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Internal and external trade in the Roman province of Dalmatia[1]

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This work considers some of the archaeological, epigraphic, and literary evidence for trade in the Roman province of Dalmatia during the first four centuries AD. It focuses mainly on external trade, especially imports for which there is much clear archaeological evidence. The section on imports is an analysis of trade relations between Dalmatia and the rest of the Mediterranean over time, while the sections on exports and internal trade, due to the nature of the evidence, are more general, making a case for the nature of these activities in the province during this period. The work not only assesses the currently available information but also suggests future areas of research which could add to our understanding of Dalmatian trade, both within the province and with the wider Mediterranean world.

Keywords: Roman period, Dalmatia, trade, tegulae, amphorae, pottery, sarcophagi

1. Introduction

Trade, both at the local level and on an empire-wide scale contributed significantly to the economy of the Roman world, and advances in archaeology, particularly in pottery studies and underwater research, over the last few decades have vastly improved our understanding of trade in the ancient world and the contribution of various parts of the Mediterranean to the Roman economy. One area, however, has

[1] I am grateful to everyone who contributed to the completion of this article which is a development of my M.Phil. thesis for the University of Oxford. The Craven Committee, the School of Archaeology, and Exeter College funded a research trip to Croatia. During my stay, Branko Kirigin and the kind staff of the Split Archaeological Museum and library were very helpful. John Wilkes and John Peter Wild commented on earlier versions of this article, and Keith Swift greatly improved my understanding of amphora studies, especially as related to the possibility of production in Dalmatia. My greatest debt is to Andrew Wilson who supervised my work; his comments and criticism have added inestimably to the final product. All errors are, of course, my own.

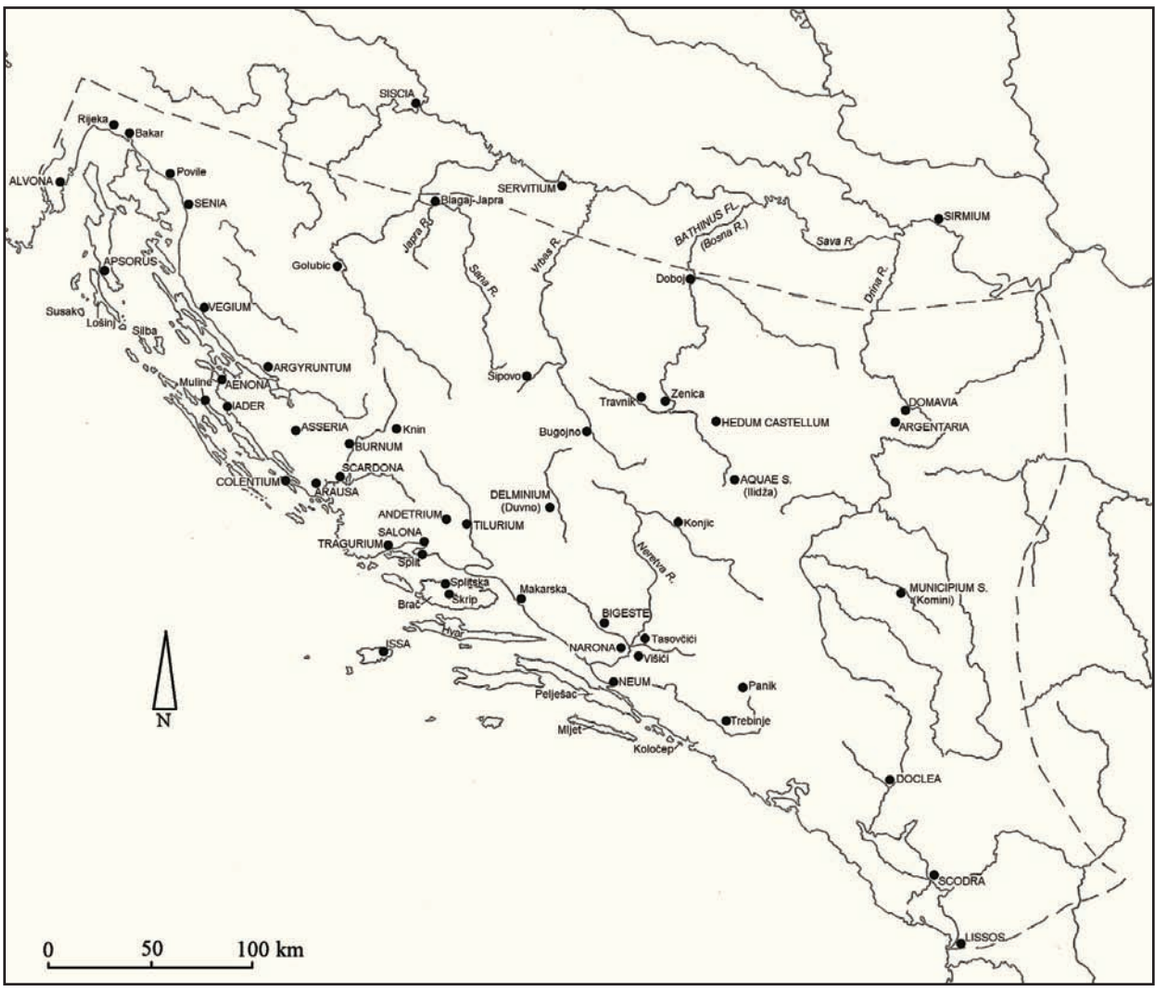

Figure 1. The Roman province of Dalmatia with locations mentioned in the text (K. Glicksman).

been largely ignored: the Roman province of Dalmatia (Fig. 1). Ancient authors say curiously little about this area rich in important natural resources, like metals and timber. References to economic activities in the province tend to be rather brief, like the short note on exports in *Expositio totius mundi et gentium* (53.5–9) or Pliny's remark on gold mining (*NH* 33.67); such sources give very little real information on the nature of Dalmatian trade except for an indication that certain materials were produced and exported. The archaeological evidence, on the other hand, is much more revealing, showing a thriving trade with much of the Roman world.

Previous literature on the subject is rather sparse. In his comprehensive study of the province, Wilkes (1969: 407–415) considers the nature of trade, but his scope is rather narrow, probably limited both by the extent of archaeological research in the area and also by contemporary ideas about trade in the ancient world. His brief overview of Dalmatian trade is largely restricted to imports delivered by sea to coastal areas; the interior of the province is largely ignored because of the mountainous terrain and the great expense of land transport. He does make some observations on general patterns of trade, like the link between increased trade and the Italian settlements founded along the coast during the late Republican period, but in general, he gives few details of the archaeological evidence, except for a separate study of ceramics in his Appendix XV (*Ibid.*: 499–504).

Zaninović's article (1977) on Dalmatian economy treats trade in even less detail and is affected by the same limitations evident in Wilkes' study. He gives a very short account of maritime trade with little consideration of archaeological evidence with the exception of a handful of inscriptions indicating connections with the Italian peninsula and the numerous shipwrecks found scattered along the eastern Adriatic coast, whose significance toward Dal-

matian trade can be rather problematic, as I shall discuss below.

Much more recently, Škegro has written a book on the economy of Roman Dalmatia, including a chapter devoted to trade in the province in which he presents a collection of related archaeological, epigraphic, and literary sources, but he adds very little in the way of analysis to the study of trade in the Roman province of Dalmatia (1999: 275–302). For a study of the Roman province, Škegro spends an inordinate amount of time discussing pre-Roman commercial links without relating them in any way to later evidence. He simply states that certain imported materials were found in Dalmatia, sometimes offering the names of sites, without any attempt to quantify material or to analyse distribution of the artefacts. There is no comparison of trade in Dalmatia with trade in other parts of the Mediterranean nor any conclusion concerning the place of trade within the context of the provincial economy.

Some other recent works have also dealt with trade in Roman Dalmatia, but they are much more restricted in terms of evidence examined and geographical area studied. Jurišić's work (2000) is a well-organised compendium of existing information on shipwreck sites along the Croatian coast. He provides some useful thoughts concerning the role of the Adriatic in the context of empire-wide trading routes and also makes an attempt to trace the most likely sailing routes along the coast and between the islands. But his insights into trade are limited by his evidence, since he only considers shipwreck evidence from the eastern Adriatic coast within the first two centuries AD.

Another work which considers trade is Zotović's book on population and economy in the eastern part of the province; trade only accounts for a very small part of the work and is necessarily limited to a specific section of Dalmatia, but it is significant in relation to previous study of Dalmatian trade because it focusses on the interior rather than the coast, suggesting the significance of land routes and interaction with Pannonia and Moesia (2002: 64–67).

In this paper I will take a much broader approach to the study of trade in Roman Dalmatia, examining the evidence for both external and internal trade over the whole province and will attempt to establish patterns both for trade with other regions of the Roman empire and for the movement of goods within the province. First and foremost, I will look at the types of commodities being transported and the locations to and from which they were being transferred, and I will attempt to form a general chronology of trade relations based on this evidence. The scale of trade is difficult to determine through archaeological evidence with any specificity, but I will show general trends in this respect as well where the evidence permits such interpretation. However, the simple presentation of information is only the beginning of the effort to understand the nature of trade in this part of the empire. I will also attempt to show the significance of patterns in Dalmatia and their relation to trends seen throughout the empire and also to determine the causes for the changing patterns of trade and their effect on the province.

Material goods can travel under any number of influences: trade, military supply, movement of individuals; but it is often difficult to distinguish between the various influences in the resulting archaeology (cf. Peacock & Williams 1986: 54–66; Harris 1993; Paterson 1998). As the purpose of this study is to observe commercial relations between Dalmatia and the rest of the Roman world, and also within the province itself, I have focussed on categories of evidence which I believe best demonstrate these connections. For example, Egyptian *shabti* figures, while intriguing, represent personal religious devotion, and are thus not clearly representative of trade, but are rather more likely linked to movement of individuals. And even though coins are instruments of commercial exchange, patterns of coin circulation cannot necessarily be directly associated with the scale and direction of trade (Howgego 1994: 7–8), and are therefore not considered in this study. In order to minimise confusion between commercial movement of goods and transport for military supply, I have focussed on material from civilian sites. Military sites are mentioned only when I think that the evidence points clearly to trade and that a consideration of the material can give a greater insight into trade in Roman Dalmatia. I will also point out certain problematic areas and discuss the issue at appropriate points in the text.

I will trace the movement of various types of imported commodities and locally-produced goods, where these have been identified. The results will be affected to some extent by biases in current research; for example, extensive study of Italian and African finewares in comparison with other pottery types may overemphasise the importance of connections with these areas. These biases cannot be avoided, but recognition of their possible influence can help to alleviate some of the problems they cause.

Pottery is probably the single most important commodity for the study of trade in the Roman world. It is important to archaeological research in general because it is nearly indestructible, and it is even more significant to archaeology of the Classical world, since it was used by all classes for a variety of activities, but especially for eating, drinking, and the preparation of food. Changing fashions in the ancient world resulted in many varying styles over the

centuries which are rather distinct and can often be dated quite closely, making pottery ideal for dating sites. Analysis of pottery distribution is also crucial to the study of trade in the Roman period. Because it is easily made in most areas of the Mediterranean and a relatively cheap commodity, pottery was rarely traded across long distances for its own sake, as seems to be indicated by shipwreck evidence which shows pottery generally as secondary cargo, rarely accounting for more than twenty percent of the recoverable cargo (Fulford 1987: 60), although there are exceptions, some of which are located along the eastern Adriatic coast (Parker 1992: 16). However, the cheapness of pottery and its wide use throughout the Mediterranean meant that it was also easy to sell, and it seems likely that Roman merchants filled any leftover cargo space with pottery which was bought and sold opportunistically, the results of which can be seen in the large proportions (not less than twenty percent) of foreign material in the pottery assemblages of major port towns (Fulford 1987: 64).

These characteristics of pottery make it extremely useful for tracing trade within the Roman world, but it cannot always be taken as direct evidence of trade connections, only as a general indicator of trade. Imported ceramic material is sometimes a result of goods traded opportunistically along a route or collected at an emporium rather than a direct connection between two locations. The use of pottery in the study of trade is also limited because although it can indicate trade and certain patterns, it tells us nothing of the other types of goods that were carried on the same shipment; the pottery may be all that remains of a shipment of some perishable, and thus archaeologically invisible, commodity like grain. Despite its deficiencies, pottery is an extremely useful tool in the study of trade, and I will use it extensively to help establish major trading connections between Dalmatia and the rest of the empire, and also to indicate trade within the province itself.

Amphora forms are also generally well-studied, and although the forms tend not to vary so much over time, many have reliably established origins and general dates. And unlike most other pottery, amphorae, as containers of agricultural products, are direct indicators of trade, and since various forms are associated with specific contents, they also show the commodities being transported. There are, however, a number of problems with using amphorae, two of which are particularly relevant to the study of Dalmatian trade. The first is that Dalmatian amphora forms are unknown; although some preliminary work has been done, our ignorance of Dalmatian amphorae significantly affects our ability to trace export or even internal trade of Dalmatian agricultural products. Another problem is the longevity of amphorae, which are very durable vessels able to endure repeated use; this causes a problem because only the original source and date are known, but not the date and location of reuse.

Pottery and amphorae make up the largest groups of evidence I will be using because they were traded widely throughout the Mediterranean, and those found in Dalmatia represent nearly every area of the Mediterranean which had any archaeologically visible connections with the province. But I will also consider a number of other materials, including tiles, glass, architectural stone, and sarcophagi.

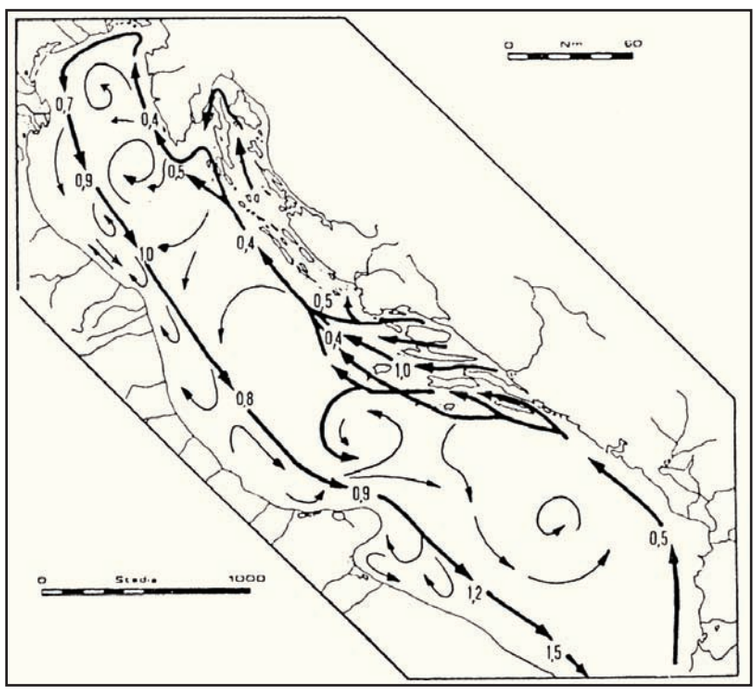

Figure 2. Direction of main sea currents in the Adriatic (from Škegro 1999: 276 fig. 69; reproduced by permission of Hrvatski studiji – Studia Croatica).

Shipwrecks are an invaluable source of information on trade in the ancient world, but the interpretation of their evidence can also be problematic. Shipwrecks show us the types of cargo that could be shipped together and the relative proportions of these cargoes, as already seen in the case of pottery; but while a cargo may tell us the ship's point of origin, the physical remains can tell us nothing of where the ship was headed, or whether it would make any trading stops before it reached its final destination. For this reason, we should be wary of hasty judgements relating a shipwreck to the area of its discovery. In the case of Dalmatia specifically, the nature of sailing in the Adriatic provides a warning for the easy association of eastern Adriatic shipwrecks with Dalmatian trade. Modern sailing vessels simply passing through the Adriatic prefer to travel along the eastern coast; storms tend to pick up very quickly and with little warning on the Adriatic, and the many islands and harbours along the Dalmatian coast provide better shelter in an emergency than the sandy coast of Italy with its few harbours (Thompson & Thompson 2004: 2). This fact, combined with the counterclockwise running of the regular inshore surface currents (*Ibid.*: 7; Fig. 2), provides us with reason to suspect that ancient ships may have preferred the eastern coast, at least when travelling north. The major trading centre of Aquileia at the head of the Adriatic would most likely have been both the destination and the origin of innumerable cargoes; thus, shipwrecks discovered among the islands of the Dalmatian coast cannot necessarily be taken as irrefutable evidence of Dalmatian trade.

This study of internal and external trade in the Roman province of Dalmatia will focus on, but will not be completely restricted to, evidence from the first four centuries AD. This time limit is based on two significant dates: the partitioning of the province of Illyria around AD 9 into Dalmatia and Pannonia, and the final division of the Roman empire into eastern and western halves with the death of the emperor Theodosius in AD 395. While I have chosen these particular political events for their possible effects on the economy of the region, I also recognise that archaeological evidence does not always fit so comfortably within the parameters we create. Thus, although the focus of this paper is on evidence for trade between the first and fourth centuries AD, full appreciation of the evidence may require, in some cases, a consideration of material which may date outside the proposed time range.

The majority of this study will deal with external trade, especially imports for which we have much clear archaeological evidence. In the first section, I will consider the evidence for imports from various regions of the empire and for fluctuations in these imports over time. In the next section, I will look at exports, but since Dalmatian exports have not generally been identified archaeologically, I will also consider literary and epigraphic evidence. The last section will deal with the evidence for the movement of goods within the province, focussing especially on relations between the coastal regions and the interior of the province.

2. Imports

2.1. Introduction

Analysis of evidence for imports can show not only what sorts of materials were being brought into a region, but also where they were being transported from and when. Thus, the level of imports to a certain region can reveal predominant commercial relationships between regions of the Roman empire and also market trends within certain regions, and this is what I will attempt through an analysis of imports to Dalmatia between the first and fourth centuries AD.

