0	0	0
SEVERAN BASILICA	0	0	0	0	0	0	0	0	0



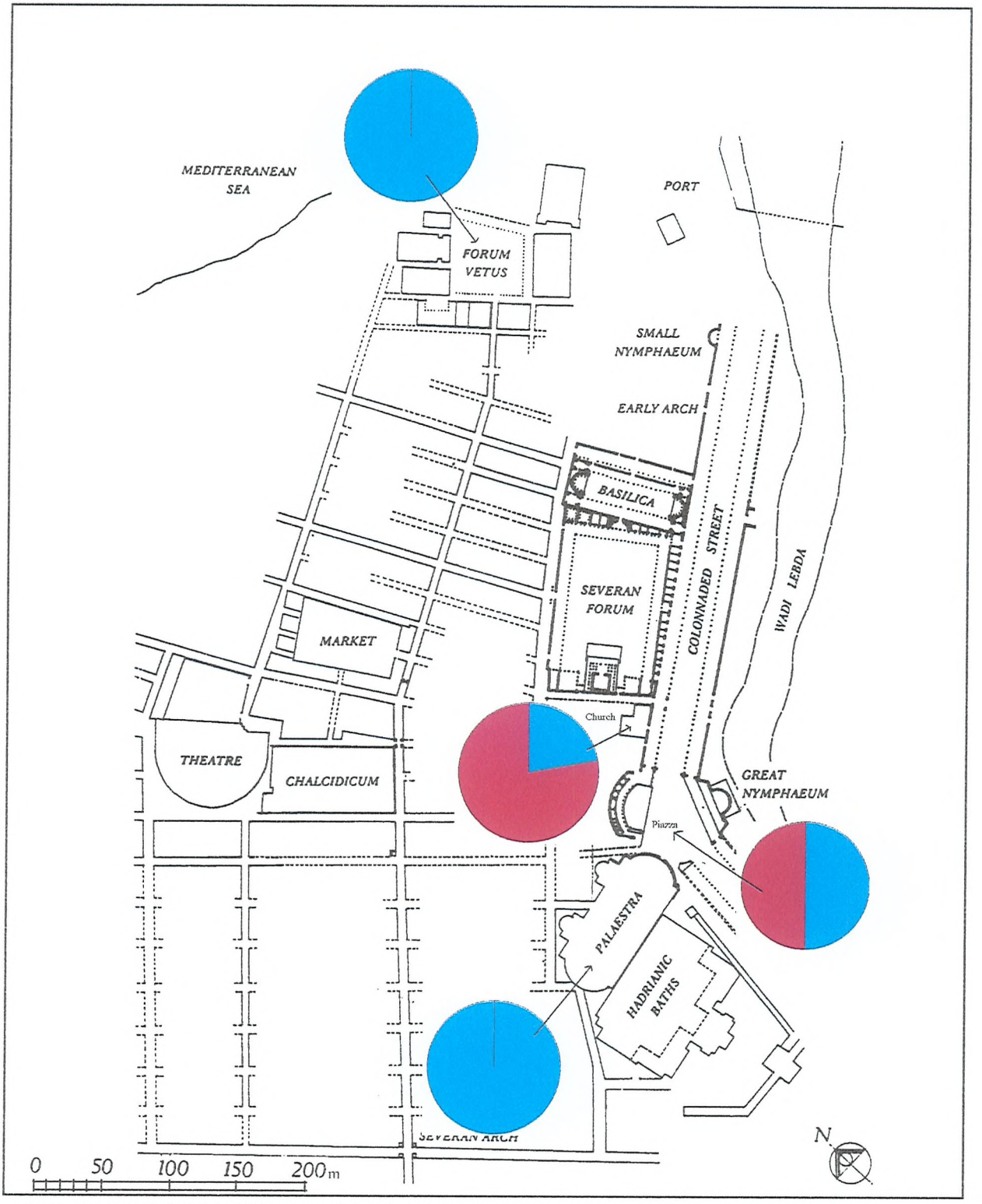
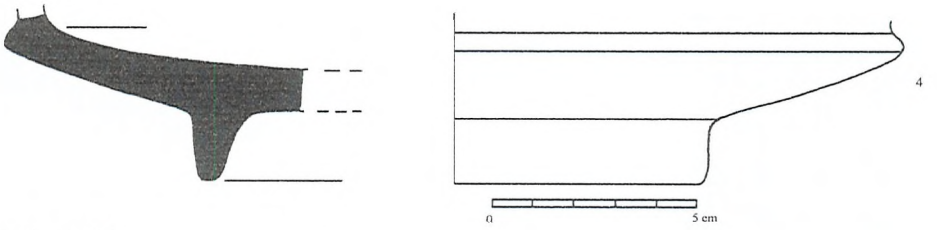


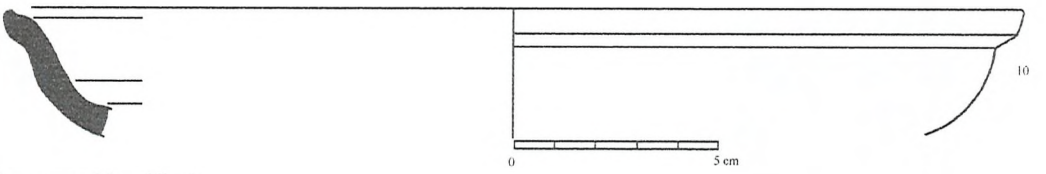
Figure 5.14 - Distribution of ESA through time and by location. (See key on previous page.)

The distribution of ESA pottery around the Mediterranean has been linked to the shipment of grain (Fulford and Tomber 1994: 3) which is believed to have travelled north from Egypt via the coast of Asia Minor on its way to Rome. The pottery then seems to have been dispersed to other locations including Pompeii, Carthage, Sabratha and Lepcis Magna which would account for its presence in greater quantities at these sites if its distribution was similar to that of Italian Sigillata.

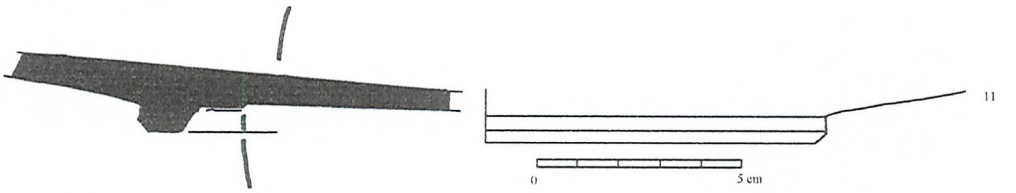
ESA 4 Atlante Form 37B



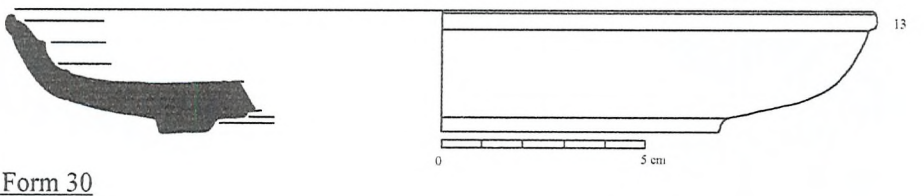
ESA 10 Atlante Form 28



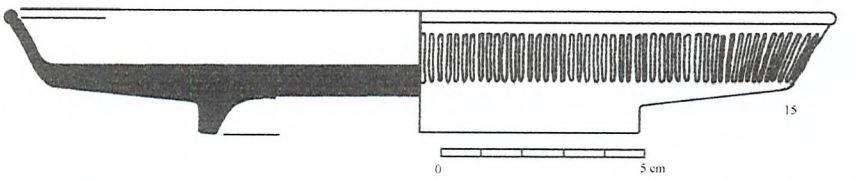
ESA 11 Form not identified



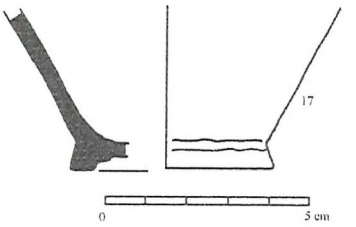
ESA 13 Atlante Form 28



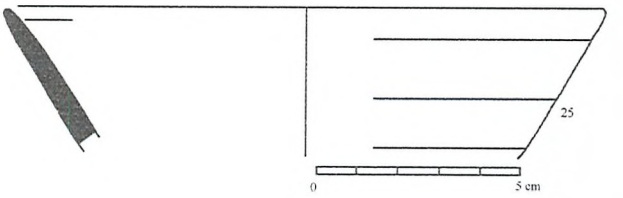
ESA 15 Atlante Form 30



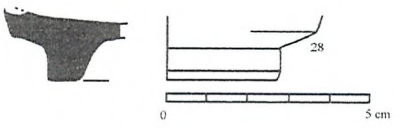
ESA 17 Atlante Form 46 or 47



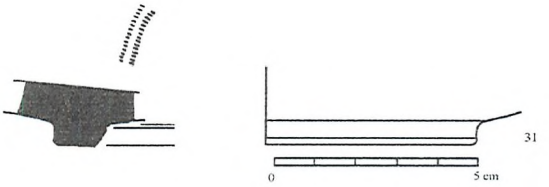
ESA 25 Atlante Form 5B



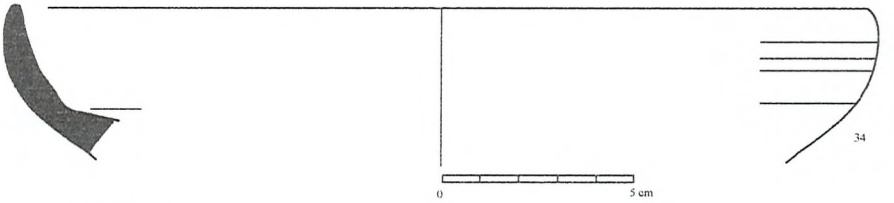
ESA 28 Form not identified



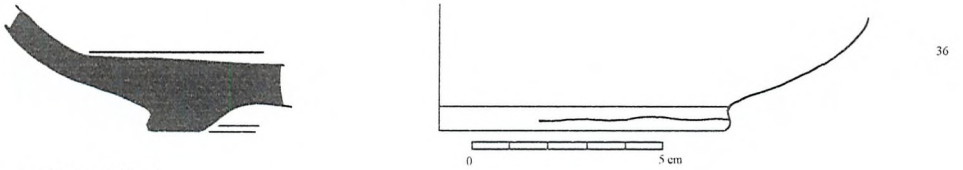
ESA 31 Form not identified



ESA 34 Atlante Form 4A



ESA 36 Form not identified



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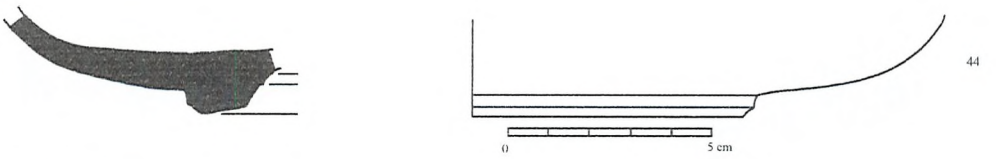
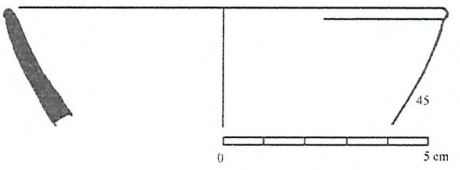
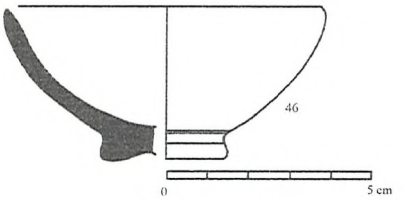


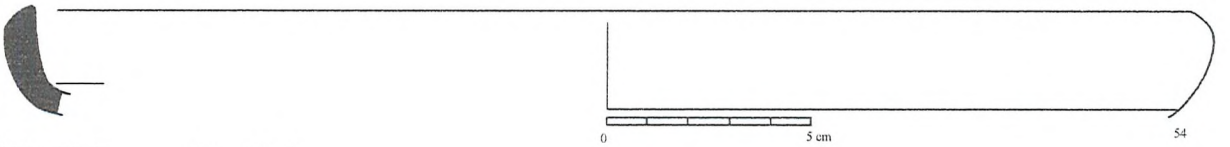
ESA 45 Atlante Form 22B



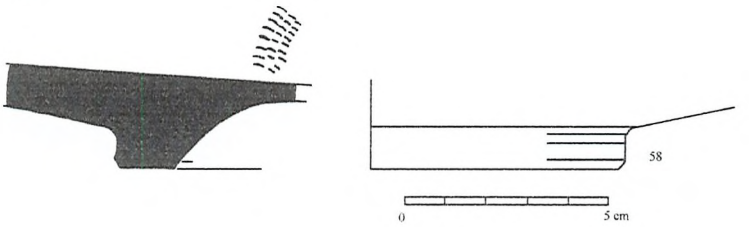
ESA 46 Atlante Form 22B



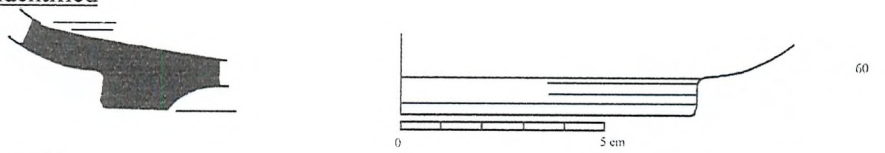
ESA 54 Atlante Form 4A



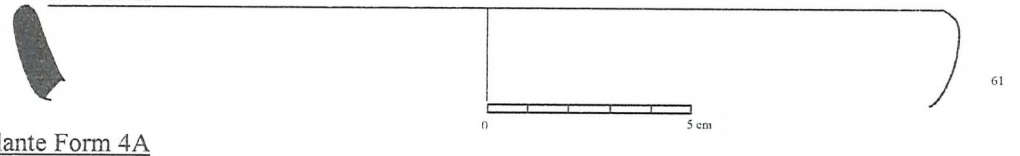
ESA 58 Form not identified



ESA 60 Form not identified



ESA 61 Atlante Form 4A



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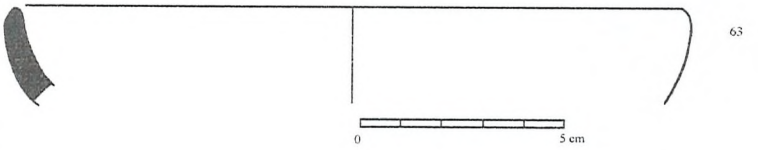