Ceramic evidence (pottery, amphorae, and bricks/tiles) provides the bulk of datable and reliably provenanced material. Personal items, such as jewellery and religious objects, for example, pose a difficulty in distinguishing those objects which were brought to the region through trade from those which were brought already in the possession of individuals. Also, some artifacts like jewellery are difficult both to provenance and to date, and valuable commodities tend to have long lifespans.

Two materials I will consider, however, are glass and stone imports. Glass forms are often unable to be securely dated and provenanced, as many provincial forms are imitations of earlier Italian or Eastern products, and even some of the Italian forms resemble Eastern types, but there are enough well-identified forms to make consideration of their import worthwhile. The main difficulty offered by stone is its inability to be dated except by style, with respect to sculptures and sarcophagi, and by association, as is the case with architectural stone. Also, in the case of certain architectural pieces like pillars, it can be difficult to prove that a specific location represents the primary use of the stone and therefore reflects the approximate date of import. Another, less obvious difficulty lies in establishing trade connections; although many types of stone can be sourced to their quarries, the appearance of a certain type of stone in a region may not represent trade with the area where the quarry is found but rather with a work-

shop in another part of the empire. For example, a sarcophagus carved in a workshop at Rome most likely reflects trade with Rome no matter the type of marble and its original source. However, as marbles, granites, and other stone can often be clearly identified, and their import represents large-scale movement of goods, I will consider cases where dating is relatively secure.

2.2. First century AD

2.2.1. Italy

Brick and tile make up a significant portion of the imports from northern Italy to Dalmatia where we find products both of imperially owned factories, especially Pansiana, Solonas, and Q. Clodius Ambrosius, and of a large number of private brickworks. In fact, more than a third of all bricks and tiles found in Dalmatia and stamped with the mark of a private manufacturer come from northern Italy (Wilkes 1979: 69). While most of these workshops were in Aquileia or the immediate vicinity, there are a couple of significant exceptions, namely the Pansiana and Solonas works. Although these were once thought to have been located near Aquileia, the different quality of clay and the poor representation at Aquileia show that this was not so; they were most likely located somewhere along the western Adriatic coast between Rimini and Pescara (Matijašić 1983: 987; Wilkes 1979: 67–68).

Based on similarities of style and lettering, the stamps are assumed to have been used mostly during the first century AD (Wilkes 1979: 69), so the import of bricks is dated between the end of the first century BC and the beginning of the second century AD, but with the exception of the Pansiana types they cannot be dated more closely. At some point during the reign of Augustus, the Pansiana factory came under imperial ownership, and between the reigns of Tiberius and Vespasian, all stamps bear the name of the reigning emperor, greatly facilitating dating of production and export (Matijašić 1983). While there was some pre-Augustan import, as demonstrated by finds from Alvona, Iader, and Bigeste (*Ibid.*: 963–964; Atanacković-Salčić 1978: 76), there is a dramatic increase in the number of finds and the width of distribution starting in the Augustan period, and with some allowance for differences based on length of reign, the import seems to have remained relatively constant at least until the reign of Vespasian, after which production stopped altogether (Matijašić 1983).

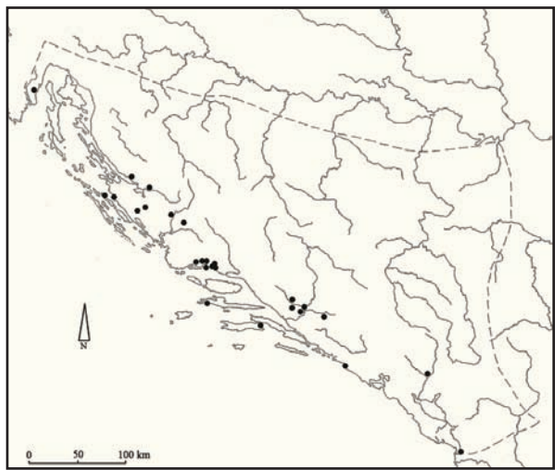

Figure 3. Findspots of **tegulae** *from the Q. Clodius Ambrosius workshop (by K. Glicksman, based on Slapšak 1974; Škegro 1991).*

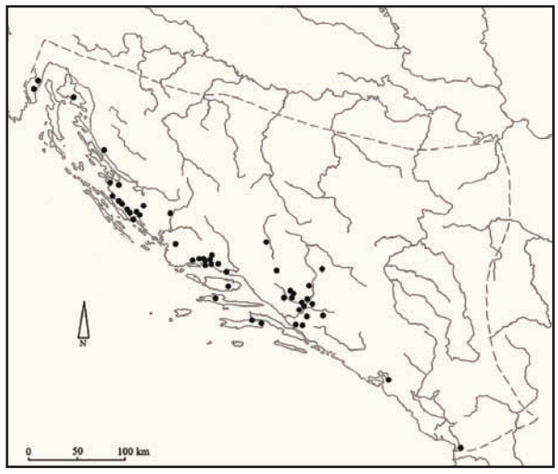

Figure 4. Findspots of **tegulae** *from the Pansiana workshop (by K. Glicksman, based on Matijašić 1983; Bojanovski 1980; Škegro 1991; Zabehlicky-Scheffenegger & Kandler 1979).*

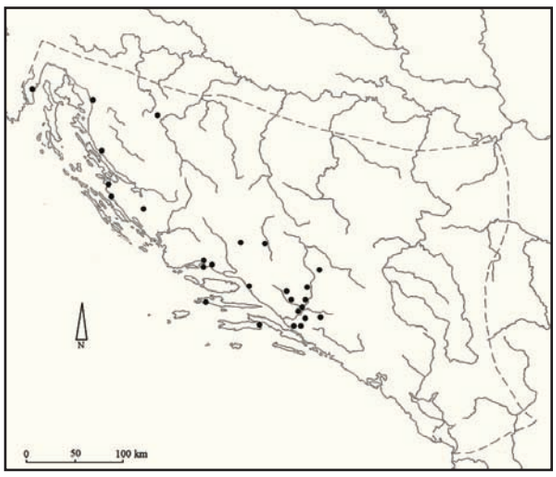

Figure 5. Findspots of **tegulae** *from private north Italian* **figlinae** *(by K. Glicksman, based on Matijašić 1987; Bojanovski 1980; Škegro 1991).*

Reports involving brick and tile finds in Dalmatia are not always clear, often only mentioning the recovery of the find without any detailed description of location within the site or even quantities of material (e.g. Gunjača 1985), and many examples were not recovered through controlled excavation, as is the case with a group of bricks donated to the Split Archaeological Museum, which reportedly came from Narona and for whose provenance we must rely on the good knowledge of the donor (Abramić 1926–27). But despite these problems, some observations can be made on the distribution and use of imported brick and tile in Dalmatia.

Northern Italian brick and tile was almost exclusively used in the coastal regions; there are few reports of finds further than fifty kilometres from the coast. Although they can be found anywhere between Alvona on the Istrian Peninsula and Lissos near the southern border of the province and also on a number of islands, the majority of finds occur between Iader and Narona with a good number found within Iader and Salona and clusters in the areas immediately surrounding Iader, Salona, and Narona (Fig. 3–5).

They are also found at a variety of sites: military, municipal, and private. Although some municipal use can clearly be demonstrated as secondary use, as in the fourth-century basilica at Salona, there is some evidence of contemporary use, for example the temple to Jupiter at Vegium (Wilkes 1979: 68).

The evidence for use in military establishments is surprising considering the demonstrated local military production; along with sixty-five bricks stamped with the names of three different legions stationed there during the first century AD, the excavations at Burnum also discovered three examples from the workshop of Q. Clodius Ambrosius and eleven from the Pansiana factory (Zabehlicky-Scheffenegger & Kandler 1979: 40–42). There is also considerable evidence for the private use of imported material with Italian brick and tile of known provenance coming predominantly from private buildings, seen especially in the large quantity found at villa sites in the area around Narona (Škegro 1991; Bojanovski 1980). Reports often do not distinguish between bricks and tiles, and indeed it is impossible to tell from fragments, but nearly all clearly identified, stamped material from northern Italy are *tegulae* (Wilkes 1979: 69), which were tiles used architecturally both for roofs and drains.

The long-distance transport of brick and tile is not particular to the Adriatic, where material from northern Italy has been found along both coasts (Matijašić 1983; 1987; Slapšak 1974); products from Campania have been found in North Africa, and they were probably transported as cargoes of saleable ballast with the expectation of returning to Italy with a much more profitable cargo of oil and fish products (Wilson 2001: 27; Tomber 1987: 169). I would propose a similar case for the import of brick and tile in Dalmatia during the first century AD, but whereas Wilson sees imports in Africa as destined for specific projects (2001: 27), Dalmatian import seems to have been related to a general need for roofing material. According to Matijašić (1987: 531), the first century AD was the most intense building period in Dalmatia. The wide distribution and the variety of sites using these imported materials point to a general trade in Italian *tegulae* rather than transport for specific projects, and the presence of products from a large number of *figlinae*, both imperial and private, with more than one often represented at the same site, excludes the possibility of any one workshop having a monopoly over the export to Dalmatia, further supporting the hypothesis of transport as saleable ballast rather than trade for profit. It is likely that there was regular transport of goods between Aquileia, where products of a variety of workshops could be acquired depending on availability, and Dalmatia, using the major ports of Iader, Salona, and Neum (the port of Narona). The workshops of Pansiana and Solonas were not located near Aquileia, however, and are poorly represented there (Matijašić 1987: 511–512). Although their products may have been acquired through regular trade with another city, like Rimini, it is also possible that they were transported directly from the workshops; however, it is impossible to tell from the present evidence. Even if transported directly, these products were also intended for the general market, since their distribution and use differ from other workshops only in quantity. The theory is also supported by three shipwrecks off the islands of Silba, Susak, and Lošinj (Jurišić 2000: 39; Matejčić & Orlić 1982: 165); although unexcavated, they seem to be single-cargo wrecks of *tegulae*, a phenomenon seen elsewhere in the Mediterranean (Tomber 1987: 169) suggesting the bricks were not a coincidental, secondary cargo, but a primary one. Future excavation of these sites could potentially provide us with valuable information regarding the number of workshops represented in a single shipment and possible proportions of stamped and unstamped tiles. This provision of brick and tile from Italy seems to have stopped sometime during the second century AD when it was superseded by local, private production which had started sometime around the end of the first century AD. The archaeological evidence suggests that tiles were transported from Italy as cargoes of saleable ballast, implying that trade between

Dalmatia and northern Italy in the first century AD was focussed on Dalmatian exports which would have produced a high enough profit to justify the lack of one on the return trip.

Amphorae considered to be of Italian manufacture are also commonly found in Dalmatia during this time; the most popular forms from the late Republican/early imperial period are the forms Lamboglia 2 and Dressel 6A and B. Based on the evidence of transitional forms, Dressel 6 (first century BC–first century AD) appears to have been a development from the Lamboglia 2 (second to mid–first century BC). In fact, they are so similar and the relationship seems so evident that Peacock and Williams (1986: 98–101) have categorised them as different forms of the same type (their class 8). While Lamboglia 2 amphorae seem to have been used only for wine, the Dressel 6 were more multi-purpose; they are known to have carried olive oil, wine, and *garum*. Although they represent two distinct forms and the Lamboglia 2 falls clearly outside the time range of this study, I consider both forms together here because they are so closely related and share a number of common problems.

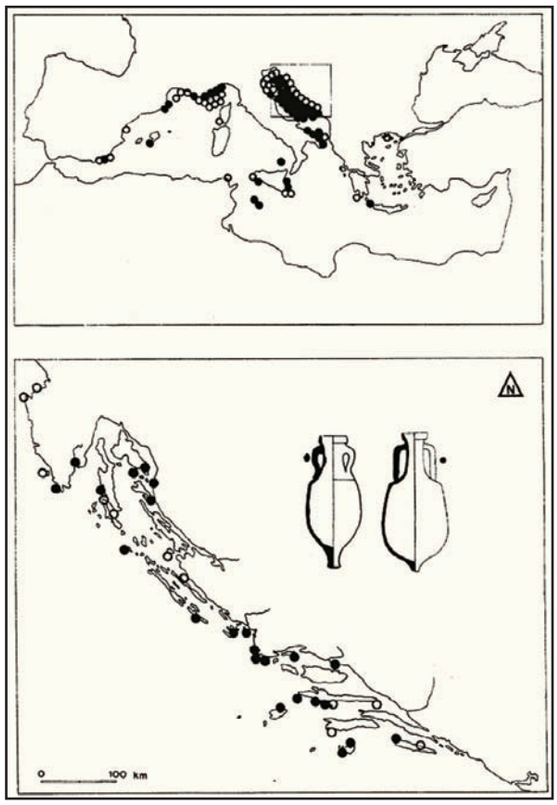

Figure 6. Distribution of Lamboglia 2 cargoes (from Jurišić 2000: 105, map 17; reproduced by permission of the author).

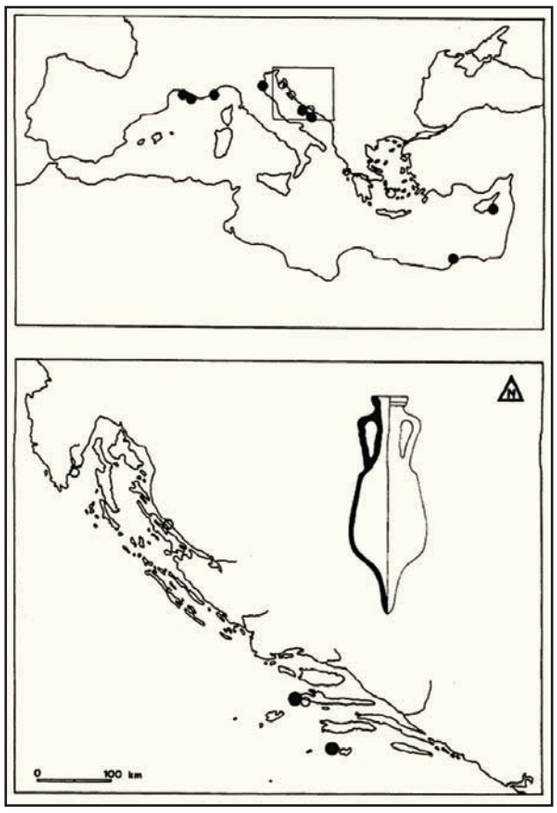

Figure 7. Distribution of Dressel 6A cargoes (from Jurišić 2000: 107, map 21; reproduced by permission of the author).

Because of similarities in form and fabric, it is often difficult to determine the type of any one potsherd; in some cases (e.g. Mardešić & Šalov 2000) no distinction is made, and the fragments are classified as La.2/Dr.6. Further confusion is caused by the apparent gradual development from the La.2 to the Dr.6 form, resulting in a number of transitional forms used contemporaneously, as seen by the presence of various forms within the same shipwrecks (Jurišić 2000: 12). The evidence from shipwrecks, according to Jurišić (*Ibid.*: 105, 107) shows a much greater representation of La.2 than Dr.6A, with twenty-two and two definitely identified wrecks, respectively (Fig. 6–7). (There are no known Dr.6B wrecks.) All three forms have been identified at sites excavated on land, namely Salona and Narona (Cambi 1989: 318, 323); a number of La.2 amphorae were used as construction material in the northern city wall of Narona, probably for drainage purposes, along with what appears to be a fragment from a Dr.1, an amphora rarely found on the eastern Adriatic coast (*Ibid.*: 318; Cambi 1980: 75).

Another major problem with these forms is related to their areas of production. La.2 are thought

to have been produced along the western Adriatic coast, especially in Apulia, while the production of Dr.6 forms was restricted to northern Italy and Istria (Peacock & Williams 1986: 100; Jurišić 2000: 6, 11–12). However, similarities in form and fabric prevent closer identification of locations of production even in the case of known kiln sites (Cipriano & Carre 1989: 82). This difficulty in identification suggests at least the possibility of production in coastal Dalmatia, whose pockets of clay are dominated by Eocene flysch similar in composition to that of Apulia (Sondi & Slovenec 2003: 257–258), but at the same time makes it extremely difficult to recognise amphora production in Dalmatia without the identification of kiln sites.[2]

In his article on Roman amphorae found in Dalmatia, Cambi (1989: 321) suggests the possibility that Greco-Italic and La.2 amphorae were imitated by Dalmatian workshops. He supports this view by suggesting a possible connection between the M. PAPIVS KANVS mentioned on an inscription from Tasovčići near Narona commemorating Octavian's victory over Sextus Pompey in 36 BC and the man referred to by the stamp KANI found on La.2 amphorae from a wreck near Stanići-Ćelina, on the coast between Salona and Narona (*Ibid.*: 321–322). He also attempts to connect the M.POT and L.POT stamps from the La.2 wreck at Vela Svitnja, Vis with a Greek and Latin inscription (*CIL* III, 3076) from Vis recording a dedication to Mercury from (L).PONTIUS.CN.F (Cambi 1991: 61–62). He also argues for the possibility of Dr.6 production in this region based on the frequency of this form in Dalmatia, although unfortunately he does not give any specific details (Cambi 1989: 323). Cambi's theories are at best tentative and difficult to prove, but as yet no more solid evidence exists for the possibility of amphora production in Dalmatia.[3] However, the possibility does exist; therefore we cannot, at the moment, use La.2 and Dr.6 amphorae to make any conclusions regarding the nature of trade between Italy and Dalmatia during the last two centuries BC and the first century AD.

Other Italian amphora types are less well-represented at Dalmatian sites. Dr.2–4 amphorae, produced in Campania between the first century BC and the first century AD and used for wine, have been identified at four shipwreck sites in the eastern Adriatic (Jurišić 2000: 14). Finds have also been recorded from excavations on land; two fragments were found at the site of Diocletian's Palace (Will 1989: 62), two at Salona (von Gozenbach 1975: 192), and another at Aquae S. (Cambi 1989: 326). The form is also represented at the Narona Augusteum where five of the ten Dr.2–4 fragments have been identified as Campanian (Topić 2004: 311).

Forlimpopoli amphorae were produced in northern Italy starting in the first century AD until at least the end of the third century, and were used for the transport of wine (Jurišić 2000: 20–22). Although they have been found at a number of underwater sites, on land they have only been identified at the Narona Augusteum (eight fragments) along with eight fragments of another first-century Italian form Haltern 68, and one Haltern 69, a first-century Italian amphora used for the transport of fish products (Topić 2004: 311–312). North Italian Portorecanato (used for wine between the first and third centuries), Campanian Dr.21–22 (usually containing preserved fruit), and Richborough 527 (produced at Lipari for the transport of alum) are also known from underwater sites in the eastern Adriatic (Jurišić 2000: 17, 22), but I have not found any references to them from land sites.

Italian pottery seems to have been quite common in Dalmatia during the first century AD; while some of the forms found at Dalmatian sites were produced during the second century and sometimes even later, the majority of Italian forms securely date before the beginning of the second century AD. Although different areas of Italy are represented in the pottery assemblages of Dalmatian sites, the largest part of these wares seems to come from northern Italy, especially the Po Valley.

Despite the popularity of Arretine ware, relatively few products from the workshops of Arretium itself have been found in Dalmatia; most Italian *terra sigillata* (ITS) came to Dalmatia from the Po Valley workshops. According to the revised *Corpus Vasorum Arretinorum* (Oxé *et al.* 2000), at the time of publication about 66 percent of all published stamped vessels found in Dalmatia (47 out of 71) were the work of Po Valley potters. This trend is unsurprising; we have already seen evidence of regular trade between northern Italy and the Dalmatian coast during the first century AD through the wide distribution of Italian tiles. Except for the major coastal cities Salona and Narona, and one outlier a short way inland at Golubic, finds of ITS seem to be restricted to the region of Liburnia, especially around the port of Iader, but also fairly well-represented in the northern part of the region (Kvarner)

[2] I am grateful to Keith Swift for his help in understanding some of the difficulties related to Lamboglia 2 and Dressel 6 production.

[3] Four of the six La.2/Dr.6 sherds discovered in the recent excavation of a villa underlying the basilica at Narona have been identified as locally-produced (Mardešić & Šalov 2000: 4), but no explanation is offered for this distinction.

where northern Italian tiles are rarely found. In fact, Italian wares apparently make up the largest group of imported ceramic material in Liburnia (Brusić 1993: 83).

The largest quantity of stamped ITS found in Dalmatia comes from the early Roman cemetery (in use between the time of Augustus and the mid-second century) at Apsorus on the island of Cres. ITS is clearly the dominant pottery type: 50 out of 61 recorded vessels, of which 38 bore legible stamps; of these 38, six were Arretine or probable Arretine products, while thirty came from workshops in the Po Valley. On the basis of the stamps, it is also evident that the great majority of the vessels were produced and mostly likely imported by the middle of the first century AD (Makjanić 1985; Oxé *et al.* 2000).

ITS, however, was not the only type of imported Italian ceramics. The most common northern Italian import seems to have been the so-called 'Sarius' cup. Of all the types of imported Roman relief pottery in Liburnia recorded by Brusić, these cups vastly outnumber any other type, even if one leaves out the over one hundred vessels represented in the graves of Arausa (Brusić 1999: 23). Excluding the Arausa examples, 'Sarius' cups make up thirty-five percent (49/140) of all known relief pottery imported to Liburnia between the first and fifth centuries AD, and account for more than fifty percent (49/95) of those types which were being produced between the last decade of the first century BC and the end of Tiberius' reign, which are the dates Brusić gives for the production of the 'Sarius' cups (*Ibid.*: 22). They have also been found at Narona: one example comes from the Augusteum and another (one of two pieces of Italian ceramic import) from the excavation beneath the church of Sv. Vid (Topić 2003: 189; Mardešić 1998: 108, 144).

Lamps are another common Italian import; they are well-represented at the Augusteum at Narona where 162 lamps found beneath the *temenos* have been identified as Italian products. Except for one from the first century BC and four dated within the second century or perhaps slightly later, all examples date between the first century AD and the beginning of the second, and the great majority of those with more specifically identifiable origins come from Cisalpine and Aquileian workshops. Only twenty-one other lamps were found (sixteen Corinthian and four probably local), and except for one of unidentified origin dated to the late first century BC, they all date between the second and third centuries AD, showing a predominance, if not exclusivity, of Italian forms at this site in the first century AD (Topić 2003: 193–195).

Although most Italian pottery found in Dalmatia comes from the Po Valley and the area around Aquileia, other regions of Italy are also represented; however, these finds tend to be much scarcer. Both Pompeian red plates (southern and central Italy, 1st–late 2nd century AD) and 'orlo bifido' bowls (Campania, 1st century BC–2nd century AD) have been found in limited quantities (eight and ten pieces, respectively) at Narona, mostly at the Augusteum but also from a nearby villa (one of each type) (Topić 2004: 305–306; Mardešić & Šalov 2000: 106). Rare finds on land, these coarsewares are known from two rather unique shipwrecks at Gušteranski Islet and Cape Glavat. The former has been heavily looted, and only about fifty vessels have been recovered: approximately fifteen percent Pompeian plates, the rest 'orlo bifido' bowls. The wreck (late 1st–early 2nd century AD) also contained Hispanic amphorae (Keay XVI and, possibly, Beltrán 2B) as well as north Italian Forlimpopoli, although the poor preservation of the site meant that only six amphorae in total were recovered (Jurišić 2000: 64).

The ship which sank near Cape Glavat at the end of the first century AD was carrying a varied cargo, including Cretan 1 amphorae, Campanian Dr.21–22, and Richborough 527 from Lipari, rough glass, lamps, Eastern pottery, and ITS, as well as ovoid, three-handled vessels containing the minerals minium (red lead dye), galenite and cerusite. The most numerous items recovered, however, were over five hundred Italian coarsewares: 'orlo bifido' bowls (97.3%) and Pompeian plates. Seven different plate and six bowl sizes have been found in this wreck; the bowls were accompanied by matching lids, and all were stacked together with others of the same dimensions (Jurišić 1988; 2000: 30, 61).

Glass was also a commonly imported Italian product during the first century AD, although this fact is probably a combination of two factors: commercial ties between Dalmatia and northern Italy, and the flourishing of Italian glass production in the first and second centuries. Enough glass has been identified as the product of Italian workshops to demonstrate that a variety of forms (bottles, cups, balsamaria, *olla cineraria*) was imported to the Dalmatian coast throughout the first century AD from Italy, and especially from northern Italy, in the cases where centres of production have been more specifically identified. Glass seems to have been especially popular as grave goods as much is found in necropoleis in Dalmatia, for example at Bakar, Iader, Argyruntum, and Doclea (Damevski 1974; Fadić 1982; 1984; 1993).

2.2.2. Western provinces

Western amphora types are not well-represented in Dalmatia; besides a possible fragment from Na-

rona (Mardešić & Šalov 2000: 106), the Hispanic Dr.2–4 is known in the eastern Adriatic only at two wreck sites: Paržanj near Hvar and Pupak reef near Palagruža. Two other types of Spanish amphorae, both used in the first century AD, were also found at Pupak reef: Haltern 70 for wine and Beltrán 2A for fish products; these amphorae have not been found on land in this region, although Beltrán 2A has been found as individual examples from the sea (Jurišić 2000: 14–15). The wreck at Paržanj also carried Hispanic spindle-shaped amphorae (late first century BC–late first century AD?) and Dr.7–11, used in the late first century BC and the first century AD for fish sauces. This last form is one of only two definitely identified Hispanic amphora forms found to date at Dalmatian sites on land, although it is limited to two fragments: one from the basilica excavation at Narona (Mardešić & Šalov 2000: 106) and the other from the site of Diocletian's Palace (Will 1989: 62). The only first-century evidence of the long-lived (1st–3rd/4th century) Dressel 20 Baetican oil amphora is a single rim sherd dated to the first half of the century, which also comes from the early layers predating Diocletian's Palace in Split (*Ibid.*: 63).

In terms of ceramic tablewares the western provinces of the Roman empire are only superficially represented in Dalmatia. A single, painted fragment, probably from a late Republican/Augustan Spanish *kálathos* vase, found at Salona is the only piece of Hispanic pottery known in this province (Del Chiaro 1973). Brusić has also recorded fourteen examples of late first-century southern Gaulish relief *sigillata* in the area around Iader (at Iader, Aenona, Asseria, Burnum, and Colentium), which is a fair representation in comparison to other forms of imported relief pottery (not including the extremely popular 'Sarius' cup) (Brusić 1999: 32). This Gaulish pottery may not reflect direct trade with Gaul but may have come to the Dalmatian coast through trade with Aquileia. However, it is curious that while having a fair representation among the imported pottery in the region around Iader, Gaulish pottery does not appear to have been found elsewhere in the province, except for two examples of south Gaulish *terra sigillata* from Salona dating to about the middle of the century (von Gozenbach 1975: 95).

Gaulish glass was imported during the first century and maybe even into the second century during its early phase of production, but it cannot match the Italian or the Eastern workshops for the variety of forms and the quantity found in Dalmatia. There are few forms that have been confidently identified as early Gaulish products, and these are not very well represented and then only at a few coastal sites: Iader, Apsorus, Bakar, and Senia (Fadić 1984: 120; Damevski 1974: 64).

2.2.3. PANNONIA

The only direct evidence of possible trade relations between Dalmatia and Pannonia are bricks bearing the stamp SISC, interpreted as a reference to the city Siscia in Pannonia, and found in the Japra Valley in northwestern Bosnia. Škegro (1991: 228) dates these bricks to the first and second centuries AD and claims they are numerous throughout the settlements of the area, but unfortunately, the only direct evidence he offers comes from a single site: Blagaj-Japra. The stamp comes from an unidentified number of bricks in a floor predating the sixth-century basilica over it (Basler 1972: 68). Whatever the quantity of bricks imported to this area, there can be little doubt that they were transported from Siscia along the river, although the dating is less clear; as with the Italian tiles, these bricks most likely signify a greater pattern of exchange focussed on export, probably of the metals mined in this area. However, the significance of this evidence is unclear since the exact location of the boundary between Dalmatia and Pannonia is unknown; Siscian bricks in Japra Valley mining settlements may represent trade between the two provinces or merely transport of materials within Pannonia.

2.2.4. EASTERN MEDITERRANEAN

The imperial Rhodian amphora type, probably used for wine between the late first century BC and the early second century AD, is rather well-represented by shipwrecks along the eastern Adriatic coast, although the Aegean is also represented in underwater finds from the same period by Cretan amphora types 1 and 4 from the first two centuries AD (Fig. 8–9; Jurišić 2000: 14, 24); they do not seem to be represented among published finds on land, however, except for a single fragment of the Rhodian type from the Narona Augusteum (Topić 2004: 311).

Eastern pottery was extremely popular in Dalmatia and is found in a variety of forms in the interior as well as at numerous sites along the coast. Some examples of Eastern Sigillata A (ESA), produced between the second century BC and the first century AD, and Eastern Sigillata B I (ESB I), produced roughly between AD 10 and 75, have been recorded at Dalmatian sites, mostly imported by the middle of the first century AD, but they are much less common than their later counterpart: ESB II (ca. AD 75–ca. 150). Of all Eastern *sigillata* imported to Kvarner, ESA constitutes a mere three percent, and Makjanić (1983: 51) believes that this early form is

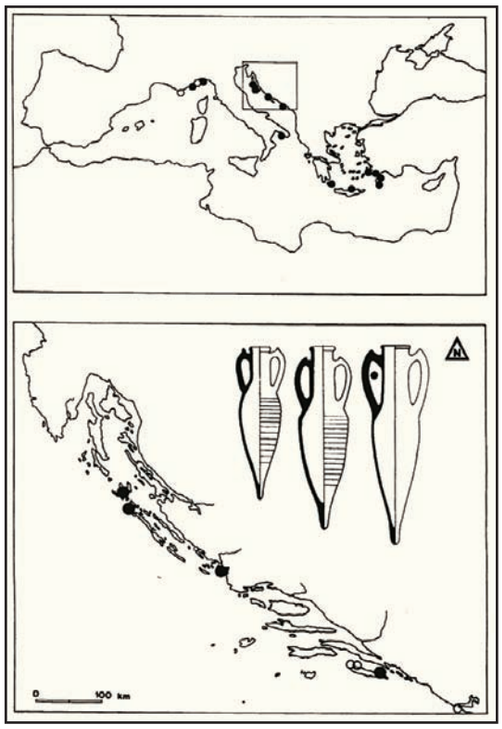

Figure 8. Distribution of Rhodian imperial amphora cargoes (from Jurišić 2000: 109, map 23; reproduced by permission of the author).

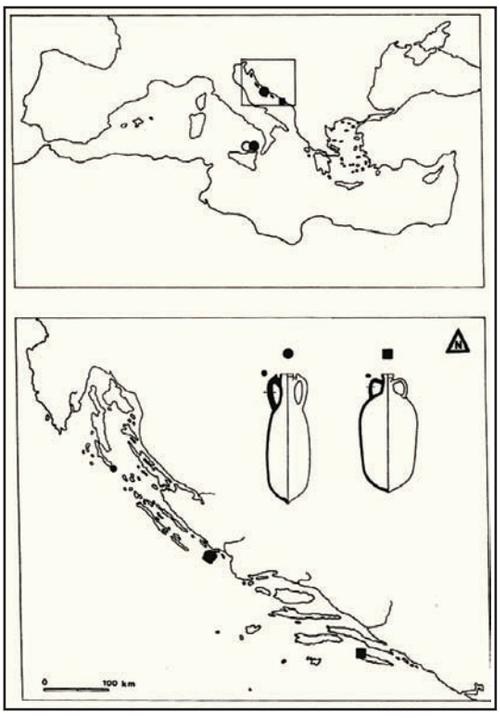

Figure 9. Distribution of Cretan amphora cargoes (from Jurišić 2000: 110, map 24; reproduced by permission of the author).

found so infrequently on the Dalmatian coast because it was produced mainly at the beginning of the first century AD, precisely when Italian ceramic imports were the most common.

The pottery from the *temenos* of the Augusteum in Narona shows an interesting relationship. The Italian imports (mostly produced between the first century AD and the beginning of the second) number approximately twice as many as the Eastern imports; although Eastern pottery appears here even during the Augustan period, import really seems to have picked up with the production of ESB II later in the same century, and the vast majority (83.5%) of Eastern tablewares at the site do indeed belong to the ESB II types, especially Hayes 60, 76, and 80 (Topić 2003), and although a number of ESB II types have been found in the province, the most popular types, found in relatively large quantities at most sites are the forms: Hayes 60 and 80 (Jurišić 2000: 30–34).

Brusić (1999: 38–41) records a type of mould-made relief pottery produced in Cnidian workshops between the first and third centuries AD and found at a number of Liburnian sites, but while one from Iader can be dated to the late first century, the other fifteen examples cannot be precisely dated due to lack of information, often because they come from old excavations and their contexts were not properly recorded.

As mentioned above, glass forms are often difficult to properly identify, especially in terms of provenance, so the evidence for imported glass in Dalmatia is more likely to reflect the state of knowledge of glass forms rather than the true nature of glass imports to Dalmatia. It is clear that significant quantities of glass were being imported to the province from the eastern Mediterranean, as signified by the variety of forms and findspots, mainly along the coast. In the cases where production centres have been more narrowly defined, the forms seem to come predominantly from workshops in Cyprus and Syria; Egypt is notably absent as a supplier, but it may be that the forms have not yet been recognised (Damevski 1974; Fadić 1982; 1984; Kirigin 1984; Gluščević 1986).

Various types of stone were imported to the eastern Adriatic coast during the first century, both in the form of statues and also of building material. A group of sculptures, mostly life-size, were discovered at the recently excavated Augusteum at Narona; nine of the forms have been identified as imperial portraits dating between the reigns of Augustus and Vespasian, and X-ray analysis of these sculptures has shown that seven were carved from Pentelic marble, one full statue and one head from Parian, while the latest sculpture in the group, that of Vespasian, was made from Thasian marble (Marin *et al.* 2004).

Another set of imperial portraits comes from the forum of Aenona; two have been identified as Augustus and Claudius, while a further two headless statues are thought perhaps to be Julius Caesar and Vespasian (Suić 1981: 282–284). (Seven statues are mentioned in past literature, but only four have been preserved to the present day.) This sculptural group has been associated with the completion of a second, larger temple and has thus been dated, as a group, to the second half of the first century. They have all been identified as being carved from Pentelic marble, but it is also thought that they may have been carved in Aquileian workshops (*Ibid.*: 284), in which case they would represent a connection with northern Italy rather than the eastern Mediterranean. Saletti (2004: 11–13), however, has recently argued that although these statues bear a striking resemblance to certain sculptures from Aquileia, they represent a style different from that of works normally identified as products of Aquileian workshops, and he has proposed that they show instead a style particular to Dalmatia, perhaps to Aenona itself, and that the Aquileian examples were influenced by Dalmatian work or perhaps even carved by Dalmatian sculptors in Aquileia. If Saletti is correct in his analysis, these statues would indeed represent trade in stone for sculpting with the East.

Imported marble was also used in the portico of the forum at Iader, which was thought to have been constructed during the reign of Vespasian or of Titus. Both green *cipollino* from Euboea and some greyish-blue marble were used in the columns of the portico; most of the evidence comes as fragments found in the excavation of the forum, but two of the greyish-blue type were fully preserved by secondary use in Sv. Donat, a medieval church constructed partly from remnants of the Roman forum (Suić 1981: 208).

2.3. Second century AD

2.3.1. Italy

Although most Italian pottery found in Dalmatia definitely dates before the second century, some of the forms do continue into this period and may well have been imported to the province at this time. Concrete evidence of northern Italian pottery imported in the second century is rather scarce, although some commercial link must still have existed into this century, as four lamps (out of 162) from the Augusteum at Narona have been dated to the second century. This decrease in pottery imports is unsurprising considering the decline of the northern Italian pottery workshops in the middle of the previous century; however, there seem to be no further identifiable imports from northern Italy, except glass.

Italian glass continued to be imported to Dalmatia through much of the second century, although the forms seem to be the same as those imported in the first century, and as in the case of ceramics, the decline in Italian glass imports was probably mostly the result of a decline in the Italian workshops in the face of increasing provincial production, including in Dalmatia itself (Damevski 1974; Fadić 1982; 1984; 1993).