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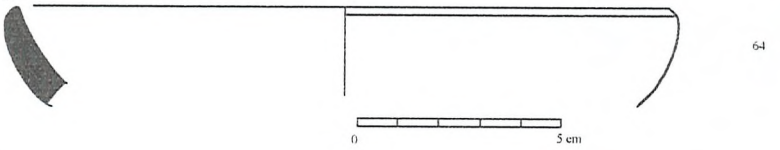
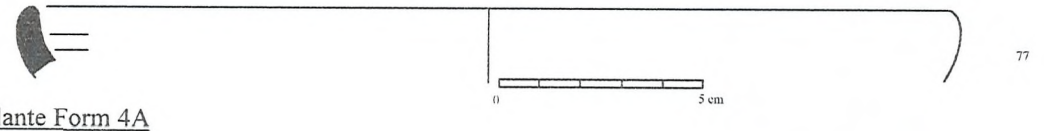
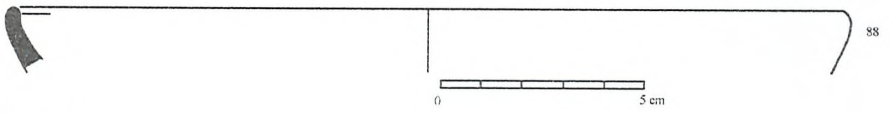


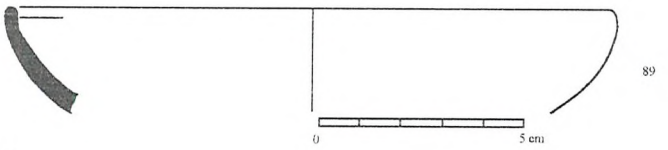
ESA 77 Atlante Form 4A



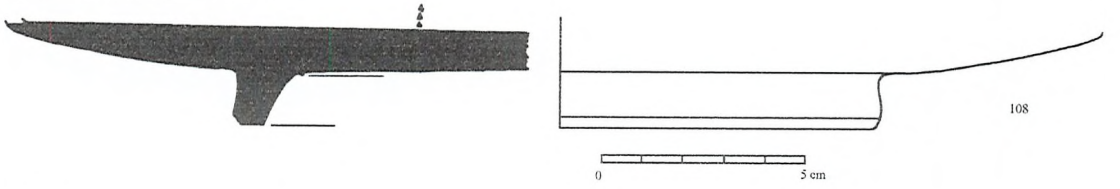
ESA 88 Atlante Form 4A



ESA 89 Atlante Form 4A



ESA 108 Form not identified



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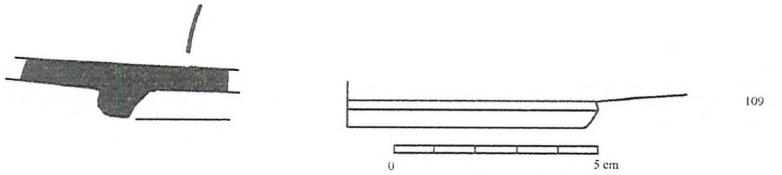

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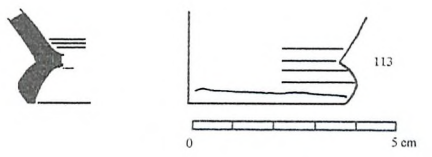

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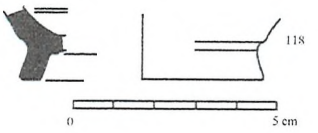
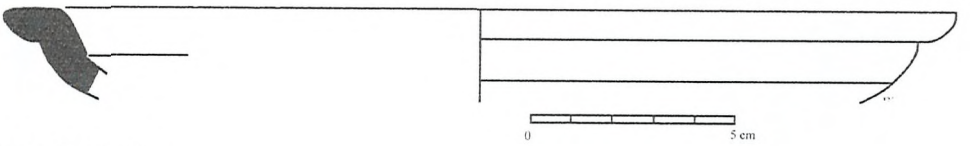
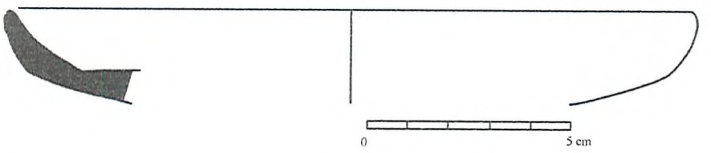


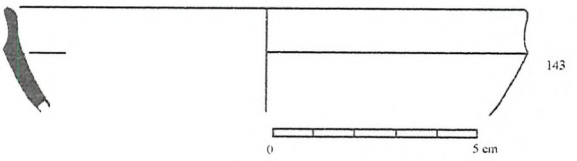
ESA 129 Atlante Form 12



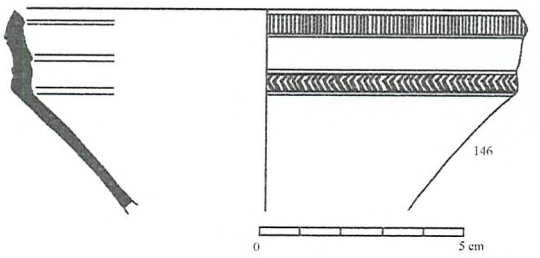
ESA 138 Atlante Form 4A



ESA 143 Atlante Form 45



ESA 146 Atlante Form 47



Italian Sigillatas (ITS).

The last significant group of finewares to be discussed is that of the Italian produced sigillatas. Table 5.27A (see CD-ROM) has been abstracted from the database and it records the actual sherd locations, fabrics, forms and time periods when the identified Italian sigillata forms were thought to be in production.

Table 5.27B shows into which category, i.e. rims, body or bases, the sigillata sherds have been assigned. The relative equality of the group sizes might indicate that all of the sigillata sherds were actually kept for future analysis and that selection in favour of rim collection had not, in this instance, taken place.

Table 5.27B - Showing counts and percentages of different Italian Sigillata sherd parts.

	RIM	BODY	BODY
COUNT	24	19	17
PERCENT	40	31.7	28.3

Italian Sigillatas Forms.

Descriptions of the identified Italian Sigillatas forms are given here. The Lepcis Magna measurements were taken from the inside of the rims and the bases. The forms are classified according to *'Conspectus Formarum Terrae Sigillatae Italico Modo Confectae'* (Ettlinger: 1990) and described as in Kenrick 1985a. The presence of these forms in the Sabratha, Benghazi and

ULVS assemblages is also recorded. For pottery fabric description see appendix 9 on the CD-ROM.

Conspectus Form 3.2. See illustrations on pages 208 - 210.
This form was a 'dish with a flat floor, straight sloping wall, plain or slightly everted rim and a ring-foot. The form is thought to have been in production in the second half of the first century AD.' (Kenrick 1985a: 177-181). The Benghazi diameters ranged from 17-21 cm, a few examples measured 13 cm. See Benghazi B 237. There were sherds from four vessels in the Lepcis Magna assemblage, ITS 10, 45, 48 and 55. Their rims measured c.16 cm. See fabrics ITS 10-FB ITS 1, ITS 45-FB ITS 2, ITS 48-FB ITS 6 and ITS 55-FB ITS 3. For drawings see ITS 10, 48 and 55. This form was also present in Sabratha and Benghazi.

Conspectus Form 4. See illustrations on pages 208.
This form was a 'plate with a flat floor, curving wall, plain rim and a chamfered ring-foot with narrow resting surface; sometimes there was a groove on the inside at the lip, sometimes an offset or concave moulding at the junction of wall and floor. The form was in production from 15/10 BC to AD 60/70.' (Kenrick 1985a: 159-160). The Benghazi diameters ranged from 17.5-50 cm. See Benghazi B 218. There were sherds from one vessel, ITS 14, in the Lepcis Magna assemblage. Its rim measured c.17 cm. See fabric FB ITS 2. For drawing see ITS 14. The plate was stamped with "L GELLI' for L. GELLIVS QVADRATVS of Arrezo. (CVArr, no 737). This form was also present in Sabratha, Benghazi and ULVS.

Conspectus Form 12. See illustrations on pages 209 and 210.
This form was a 'plate with stepped vertical rim slightly hooked; tripartite division of wall on inside, sometimes reduced to two intersecting concave mouldings; low vertical ring-foot. The form is thought to have been in production c. 12 BC.' (Kenrick 1985a: 139-140). The Benghazi diameters ranged from 17-18 cm. See Benghazi B 202. There were sherds from two vessels in the Lepcis Magna assemblage, ITS 23 and 59 and their rims measured c.16-20 cm. For drawings see ITS 23 and 59. See fabrics ITS 23-FB ITS 5, ITS 59-FB ITS 1. This form was also present in Sabratha and Benghazi.

Conspectus Form 18. See illustrations on pages 209 and 210.
This form was a 'plate with a flat floor and vertical rim, divided externally into upper and lower convex mouldings (sometimes rouletted) flanking a central plain concave band, and internally into two bands separated by an offset or groove, the upper of which is always concave; oblique ring-foot of medium height, chamfered on the outside to form a narrow resting-surface. The form is thought to have been in production from c. 10 BC to AD 25/35.' (Kenrick 1985a: 142-143 and 150-153). The Benghazi diameters ranged from 16.7-62 cm. See Benghazi B 205 and B 213.4. There were sherds from five vessels in the Lepcis Magna assemblage, ITS 1, 25, 35, 44 and 54. Their rims measured c.20-28 cm. For drawings see ITS 25 and 54. They all shared the same fabric, FB ITS 1. This form was also present in Sabratha and Benghazi.

Conspectus Form 20. See illustrations on page 208 and 209.
This form was a 'plate with a flat floor and vertical rim; the rim is composed on the outside of a

broad, flat or slightly concave band, bounded above or below by narrow convex mouldings which are sometimes double; rouletting and applied double spirals are common on the central band; the inside of the rim may show a weak bipartite division or none at all. The form is thought to have been in production from AD 30 to 80/90.' (Kenrick 1985a: 145-147 and 150-153.) The Benghazi diameters ranged from 16.5-38 cm. See Benghazi B 209 and B213.1-3. There were sherds from four vessels in the Lepcis Magna assemblage, ITS 19, 21, 24 and 37. Their rims measured c.16-20 cm. For drawings see ITS 19, 21 and 24. See fabrics ITS 19-FB ITS 9, ITS 21-FB ITS 1, ITS 24-FB ITS 2 and ITS 37-FB ITS 8. This form was also present in Sabratha, Benghazi and ULVS.

Conspectus Form 20 Small version. See illustration on page 208.

There was a sherd of one plate in the assemblage ITS 15. The rim measured 7 cm in diameter. For drawing see ITS 15 and fabric FB ITS 1.

Conspectus Form 20.1.2. See illustrations on pages 207 and 210.

There were sherds from two vessels in the assemblage ITS 2 and ITS 60. The rims measured 8.5-12 cm in diameter. For drawings see ITS 2 and ITS 60 and fabric FB ITS 7 and FB ITS 4 respectively. Vessel ITS 60 had a painted decoration applied to the surface.

Conspectus Form 20.4. See illustration on page 207.

There were sherds from one vessel in the assemblage. The rim measured 16 cm in diameter. For drawing see ITS 3 and fabric FB ITS 1.

Conspectus Form 21.3.1. See illustration on page 208.

There was a sherd possibly of this form which was a 'platter or plate with smooth or finely moulded vertical rim and quarter-round moulding or step between rim and floor. The Benghazi rim measured 15-17 cm in diameter. See Benghazi B 215. The form is thought to have been in production from AD 30-80/90.' (Kenrick 1985a: 155.) The Lepcis Magna rim measured 16 cm in diameter. For drawing see ITS 9 and fabric FB ITS 1. This form was also present in Sabratha and Benghazi.

Conspectus Form 31-32. See illustrations on pages 209 -210.

This form was a 'cup with double curvature of wall, restricted at mid height with oblique ring foot. There were two types of rim: A-plain vertical rim, sometimes marked off by grooves inside or out; B-flat rim sometimes with rouletting or applied double spirals on top. The Benghazi diameters measured 8.2-13.8 cm. See Benghazi B 227B. The form is thought to have been in production from late Augustan to early Tiberian times.' (Kenrick 1985a: 165-167.) The Lepcis Magna rim measured 10 cm in diameter. There were sherds from seven vessels in the assemblage and they are recorded here with their fabric numbers and drawings. For drawing see ITS 51, 52, 53, 56, 57 and 58.

	DWG	Fabric		DWG	Fabric		DWG	Fabric		DWG	Fabric
ITS36		FB ITS 1	ITS51	P	FB ITS 2	ITS52	P	FB ITS 2	ITS53	P	FB ITS 2
ITS56	P	FB ITS 2	ITS57	P	FB ITS 1	ITS58	P	FB ITS 1			

This form was also present in Sabratha and Benghazi.