This century saw a general increase of trade in sarcophagi, as inhumation replaced cremation as the more fashionable method of burial, and wealthier people sought tombs with which to reflect their status. Sarcophagi made of expensive stone were fashioned in workshops in the city of Rome beginning in the early second century and are first seen in Dalmatia before AD 170. The earliest identified example of a Roman sarcophagus on the Dalmatian coast, and the only one dating within the second century, is a fragment from Salona bearing the head of Oceanus and two sphinxes; based on the absence of drill-work, this fragment has been dated to sometime before c. AD 170 and the beginning of drill use in sculpture (Cambi 1977: 449, 455–456).

2.3.2. Western provinces

Almost the only evidence of trade in Baetican oil to the Dalmatian coast is the rather remarkable discovery of Dressel 20 amphorae in the sea at Split's Špinut Bay. When the amphorae were discovered in 1958, the site was quickly plundered, and an estimated forty or fifty amphorae were either destroyed or stolen, most ending up in private collections, although three complete examples, plus a few fragments, all belonging to the Dr.20 type, were later acquired by the Split Archaeological Museum (Cambi 1975: 115). Excavation was finally conducted on a limited scale in 1974, revealing not a shipwreck as had been expected, but a deliberate deposition of amphorae filled with rubbish, possibly as part of a land reclamation scheme in this rather marshy area. Fourteen amphorae were recovered from the excavation: eight African amphorae placed as one layer and six Dr.20 as another, upper layer (Cambi 1983: 366-367). A number of stamps were discovered, but some are unique while others are as yet undated. Two stamp types (SAXO FERR, of which there are three from Špinut, and perhaps FSF A QVA) have been interpreted as coming from the same *figlina*

which produced the amphorae found at Monte Testaccio with the stamp FIG SAXO (*CIL* V, 2, 4171) dated to AD 149 (Cambi 1983: 369–370). Two other stamp types have also been given dates; LPMS has been dated to the second century, while the stamp SCOROBRES, of which five examples come from Špinut, has been dated to either the second or third century (*Ibid.*: 372, 380–381).

Although all the Špinut amphorae are not necessarily contemporaneous, their forms are quite similar despite having been produced in different *figlinae* (*Ibid.*: 367), and it is reasonable to see them as coming from roughly the same period. This would indicate, then, a high level of import of Spanish olive oil in the area of Salona sometime during the second century AD, while the early fragment from Diocletian's Palace suggests at least some contact in the first century. There does not seem to be any conclusive evidence for later import; Oreb and Marin (1980: 58) identify an amphora from one grave at Sućidar in Split as Dr.23 (used for Spanish olive oil during the third and fourth centuries), but I hesitate to accept their identification since the photograph (Fig. 10) seems to show an amphora with much straighter sides than one would expect with a Dr.23, possibly an African type which found popularity in secondary use as tombs.

Figure 10. Amphora grave no. 1 from Sućidar, Split, identified by Oreb and Marin as Dr. 23, but probably an African type (from Oreb & Marin 1980: pl. 21; reproduced by permission of the Split Archaeological Museum).

2.3.3. North Africa

Amphorae from North Africa seem to appear in Dalmatia sometime during the second century AD, but it is difficult to tell since these types (forms from the Tripolitanian and from the Mauretania Caesariensis series) continue to be produced into the third century as well. These earlier forms are rarely found in shipwrecks, and the one underwater find of Mauretanian Dr. 30 wine amphorae comes from a wreck dated to the third or fourth century (Jurišić 2000: 21).

A fragment of a Tripolitanian II oil amphora was found at Narona in a second/early third-century context (Mardešić & Šalov 2000: 106), but a much more convincing example comes from Špinut at Split, where a layer of Tripolitanian I oil amphorae was deposited in the marshy area surrounding the bay and covered by a layer of Spanish Dressel 20 amphorae dated to the second century (Cambi 1989: 327). Of course, we cannot know how long after primary use the amphorae were deposited in Špinut Bay, but the presence of an upper layer of second-century amphorae argues for a relatively early (i.e. second-century) date for the African amphorae found in the same context.

North African pottery may have reached Dalmatia before the second century, but except for a single coarseware example from the Augusteum at Narona dated to the first century AD, no examples from Dalmatia can clearly be placed in a first-century context. It is undeniable, however, that North African pottery, both coarsewares and the finer African red slip wares (ARS), was a very popular import in Dalmatia after the first century; they are found both at urban and rural sites in a number of forms. This import reflects a general pattern of increased North African export, but not until the third century is ARS seen to dominate Dalmatian ceramic assemblages. Finds from the Narona Augusteum, for example, show the appearance of early (late first to second-century) forms in Dalmatia through twenty-one fragments found in the *temenos*, but fragments of ESB II forms produced during the same period number 70 (Topić 2003: 224–243). Evidently, the import of African pottery in the second century was eclipsed in the Dalmatian market by the continued popularity of Eastern wares.

2.3.4. Eastern Mediterranean

ESB II forms continued to be produced and imported to Dalmatia during the first half of the second century; some finds have been discovered in later contexts: from the third century at the villas in Višići and Panik, for example (Dvoržak-Schrunk 1989: 106), but as the end of production has been set in the mid-second century, these examples most likely represent long use rather than later import.

A number of coarsewares were also imported during this period, mostly dating between the first and third centuries, and unfortunately, many have not

been more closely dated. Round-bottomed pots and casseroles were used at the Augusteum at Narona, as were a variety of jugs, apparently of eastern Mediterranean origin (Topić 2004: 307–309).

Eastern pottery types are often found at shipwreck sites but not often as recognisable cargo, although there are two notable exceptions, both from the second century. One at Cape Sv. Ivan on Pelješac has been badly looted, but rescue excavations recovered over two hundred pieces of Eastern coarsewares of various types: bowls, platters, jugs, pots, etc. (Jurišić 2000: 74). Another cargo of eastern Mediterranean pottery was found at the early second-century wreck near Cape Izmetište on the island of Sv. Kliment, one of the Pakleni islands off the western tip of Hvar. A few Greek Dr.2–4 amphorae were recovered from the wreck; also part of the cargo were ten partially-dressed stone blocks: all limestone except for the largest, which was a dark green granite. About 2500 pieces of pottery were also recovered during excavation; about half of these were ESB II plates and platters (Hayes 60, 62/63, 76, and 80), while the other half was made up of about ten different forms of Eastern coarsewares (Jurišić 2000: 65). Of course, we have no way of knowing where the ship was bound, but if it was headed for a Dalmatian port, it would form an interesting connection with the tile-cargo wrecks and possibly the above-mentioned wreck at Cape Glavat, because the partially-dressed stone and the pottery could be seen as a cargo of saleable ballast rather than a cargo that would provide a good profit in return for the risk of sea trade.

As well as pottery, many of the glass forms identifiable as eastern Mediterranean products continued to be produced during the second century and were probably also imported at this time. Three forms, however, have been identified as having begun production in the second century and continuing into the third; one of these is considered to be of Syrian origin, while the other two have been suggested as Egyptian products (Damevski 1974: 65; Cermanović-Kuzmanović 1968: 31; Fadić 1982: 117).

Even more common in Dalmatia than Roman sarcophagi were those made from the marble of Mount Pentelikon near Athens, and then carved in Attic workshops, leaving only the finest detail to be completed at the final destination. Production and export started around AD 140, and the earliest evidence from Dalmatia comes as two fragments of a single sarcophagus depicting centaurs hunting lions, found on the island of Koločep, and dated to AD 160–170 (Cambi 1987: 132). The rest of the second-century Attic sarcophagi found in Dalmatia cannot be securely dated before the last quarter of the century; three have unknown provenances, while the others were found at Tragurium, Asseria, Salona, on the island of Koločep and somewhere in the vicinity of Knin. It is interesting to note that the high level of import seen at Aquileia at the end of the second century is not mirrored on the Dalmatian coast where only 10 examples out of a total 112 can be dated before the beginning of the third century (Cambi 1988).

2.4. Third and fourth centuries AD

2.4.1. Italy

The import of Italian glass to Dalmatia seems to have stopped sometime during the second century, but there is one identifiable exception. Cermanović-Kuzmanović (1968: 37) has identified at the necropolis of Doclea a type of glass bottle which she believes to be the fourth-century product of an Italian workshop. If so, it would be remarkable in the sense that it is the only direct evidence of continued trade with Italy, except for the luxury import of Roman sarcophagi, which continued throughout this period.

Although Roman sarcophagi were imported over a longer period than those from Athens, they are significantly fewer in number. A total of thirteen sarcophagi found in Dalmatia have been identified as having been produced in Roman workshops in the third and fourth centuries; of these, nine come from Salona or nearby, and the only other provenanced fragment was found built into the wall of a house on the island of Koločep. Roman sarcophagi seem to have been imported until the end of the fourth century, shortly before the end of their production (Cambi 1977). The concentration of Roman sarcophagi in the Salona area reflects a similar situation with the Attic sarcophagi (discussed below), and the presence of Attic and Proconnesian sarcophagi along the Dalmatian coast indicates the popularity of expensive, imported sarcophagi. The comparatively small number of Roman types, therefore, probably reflects a lower level of trade with Rome than with the East, rather than the lack of a market for imported marble sarcophagi.

2.4.2. Western provinces

Glass produced in Gaul and also especially that from the Rhineland was imported to Dalmatia during the third and fourth centuries in much greater quanti-

ties than it had been previously. Western glass seems to have been especially well-represented at the late Roman necropolis at Doclea, but while forty-two types are suspected as being Western forms, only seven can actually be confidently identified as such (Cermanović-Kuzmanović 1968: 41). Given the significant lack of information regarding late Roman, Western glass forms in Dalmatia, I can conclude very little, except that the import existed, and while some of the glass was undoubtedly transported via maritime routes, some imports could have arrived by means of overland or riverine communications.

2.4.3. North Africa

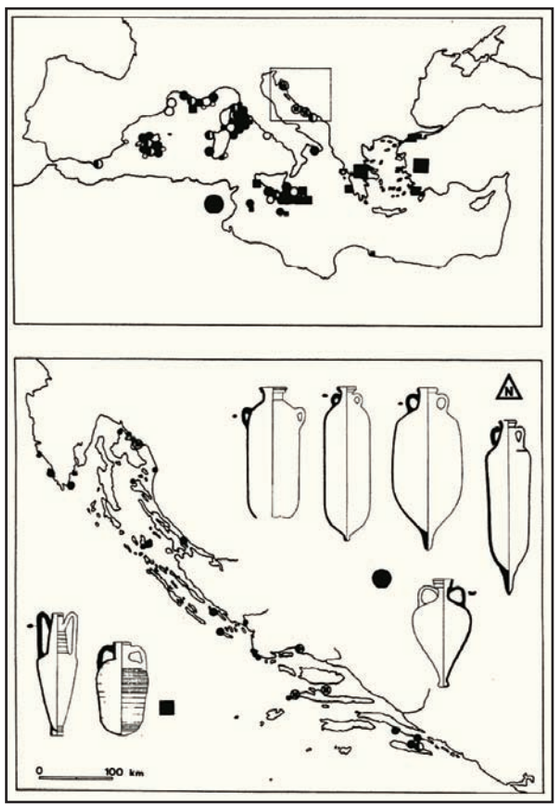

Figure 11. Distribution of late Roman amphora cargoes. Eastern types are represented by squares and North African by circles (from Jurišić 2000: 132, map 47; reproduced by permission of the author).

The evidence for the third- and fourth-century import of African amphorae to Dalmatia is much stronger than from the previous period. A number of shipwrecks from these centuries has been recorded as carrying large quantities of North African amphorae; unfortunately, these reports tend not to be very explicit, but these wrecks seem to include the types Africana I and II, Keay XXV and XXXXLV (Fig. 11; Brusić 1976; Kisić 1988; Jurišić 2000: 56–57).

Finds on land have been numerous, compared to finds from other periods and other regions. Most of the amphora sherds from the excavations of Diocletian's Palace are North African in origin; many are forms of Africana I or II (third century), but most examples belong to the fourth- and fifth-century types: either late imperial 'cylindrical' or the '*spatheion*' type (Will 1989: 63–64; McNally 1989: 118). While oil seems to have been the dominant produce packaged in Africana I amphorae, the other types were probably used for a variety of products including fish sauces and wine (Bonifay 2004: 471–473).

These types are also quite common in the later occupation of the villa, the remains of which were discovered under the basilica at Narona (Mardešić & Šalov 2000: 106–107) and also seem to have been found much further north in the Kvarner region at Povile and Rijeka (Will 1989: 63). Amphorae were also discovered in the southern part of Salona, probably used to drain this flood-prone area near the mouth of the Salon River, and although no specific type has been identified, they have been recognised as late antique amphorae from Tunisia (Cambi 1980: 76; 1989: 330).

North African amphorae were also commonly used in Dalmatia, as in other parts of the Roman world, as graves for the poorer classes; this method of burial seems to have been in fashion between the fourth and sixth centuries AD. The body could either be covered with large amphora sherds or actually placed inside an amphora which had been cut just below the shoulder (Dyggve 1928: 146, 153). These burials have been found at Salona (one Africana piccolo) and at three sites in Split: Dobri (four, probably Africana piccolo), Partizanska ulica (one Tripolitanian II; one Africana Grande), and at Sućidar (four Tripolitanian II) (Cambi 1989: 328–330). Eighty-six amphora graves were discovered beneath the basilica at Kapljuč in Salona; most of the graves, being positioned beneath walls and pavements, predate the fourth-century construction of the church (Dyggve 1928: 146, 153, 177). The forms are not identified, probably due in part to the early date of the excavation, long before the recent study of African amphora types, but they do seem to show an elongated cylindrical form typical of North African amphorae from this period (Fig. 12). Also unidentified but sharing these characteristics of North African amphorae are two child graves from Narona (Fig. 13; Patsch 1907: 18–19). Although these graves have been dated to the fourth century, the date does

not necessarily apply for the arrival of the amphorae in Dalmatia, although it is likely that they were used for burial soon after their primary function ended.

Figure 12. Amphora grave from Salona (from Dyggve 1928: 144, fig. 146).

Figure 13. Two child amphora graves from Narona (from Patsch 1907: 18–19, figs. 9–10).

The evidence seems to show that while there may have been some import of North African products during the second century AD, it increased greatly over the subsequent two centuries. Both at the Narona villa and at Diocletian's Palace, the results of excavation show not only an increase in African amphorae but an overall increase in amphora fragments. At Diocletian's Palace, at least, we know that there was a general increase in activity (namely, the construction of the imperial residence) at this site, so the increase may reflect patterns in occupation rather than import. Also, a large number of African amphorae have been found at graves, but these burials may skew our results because earlier amphorae cannot be represented in this way as this fashion only began in the fourth century. It is interesting to note, however, that the graves all seem to have used African types, although the size and shape of the long, cylindrical amphorae may have influenced this decision as much as their apparently wide availability. African amphorae were popular as graves in late Roman Tarragona in Spain, for example, where these types are over-represented in necropoleis and under-represented in rubbish tips (Remolà 2000: 119). Thus, although there is good evidence for African agricultural imports to Dalmatia, the exact significance of the import is indeterminable without further investigation.

The import of North African pottery, especially ARS, remained strong throughout this period and even continued past the end of the fourth century, coinciding with the relatively high level of export from North Africa during this period. ARS is not only found on the coast of Dalmatia but has also been discovered in significant quantities at sites further inland as well, especially at the villas of Višići and Panik, but also at Duvno, Bugojno, Doboj, and Ilidža in modern Bosnia and Herzegovina. The amount of variation in forms differs from site to site with a much greater variety of ARS forms found at coastal sites, especially at the site of Diocletian's Palace (Dvoržak-Schrunk 1989), than at sites further inland which tend to show a much more limited range with particular forms dominating the assemblages, namely the types Hayes 45, 50, and 57 (Čremošnik 1970: 76).

ARS seems to dominate the third- and fourth-century assemblages of imported pottery at Dalmatian sites. Except for some Eastern types, which mostly date to the end of the fourth century and later, ARS seems to have been virtually the only imported tableware during this period. It may very well be that other types, perhaps from the eastern Mediterranean, have not yet been identified. A better identification of imported pottery from this period and a reassessment of evidence from Dalmatian sites could very well alter the present picture of North African dominance, but it would not change the fact that the archaeological evidence shows North African imports to have continued steadily throughout this period and to have been popular on a variety of Dalmatian sites in the third and fourth centuries.

2.4.4. Eastern Mediterranean

The literature on later shipwrecks is not very helpful in identifying Eastern amphora types, although Jurišić (2000: 132) shows the eastern Adriatic distri-

bution of what appear to be Kapitän II forms, used in the third and fourth centuries AD possibly for wine from the Aegean, and British Bii/LR1 forms, produced between the fifth and seventh centuries in Syria and Cyprus mostly for oil and wine (Decker 2001: 76–77, 80); the latter form is outside the time range considered by this study, but Jurišić plots both eastern types together (Fig. 11).

Will (1989: 65) identifies fourteen fragments of the British Bi/LR2 form (4th–7th century) from the excavations at Diocletian's Palace, and also remarks on the discovery of this form further north at Povile and Rijeka. This type of amphora, produced in the Aegean, seems to have been used primarily for the transport of olive oil (Karagiorgou 2001: 146–147).

In his article on Roman amphorae in Dalmatia, Cambi (1989: 331–335) reports the recovery of about fifty 'Byzantine' amphorae used in the late antique reconstruction of the northern city wall of Salona. He dates their use to between the fourth and sixth centuries, while he seems certain that the wall was reconstructed at the end of the fifth or the beginning of the sixth century (Cambi 1961–62); one of the amphorae in his photograph (Fig. 14) seems to resemble the Late Roman (LR) 1 form, and another the form Keay LII (probably used for wine between the fourth and sixth centuries), but unfortunately, no more definite information is provided for this find.

Figure 14. 'Byzantine' amphorae found in the north city wall of Salona. The one on the far left seems to be a British Bii/LR1 amphora, while the one on the far right seems to belong to the type Keay LII (from Cambi 1989: 335, fig. 37; reproduced by permission of the École Française de Rome).