Conspectus Form 36.

This form was a hemispherical cup with simple or moulded rim-foot and a groove on inside around centre of floor. The Benghazi diameters measured 7-11 cm. See Benghazi B 228A. The form is thought to have been in production from early Augustan to Tiberian times. (Kenrick 1985a: 168.)

There was a sherd of one vessel ITS 46 in the collection and the rim measured 10 cm in diameter. See fabric FB ITS 7. This form was also present in Sabratha and Benghazi.

Conspectus Form 37.1.1. See illustration on page 208.
This form was a hemispherical cup. The Benghazi diameters measured 8.5-14 cm. See Benghazi B 228B. The form is thought to have been in production from AD 15-60+. (Kenrick 1985a: 167-169.) There was a sherd from one vessel in the assemblage ITS 12 and the rim measured 8 cm in diameter. See drawing ITS 12 and fabric FB ITS 1. This form was also present in Benghazi.

Conspectus Form 52. See illustration on page 209.
The sherd was possibly from a pedestalled bowl or crater. The diameter of the foot measured 8 cm. For drawing see ITS 26 and fabric ITS 5.

Miscellaneous unidentified bases. See illustrations on page 208.
ITS 7 This was a ring foot from a bowl with internal base diameter 8 cm. Its base was decorated by grooves. See fabric ITS 1. See drawing ITS 7.

ITS 11 This was a ring foot possibly from a cup. It internal base measured 3 cm in diameter. See fabric ITS 1. See drawing ITS 11.

ITS 16 This was a ring foot from a bowl with internal base diameter 5 cm. See fabric ITS 5. See drawing ITS 16.

Miscellaneous unidentified rim. See illustration on page 209.
ITS 43 This bowl had a slight rounded rim that was undercut. The internal rim measured 18 cm in diameter. See fabric ITS 2. See drawing ITS 43.

Italian Sigillata forms summarised.
This data was then summarised in table 5.28. It was possible to identify the forms of half of the sample. The two forms which occur most often are those of a platter (form 20) and that of a cup (form 31/32).

Table 5.28 - Showing counts of Italian Sigillata forms.

ITALIAN SIGILLATA					
FORM	FUNCTION	COUNT	FORM	FUNCTION	COUNT
CONSPECTUS FORM 3.2	DISH	4	CONSPECTUS FORM 31-32	CUP	7
CONSPECTUS FORM 4	PLATTER	1	CONSPECTUS FORM 36	CUP	1
CONSPECTUS FORM 12	PLATTER	2	CONSPECTUS FORM 37.1.1	CUP	1
CONSPECTUS FORM 18	PLATTER	5	CONSPECTUS FORM 52	PEDESTALLED BOWL	1
CONSPECTUS FORM 20	PLATTER	8	N/I		29
CONSPECTUS FORM 21.3.1 ?	PLATTER	1	TOTAL		60

The slipped fabrics were hard, felt smooth and had smooth fracture. The surface colours ranged from red to dark red with some sherds having a metallic lustre.

Chronological production of Italian Sigillatas.
The dates of manufacture for the identified forms are given in table 5.29, but exclude the two JWP sherds. The 'mid-dates' were calculated and then plotted in figure 5.15.

Table 5.29 - Showing 'mid-dates' and counts of Italian Sigillata.

ITALIAN SIGILLATA	MID-DATES	COUNT
15/10 B.C. - A.D. 60/70	28	1
C. 12 B.C.	-12	2
C. 10 B.C. - A.D. 25/35	12	5
A.D. 30 - 80/90	60	9
SECOND HALF OF FIRST CENTURY A.D.	75	4
LATE AUGUSTAN - EARLY TIBERIAN	20	7
EARLY AUGUSTAN - TIBERIAN	5	1
TOTAL		29

Noting that the sample size is fairly small, the dates of manufacture of these vessels, according to their 'mid-dates', range from 12 BC to AD 75.

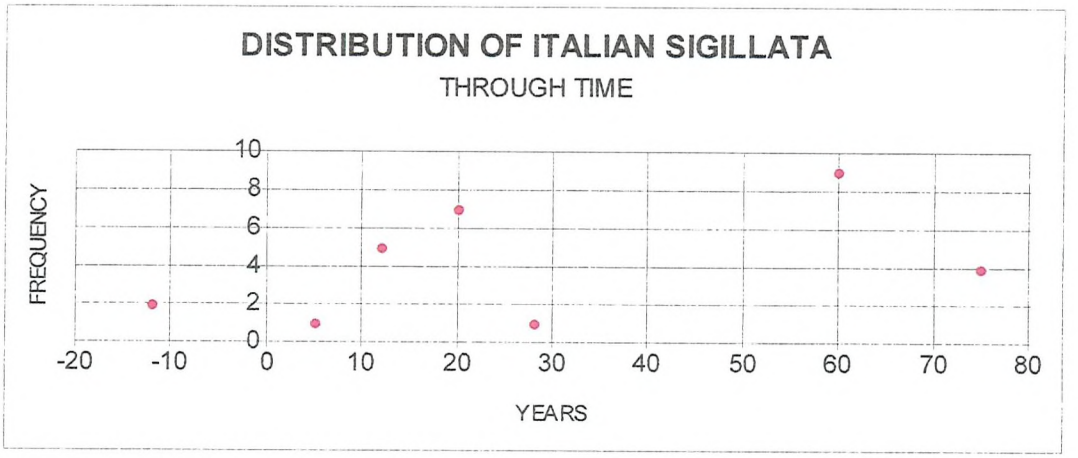


Figure 5.15 - Showing distribution of Italian Sigillata through time.

The distribution of the dated Italian sigillata across the town is displayed in figure 5.16 and illustrates that they were dated to Early Imperial times.

Data to accompany figure 5.16.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	LI/VB	VB
FORUM VETUS	0	0	0	0	0	7	0	0	0	0
CHURCH	0	0	0	0	0	6	0	0	0	0
PIAZZA	0	0	0	0	0	0	0	0	0	0
COL. STREET	0	0	0	0	0	0	0	0	0	0
PORTICO	0	0	0	0	0	6	0	0	0	0
PALAESTRA	0	0	0	0	0	9	0	0	0	0
SEVERAN BASILICA	0	0	0	0	0	1	0	0	0	0

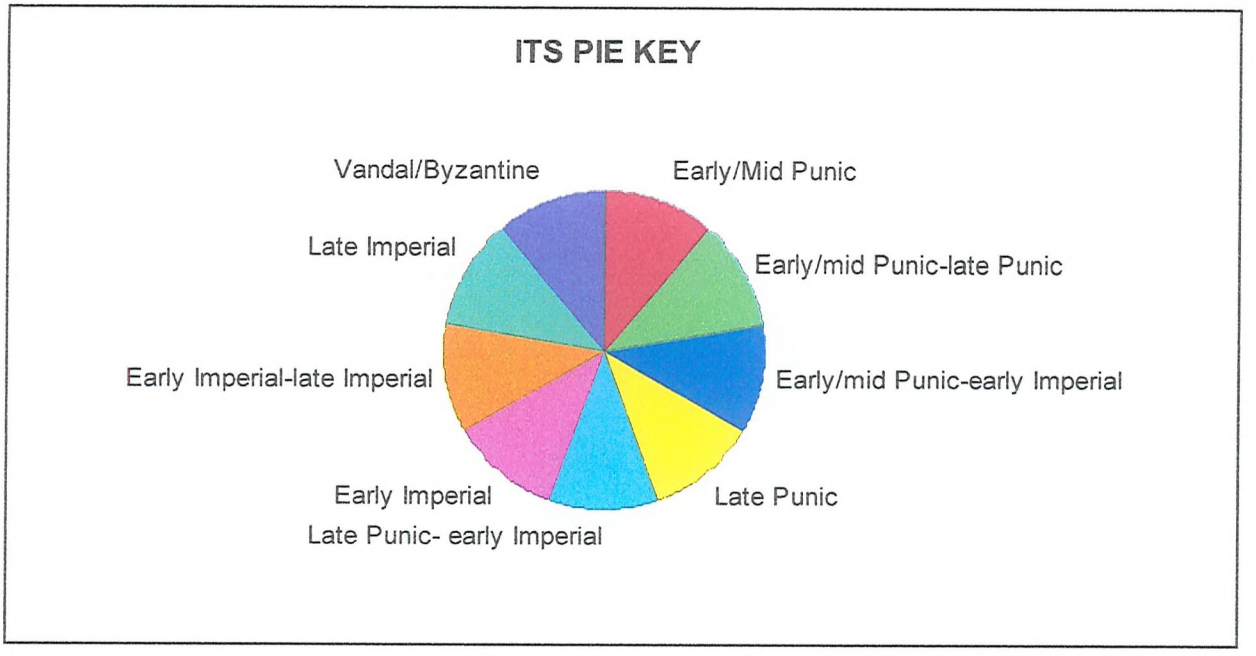
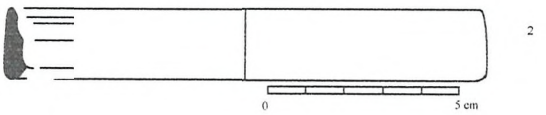


Figure 5.16 - Showing distribution of Italian Sigillata through time and by location. (See key on previous page.)

ITS 2 Conspectus Form 20.1.2



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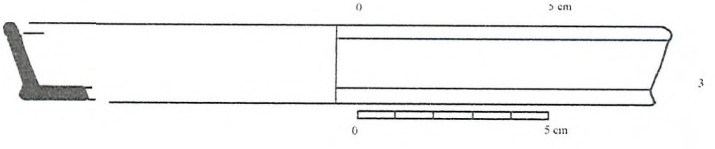

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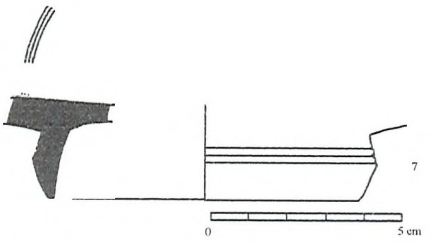

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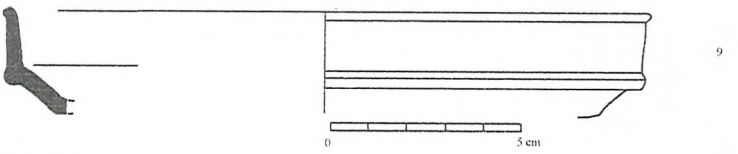

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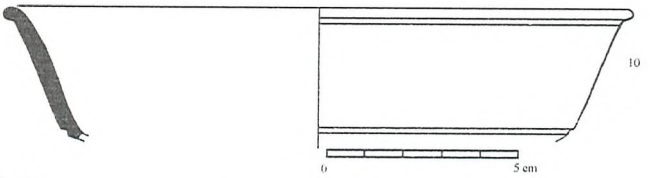

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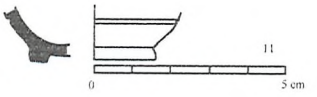

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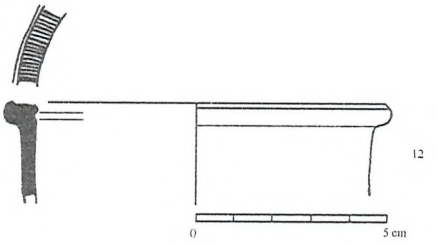

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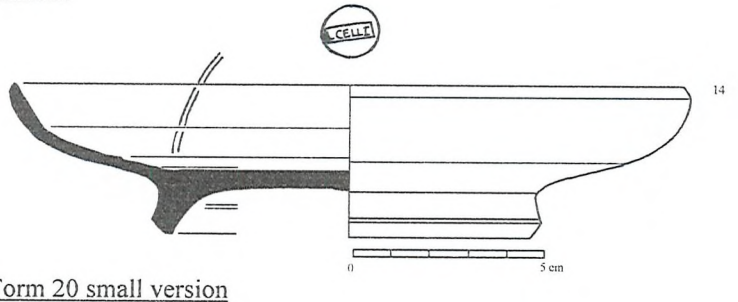
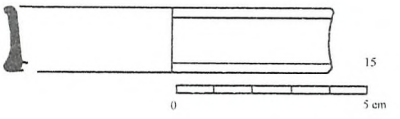


ITS 15 Conspectus Form 20 small version



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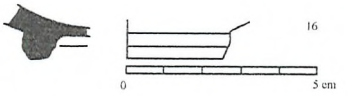

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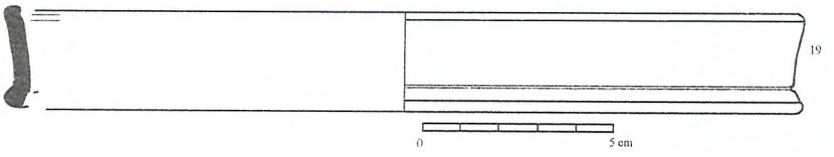

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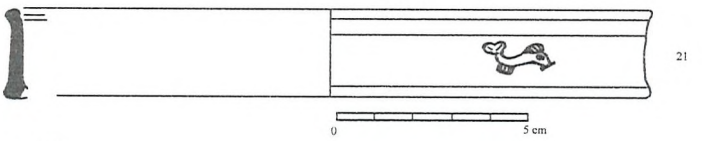

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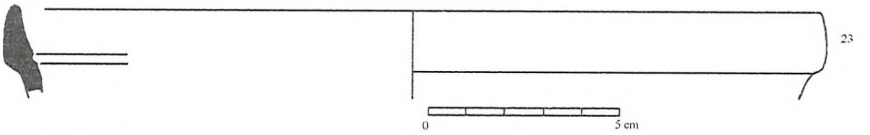

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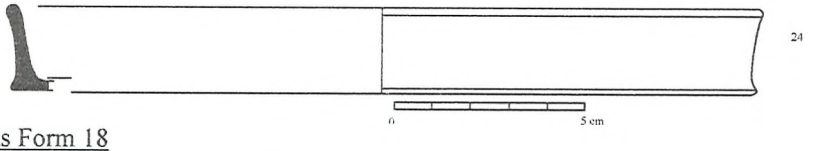

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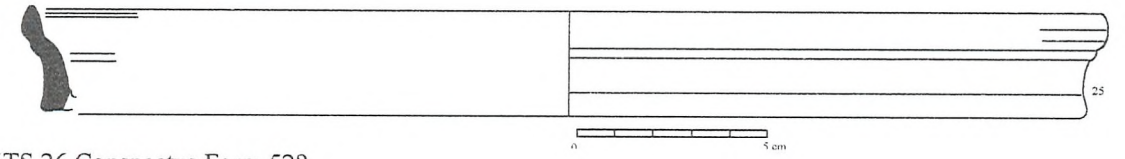

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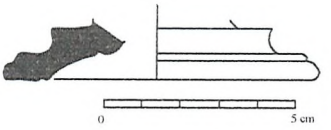

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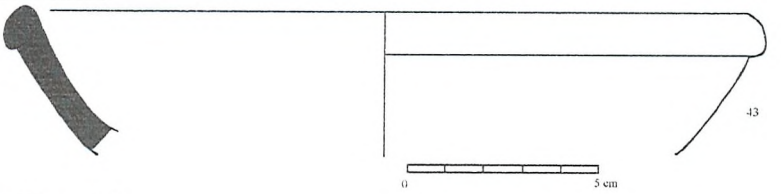
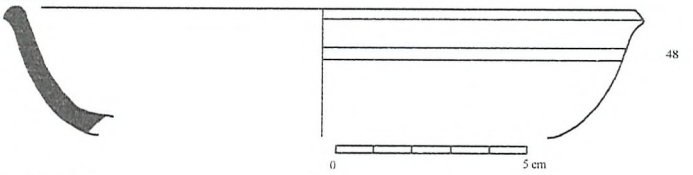


ITS 48 Conspectus Form 3.2



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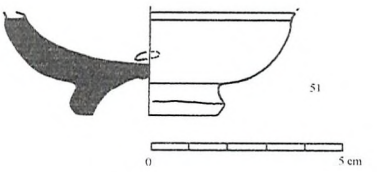

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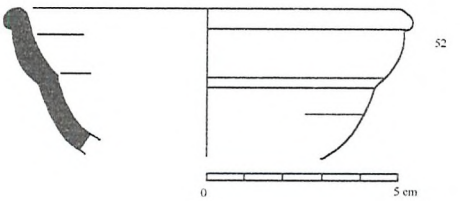

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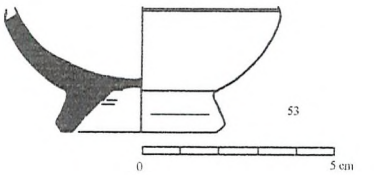

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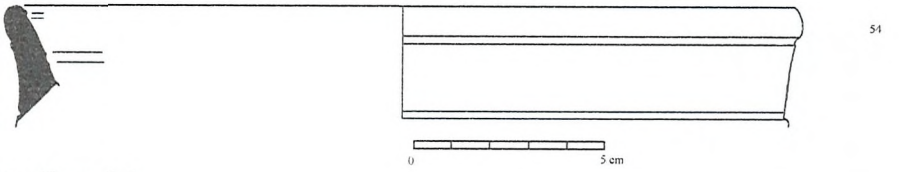

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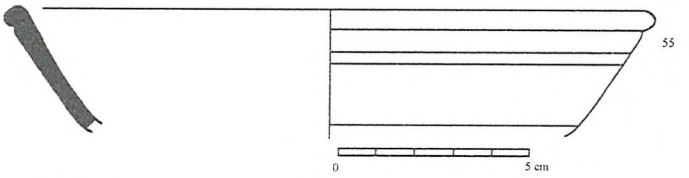

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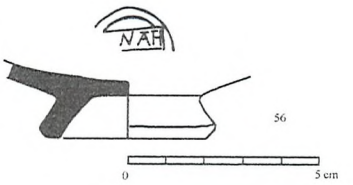

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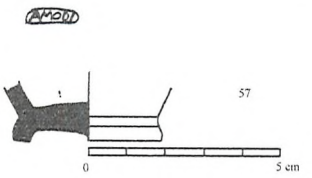

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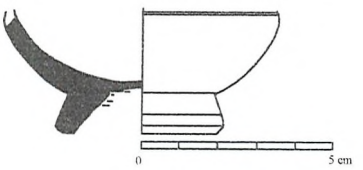

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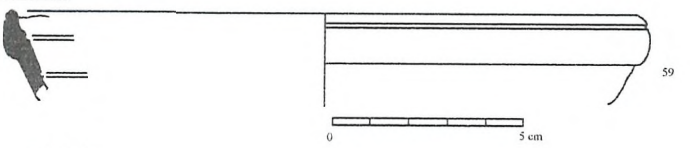

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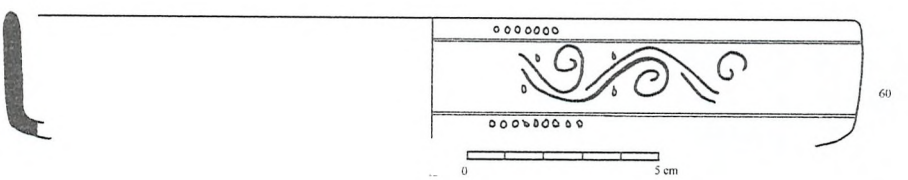


The Pottery lamp forms.

The maximum number of pottery lamps recovered from across the excavation, as previously stated, was 102 and of these it was possible, with some degree of certainty, to identify the forms of 62. Table 5.30A (see CD-ROM) has been abstracted from the pottery database and it records the actual sherd locations, forms, fabrics and time periods when the Lamp forms were thought to be in production. Descriptions of the identified lamp forms are given here and they are based on Knowles (1994) and Hayes (1980). The presence of these forms in the Sabratha and Benghazi assemblages is also recorded. For pottery fabric description see appendix 9 on the CD-ROM.

Broneer Type XXI. See illustration on page 218.

This lamp form is described as having a crescent shaped handle and was thought to have been manufactured in the first century AD. (Bailey 1994: 166). In the assemblage there was a single lamp handle, 62, made from fabric FB LMP 34 and shown in drawing lamp 62. This form was also present at Sabratha and Benghazi.

Deneauve Type V A - Loeschcke IV or V. See illustration on page 219.

This lamp is characterised by a round body, a relatively deep discus and a long projecting rounded nozzle flanked by volutes. The lamps were thought to been manufactured in the second half of the first century. (Knowles 1994: 29-31.) There were sherds from two lamps in the assemblage, lamp 64 and lamp 85. Lamp 64 was made from fabric FB LMP 22 and is shown in drawing lamp 64. Lamp 85 was made from fabric FB LMP 24 and is shown in drawing lamp 85. This form was also present at Sabratha and Benghazi.

Deneauve Type VII B. See illustration on page 217.

This lamp form is characterised by a circular shallow body and a rounded, often wide, plain shoulder inclined towards the exterior, often with decorated ovules. The lamps were thought to been manufactured in the last quarter of the second century to mid-third century AD. (Knowles 1994: 32-35.) There were sherds from three lamps in the assemblage; lamp 38 and lamp 39 were made from fabric FB LMP 10 and lamp 88 from fabric FB LMP 18. For drawing see lamp 38.

Deneauve Type XA

This lamp form is described as having a triangular volute nozzle which was decorated and this frequently continued under the nozzle; the flat shoulder was also often decorated with small radiating petals around a shallow discus which told or enacted a story borrowed from theatre or portraiture. The lamps were thought to been manufactured from the last quarter of the second century to the third century. (Knowles 1994: 36.) There was a sherd from a discus/rim in the collection, lamp 63, which was made from fabric FB LMP 21. This form was also present at Sabratha.

Dressel Type 30. See illustration on page 217.

This form is described as being a deep crudely made circular lamp with globule decoration. The lamps were thought to been manufactured from the late third century to the early fourth century. (Hayes 1980: 55-56.) There was part of a lamp discus in the collection lamp 23. See lamp 23 drawing and fabric FB LMP 9.

Hayes Type II

Hayes type IIA and IIB have a flat circular discus with two filling holes and a variety of designs in relief; around the discus is a broad flat shoulder frame separated by a ridge which extends onto the lengthened nozzle between which a straight channel connects the nozzle with the discus. The lamps were thought to been manufactured from the mid-fifth century to the end of the sixth century. (Knowles 1994: 39-41.) There was part of a rim in the collection, lamp 25, with pottery fabric FB LMP 47. This form was also present at Sabratha.

Hayes Type IIB. See illustration on page 219.

The Hayes type IIB form is described as being of a lesser quality with blurred decoration, poorer

fabric and a thick external red slip. The lamps were thought to been manufactured in the fifth century to the sixth century. (Knowles 1994: 39-41.) There were the remains of two lamps in the assemblage, lamp 70 and lamp 93, with fabrics FB LMP 12 and FB LMP 16 respectively. For drawing see Lamp 70. This form was also present at Benghazi.

Howland 25A

This lamp form is described as having a long deep flat-topped nozzle, rounded at end; the underside curves up smoothly to the tip. There is a broad band handle, semicircular with re-curved ends, applied horizontally at rear. The lamps were thought to have been manufactured from c. 400-250 BC. (Bailey 1994: 147.) There was a sherd from one lamp in the assemblage lamp 1, and its fabric is described as FB LMP 1. This form was also present at Sabratha.

Howland 25B. See illustration on page 217.

There were the remains of one lamp in the assemblage, lamp 24, its fabric is described as FB LMP 8. For drawing see lamp 24. The lamps were thought to be in production from c. 350-250 BC. (Bailey 1994: 147.) This form was also present at Sabratha.

Loeschcke Type VIII.

These lamps have a circular shallow body, a rounded often plain shoulder sloping outwards towards the exterior, and a sunken discus (with or without decoration). The nozzle is short, plain and rounded and usually there is a pierced handle at the rear. The lamps were thought to been manufactured from the first to the second century. (Knowles 1994: 32-35.) There were sherds from 16 lamps in the Lepcis Magna assemblage and they are listed below with their fabrics.

LAMP19	FB LMP 3	LAMP41	FB LMP 30	LAMP66	FB LMP 20	LAMP91	FB LMP 2B
LAMP27	FB LMP 23	LAMP44	FB LMP 21	LAMP67	FB LMP 52	LAMP68	FB LMP 13
LAMP31	FB LMP 2B	LAMP46	FB LMP 55	LAMP72	FB LMP 3		
LAMP37	FB LMP 2B	LAMP48	FB LMP 55	LAMP74	FB LMP 23		
LAMP40	FB LMP 3	LAMP49	FB LMP 2F	LAMP76	FB LMP 55		

This form was also present at Sabratha and Benghazi.

Loeschcke Type VIII-Green glaze.

There were sherds from three lamps which showed traces of a green glaze. Lamp 68-fabric LMP 13, Lamp 69-fabric LMP 39 and Lamp 84-fabric LMP 13. The lamps were in production in the first to second century. (Knowles 1994: 32-35.)

Loeschcke Type VIII-Impressed ovules on shoulders. See illustration on page 217.

There were sherds from three lamps which had impressed ovules on their shoulders. Lamp 8-fabric LMP 6, Lamp 9-fabric LMP 6 and Lamp 13-fabric LMP 2G. The lamps were in production in the first to second century. (Knowles 1994; 32-35.) For drawing see lamp 13.

Loeschcke Type VIII-Rays on shoulder. See illustration on page 218.

This lamp form is described as having ray decoration on the shoulder. The lamps were thought to be in production in the second to third century. (Knowles 1994.) There was a sherd from one lamp in the collection lamp 54 which was made from fabric LMP 32. For drawing see lamp 54.

Loeschcke Type VIII-Rosette.

This lamp form is described as being decorated with rosettes. The lamps were in production in the first to second century. There was one example in the collection lamp 89 with fabric LMP 41.

Loeschcke Type VIII Later-Raised points on shoulders. See illustration on page 217 - 219.

There were sherds from seven lamps which had raised points on their shoulders. The lamps were

in production in the second to third century. (Knowles 1994: 32-35.) They are recorded here with their fabrics. For drawings see lamps 33, 47 and 86.

LAMP33	FB LMP 20		LAMP43	FB LMP 53		LAMP80	FB LMP 37		LAMP96	FB LMP 56	
LAMP42	FB LMP 49		LAMP47	FB LMP 15		LAMP86	FB LMP 2L				

Loeschcke Type VIII Plain Shoulder. See illustrations on page 218.

There were sherds from 18 lamps in the assemblage and they are listed here with their fabrics.

LAMP2	FB LMP 2B		LAMP34	FB LMP 11		LAMP53	FB LMP 2K		LAMP61	FB LMP 2H	
LAMP12	FB LMP 2M		LAMP35	FB LMP 11		LAMP55	FB LMP 2H		LAMP73	FB LMP 2B	
LAMP28	FB LMP 3		LAMP36	FB LMP 23		LAMP56	FB LMP 36		LAMP94	FB LMP 54	
LAMP30	FB LMP 2B		LAMP45	FB LMP 44		LAMP59	FB LMP 42				
LAMP32	FB LMP 2N		LAMP50	FB LMP N/I		LAMP60	FB LMP 2E				

They were thought to be in production from the last quarter of the second century to the mid-third century. (Knowles 1994: 32-35.) For drawings see Lamp 50 and Lamp 56.