A number of amphora sherds were also discovered in a drain in Diocletian's Palace; the majority of the sherds point to a deposition date between AD 350 and 420 (McNally 1989: 117). Along with a good number of African amphora fragments were discovered sherds from Riley's LR4 from Gaza, an early version of the LR2, and LR3 from Asia Minor. Also represented was at least one amphora from Egypt, although no form is given (*Ibid.*: 118). Although these forms all start in the fourth century, we unfortunately know nothing about their contents, except that the LR4 may have contained wine.

Quite a few amphorae of eastern Mediterranean origin have been found in the late antique levels of the villa found beneath the basilica at Narona (Mardešić & Šalov 2000: 106–107), but many of these are not identified with specific forms. Among the identified Eastern forms possibly dating from the fourth century from this site are the LR4, the Agora V with contents and specific origin unknown, and the LR10 from Asia Minor.

Unfortunately, the lack of knowledge concerning these late Roman amphora forms from the eastern Mediterranean makes analysis of trade relations between the region and Dalmatia difficult. However, it is interesting to note that although shipwreck evidence seems to show a continuous flow of amphorae from the eastern Mediterranean to the Adriatic, only the later forms seem to be represented on land, although this may be due more to site occupation, or modern biases of excavation and publication, than to trade relations.

Some evidence also exists of Eastern pottery imports, although it is not nearly as strong as the evidence from the first two centuries. A type of Corinthian relief-decorated bowl, which was produced during the second half of the second century until the end of the third century, was found not only in southern Liburnia (at Asseria, Aenona, and Iader) but also at other Dalmatian sites: Salona, Doclea, Bugojno, and Trebinje. Also from Corinth were sixteen lamps used at the Augusteum at Narona between the second and early third centuries (Topić 2003: 196), as were the late second/third-century beakers from the villa at Panik and also from Bugojno and nearby Čipuljići (Čremošnik 1974: 103).

From Attica came a few fragments of Athenian ware found in fourth- to seventh-century contexts at Diocletian's Palace, as well as four lamp fragments; these lamps were imported to the Dalmatian coast and along the major Pannonian rivers (Danube, Sava, Drava) during the late third and fourth centuries (Dvoržak-Schrunk 1989: 107–108; 1979: 91).

Also found in Dalmatia at this time are the Phocaean red slip wares produced at Phocaea on the west coast of Asia Minor. Of ten forms found at Diocletian's Palace, only the first two fall within the given time range for this study, and then only barely, dating roughly between the late fourth and mid-fifth centuries (Dvoržak-Schrunk 1989: 97). Other evidence, for

example from Narona, also indicates the popularity of this type at later sites, but as it is largely imported after the fourth century, I wish merely to indicate the continuation, and perhaps the resurgence, of the import of Eastern pottery types in Dalmatia.

Eastern glass seems to become much scarcer in Dalmatia during this period, but as mentioned before, we must keep in mind our inability to source glass forms properly. Although some Eastern forms have been identified, none has been identified with a definite region of origin, although Syria and Egypt are the predominant suggestions (Fadić 1984: 138; Cermanović-Kuzmanović 1968: 41–42; Damevski 1974: 65).

The import of Attic sarcophagi flourished in the first half of the third century, finding a strong foothold in the Dalmatian market about a quarter of a century later than in that of Aquileia. Cambi (1988; 1993) records 102 sarcophagi (both whole and fragmentary) dating between AD 200 and the end of production in 260/270, but about 40% of these cannot be more closely dated making it difficult to determine trends within the period. About half of these were found either at Salona or in the immediate vicinity, while a further thirty-two examples kept in the Split Archaeological Museum have no recorded provenance but are thought to come from Salona. The others were found at various sites on some of the islands but mostly along the coast between Salona and Iader (Fig. 15). The main distribution between Salona and Iader echoes a pattern seen in the first-century distribution of Italian tiles, but the concentration of Attic sarcophagi around Salona is an interesting development. Although it is reasonable to interpret the coastal distribution as a reflection of the great expense involved in moving such heavy, and already costly, objects by land, such an interpretation would not explain the low number of sarcophagi in the area around Iader in comparison to the Salonitan hinterland. Although the pattern may be attributable to a coincidence of excavation, it could also possibly be related to the social composition of the areas; it could also indicate a concentration of wealth in the area around the provincial capital. I realise, however, that verification of these hypotheses would require a close study of the composition of societies in these regions and their burial methods, which is beyond the scope of this paper, but it is important to realise that society, and the distribution of wealth within it, could potentially have had a significant effect not only on trade but on the economy of Dalmatia as a whole, and these aspects of the province's economy deserve attention.

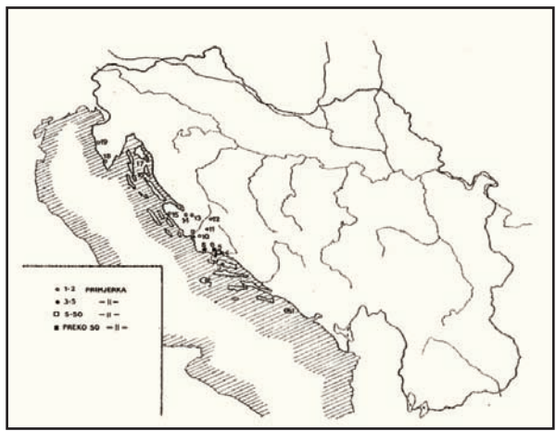

Figure 15. Distribution of Attic sarcophagi in Dalmatia (from Cambi 1988: 70; reproduced by permission of the author).

Proconnesian sarcophagi also seem to have been popular imports, apparently appearing on the Dalmatian coast between the second and sixth centuries; like all Proconnesian sarcophagi they were shipped as roughed-out forms and either used as they were or finished in local workshops. Cambi (1998: 169) has identified fifty sarcophagi as coming from Proconnesos, although dates are only available for twenty-four of these which belong to the architectural type, mostly dating to the late third or early fourth century (Cambi 1994). Only four examples date to the early third century, including the only three not found at Salona; these come from Scardona, Issa, and the vicinity of Knin. The concentration of these sarcophagi around Salona indicates the presence of a workshop in the city, although Cambi suggests, based on certain stylistic differences in the example from that city, that there may have been another workshop at Scardona (*Ibid.*: 87).

The import of architectural stone from the eastern provinces continued during this period; one example comes from Iader where red granite columns, probably from Egypt, were used in the early third-century construction of a basilica on the forum (Suić 1976: 162). A more impressive example comes from Diocletian's Palace at Split built in the late third and early fourth centuries; Ward-Perkins (Dodge & Ward-Perkins 1992) remarks on the dominance of Egyptian stone among the columns of the imperial residence, identifying both red and grey granites, and purple porphyry; two other Eastern types also appear: white Proconnesian marble and the Bithynian grey-and-brown *breccia corallina*. Mirnik (1989: 35) also notes the discovery during excavation of revetments made from Phrygian *pavonazetto*. However, since Diocletian's Palace was an imperial residence,

the marbles used there may have been special imports for a specific purpose rather than representing employment of an already existing trade connection. The types used do seem to correlate with stone imports seen at Iader and at Salona (Dodge & Ward-Perkins 1992: 116; Clairmont 1975: 209); that is, a predominant, almost exclusive, use of stone from the eastern provinces, including Egypt, although some of the stone, like Egyptian purple porphyry, is not recorded elsewhere in Dalmatia and relates to the imperial character of the site. Further study on the use of imported marbles in Dalmatian architecture over time would be very useful not only in determining patterns of trade but also in identifying the nature of marble imports for Diocletian's Palace and their relation to the existing stone trade.

2.5. Conclusion

Despite the difficulties imposed by both the nature of the archaeological evidence and also the level of our knowledge of the archaeology of this region, some conclusions can be proposed regarding the pattern of imports to Dalmatia during the first four centuries AD. First, I would like to summarise the general diachronic trends related to commercial connections with various parts of the empire. Already in the first century, the archaeology seems to indicate a well-developed system of trade along the Dalmatian coast; the two main contacts were Italy, predominantly the northeastern part, and the eastern Mediterranean. Neither of these connections is surprising; trade with northern Italy is to be expected considering the importance of Aquileia as an emporium and the geographical closeness of the regions. Commercial contact with the eastern Mediterranean had developed over the past few centuries with the colonisation of the islands and some of the coastal regions by a number of Greek states, and it is perhaps unsurprising that trade should have continued into the imperial period. There is some connection with the western provinces, but these imports seem to be more sporadic and much less common than the Italian and Eastern products; although there is no direct evidence for the hypothesis, it is not unreasonable to suspect that such bits of northwestern pottery and glass that reached Dalmatia during the first century came via Aquileia.

Eastern imports seem to remain constant throughout the second century, but otherwise, this century seems to have been one of transition in which the influence of Italy diminished and imports from North Africa were introduced. That North African pottery and amphorae should be found in Dalmatia precisely at the time when they were beginning to be produced and exported on a large scale seems merely to be a reflection of the pattern seen throughout the Mediterranean. But the reason for the shift away from Italian trade is less obvious, and as yet I can offer no satisfactory explanation, but I do caution that there may perhaps be some import that is either archaeologically invisible or not yet identified. There is also the interesting case of the seemingly brief trade in Baetican olive oil, but whether it arrived in Dalmatia as a result of direct trade with Spain or indirectly through trade with Italy, for example, is difficult to say. The developments of the second century seem to remain throughout the third and fourth centuries with North Africa and the East retaining a strong hold on the Dalmatian market, and Italy and the western provinces being represented only fitfully.

The types of material imported to Dalmatia also reveal an interesting trend; they tend to be relatively cheap materials like tiles (although only in the first century), pottery, and glass. Despite this apparent trend, however, it is important to be aware that there may be other imports that are invisible or not sufficiently datable. Certain luxury objects, for example, like Baltic amber and various gemstones, must be imports, but the significance of their import is unclear, since it is not always possible to tell whether they were imported directly from their region of origin or from some workshop located elsewhere. Also, the generally long use of valuable objects makes dating difficult; even if they come from dated contexts, they cannot necessarily be assumed to have arrived in the region during the same period.

We do have evidence of luxury imports, however, in the trade in Attic, Proconnesian, and Roman sarcophagi. Dalmatia also saw the import of stone for sculpture and for architectural use; the extent to which these were worked before transport is debatable, but the case of the first-century imperial statues from Aenona argues for raw stone imported for local use, as does the partially-dressed block of green granite found in the second-century Cape Izmetište wreck.

The import of raw stone would also correspond well with some of the evidence for bulk import of pottery and tiles seen in the shipwreck evidence. The tile wrecks can almost certainly be regarded as destined for Dalmatian ports, since northern Italian tiles are not known to have been exported beyond the Adriatic. While the destination of the large pottery cargoes is less certain, they seem to fit into a possible pattern of the import to Dalmatia of large amounts of material which probably functioned as saleable ballast, although again, the analysis we can make of Dalmatian imports is limited to these types of materials which are able to be securely dated and provenanced. However, the shipwreck evidence does indicate the

possibility that merchants trading with the Dalmatian coast relied more on Dalmatian exports for profit than on imports.

Most trade to Dalmatia seems to have occurred along the coast, and except for bricks from Siscia, there is no viable archaeological evidence for exchange during the Roman period across the boundaries of provinces to the north and east. The extreme northeastern part of the province, for example, shows virtually no evidence of imports but rather systems of local production and exchange (Zotović 2002: 64–67), and the few imports that do exist cannot be convincingly linked to trade with other provinces rather than with the Dalmatian coast. Local pottery in this area shows similarities to that of Pannonia (*Ibid.*: 62), and perhaps closer study could reveal whether it is indeed exclusively of local manufacture or whether some may represent Pannonian imports to the interior of Dalmatia.

The question of transport for non-commercial purposes, such as military supply, applies especially to the first century AD when military presence was strongest in the province. However, both legions leave Dalmatia before the end of the century – one under Claudius, the other in 86 (Wilkes 1969: 96–97), so the issue is not particularly relevant to later periods. Any significant difference must be sought with the presence and, more importantly, the departure of the legions, and not with the small administrative force left behind. There are two significant points to be made with respect to this matter. The first is that the archaeological data, as they stand, show no significant shift in imports that can be attributed to the departure of the Roman army. The second point is that the case of the brick-and-tile import demonstrates quite forcefully that trade between Dalmatia and Italy was well-established in the first century AD. This import is clearly the result of commercial activity, and further implications are discussed below.

3. Exports

3.1. Introduction

Material being exported from Dalmatia is much more difficult to identify archaeologically than imports, and this problem is the result mainly of two situations. The first is that Dalmatian production has not been studied very closely, in comparison with other parts of the empire, and with the exception of recent discoveries involving glass and amphora production, very little is known regarding exportable goods which are archaeologically identifiable. The other major problem is related to the nature of materials traditionally seen as Dalmatian exports; Dalmatia is rich in valuable natural resources, like timber, salt, and metals, but these products are either archaeologically invisible or unable to be traced to their origins.

Literary and epigraphic sources do provide us with a few clues as to what materials were being produced in Dalmatia and what products were known beyond the borders of the province. The *Expositio totius mundi et gentium*, for example, an anonymous fourth-century work, states: *Caseum itaque dalmatenum et tigna tectis utilia, similiter et ferrum, tres species cum sint utilia abundans emittet* (53.7–9). However, such references are rather scarce and only hint at the nature of exports rather than giving any sort of quantifiable evidence for their importance to the Dalmatian economy or for their contribution to the Mediterranean market.

Given the limits of the evidence regarding Dalmatian exports, I will not attempt, as I did with the imports, to present a diachronic analysis of the evidence, but rather, I will present a case for the significance of certain products as exports and the nature of Dalmatian export in general during this period.

3.2. Evidence from imports

That there was regular export of goods from Dalmatia can scarcely be doubted; the import evidence alone argues for continuous trade along the Dalmatian coast during this period, and if we suppose that imports from a certain region might mean exports to that same region, then we could hypothesise that in the first century AD, Dalmatian goods were exported mainly to Italy and to the East. By the end of the second century or the beginning of the third, these exports became more common in North Africa, but decreased in Italy and the West, while supply to the East seems to have remained relatively constant throughout the first four centuries AD.

If one also accepts the hypothesis that merchants travelling to Dalmatia seemed to be regularly transporting cheap, easily marketed goods as saleable ballast and were not, as a rule, particularly concerned with making a profit on the inbound trip, it must follow that they were quite confident in making a profit on the outward journey, and enough of one to justify not only the risk of maritime trade but also the lack of much profit on the return trip. This indicates the export of not only some valuable commodity (or commodities) that would provide a good return but also a reliably available one. Although this extrapolation can suggest the nature of Dalmatian exports in terms of value and reliability, it cannot give any more than a vague image. It cannot tell, for example,

what these exports were or whether they involved one valuable product or a number.

3.3. Glass and pottery

Glass production is known at Salona, where a glass workshop in use between the first and mid-third centuries AD has been excavated (Clairmont & Von Gozenbach 1975: 56–63), and has been suggested at Iader based on the concentration of particular forms (square jugs, square flasks with four depressions, and bell-shaped flasks) in the city and the surrounding area (Gluščević 2000). No forms, however, have been positively identified as local products and traced in other parts of the empire. Although Gluščević makes a good case for the production of bell-shaped flasks at or near Iader (due mainly to the relative scarcity of the form elsewhere in the Mediterranean), he also demonstrates difficulties in positively identifying vessels of this shape found outside Dalmatia as products of Iader workshops. Preliminary analysis of distribution (Fig. 16) indicates a possibility of export to northern Italy, Pannonia, and the East, although a similar workshop at Tomis on the Black Sea makes certainty difficult without further study. A closer study of glass forms thought to have been produced in Dalmatia, especially of Gluščević's bell-shaped flasks, and the establishment of typologies would greatly aid in the more reliable identification of Dalmatian glass outside the province.

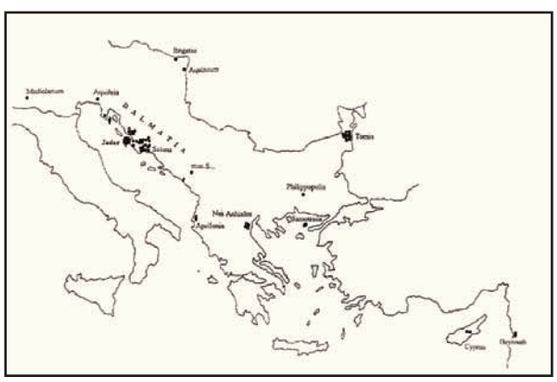

Figure 16. Distribution of bell-shaped flasks of the so-called Zadar type (from Gluščević 2000: 187, fig. 3; reproduced by permission of the Association Internationale pour l'Histoire du Verre).

Pottery, one of the most useful indicators of trade in the Roman world, is not very helpful in identifying Dalmatian export patterns. Pottery was undoubtedly made in this region; some areas appear to have retained their pre-Roman traditions, although more Romanised forms also seem to have been produced in the province. In most cases, it seems, local pottery has been identified on the basis of the inferior quality of certain finds, and the only hard evidence comes from a petrological study performed on ceramic specimens from Salona showing some of them to have been made of clay from a deposit near the city (Crnković *et al.* 1990). To my knowledge, no typology has yet been attempted on any of the pottery proven or presumed to have been produced in Dalmatia, eliminating this type of material from the evidence currently available for determining export patterns.

3.4. Agricultural products

Concerning the export of agricultural products, there are two references to be found in the literature. As mentioned above, the fourth-century *Expositio totius mundi et gentium* (53.7) names cheese as a Dalmatian export, but both the cheese-making process and its product are archaeologically invisible. The other source concerns fish sauce and comes from Pliny (*NH* 31.94) who, writing in the mid-first century AD, lists Dalmatia as one of three locations famous for the production of *muria*, the liquid left over from fish-salting (Curtis 1991: 14). It is possible that some evidence of this activity has remained in the archaeological record, perhaps through amphorae or the remnants of fish-salting establishments; but no material has yet been identified as evidence of fish-sauce production.