Open Lamp. See illustration on page 219.

This lamp form was made from a small bowl which had had its rim pinched in to form a rest for the wick. The lamp was made from fabric LMP 17. For drawing see Lamp 78.

Unidentified Lamp. See illustration on page 219.

This lamp survived only as part of a discus. The lamp was made from fabric LMP 26. For drawing see Lamp 87.

Lamp forms summarised.

The forms and counts were then summarised in table 5.30B. The majority of the identified forms seem to be Loeschcke Form VIII's and, due to the size of some of the sherds, it was possible to assign some of them to a more precise group, such as those with impressed ovules. However, it was not possible in the case of some 16 fragments (see table 5.30A) to be more precise about their identification, other than that they were probably Loeschcke form VIII's, as the sherds themselves were not large enough to be diagnostic.

Table 5.30B - Showing counts of lamp forms.

FORM	CNT		FORM	CNT
BRONEER TYPE XX1	1		LOESCHCKE TYPE VIII	16
DENEAUVE TYPE VA	2		LOESCHCKE TYPE VIII - GREEN GLAZE	3
DENEAUVE TYPE VIIB	3		LOESCHCKE TYPE VIII - IMPRESSED OVULES	3
DENEAUVE TYPE XA	1		LOESCHCKE TYPE VIII - RAYS ON SHOULDER	1
DRESSEL TYPE 30 ?	1		LOESCHCKE TYPE VIII - ROSETTE	1
HAYES TYPE II	1		LOESCHCKE TYPE VIII LATER - RAISED POINTS	7
HAYES TYPE IIB	2		LOESCHCKE TYPE VIII PLAIN SHOULDER	18
HOWLAND 25A	1		N/I	39
HOWLAND 25B	1		OPEN LAMP - SAUCER	1

Regions of production of the lamps.

After looking at the fabrics of the lamps, table 5.31 and figure 5.17A were compiled, to show where the lamps were manufactured.

Table 5.31 - Showing regions where lamp forms were manufactured.

Table 5.31							
REGION	GREECE	ITALY	N. AFRICA	TUNISIA	TRIPOLITANIA	N/I UNCERTAIN	TOTAL
COUNT	1	26	11	49	3	12	102

Once again the assemblage of lamps was dominated by lamps manufactured in North Africa, and in particular Tunisia, where 48% of the sample came from.

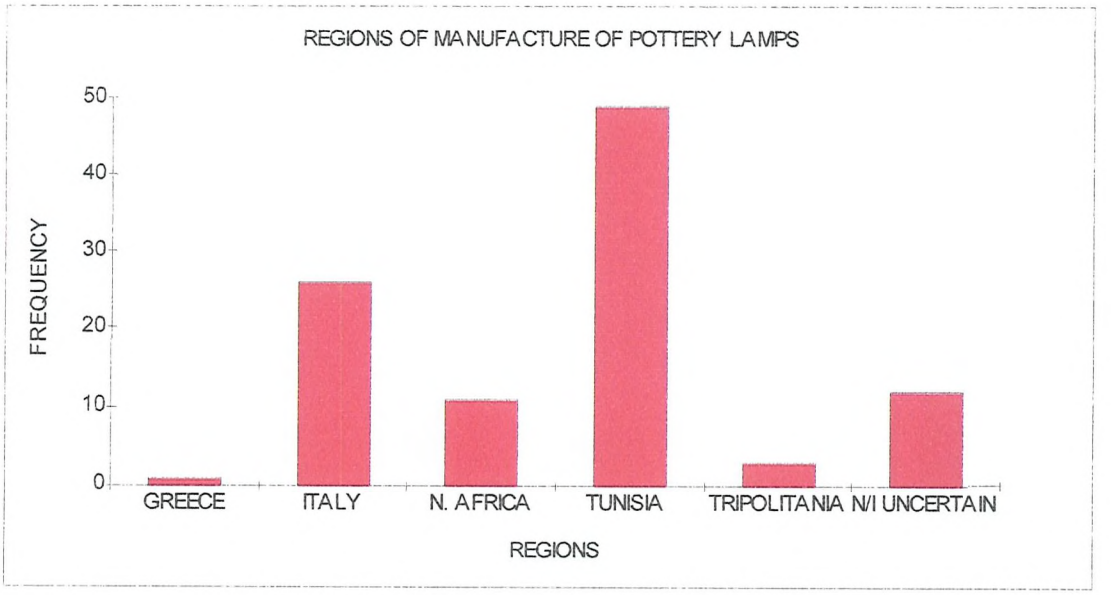


Figure 5.17A - Showing regions of manufacture of pottery lamps.

Chronological production of the lamps.

Table 5.30A and appendix 8 (on the CD-ROM) provide a comprehensive list of where the lamps were excavated from and the dates when they were thought to have been in production. This information was then condensed into table 5.32 which has had the mid-dates calculated.

Table 5.32 - Showing 'mid-dates' and counts of lamps.

TABLE 5.32B								
DATE	MID DATE	COUNT	DATE	MID DATE	COUNT	DATE	MID DATE	COUNT
425-250BC	-338	1	50-99	75	3	175-299	237	5
350 BC	-350	1	1-199	100	19	275-325	300	1
350-250 BC	-300	1	100-299	200	7	400-599	500	2
25BC-125 AD	50	1	175-250	212	17	450-599	525	1

In figure 5.17B the data has been plotted using these 'mid-dates'.

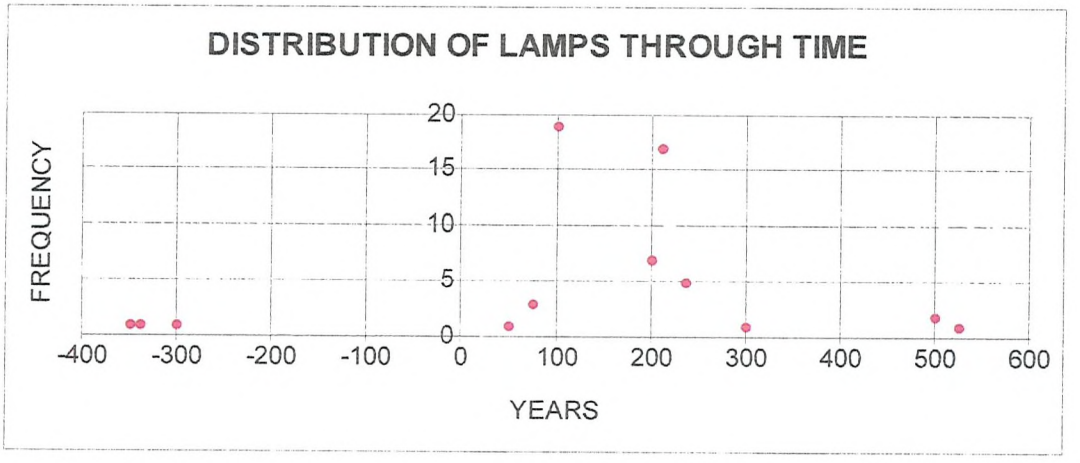


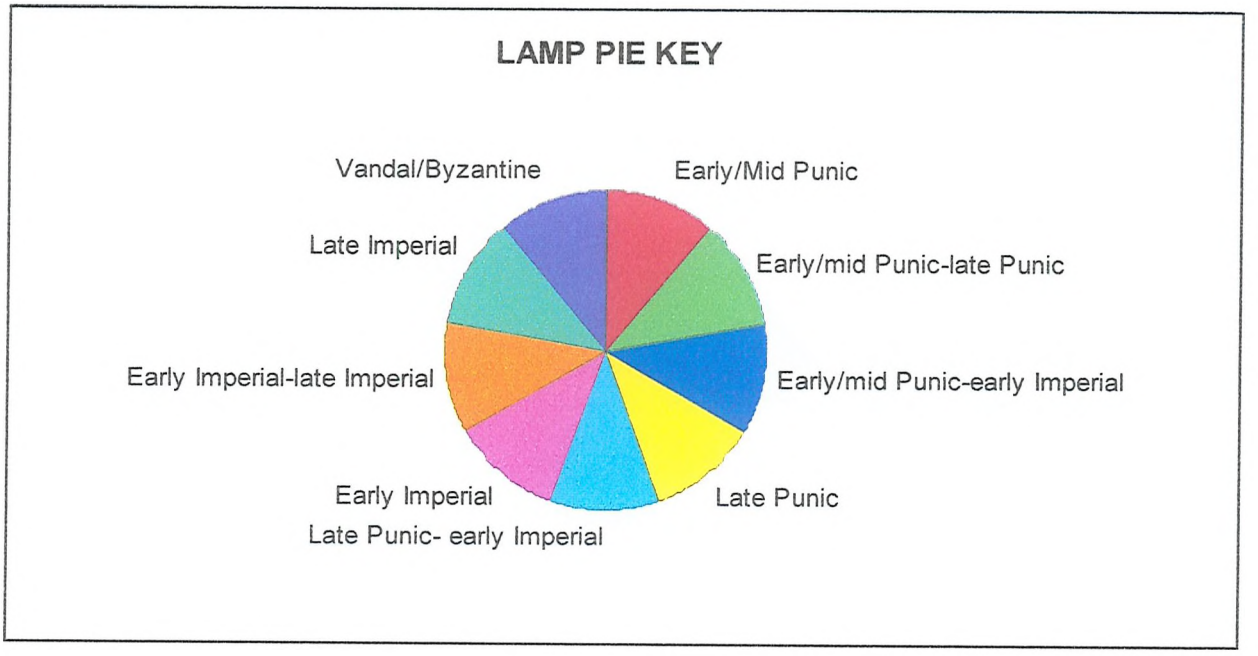
Figure 5.17B - Showing distribution of lamps through time plotted using 'mid-dates'.

The graph illustrates that the majority of the lamps seem to have been made between AD 100 and 200 (mid-date) which relates to first to mid-third century date range. The apparent dearth of lamps for the first three centuries BC could perhaps be explained by the failure to identify the forms of some of the lamp fragments.

The deposition of the dated lamp fragments across the town is shown in figure 5.18. The majority of the identified lamps appear to have been manufactured during the Early Imperial period.

Data to accompany figure 5.18.

	EMP	EMP/LP	EMP/EI	LP	LP/EI	EI	EI/LI	LI	LI/VB	VB
FORUM VETUS	3	0	0	0	1	3	0	0	0	1
CHURCH	0	0	0	0	0	3	0	0	0	1
PIAZZA	0	0	0	0	0	24	0	0	0	0
COL. STREET	0	0	0	0	0	0	0	0	0	0
PORTICO	0	0	0	0	0	18	0	0	0	1
PALAESTRA	0	0	0	0	0	3	0	0	0	0
SEVERAN BASILICA	0	0	0	0	0	1	0	0	0	0



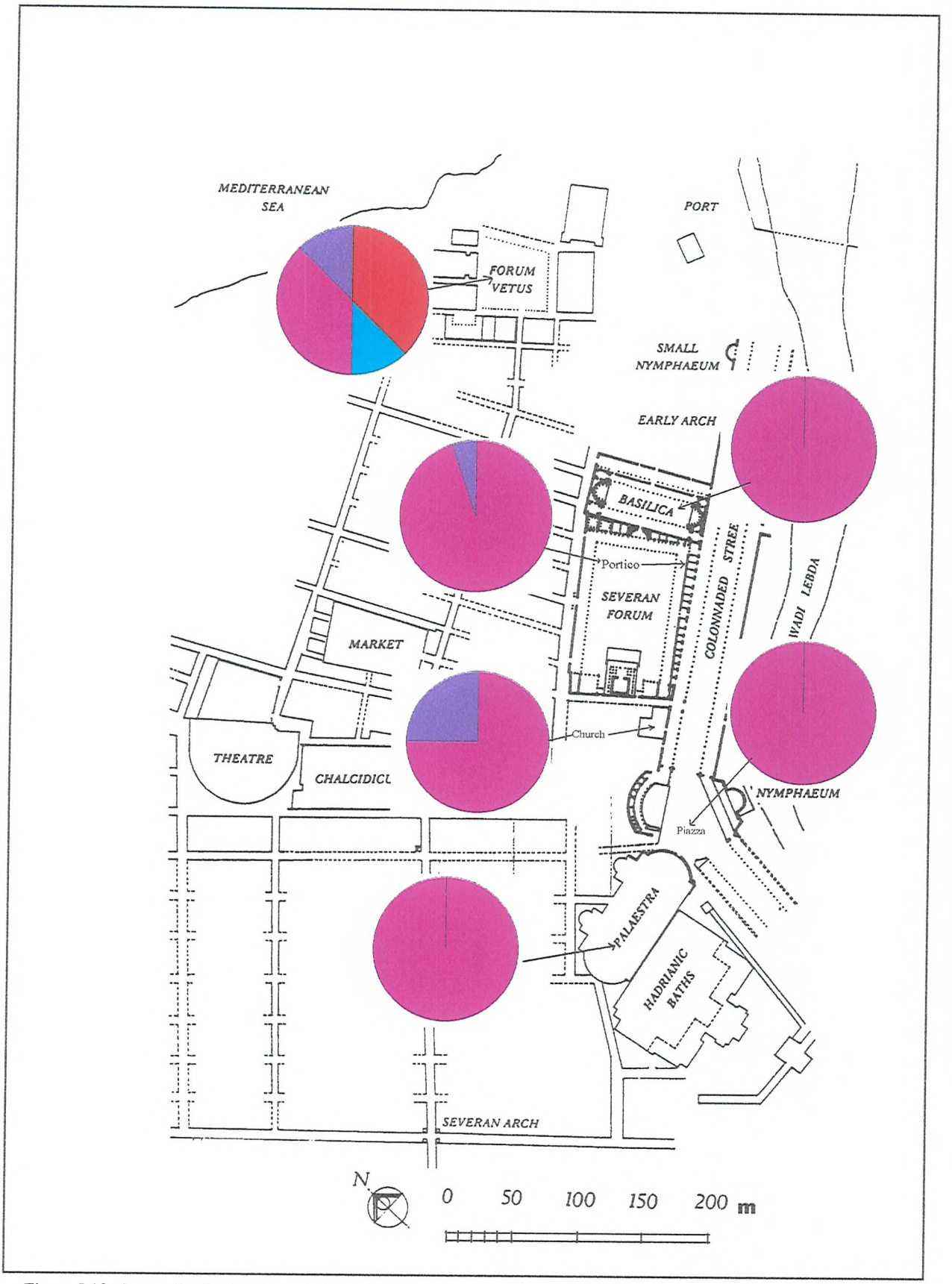
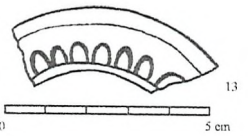
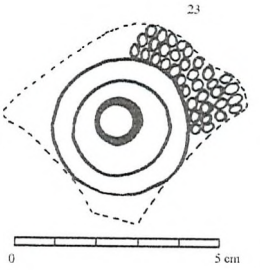


Figure 5.18 - Lamp distribution through time and by location. (For key see previous page.)

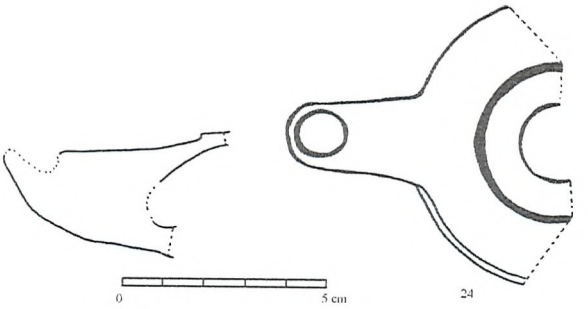
Lamp 13 Loeschcke Type VIII - Impressed Ovules.



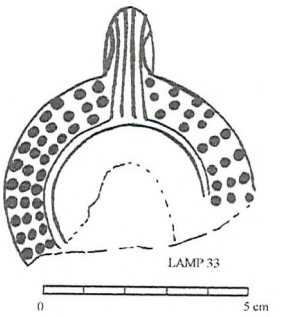
Lamp 23 Dressel Type 30?



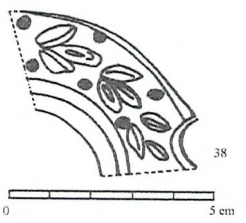
Lamp 24 Howland 25B



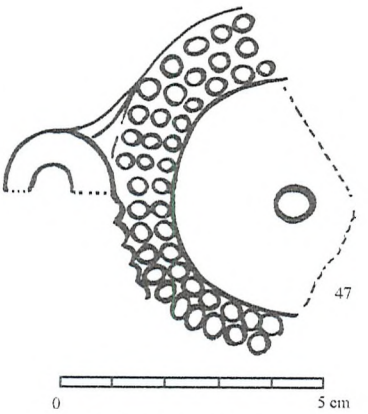
Lamp 33 Loeschcke Type VIII Later - Raised points



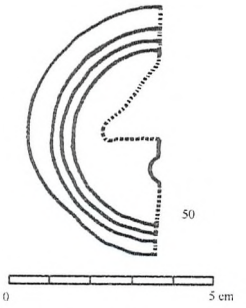
Lamp 38 Deneauve Type VIIB



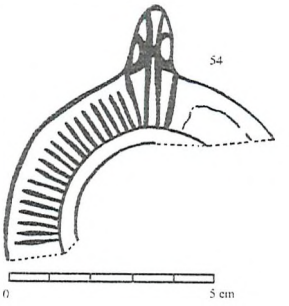
Lamp 47 Loeschcke Type VIII Later - Raised points



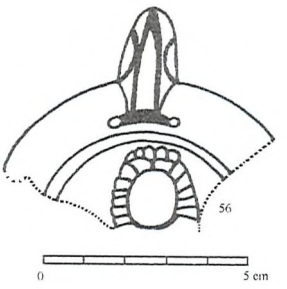
Lamp 50 Loeschcke Type VIII Plain Shoulder



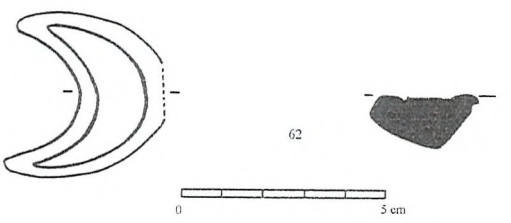
Lamp 54 Loeschcke Type VIII Later - Rays on Shoulder



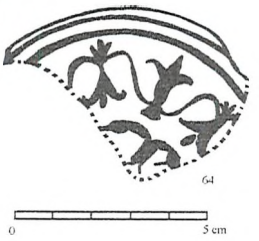
Lamp 56 Loeschcke Type VIII Plain Shoulder



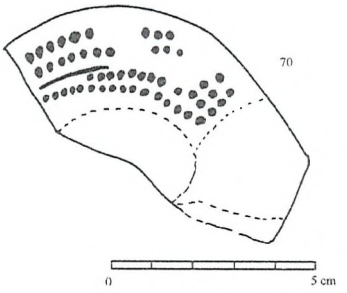
Lamp 62 Broneer XXI



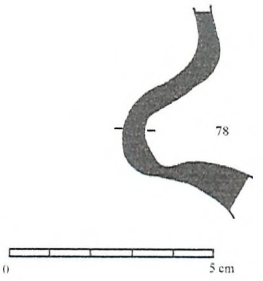
Lamp 64 Deneauve Type VA?



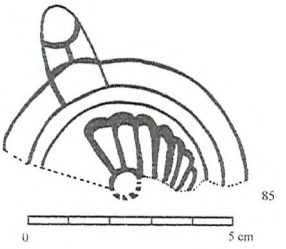
Lamp 70 Hayes Type II B?



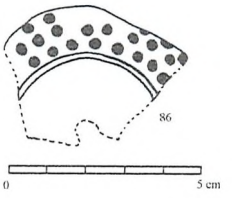
Lamp 78 Open Lamp



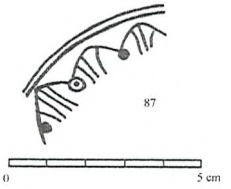
Lamp 85 Deneauve Type VA



Lamp 86 Loeschcke Type VIII Later - Raised Points



Lamp 87 Form not identified



Thin-walled wares (TWW).

A small assemblage of thin-walled vessel sherds were all excavated from the Forum Vetus trenches; it has been possible to identify the forms of two of them which were dated to the first half of the first century AD.

TWW 1 sherd was possibly from a beaker base. See fabric FB TWW 1.

TWW 2 -5 sherds came from an unidentified plain rim beaker, made from fabric FB TWW 2 with rim diameter 8 cm.

TWW 6-7 came from an ovoid beaker, see Benghazi B 446 (Kenrick 1985: 309) with thorn decoration. This form was thought to be in production from AD 14-37. (Kenrick 1985: 309.)

TWW 8-9 sherds came from a small ovoid beaker with combed decoration. See fabric FB TWW 4. These vessels, see Benghazi B 447, were thought to have been produced from AD 14-54. (Kenrick 1985: 309).

TWW 10 probably came from an unidentified beaker and was made from fabric FB TWW 5.

TWW 11 and 12 were parts of handles and were made from fabrics FB TWW 6 and 7 respectively.

Miscellaneous finewares.

Within the fineware assemblage there were a number of smaller collections of identifiable wares and their forms will be briefly described and discussed below.

South Gaulish Sigillata (SGS).

Two sherds, possibly of South Gaulish fabric, came from the Forum Vetus and Portico trenches. The first was an undiagnostic body sherd, dimensions 2.5 x 1.5 cm, possibly from a plate which was decorated with grooves. The second sherd was part of a base with a narrow foot-ring, possibly from a cup or a small dish with a diameter of 6 cm. There was some possible graffito, in the form of an X, scratched on the underside of the base. The inside of the base, decorated with grooves, had originally been stamped with a makers mark but unfortunately it was too badly obliterated to decipher. See fabric description FB 321.

Eastern Sigillata 'B' (ESB). See illustrations on page 221.

Sherds from three Eastern Sigillata 'B' vessels were identified; their forms and descriptions are recorded below. See fabric description FB ES 'B'.

Hayes Form 71 - Benghazi form 360.

This form was a 'flat based cup with steep, slightly convex wall and plain rim with one or two grooves on the floor.' (Kenrick 1985: 254) The Benghazi rims measured 9.2-12.4 cm in diameter and 2.5-3.1 cm in height. The forms were thought to be in production from the last third of the first century to the first quarter of the second century AD. (Kenrick 1985: 254.) The Lepcis Magna rim diameter 14 cm. For drawing see ESB 1.

Hayes Form 60 - Benghazi form 352.

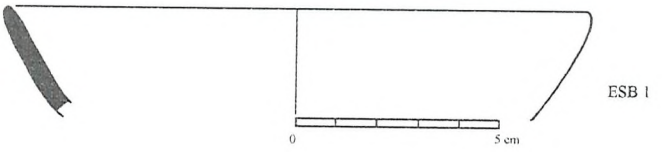
This form was a 'flat based dish with sloping wall and incurved rim with one or two bands of grooves on the floor.' (Kenrick 1985: 249-250) The Benghazi rims measured 13.5-23 cm in diameter. Some larger example examples measured c. 37 cm. The forms were thought to be in production in the first half of the second century AD. (Kenrick 1985: 254.) The Lepcis Magna rim

measured 10 cm in diameter. For drawing see ESB 2.

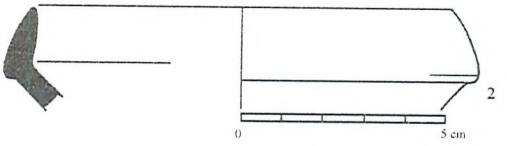
Hayes Form 76 - Benghazi form 361.3

This form was a 'flat based bowl with steep convex wall and flat tapering rim; recessed underside with a groove on the floor.' (Kenrick 1985: 254.) The Benghazi rims measured 12-18 cm in diameter. The forms were thought to be in production in the first half of the second century AD. (Kenrick 1985: 254) The Lepcis Magna rim diameter measured 18 cm. For drawing see ESB 3.

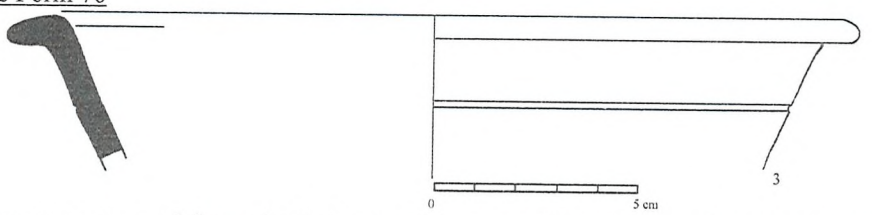
ESB 1 Hayes Form 71



ESB 2 Hayes Form 60



ESB 3 Hayes Form 76



The sherds were recovered from the Palaestra, Piazza and Portico trenches. As the assemblage is so small, less than 0.5% of the total finewares, little additional information can be inferred from it. One possible exception to this is its place of manufacture, which is now believed to be in the region of modern day Turkey; identifying the vessels point of production helps to highlight the diversity of finewares within the Lepcis Magna pottery assemblage.

Vessels with pale brown slip (ASG).

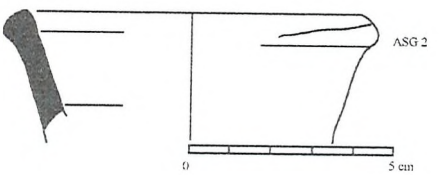
There were a total of three sherds, all of which came from Forum Vetus locations, which could be distinguished by a particular pale brown slip and they are described in the table below. Due to the small size of the sherds it was impossible to measure two of the rims accurately.

ASG 1 was a rim sherd, possibly from a cup, which was too small to measure. The slip colour was very pale brown. See fabric FB ASG 1.

ASG 2 was also possibly from a cup which had a rim diameter of 8 cm. Its slip colour was also very pale brown. For drawing see ASG 2. See fabric FB ASG 2.

ASG 3 may also have been from a cup but its rim was too small to measure or draw. See fabric FB ASG 3.

ASG 2

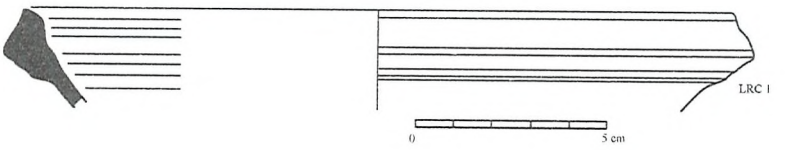


Late Roman 'C' (LR'C').