The evidence for olive oil production, however, is quite evident with presses associated with olive mills at a number of sites and even preserved olive stones at the villa sites of Kupinovik on the island of Hvar (Zaninović 1996: 170) and Muline on the island of Ugljan (Suić 1976: 214). However, there is no direct evidence for the export of oil and no indication that it was being produced on a scale beyond the demand of the local market. Presses in Dalmatia are found singly or, more rarely, in pairs, but nothing on the scale of the oil factories of Africa and Istria, although these sites tend not to be very well-studied or published (Brun 2004: 61; Matijašić 1993: 255). Matijašić (1993: 257) and Brun (2004: 61) describe Muline as a site with five presses, but this figure does not appear in any earlier report, and as Matijašić admits to never having visited the site, they seem to have worked under the false assumption that five rectangular features on the site plan represent presses. These features are not presses, however; two are stone structures, and the other three are narrow, shallow markings in the floor (personal observation 2004; Fig. 17–18).

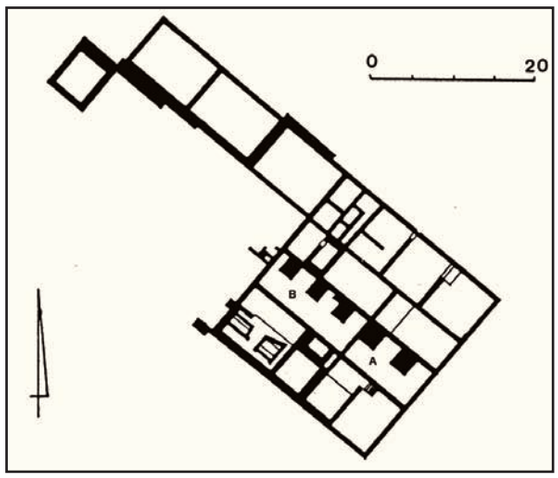

Figure 17. Plan of the villa site at Muline (after Matijašić 1993: 256, fig. 14; reproduced by permission of the author). The rectangular features in area A are stone structures, and those in area B are markings in the floor.

Figure 18. Detail of the floor of area B in previous figure. Markings recorded in the site plan are indicated by arrows (photo: K. Glicksman).

For wine production the evidence is even less clear. Some see the ubiquity of dedications to Liber Pater as evidence of the importance of viticulture in Dalmatian society (Brun 2004: 61; Škegro 1999: 154–173), but I hesitate to link worship of a particular deity with production of a certain crop without further evidence. Škegro himself (*Ibid.*: 171) admits that the presence of a temple to Liber Pater at Senia cannot be due to intensive viticulture as the local climate does not favour the growth of grapevines; instead, he attempts to connect worship of the deity to trade in wine. I have two doubts about this rather superficial correlation between religion and agriculture. The first is that concentrating on deities represented can then give a false impression of the state of agricultural production; my second objection is that by making such simplistic connections, we run the risk of simplifying Roman religious practice rather than trying to understand its complexities. The current state of archaeological research indicates relatively small-scale oil and wine production in Dalmatia probably focussed on personal consumption and some local trade.

Two funerary inscriptions from Dalmatia attest to trade in wine and olive oil. The first comes from Salona and is dedicated to a *negotiator vinarius* (*CIL* III, 2131), while the other from Iader names a *negotiator olearius* (*CIL* III, 2936). The presence of these *negotiatores* might be expected in the context of a Roman city, as both oil and wine were necessities in Roman society, and the urban social and commercial structure of craft specialisation meant that agricultural products, like oil and wine, would have found a reliable market in these cities. We cannot know for certain, however, whether these men were involved in the import of these products either from within the province or from abroad, or whether they dealt in exports, as both cities are located on the coast and possess good harbours.

Although the production of oil and wine does not seem to have been focussed on export, it does not follow that these products were never exported from the province, but evidence for this activity is currently non-existent, largely due to the state of amphora studies in Dalmatia. If it can be shown conclusively that amphorae were being produced in Dalmatia, it would give us a better idea of the possibilities for export of agricultural products. However, considering the extensive coastline, amphorae would be just as useful for internal movement of goods as for export.

It is interesting to note that, with the exception of a strong presence of La.2 along the coast of Gaul and Spain, the known distributions of La.2 (Fig. 19) and Dr.6 (Fig. 20) amphorae are quite similar showing heavy representation in northern Italy and on either side of the Adriatic with some representation in the eastern Mediterranean, on the North African coast, and also in Gaul and Spain. They seem to follow similar patterns of use and export, and it may be that within these patterns lies the evidence for Dalmatian export in the late Republic and early Empire. However, it is impossible to know without proof that they were produced in Dalmatia, and even then it would be difficult to distinguish between Italian and Dalmatian products.

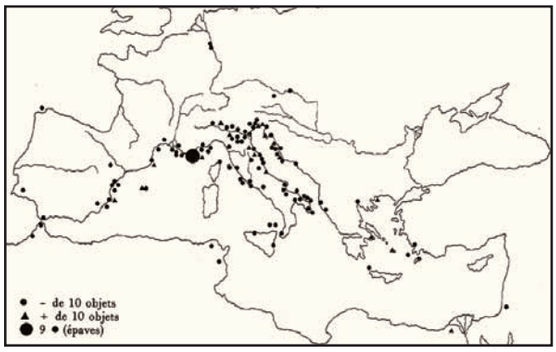

Figure 19. Known distribution of Lamboglia 2 amphorae (from Cipriano & Carre 1989: 84, fig. 14; reproduced by permission of the École Française de Rome).

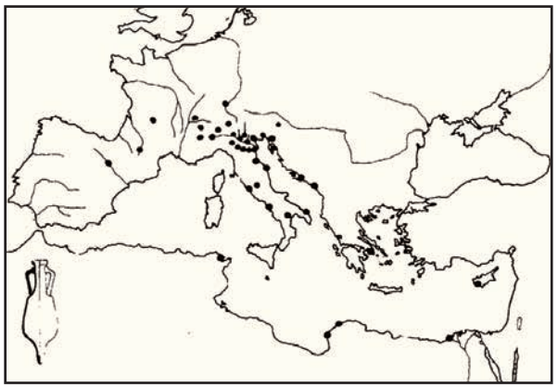

Figure 20. Known distribution of Dressel 6 amphorae (from Peacock & Williams 1986: 99 fig. 35, after Riley 1979: 155, fig. 18; reproduced by permission of Pearson Education EMA and J. Riley).

It is also possible that amphorae were not produced in Dalmatia throughout the Roman period. Certainly, some sort of containers must have been employed, at least for domestic use, but there is a range of possibilities, including barrels, animal skins, or even used amphorae imported from elsewhere. A better knowledge of Dalmatian amphorae would greatly benefit the study of trade in Dalmatia, showing both exports and, possibly, internal movement of goods; but it would also give us a greater insight into agricultural and ceramic production in the province as well as cultural connections with the rest of the Roman world.

3.5. Timber and stone

Although the *Expositio totius mundi et gentium* (53.7–9) cites timber as one of three useful and abundant resources exported from Dalmatia, there is almost no other evidence for this, unsurprisingly as wood is rarely preserved archaeologically. One funerary inscription from Salona (*CIL* III, 12924) was set up by a *negotians materiarius*, a timber merchant. Considering Dalmatia's tremendous supply of timber, I doubt this man was importing material to Dalmatia, but whether he was involved in the transport of timber to Salona from its hinterland or even from the heavily forested interior of the province, or whether he was involved in the export of timber from Dalmatia is unclear. Certainly, Dalmatia has an abundant natural supply of timber, which was apparently exported in the fourth century, but where it was being traded to or to what extent Dalmatia was filling the general demand for timber is unknown and ultimately unquantifiable.

Dalmatia is also well-supplied with good limestone, as can be seen by the extensive use of local stone for building not only in antiquity but right through to modern times. The output of the quarries varied in quality with some producing a very fine limestone. Although limestone, even of high quality, does not seem an obvious export, two sources indicate this possibility. Pliny (*NH* 3.141) in his list of Dalmatian cities and the distances between them names Tragurium, *civium Romanorum, marmore notum*, indicating that stone from the quarries near Tragurium was known outside Dalmatia in the first century AD. The island of Brač also possesses an abundance of fine limestone, which was used in construction projects at Salona and in Diocletian's Palace; however, one inscription from the quarry of Plate near the harbour of Splitska on Brač (*CIL* III, 10107) suggests use of the stone outside Dalmatia. It is a dedication to Hercules by a man who apparently brought capitals to Sirmium in Pannonia for the columns of the baths being built there by the emperor Licinius (*ad te/rmas Licin(i)an/(a)s...S/irmi*), probably sometime between AD 308 and 314 (Mirković 1971: 37).

These two pieces of evidence point to at least some export of limestone, but the scale of this export and its contribution to Dalmatian trade is unknown. It will be difficult to assess this trade, as well, because stone can be difficult to source, but the stones of certain quarries, like that of Rasohe on Brač, do have distinctive characteristics, while microscopic analysis can also help to identify the origins of stones. A better knowledge of the petrological characteristics of the better Dalmatian quarries and a greater awareness of the possibility of export may in the future lead to further discoveries and a better understanding of Dalmatian stone export.

3.6. Metals

Gold, silver, and iron were all mined in Dalmatia during the Roman period (Fig. 21), but the chronology and output of the mines is uncertain. A number of first-century sources allude to the gold in Dalmatia. In an epigram to Macer, about to depart for Salona, Martial (10.78.5) addresses the Dalmatian farmer: *felix auriferae colone terrae*, and Statius (*Silv.* 4.7.14–16), longing for the return of Vibius Maximus, speaks of the mountains of Dalmatia as a place *ubi Dite viso pallidus fossor redit erutoque concolor auro*. Pliny (*NH* 33.67) also talks about Dalmatian gold, but only briefly, stating that in Nero's time, fifty *librae* could be retrieved in a single day, but the accuracy of Pliny's information is unknown, and we should be wary of attaching too much significance to this amount. The only other literary reference to mining in Dalmatia comes from the fourth-century *Expositio totius mundi et gentium*, which records the abundance of iron in Dalmatia and its export.

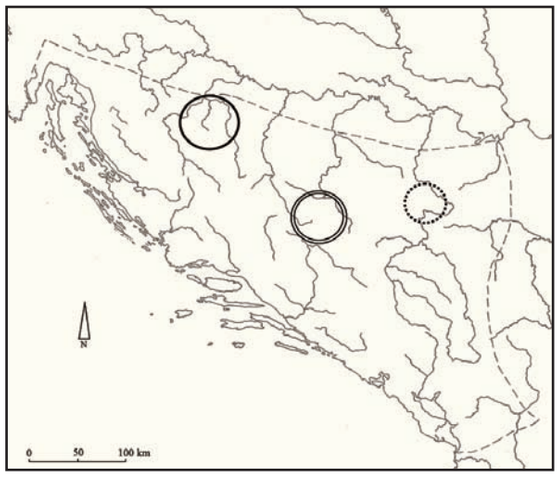

Figure 21. Locations of major Roman mining regions in Dalmatia for iron (single line), silver (dotted line), and gold (double line) (by K. Glicksman).

The metal mining of the Danubian provinces, including Dalmatia, seems to have been regulated, at least by the late second or early third century, through the establishment of mining districts which had their own toll stations and bronze coinage minted at Rome and apparently for use within the districts, although the exact purpose of the coinage is unknown; this system is unknown elsewhere in the Roman world and points to the special status of the mines of the Danubian provinces (Hirt 2004: 43, 47–48), although the scale of activity at these mines is unknown. One estimate puts the quantity of iron slag found in the Japra Valley at almost 2 million tons (*Ibid.*: 44), but as the area seems to have been occupied both before and after the Roman period, the relation of slag to Roman extraction is difficult to determine (Bojanovski 1982: 106, 116).

Evidence from Pannonia and Moesia Superior indicates that the operation of some mines was farmed out to *conductores* (Hirt 2004: 45, 106). Considering the similarity of administration of the mines of the Danubian provinces and the presence of a *procurator metallorum Pannonicorum et Dalmaticorum* (or alternatively, *procurator argentariarum Pannoniarum et Dalmatiarum*), it is not unreasonable to suggest that certain Dalmatian mines may have operated in a similar fashion. There is in fact no direct evidence for such an occurrence, although the presence of toll stations does speak strongly in favour of regular traffic of non-military and non-official personnel.

By what routes the materials were exported is also unclear. Silver from the mines in the northeastern part of the province could be transported along tributaries toward the Danube probably more easily than it could be hauled along roads to the coast; the presence of Siscian bricks at Blagaj-Japra also suggests the use of rivers in the export of iron from this area. However, a funerary inscription from Salona (*CIL* III, 1997), tentatively dated to the late first century records the title of *conmentariensis aurariarum Delmatarum*, and it has been suggested that his presence in Salona may indicate administration at Salona of the gold mines in the Vrbas Valley (Hirt 2004: 56), so we should not eliminate the possibility that some of the metals may have been exported, at some time during the Roman period, from the coast.

It is logical to assume that the output of the mines was being transported beyond the province, but we still have no way of determining the size of this output; also, the use of private merchants in the transport of metals cannot be absolutely proven. Even if this hypothesis is accepted, the impact of this export on Dalmatian trade in general is difficult to determine, although it could not have been slight. The mines, then, would also have been a fairly regular and reliable source of tradeable goods. Further study of mining sites may provide us with better information regarding their output and may help establish a chronology for occupation of the sites.

Despite the lack of stratigraphic evidence, dates for the Roman occupation of the mines and intensification of activity may be seen in part through numismatic and epigraphic evidence. Both the iron mines of the Japra Valley and the silver mines of Domavia

are thought to have been active before Roman occupation (Bojanovski 1982: 94). The earliest numismatic evidence from the iron mines dates to the reign of Nerva, while the latest Roman coins, discovered in the slag near Blagaj-Japra, date to the reigns of Justinian (527–565) and Phocas (602–610) (*Ibid.*: 107, 116). Bojanovski (*Ibid.*: 108) considers the third- and fourth-century increase in known inscriptions an indication of increased production. We cannot rule out the influence the introduction of an epigraphic habit would have on the number of inscriptions found in the area, but the increase would seem to show a greater Roman presence in the area.

The earliest numismatic evidence from Domavia is Trajanic. The city is thought to have achieved the status of a *municipium* by the reign of Septimius Severus, if not already under Marcus Aurelius, and became a *colonia* around the mid-third century AD (*CIL* III, 12728–9). Domavia's relatively quick rise in status, combined with the early third-century appearance of toll stations, seems to indicate a stronger Roman presence in the area and greater attention to the mines, which would make sense in view of the abandonment of the Spanish mines in the late second century (Wilson 2002: 29). Numismatic evidence shows occupation of the Domavia mining district at least until the mid-fourth century (Bojanovski 1982: 106).

3.7. Textiles[4]

Raw materials were not the only possible Dalmatian export; textiles may also have played a significant role, although much of the evidence comes indirectly through literary sources, and the analysis must necessarily be largely hypothetical.

For textile production in Dalmatia, there is limited evidence, and even less for large scale production and export. One piece of evidence interpreted in relation to wool/textile production and distribution comes from Salona, where the letters NEG.LA appear on a fragmentary inscription and have been interpreted as a reference to a *negotiator lanarius* (*L'Année épigraphique* 1925: 60). If this reading is correct, it would indicate the production of wool for more than domestic use, unsurprising among the urban communities of the Dalmatian coast, especially at the large provincial centre Salona; however, as with the *negotiatores* discussed above, there is no way of knowing where he was trading wool to and from.

Some literary sources refer to wool and textiles produced in Liburnia, but these are very limited. Pliny (*NH* 8.191) remarks on the coarseness of Istrian and Liburnian wool in his assessment of various types of wool from across the empire, showing that wool from the area was known outside Dalmatia. Considering the reported low quality of the material, it is not likely to have been considered a valuable commodity, but if it were being produced in large quantities, then it may have been a desirable export which provided a profit when transported and traded in bulk. Export of Liburnian textiles is also implied by Martial's epigram 14.140 entitled *Cuculli Liburnici*, which mocks a man whose dyed *cucullus* has ruined his formerly white tunic. Evidently Martial, writing in the late first century AD, was familiar with Liburnian textile export as well. Though extremely limited, these sources do show nonetheless that Liburnian woollen textiles and garments were known in Italy as early as the mid-first century AD.

Another product which seems to have reached beyond the borders of Dalmatia is the so-called dalmatic, a long tunic which was quite popular in the third and fourth centuries. The name of the tunic itself is taken to be a reference to its origin (Isidore, *Etym*. 19.22.9), but this connection between the name and the place cannot be taken for granted, and there is no way to prove or disprove this etymological relationship. Even if we accept the assumption that these garments originated in Dalmatia and acknowledge the popularity of dalmatics in the late Roman world, the importance of the textile industry in Dalmatia to external trade is not at all clear.

One problem is our ignorance of how these tunics came to be the standard mode of dress throughout the Roman world. Obviously, it must have involved some sort of contact with Dalmatia, but the precise nature of this contact is a mystery. Vicari (2001: 62) attributes the third-century popularity of the dalmatic, in part at least, to the growing political power of this region which produced a number of emperors, including Diocletian. Although this hypothesis is plausible, it is difficult to prove, but whether this phenomenon stemmed from imitation of the emperor, or resulted directly from trade, or followed population movement and cultural exchange is impossible to determine without further evidence.

Although these tunics were obviously quite popular in the late antique period, they were by the beginning of the fourth century already being produced in a number of places, especially in the East. Diocletian's *Edict on Maximum Prices* (26), given in AD 301, lists the price differences for linen dalmatics not only by quality but also by place of manufacture naming, among others, Tarsus, Byblus and Laodiceia as producers of dalmatics as well as other types of clothing. Late Roman mosaics, like the fourth-century Great

[4] I am grateful to John Peter Wild for his comments on this section.

Hunt Mosaic from Piazza Armerina in Sicily, show the common use of this style of tunic, and evidence from papyri also shows their use as part of the military uniform (Sheridan 1990), but all evidence both literary and archaeological seems to be silent regarding the contribution of Dalmatia to the supply of this highly popular garment which bore its name.