A sherd of a Late Roman 'C' ware vessel was amongst the pottery from the Severan Basilica. The form, 'Hayes Late Roman form 3', was that of a dish/bowl which had a curving body a vertical

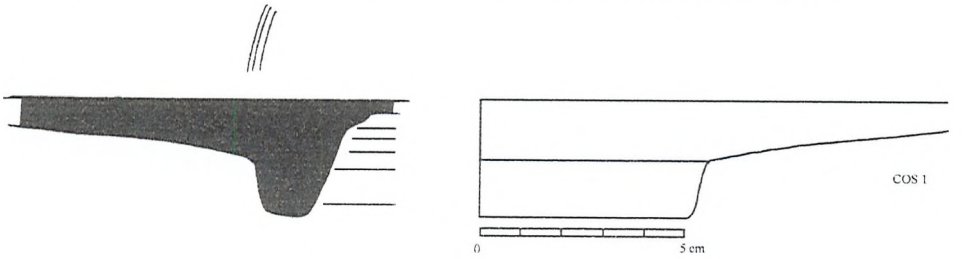
flanged rim and rim diameter of 18 cm and was dated to the first half of the sixth century AD. (Kenrick 1985: B688). See fabric description FB R19.

LRC 1 Hayes Late Roman form 3.



Campanian Orange Sigillata (COS).

The base of a single plate/dish in this fabric was excavated from the Church. The base, diameter 8 cm, had a foot ring and is shown in drawing COS 1. See fabric description FB COS.



Cypriot Sigillata. See illustrations on page 223.

The fineware assemblage also contained sherds from eight Cypriot Sigillata vessels and it was possible to assign '*EAA*' form numbers to five of them. Four of the sherds came from the Palaestra trenches. As in the case of the Eastern Sigillata 'B' vessels, as there were so few sherds, apart from noting that the vessels originated in the Cyprus region little additional information can be gleaned from them. See fabric description FB CYS.

EAA Form P 4B Prototype Paphos. This form was a dish with rim diameter 22 cm and was in production in the first century. For drawing see CYS 2.

EAA Form P 26/28 Var. See Sabratha 70. This form was a small dish. The Lepcis Magna internal base diameter measured 5.5 cm. For drawing see CYS 8.

EAA Form P 37. A possible sherd, CYS 7, from a Krater was present in the assemblage. The Lepcis Magna rim diameter measured c. 10 cm. See drawing see CYS 7. The form was in production in the second half of the first century BC to the first half of the first century AD.

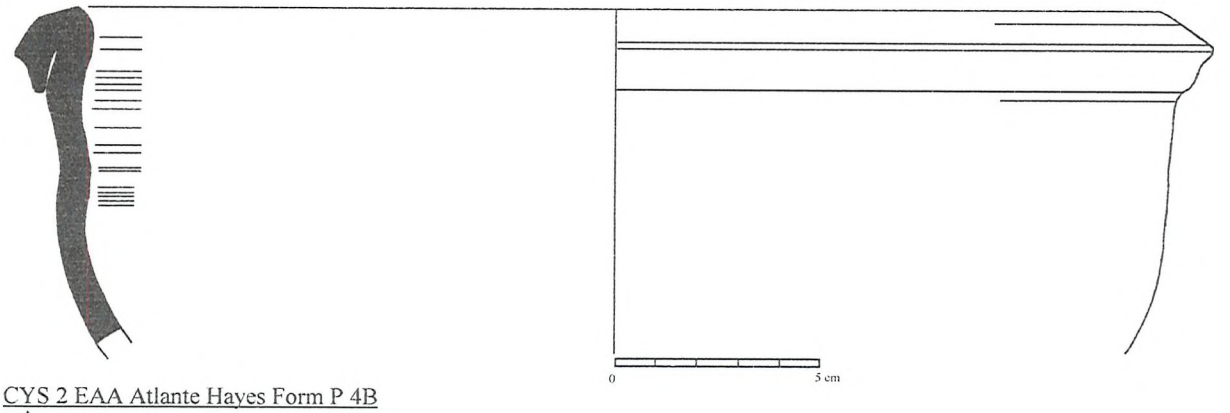
EAA Form P 40? A sherd possibly from a Krater was in the assemblage. This form was in production in the first half of the second century AD. The Lepcis Magna rim diameter measured 12 cm. See drawing CYS 6.

EAA Form P 41. This form was a Krater with rim diameter 26 cm. See drawing CYS 1.

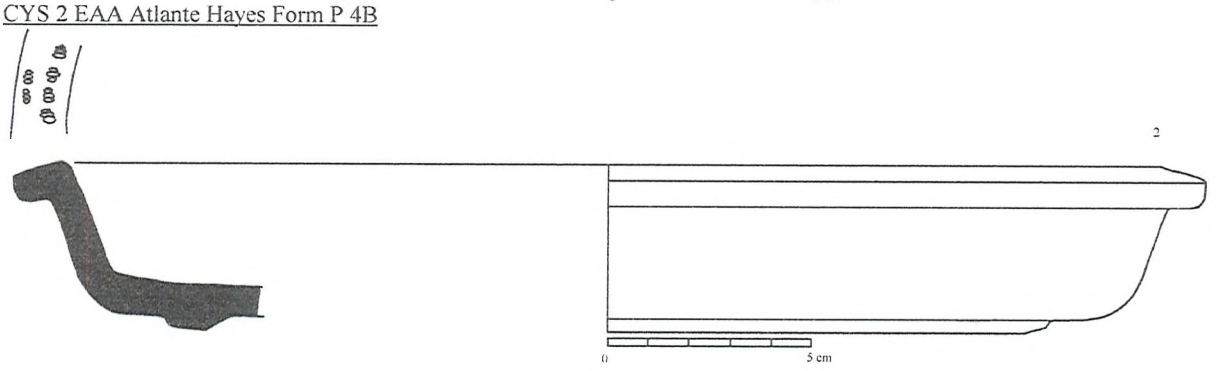
Unidentified dish form. A sherd, CYS 3, possibly from a dish had a base diameter measured 10 cm.

Due to the size and shape of the remaining unidentified sherds it was not possible to assign them form numbers.

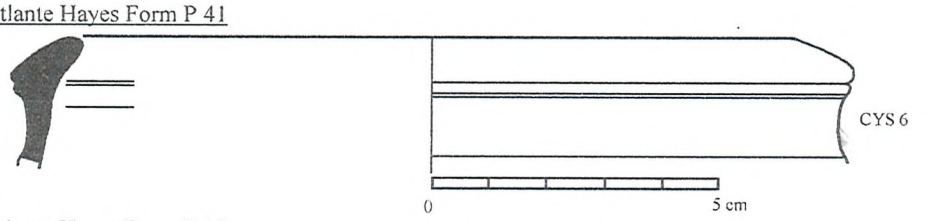
CYS 1 EAA Atlante Hayes Form P 41



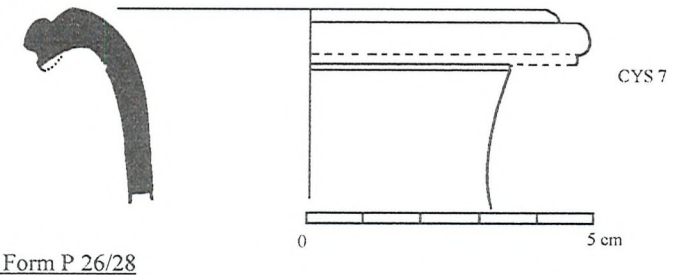
CYS 2 EAA Atlante Hayes Form P 4B



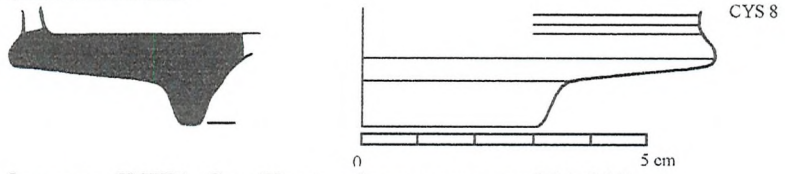
CYS 6 EAA Atlante Hayes Form P 41



CYS 7 EAA Atlante Hayes Form P 40



CYS 8 EAA Atlante Hayes Form P 26/28



Miscellaneous Red-wares (RED). See illustrations on pages 224-225.

Within the assemblage there were a number of other sherds with red fabric, some of which still had traces of slip on them, and they are described below. Full details of these sherds can be found in the database.

RED 1 was a slipped dish with a high straight wall rising at an angle to a plain rim. The rim diameter measured 18 cm. See fabric FB RS 1. See drawing RED 1.

RED 2 was a dish with walls which were more flaring than in the previous example. The rim diameter measured 22 cm. See fabric FB RS 2. See drawing RED 2.

RED 6 was a dish with a wide convex rim. The rim diameter measured 10 cm. See fabric FB RS 4.

RED 7 was a slipped dish or bowl with a narrow flattened rim with a groove near the inner edge. The rim diameter measured 18 cm. See fabric FB RS 7.

RED 8 was a dish or bowl with everted rim with diameter 20 cm. See fabric FB RS 9. See drawing RED 8.

RED 9 was a dish or bowl with inward sloping walls. The rim diameter measured 12 cm. See fabric FB RS 6. See drawing RED 9.

RED 10 was a slipped lid of flattened domed shape with slight rolled rim. The rim diameter measured 16 cm. See fabric FB RS 9. See drawing RED 10.

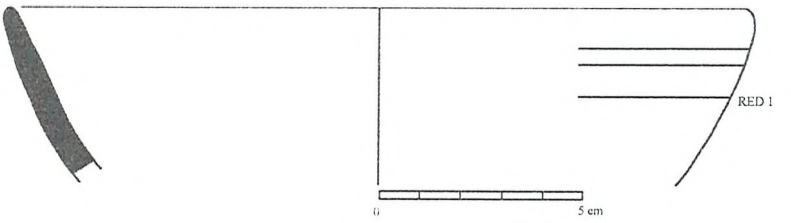
RED 11 was the base from a slipped plate or dish. The base rim diameter measured 3 cm. See fabric FB RS 4. See drawing RED 11.

RED 12 was a slipped lid of flattened domed shape with hooked rim. The rim diameter measured 10 cm. See fabric FB RS 5. See drawing RED 12.

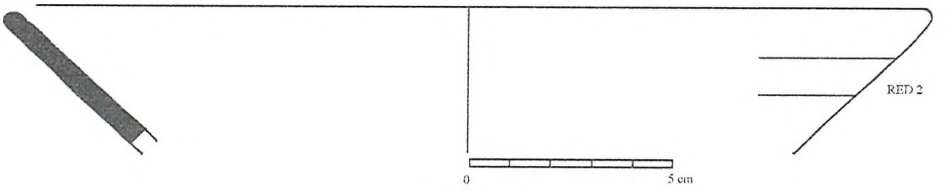
RED 13 was the base possibly from a cup. The rim diameter measured 5 cm. See fabric FB RS 8.

RED 14 was a slipped dish with a high straight wall rising at an angle to a plain rim. The rim diameter measured 18 cm. See fabric FB RS 10. See drawing RED 14.

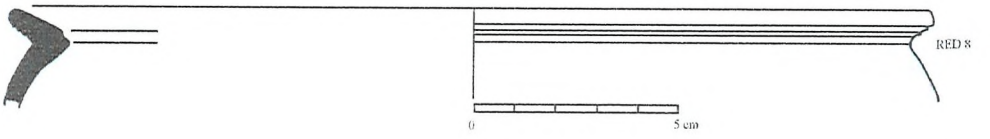
RED 1



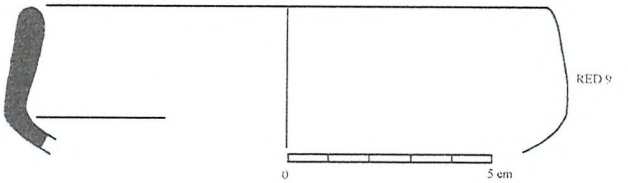
RED 2



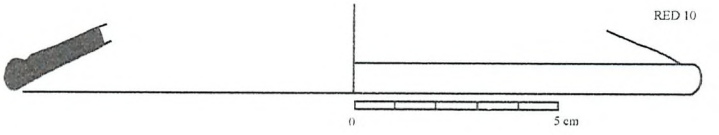
RED 8



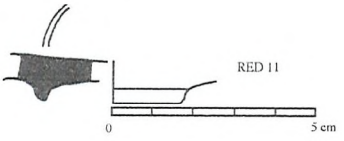
RED 9



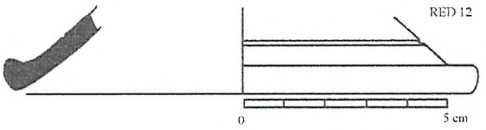
RED 10



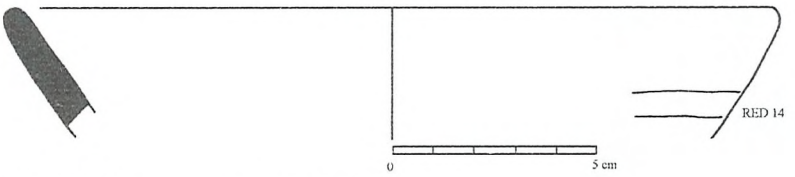
RED 11



RED 12



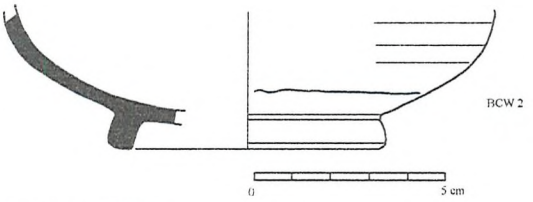
RED 14



Black Cream ware (BCW) Campanian fabric 'B'.