Another bit of evidence comes from the *Notitia Dignitatum*, a listing of offices probably originally from the late fourth or early fifth century, which places a *procurator gynaecii* at Aspalato (Oc. 11, 48), modern Split and the site of Diocletian's Palace. The *gynaecea* were imperially-administered weaving establishments possibly founded by Diocletian; while most seem to have existed for the purpose of military supply, two are listed as private and were probably related to private imperial supply (Wild 1976: 54). Although the *gynaeceum* of Aspalato is under the list of the former, its location at the imperial residence rather than the nearby provincial capital of Salona suggests the possibility that it may also have been involved, at least initially, in personal production for the emperor. As an imperial establishment it is unlikely to have been involved in regular trade, but its existence suggests the possibility of a large capacity for textile production in this area and an industry predating the founding of the *gynaeceum*.

Although limited, there is also convincing evidence for the production of purple dye at Salona, which would imply also the manufacture, and possible export, of expensive dyed wool or textiles. The *Notitia Dignitatum* records nine *procuratores bafiorum* in the western empire, and one of these is placed in Dalmatia at Salona (Oc. 11.66). Although there is no evidence for when this post was founded, its very existence implies a large enough and steady enough production to warrant imperial attention and regulation. The only other evidence for this activity is an undated funerary inscription from Salona for a *magister conquiliarius* (*CIL* III, 2115); the exact nature of this profession is uncertain, but it was clearly related to the murex (*conchylium*) and purple-dye production. The title implies the existence of a *collegium conquiliarii* at Salona (Vicari 2001: 64), which in turn implies a fairly well-established industry, as indicated by the presence of a *procurator bafii*.

Both *Murex brandaris* and *Murex trunculus* are native to the eastern Adriatic coast; today they can both be found especially in the area around Makarska, not 100 kilometres down the coast from the site of Salona (Doumenge 1995: 17), and I have myself seen specimens of *Murex trunculus* in the bay between Split and Salona. Once precipitated, it was impossible to revive the dye into a solution that could be used again for dyeing, and although the Romans had methods of delaying this process by introducing alkaline materials like wood ashes and fermented urine, the solution could only be maintained for a number of days before the dye precipitated (Doumet 1980: 47, 50). Thus, material, whether wool, linen, or silk, needed to be dyed in the same place where this dye was being made. This material could then be exported as it was, or it could be woven into any number of products.[5]

According to Diocletian's *Edict* the maximum price that could be charged for a pound of purple-dyed wool was 50,000 denarii (24.2), although prices were much lower for lower quality products. By contrast, the most expensive type of undyed wool listed cost a mere 200 denarii a pound (25.9). But an item did not have to be fully dyed purple in order to command a great price. The *Edict* gives a maximum price of 4,000 denarii for a striped dalmatic containing six ounces of archil purple (29.31), an imitation purple made from vegetable sources, while one having an equal amount of true purple is listed at a price eight times higher (29.32). Keeping in mind that the maximum daily wage for a farm labourer was 25 denarii and 50 for the majority of skilled workers like stone masons and carpenters (*Edict* 7), these materials were not easily affordable or even necessary for the general public, as were pottery and olive oil, for example. The purple-dye industry was one which required for its success a large group of individuals able and willing to spend copious amounts of money for the sake of conspicuous consumption. That there was such a market in the Roman world is uncontested, but what role Dalmatia played in satisfying this demand is much less clear.

Although there is no direct evidence for export, the value of purple, combined with the scale of production implied by the establishment of a procurator of dye-works at Salona, suggests probable export. Some of the material was probably destined for the home market, and although we cannot know how much was needed within the province and at Salona itself, it is unlikely that such a large industry was required for local supply. Due to the value purple added to wool and textiles, the export of purple-dyed materials would have been a significant, if not the most significant, part of the export of wool/textiles from Dalmatia.

[5] New research (Macheboeuf 2005) has shown that it is also possible to extract the necessary gland whole from the shellfish and to preserve it for a number of months in order to make the dye at a later date. Although this means that the gland itself could have been exported, I believe that purple-dyed wool and textiles would have accounted for a much larger proportion of exported materials and would, therefore, have been more significant economically.

3.8. Conclusion

As one might expect, Dalmatian exports were dependent largely on the natural resources of the area encompassed by the province, including timber, limestone, metals, and wool. The archaeological evidence is limited, however, and the relevant literature offers little help in determining the scale of these exports. Nor is there much indication of the form in which these materials were exported. Stone, for example, may have been transported as blocks of different shapes and sizes or in varying stages of the sculpting process, which would indicate a more sophisticated trade than just the bulk transport of rough stone. The possibility of trade in textiles, especially of purple-dyed materials, also indicates a certain level of sophistication, and although some material may have been exported as raw wool or even as cloth, the knowledge in the wider Roman world of Liburnian hoods and Dalmatian tunics suggests the export also of certain types of clothing.

With the exception, perhaps, of wool and textiles, and especially of those dyed purple, these materials would have been fairly reliable products, not depending on a good growing season as agricultural products would. They are also products which probably would have brought a good profit to merchants transporting them, with the possible exception of the limestone depending on the form in which it was transported. These types of exports, as fairly reliable and rather valuable resources, would match the type of export implied by the cargoes of saleable ballast imported to Dalmatia, especially in the first two centuries AD.

Unfortunately, the exports proposed above, including the textiles, cheese, *muria*, timber, stone and metals mentioned in contemporary literature, leave very little trace archaeologically, except for stone. Although other materials like olive oil, wine, pottery, and glass may not have been exported on their own merits, they probably did find their way to some extent onto merchant ships leaving Dalmatian ports; as eminently more visible commodities archaeologically, increased study of Dalmatian amphora, pottery, and glass forms should help give a greater insight into both the scale and destinations of Dalmatian exports over time.

4. Internal trade

4.1. Introduction

The movement of goods within Dalmatia is rather difficult to determine with any degree of certainty. This difficulty lies mostly in our ignorance of craft production in Dalmatia, although some clues are provided in the distribution of glass possibly produced at Iader and the more limited distribution of sarcophagi produced at Salona. In this section, I will consider the distribution of these two products, as well as some evidence for transport of stone, and I will also consider the distribution of imports and what that may say about coastal-continental connections during this period, as well as the extent to which we can use this type of material as evidence for trade or the absence of trade.

Dalmatia has regions with two distinct types of topography: the mostly flat coastal areas and the rugged, mountainous interior. Strabo says of Dalmatia that the mountains divided it into two parts with one facing the sea and the other looking inland (*Geography* 7.7.5). Considering the topographically divided nature of the region, good roads must have been vital to any interaction between coast and interior. For this reason, I will also discuss the evidence for construction and maintenance of roads in Dalmatia.

4.2. Road network

As with most newly conquered Roman territories, Dalmatia benefited from Roman domination by an expansion of the communication network. The roads around some of the major coastal settlements like Narona, Salona, and Iader were thought to have been built before the consolidation of Roman power and the establishment of Dalmatia as a province in AD 9 (Bojanovski 1974: 15). Considering the earlier occupation of these sites, such a hypothesis makes sense, although there is no proof for their dates of construction. One road linking Narona with the area around Aquae S. is thought to have been completed sometime around the death of Augustus, based on a milestone from the vicinity of Konjic with the inscription: *divo Aug(usto)* (*CIL* III, 10164), which is considered to be the oldest epigraphic evidence of Roman road construction in the province (Bojanovski 1974: 15). If this theory is correct, it would mean that rather than connecting the continental part of the province with the capital city Salona, as one might expect, the oldest known Roman road between the interior and the coast led to Narona.

The best evidence for dating the construction of roads during this period comes from two inscriptions built into the tower of Split cathedral. Both record the construction of roads under the governorship of Publius Cornelius Dolabella (AD 14–20) from Salona to various locations within the province; these roads have been traced with varying degrees of certainty using a combination of archaeological evidence (preserved sections of road and milestones) and literary sources like the *Itinerarium Antonini*, the *Ravennati Anonymi Cosmographia*, and the *Tabula Peutingeriana*.

The first of the inscriptions (CIL III, 3198a=10156a+3200)

dates to AD 16/17 and mentions two routes: *[viam] a colonia Salonitan(a)/ [ad f]in[e]s provinciae Illyrici* and *viam Gabinianam/ ab Salonis Andetrium*. The term *ad fines provinciae Illyrici* is thought to refer to the settlement of Servitium on the Sava River which was considered the boundary between the Illyrian and Pannonian tribes and that the inscription refers to this ethnic/geographic boundary rather than an administrative one (Fig. 22; Bojanovski 1974: 43). This road, recorded as being 167 Roman miles long and built by the seventh and eleventh legions, cuts across the mountainous region, effectively connecting Salona with the Sava which led to Siscia in one direction and Sirmium in the other; by using this road, legions and supplies could be quickly transported from the port of Salona to the northern border of the province and towards the *limes*, if necessary. The second road mentioned on the same inscription was a much shorter construction built by the seventh legion between Salona and Andetrium, seemingly the first leg of a much longer route completed at a later date.

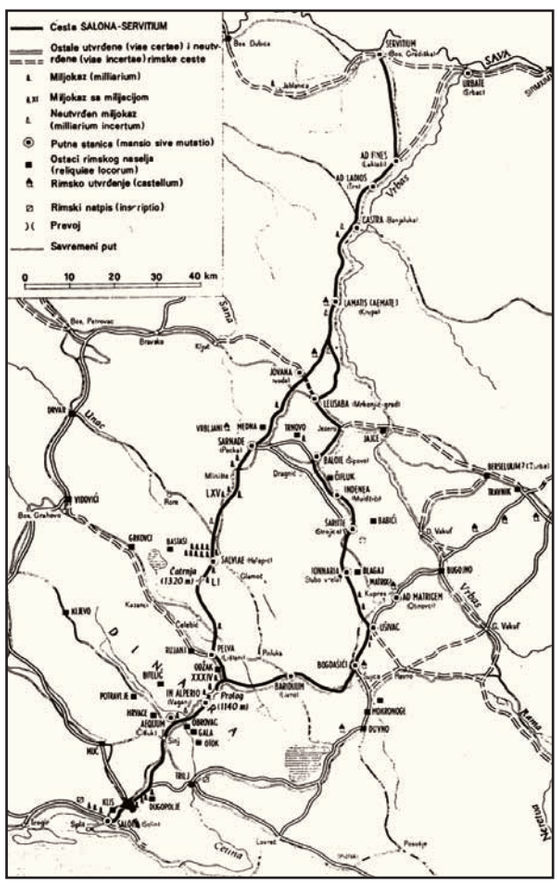

Figure 22. Roman road from Salona to Servitium, indicated by the bold line. Wide double lines rep resent other Roman roads. (from Bojanovski 1974: map 1; reproduced by permission of the Academy of Sciences and Arts of Bosnia and Herzegovina).

The second of these inscriptions (*CIL* III, 3201=10159+3198b=10156b) dates three years after the previous one and records the construction of three roads leading into the interior of the province: *viam a Salonis ad He....[c]astel(lum)/ Daesitiatium*; *viam ad Ba....[flu]men/ ... /a Salonis*; and *ad imum montem Ditionum/Ulcirum ... /a Salonis*. The location of Hedum castellum Daesitiatium is unknown but is thought to be located near the Bosna, upriver from Aquae S. The first road mentioned is the major route running roughly east-west across the province (Fig. 23); not only does it pass through the mining areas around the Bosna River, but it also seems to have been extended at some later date to Argentaria in the silver-mining district around Domavia, as seen in the *Tabula Peutingeriana* (Bojanovski 1974: 133). The course for the second road mentioned in this inscription is much less certain; *Ba....flumen* is thought to mean the Bosna, apparently called *Bathinus* in Latin, but the exact route by which it reached the river is unknown (*Ibid.*: 199). The third reference also causes a problem since the location of the mentioned mountain is also unknown, although Bojanovski places it about twenty kilometres northwest of Burnum. This road seems to be an extension of the one leading to Andetrium, running north away from Salona and roughly parallel, although further west, to the one leading towards Servitium (Fig. 24); eventually, this road seems to have run along the Sana, possibly as far as the Sava, but this section may have been completed under Claudius as indicated by a number of milestones on the northern stretch of the route dating to AD 47/48 (*Ibid.*: 203; Pašalić 1960: 10).

Only one other road can confidently be said to have been constructed in the first century AD; a milestone found near Narona bears the name of the emperor Titus and records the existence of a road between Tilurium and Scodra (Bojanovski 1974: 246). Other major roads may have been built by the end of the first century, but without further evidence it is impossible to know.

There is no evidence for the construction or maintenance of roads between the late first century and the middle of the third. A large quantity of milestones from various routes date to the third and fourth centuries (Pašalić 1960: 107), but the significance of this evidence is unclear. The virtual absence of milestones dating before the third century does not mean that roads were not maintained in previous periods, and it is difficult as well to know whether roads were actually constructed or merely repaired at the time recorded by the milestones. Many of these later markers have been found along the roads built under Dolabella. Along the routes

ad fines provinciae Illyrici and *ad Hedum castellum Daesitiatium*, 26 of the 61 recorded milestones bear the names of emperors.

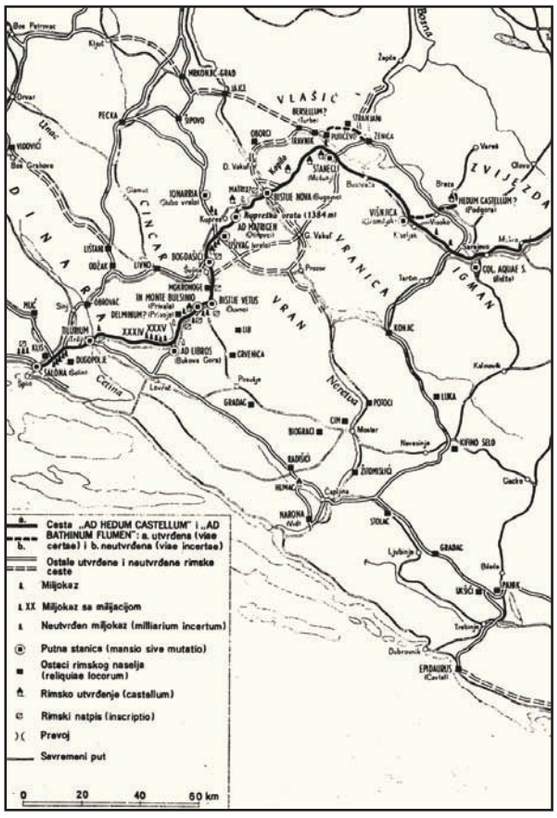

Figure 23. Roman road from Salona to Hedum castellum Daesitiatium, indicated by the bold line. Broken lines indicate uncertainty. Wide double lines represent other Roman roads. (from Bojanovski 1974: map 2; reproduced by permission of the Academy of Sciences and Arts of Bosnia and Herzegovina).

Only two of these record the name of the emperor Tiberius; the rest all name third- and fourth-century emperors (Bojanovski 1974: 128–129, 190–191). Whether they represent construction or maintenance, the numerous late Roman milestones along Dalmatian roads do indicate an interest in the roads during this time. Propaganda only works when publicly visible to large numbers of people, so milestones would only be effective as propaganda if they were placed along well-travelled routes. That these stones were not merely practical replacements of damaged ones is evident from the milestone found near Konjic on the road from Narona (*CIL* III, 10164-6) upon which are inscribed the names of the emperors Maximinus Thrax and Philip as well as Augustus. The two Salonitan routes mentioned above share a common road through the pass behind Salona before branching off in separate directions; this pass is the only direct access from this area to the region behind the mountains and must be used to reach the interior of the province from Salona. Along this approximately fifteen-kilometre stretch of road, six emperors besides Tiberius are represented. Although discovery of these milestones has probably been aided by the constant use of this pass into modern times, this concentration may perhaps be taken as an indication of the importance of these roads for travel between Salona and the interior of the province.

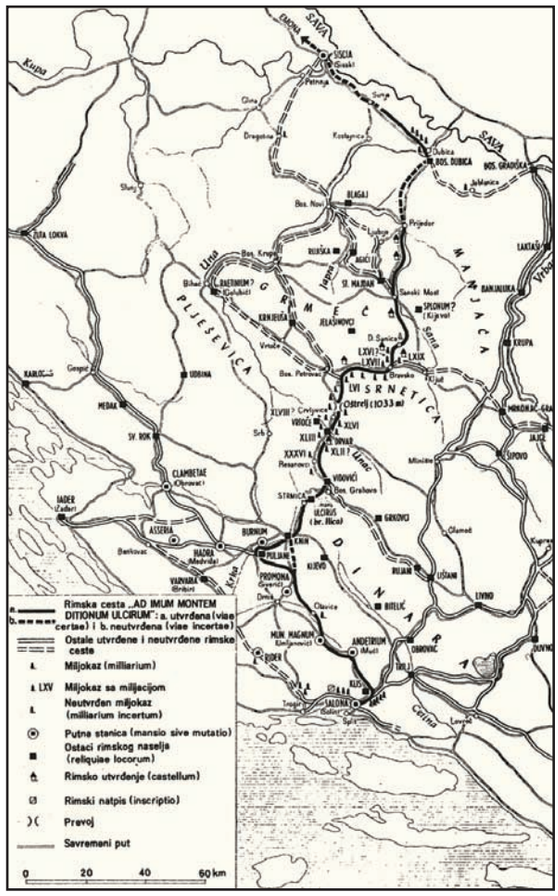

Figure 24. Roman road from Salona ad imum montem Ditionum Ulcirum and beyond, indicated by the bold line. Broken lines indicate uncertainty. Wide double lines represent other Roman roads. (from Bojanovski 1974: map 4; reproduced by permission of the Academy of Sciences and Arts of Bosnia and Herzegovina).

Although the network of roads in Dalmatia is not nearly as dense as in some of the flatter areas of the empire, like Britain and Gaul, the province is relatively well-equipped in comparison with other areas

with similar terrain, for example the mountainous areas of Spain, Africa, and even Italy (*Barrington Atlas* 20). Although the primary purpose for the major roads constructed by the army must have been the efficient movement of men and supplies, these well-constructed thoroughfares along the coast and through the mountains would have been open to private traffic as well and had the potential to contribute greatly to the movement of goods within the province, if merchants had been enterprising enough to take advantage of them.