Sherds from one or possibly two small bowls also came from the Forum Vetus. The first sherd was an undiagnostic body sherd of dimensions 3.5 x 2 cm; whereas the second bowl, see drawing BCW 2, had a 7 cm foot-ring. This bowl also had black slip on the inside and on most of its outside surface. See fabric FB 322.

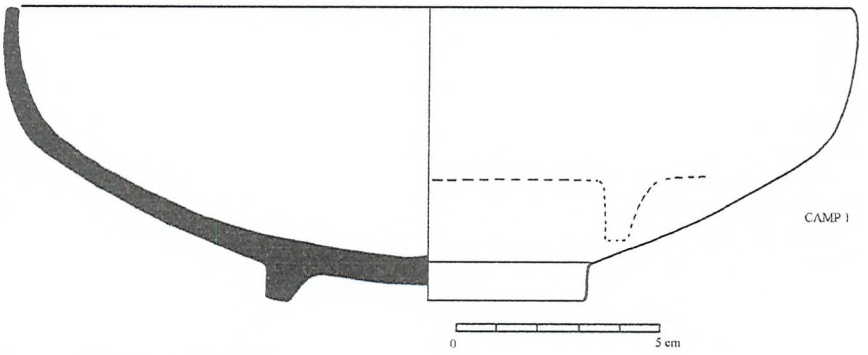
BCW 2



Campanian Fabric 'A' Bowl (CAMP).

The remains of a distinctive bowl, which also came from the Forum Vetus, was identified as Morel form D/E/F/83. After the 7 sherds were joined together a complete section through the bowl was revealed; it had a plain rim of diameter 20 cm through to a foot-ring of diameter 6 cm. The bowl had the remains of a black slip on the inside and over onto most of its outside surface. See fabric FB 323.

CAMP 1



Grey black ware (GBW and GW).

From the Forum Vetus came a small group of three body sherds, possibly from plates, which were basically grey/black in colour. See fabric descriptions FB 324 and FB 325 respectively. The sherd dimensions were as follows:

Vessel	GBW 1	GW 1	GW 2
Dimensions	5 x 2.5 cm	2.5 x 1.5 cm	11 x 5.5 cm

These sherds came from the Forum Vetus trenches which suggest that these vessels may be early in date i.e. first century AD or earlier.

Black surface vessels (BLK).

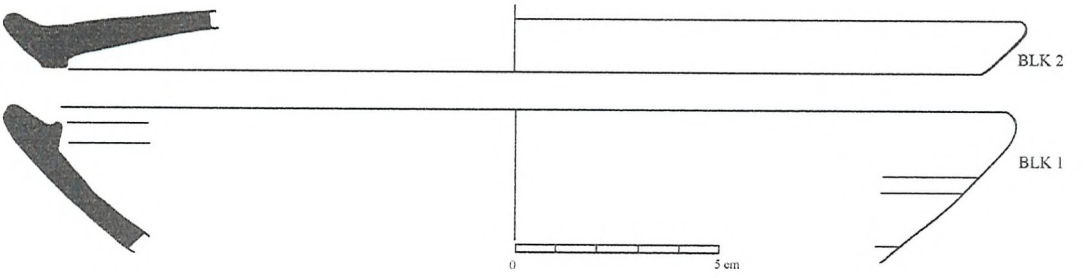
Within the pottery assemblage recovered from the Forum Vetus were the remains of a single dish and possibly its lid. The brick-red fabric had a black surface. Although the fabric is not strictly a 'fineware' the fabric and its surface treatment was very different to those vessels included within the designation 'coarsewares'.

BLK 1 was a dish with rim diameter 22 cm and a lid locator.

BLK 2 was a lid with diameter 22 cm. The red clay fabric was covered with a black slip; see fabric FB 330 and drawings BLK 1 and 2.

BLK 2

BLK 1



Miscellaneous wares (RSI).

Four body sherds from one vessel, possibly a casserole, came from the Forum Vetus. The vessel could be differentiated from the rest of the assemblage by its fabric; and it was slipped on its inside face only. The fabric, FB 331, appears to have been manufacture in Tripolitania or Tunisia. Further details of the vessel are in the database under RSI (Red Slip Inside) 1.

Variants of Hayes forms 181 and 182.

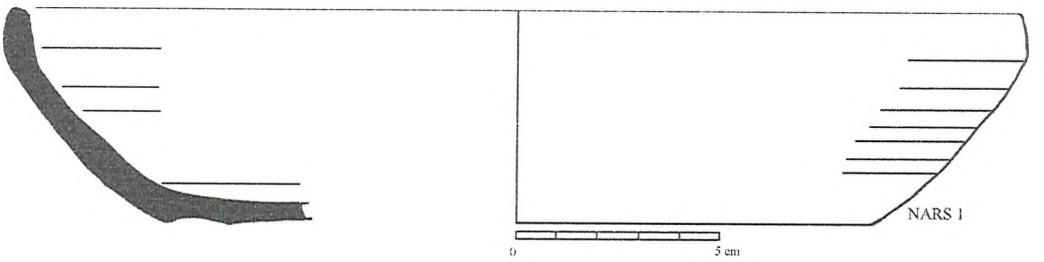
Sherds from three vessels, NARS 1-3, which had slip on their rims and on their inside surface only, were excavated from the Portico trenches. All of the sherds had limestone and quartz inclusions in their fabric, see fabrics FB 336- FB 338, which might suggest a Tripolitanian origin. The vessels may be related to the early variants of Hayes form 181 (Kenrick 1985: 376).

NARS 1 was a dish with a rim that was slightly incurving towards the top. Its rim diameter was 22 cm. (Compare Benghazi B 674.) For drawing see NARS 1 and fabric NARS 1.

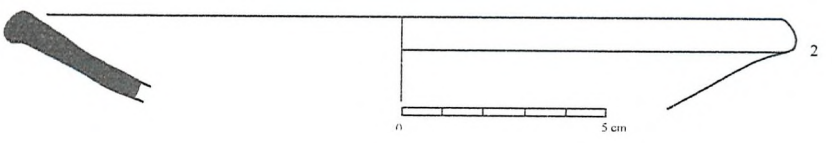
NARS 2 was a dish or possibly a lid. Its rim diameter was 18 cm. For drawing and fabric see NARS 2.

NARS 3 was a lid of semi-conical form and rim diameter 18 cm. For drawing and fabric see NARS 3.

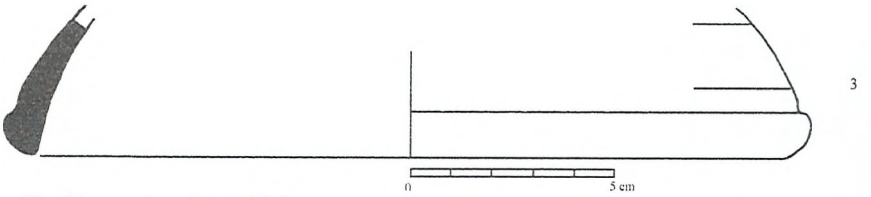
NARS 1



NARS 2



NARS 3



Miscellaneous Sigillata sherds (MSG).

Sherds from a further four sigillata vessels were also collected. The sherds were excavated from the Forum Vetus, Portico, Palaestra and Piazza areas. Due to their poor state of preservation and sherd size little additional information could be deduced from them. See fabric description FB MSG 1 - 4 respectively. MSG 1 was a possibly the base of a cup. MSG 2 was a body sherd possibly from a closed form. MSG 3 was possibly a base sherd from a plate with diameter 8 cm. MSG 4 was a body sherd.

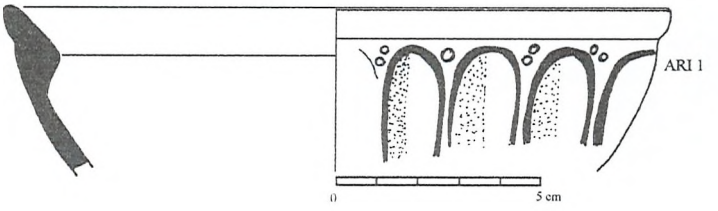
Locally produced finewares (ARI).

Sherds from two bowls, which had similar fabrics, were found in the Piazza trenches.

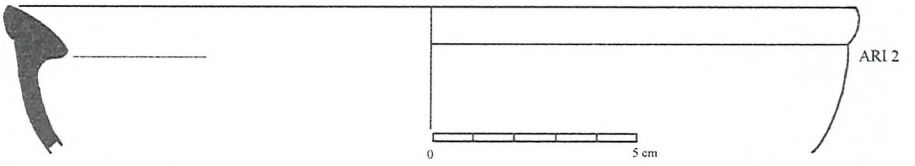
ARI 1 was a bowl with a thickened triangular rim which was hooked on the inside. Its diameter was 16 cm. It was decorated with moulded decoration. See drawing ARI 1 and fabric FB 332.

ARI 2 was similar to the previous form but was without the moulded decoration. Its diameter was 20 cm. For drawing see ARI 2 and fabric FB 332. The slip from both sherds was badly abraded. The style and impressed decoration (which suggests that it may have been mould made) shows similarities with glass bowls. The fabric, which contained limestone, suggests that the vessels may have been locally made.

ARI 1



ARI 2



Pompeian Red ware (PRW).

Sherds of eight Pompeian Red ware vessels came from the Forum Vetus, Portico and Palaestra trenches. It was possible to find parallel forms for three of the vessels but the remaining sherds were too small to be diagnostic. See database for data on other sherds.

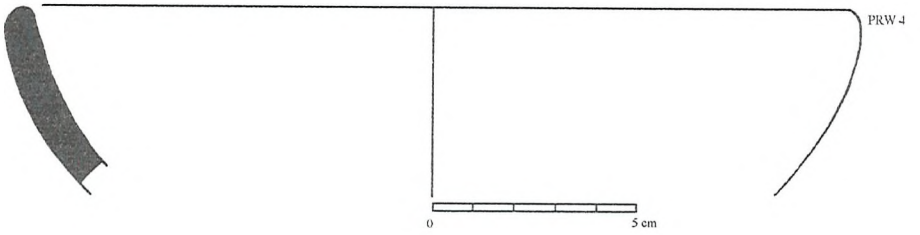
PRW 4 was a flat-based dish with curving wall and plain rim which measured 20 cm. See fabric FB PRW 1. Cf. Benghazi form 479. The Benghazi forms measured 19 - 60 cm. (Kenrick 1985: 323-324.) See drawing PRW 4.

PRW 5 was also a flat-based dish with curving wall and plain rim which measured 38 cm. See fabric FB PRW 1. Cf. Benghazi form 479. The Benghazi forms measured 19 - 60 cm. (Kenrick 1985: 323-324.)

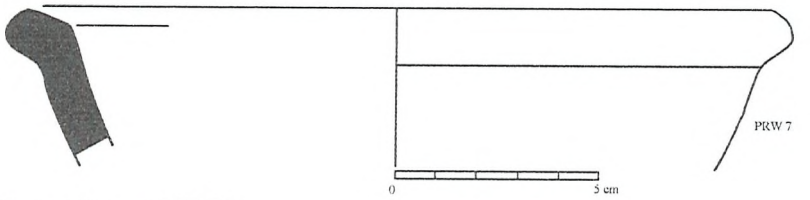
PRW 7 was a flat-based dish with curving wall and flat rim which measured 18 cm. See fabric FB PRW 2. Cf. Benghazi form 481. The Benghazi forms measured 31.5 - 65 cm. (Kenrick 1985: 324.) See drawing PRW 7.

The vessels were thought to have been in production from the late first century BC to the second century AD.

PRW 4



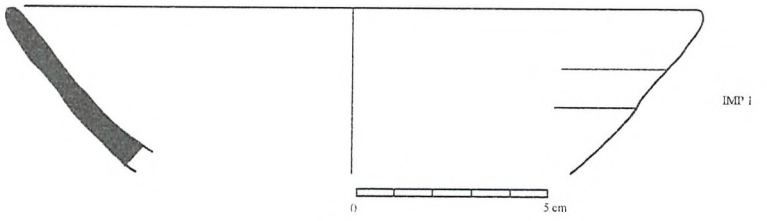
PRW 7



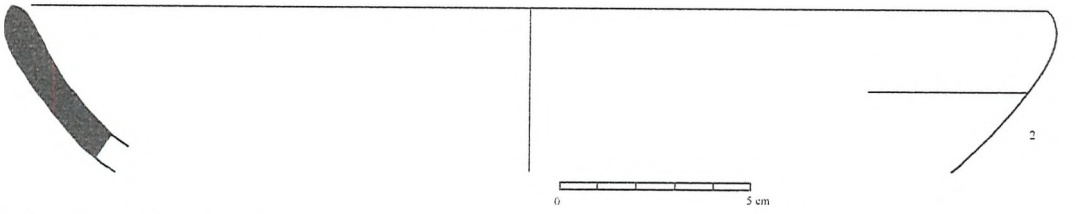
Imitation 'Pompeian red ware' IMP.

Sherds from a further two dishes, (IMP 1 -2) which had rim diameters 18 and 26 cm respectively, came from the Portico and Palaestra trenches. Both of the sherds had slip on their inside faces, see fabrics FB 326 - 327. The dishes had straight walls which rose at an angle to plain rims. The forms, once again, showed similarities with ARS H 181 variants which Hayes believes to be copies of 'Pompeian red ware' (1972: 201).

IMP 1



IMP 2



'Gold' striped jar (GLD).

The remains of an unusual 'jar', rim diameter 10 cm, were excavated from one of the Piazza trenches. The jar was atypical within the Lepcis Magna assemblage because of its surface treatment of a 'gold' striped 'glaze', see fabric FB 329. The rim sherd was everted with a lid locator.

GLD 1