4.3. Trade in stone and sarcophagi

It is generally accepted that limestone from the quarries at Seget near Tragurium and on Brač were used for constructions at Salona and in the building of Diocletian's Palace, but the evidence is not so straightforward. Wilkes (1969: 388) identifies the two types at the imperial residence on the basis of colour; stone from Seget is 'honey-coloured', while that from Brač has a black patina. Mirnik (1989: 12) remarks that the limestone capitals also came from these sources and identifies a number of decorative architectural fragments found during excavation of the site as Brač limestone. But, of course, use of the stone in this case is not necessarily an indicator of normal trade since it was used by the emperor.

Stone from these sites is also thought to have been used in building projects at Salona. Two inscriptions from Škrip on the island of Brač have been interpreted as evidence of the use of the island's stone for the theatre and amphitheatre of Salona. One of these (*CIL* III, 3096) is a dedication to the nymphs set up by a centurion of the *cohors I Belgarum*, which was stationed in Dalmatia between AD 100 and sometime in the third century (Wilkes 1969: 477). The inscription also calls him *curagens theatri*, which has been interpreted as a reference to the theatre at Salona, and he is thought to have overseen the acquisition of stone either for the construction of the theatre or for later repairs or renovations (Rendić-Miočević 1991: 262). The other inscription is a dedication to Jupiter by a centurion of the *cohors III Alpinorum Antoniniana* also *curam agens fabricae amphitheatri*, who is thought to have been responsible for the procurement of stone for the amphitheatre at Salona (*Ibid.*: 263). The inscription must represent a secondary stage of construction, as the first phase is dated to AD 170, and the inscription seems to date to the reign of Caracalla, based on epigraphic style and the title *Antoniniana* (Kirigin 1979: 131–134).

Although the identification of these inscriptions with buildings in Salona is a logical assumption, this connection is not explicitly stated and remains an assumption, albeit a well-accepted one. Certainly, they do not refer to construction on Brač, since there is no evidence, literary or archaeological, for any urban centre on the island; the inscriptions must refer to activities elsewhere without any clear identification of the place to which the stone is being transported. However, Salona is the only city in Dalmatia known to have had both a theatre and an amphitheatre, and the fact that neither inscription explicitly states the location of these structures suggests that the stone was used by the city which held Brač in its *territorium*, for which Salona is the most likely candidate. Petrological analysis of the stone at both the theatre and the amphitheatre at Salona would provide much more conclusive evidence regarding this assumed transport of stone from Brač to Salona.

Cambi (1998: 169) calculates that about 2,000 sarcophagi, whole and fragmentary, have been found in Salona and the immediate vicinity, and that only about 200 of these represent imports from outside Dalmatia; the rest were made from local stone and carved at a workshop located in the city. The stone used is thought to have come mostly from Brač but also from Seget; however, Cambi says that the stone is impossible to identify by appearance and must be studied through petrological analysis, a daunting task considering the vast quantity of material. Assuming that the identification of the sources is correct, these sarcophagi represent large-scale transport of stone for commercial purposes from these two sites to Salona. Identification through petrological analysis of the quarries used would give us a better idea of the respective contributions of these quarries and also any others not yet identified. Depending on how closely the sarcophagi can be dated, such analysis might also give an idea of shifts in the source of stone over time.

Sarcophagi can also be used to trace trade from Salona to other areas of the province. Cambi (1994: 87) has identified two early third-century sarcophagi (one from Issa, the other found near Knin) which, made of Proconnesian marble, had been imported as roughed-out sarcophagi and finished in a Salonitan workshop. Another fragment from the same period has been found at Scardona, but Cambi hesitates to identify it with the workshop at Salona rather than a more local one. The further study of Salonitan sarcophagus types and their distribution in Dalmatia could provide useful information on trade networks between the capital city and the rest of the province.

4.4. Iader glass

Gluščević (2000: 185–188) has argued for the production of a certain type of bell-shaped flask between the mid-second and third century in the area around Iader; a complete typology of the finds, enabling us to determine any differences between those which are thought to have been produced at Iader and at Tomis on the Black Sea, would also aid in the identification of the Dalmatian finds as Eastern imports or locally produced objects. If there were indeed a workshop producing these forms at Iader, the majority of finds will probably prove to be of Dalmatian origin.

The known finds outside Iader are concentrated mostly between Salona and Iader, indicating a commercial relationship between Iader and the capital city (Fig. 16). The known distribution in this area is rather similar to the known distributions of north Italian *tegulae* (Fig. 3–5) and Attic sarcophagi (Fig. 15), indicating that such objects were not transported very far from the coast, possibly suggesting the limited nature of contact between the coast and the interior of the province. However, if the find from Municipium S. can be shown to have been produced at Iader, it would be evidence of some commercial link between the coast and the interior. One last example comes from the island of Cres, which shows a connection between Iader and the islands, and not only the islands in its immediate vicinity.

4.5. Evidence from imports

The distribution of imports at coastal sites cannot tell us anything about trade of goods along the coast and among the many islands because it is impossible to distinguish between goods imported directly and those acquired through trade with one of the larger port cities, like Salona or Iader. Non-Dalmatian goods found in the interior of the province, however, must unquestionably have been transported across the province, although identifying the direction of trade can be a problem, since goods could be brought south from Pannonia or east from the littoral region. Despite this problem, it is important to consider the evidence for the amount of long-distance trade which occurred in the eastern part of the province, since it could show a different experience of life under Roman rule for those living in the interior than that known by those inhabiting the coast.

Imports seem not to have been scarce in the zone immediately east of the coast. The extensive finds at sites along the Neretva are unsurprising considering the river's navigability; the distribution of north Italian *tegulae* around Narona is the most widespread of the three centres of distribution in the province, and is clearly influenced by the course of the river (Fig. 3–5). Some of these tiles also made their way to Duvno, possibly the site of ancient Delminium, which is most accessible from the coast via the roads leading from Salona, and it is likely that they reached the city this way.

In their analysis of trade in the southeastern part of the province, Cermanović-Kuzmanović and Srejović (1967: 24), on the basis of finds from necropoleis, separate the area into three zones: coastal, middle, and continental. In the northern continental part of the area under their consideration, the only objects identified as imports in the first century AD were jewellery, predominantly silver and bronze Aucissa-type fibulae similar to those favoured in the area around Salona and assumed to have been brought from this area.

In comparing the grave goods at Doclea in the middle zone with those at the continental site Municipium S., they found that while glass from north Italy and Syria was quite common at Doclea in the first century AD, the other necropolis produced no glass finds in the same time period (Cermanović-Kuzmanović & Srejović 1967: 24). Later graves at Municipium S., however, do show evidence of trade as they contain a quantity of third- and fourth-century Western glassware (Zotović 2002: 65–66). It is difficult to know why these materials do not appear at this location until the third century, but the difference between glass imports at the two sites suggests an earlier and stronger connection to the outside world at coastal sites than at continental ones. It is also difficult to determine whether they were brought from the coast or from Pannonia, but if the third-century bell-shaped flask from Municipium S. can be shown to be of the same type as those found concentrated near Iader, it would be proof of commercial links between the city and the coast.

Imported ceramics are generally seen as a rarity in the area encompassed by modern Bosnia and Herzegovina with only the villa sites at Višići and Panik, and the military camp near Doboj producing any significant quantities (Čremošnik 1970). While the first site is located on the Neretva and rather close to the coast, the other villa site, which does not have as great a variety of forms, is not as easily accessible yet still rather near the coast. Doboj, however, is situated on the navigable Bosna River and near the border between Pannonia and Dalmatia; it is entirely possible, although by no means proven, that imported ceramics reached the camp from Pannonia rather than the Dalmatian coast. Apparently, the only imported ceramics are a large

quantity of ARS, predominantly Hayes 45 and 50, which were popular forms in Dalmatia and date to the third and fourth centuries; this is an interesting discovery considering that the construction of the *castrum* seems to date to the Flavian period (Čremošnik 1984: 47, 69).

It is interesting to note that while ITS has only been identified at one spot away from the coast (Golubic), ARS has apparently been found inland at the sites of modern Duvno, Bugojno, Ilidža, Travnik, Konjic, Zenica, and Šipovo (Paškvalin 1990: 54; Dvoržak-Schrunk 1989; Čremošnik 1962: 116), all of which, except for Duvno are situated both along rivers and Roman roads. Late second- and third-century Corinthian wares have also been found at Bugojno and nearby Čipuljići (Čremošnik 1974: 103). A north Italian lamp dating between the late first and the second century has been found at Ograja, so imports do arrive in this central part of the province by the end of the second century. It is unwise to make assumptions *e silentio* regarding the beginning of trade into the interior of the province, especially since evidence for imports in this area is fragmentary, but the earliest evidence I have found cannot date before the end of the first century, which seems to indicate that the continental regions of the province experienced a connection with the Mediterranean significantly later than the coastal areas, which had experienced long-distance commercial interaction long before Roman domination of the Mediterranean.

The site at Ograja near Zenica is interesting in that excavation produced only four identifiable imports (three ceramic fragments and one glass), each with a different location of origin and all dating to the same period (late first-second century). As well as the Italian lamp fragment, excavators found a piece of a bowl probably produced in Westerndorf (in modern Germany), an early ARS sherd, and a fragment of glass, most likely of Gallic origin (Paškvalin 1990: 54–58). Although imports seem to have been limited , the variety of material is intriguing.

The main problem with identifying imports in the interior of the province is the nature of the publication of the evidence. Quite a lot of exploration seems to have been undertaken in the mid-twentieth century, but rather frustratingly, the reports tend to focus on architectural aspects and more spectacular finds, quickly passing over ceramics and other small finds. The existence of ceramics is often noted without further identification, except that in the case of multi-period sites, some may be labelled as Roman. Thus, it is very difficult to make any precise judgements about trade from the borders of the province reaching into the interior.

The apparently small number of imports reaching continental sites should not necessarily be taken as an indication of the low level of trade between the coast and the interior, however. The majority of identifiable imports reaching the Dalmatian coast, like bricks, ceramics, and perhaps stone and glass, seem to have functioned largely as saleable ballast. A ship cannot sail empty, and it is more economical to fill the hold with marketable goods rather than sand or rocks, and this necessity is probably largely responsible for the wide distribution of various ceramics, like ARS, across the Mediterranean. Transport of goods by land cannot be expected to leave the same archaeologically visible traces as maritime trade; as relatively inexpensive and easily made commodities, tiles and pottery are unlikely to have provided a return to compensate for the transport, and they would have added unnecessary weight to the load.

More valuable goods, like jewellery and expensive textiles, which may have been transported to the interior of the province would either be archaeologically invisible, or impossible to trace to their origins. If foodstuffs were transported, these might be largely invisible as well. The only known evidence for transport using amphorae is the neck of a Dressel 2–4 with the stamp COSSII found at Ilidža; as the stamp is also known at Rome and Milan, the amphora probably carried Italian wine, although it could have been reused, and unfortunately, no good date has been provided for the find (Cambi 1989: 326). Although this find indicates some transport of amphorae, it is unlikely that oil, wine, and other products would have been transported in amphorae if they were brought via land routes. Although amphorae are an extremely robust and efficient method of transporting foodstuffs, especially liquids, by sea, they are less efficient in the case of land transport as they are rather heavy. Transport using skins and barrels, while more efficient, is archaeologically invisible; the distribution of amphorae in Dalmatia rather than showing us the distribution of the consumption of imported olive oil and wine may really only show us the discrepancy between the use of amphorae and archaeologically invisible containers.

The close supervision of the Dalmatian mining districts including the imposition of tolls on the roads leading from these districts suggests that a significant quantity of metal, probably mostly iron, gold, and silver, was being exported from Dalmatia, and since these mines are located within the heart of the province, the metals must have been transported long distances across the province, either north to Pannonia or west to the coast. Such transport

would probably have provided those in charge with a healthy profit, which could conceivably cover the cost of both legs of the journey. In this case, as seen with the ships loaded with *tegulae* and pottery, the inbound trip would have been insignificant, and if land routes were used, considering the mountainous terrain, a lightly loaded cart would have been more desirable than a heavy load of cheap goods. But even if a profit were required for the inbound trip, lighter, more valuable materials would definitely have been preferable to heavy, cheap pottery; thus it is unsurprising to find such a small amount of imported pottery in the interior of the province, a reflection not so much of the state of commercial contacts between the littoral and continental regions of the province but of the practical decisions related to such trade and the absence of river networks. It is significant that Zotović observes a scarcity of imports, with the possible exception of some luxury objects like jewellery, in the eastern part of the province, which includes the silver-mining district of Domavia (2002: 65). As the presence of toll stations implies frequent private traffic travelling to and from Domavia, the scarcity of imports cannot be taken as a direct indication of the scarcity of trade in this region. More likely, it is a reflection of the types of goods more suitable for land transport and the difficulty of tracing them archaeologically.

4.6. Conclusion

Although the mountainous terrain limits interaction between the coast and the interior, with the help of roads constructed by the Roman army early in the history of the province, merchants would have been able to overcome some of the difficulties imposed by the terrain. It is difficult to say whether imports which reached the interior of the province came from the coast or from Pannonia, but their presence in the heart of the province indicates long-distance trade between these mountainous areas and the borders of Dalmatia. As the materials best suited to land transport are those which are least archaeologically visible, the scarcity of identifiable imports in this area should not necessarily be taken as an indication of infrequent trade, but the evidence does show that imports were reaching the interior areas of Dalmatia at least by sometime during the second century, if not before. However, there evidently was a great difference between the types and variety of imported materials regularly seen on the coast and those which made their way further inland. Coastal markets seem to have been inundated with cheap, everyday products, which must have brought an awareness of the empire into the everyday lives of coastal inhabitants. On the other hand, those living further inland, with their more locally-centred markets would have had a different experience probably related more to occasional import of relatively valuable materials, which would have affected fewer people and to a lesser degree than the constant trade of cheap goods seen on the coast.

Closer attention to the identification of pottery and glass types in future excavations would greatly help our understanding of imports in this area. If the products of Dalmatian workshops can be determined and perhaps even identified with specific locations, we could also have more precise evidence of trade within the province. The existence of trade along the coast and between coastal communities and island settlements is difficult to determine without the identification of locally produced materials but can be seen to some extent by the distribution of the bell-shaped flasks of the so-called Zadar type and to a lesser degree of the sarcophagi carved in Salonitan workshops. Perhaps the future identification of local products will shed more light on these commercial connections.

A closer study of the better types of Dalmatian limestone, especially from the quarries near Tragurium and on Brač, would also be very useful in illuminating coastal trade in Dalmatia. It would be important not only to the study of stone supply to Salona, but it may also help to identify the use of these and other stones on the islands and along the coast.

Although trade within the Roman province of Dalmatia is difficult to determine with any real precision, the case is not hopeless; although the archaeology itself presents some problems, the main difficulty lies in the present state of research and publication. A greater attention to the quantification of small finds, both imports and local products, would add greatly to our knowledge of trade in Dalmatia and how it varied across the province. The identification of local products, especially if their manufacture can be linked to specific locations, has the potential to contribute volumes to our understanding of the movement of goods within the province.

5. Conclusion

In the conclusion to his chapter on trade, Škegro (1999: 302) states that Roman Dalmatia was an importer of manufactured goods and an exporter of raw materials. This statement is misleading and fails at an understanding of the nature of trade in the province. This view suggests the backward nature of Dalmatian life in comparison to life in other

provinces; it implies the absence of sophisticated craft manufacture, since the majority of identifiable imports are cheap commodities like pottery, tiles, and glass. However, the predominance of these materials in the archaeological record may partly be a result of their suitability for preservation. Not only is there evidence for ceramic and glass production in Dalmatia, but there was also sophisticated production of sarcophagi at Salona, which implies a general level of sophistication in craft production in the area around Salona, at least.

The task, then, is to determine why such materials were being imported to Dalmatia. Certainly, imported material is not uncommon among coastal cities of the Roman Mediterranean; imports generally comprise a minimum of twenty percent of the pottery assemblages of major Roman port cities (Fulford 1987: 64). We should not see imported pottery at Dalmatian sites as an indication of a low level of craft production and dependence on outside sources for such objects, but rather as a reflection of the scale of external trade in which the province participated. Unfortunately, local forms of pottery are not well-studied enough to enable any reliable calculation of the ratio of imported ceramics to local products at Dalmatian sites.

The bulk import of cheap goods is best shown by the first-century import of north Italian tiles. While the long-distance transport of pottery is well-known throughout the Mediterranean, the transport of brick and tile is a more rarely observed phenomenon. The import of the products of a variety of workshops, their use in an assortment of building projects, and their apparent transport as primary cargo all point to the use of tiles as saleable ballast and to the value of Dalmatian exports. This hypothesis is further supported by wrecks with cargoes composed mainly of pottery; although these ships may not have been headed towards Dalmatia, the similarity of the cargoes of saleable ballast to the tile cargoes and the rarity of such cargoes suggests a similar goal, that is the procurement of a considerable profit through the export of Dalmatian goods.

This is not to say that all imports to Dalmatia were cheap goods. The regular import of Attic, Proconnesian, and Roman sarcophagi between the second and fourth centuries AD shows the capacity for a trade in luxury goods, and indicates a certain amount of wealth in the province, especially at Salona where the majority of these artefacts have been found.

Dalmatia seems to have retained a steady commercial relationship with the eastern Mediterranean throughout the first four centuries AD, importing pottery, glass, sarcophagi, architectural marbles and granites, and, to a seemingly more limited extent, olive oil and wine in the fourth century and later. Connections with the western provinces are less clear, but archaeological evidence does show limited contact, perhaps through emporia like Aquileia, indicated by sporadic finds of Western pottery and glass and the exceptional find of Baetican Dr.20 oil amphorae at Špinut. Trade with Italy and North Africa seems largely to follow the general patterns of production and export in these areas, seen especially in the absence of Italian pottery and glass after the second century AD, and the appearance of pottery and agricultural imports from North Africa in the second century and continuing at least until the end of the fourth century.

Direct and indirect trade is difficult to determine without shipwreck evidence, which although not undeniably related to Dalmatian trade, at least shows the types of cargoes passing through the area. The two southern Italian pottery wrecks are good examples of cargoes of mixed origin. The Gušteranski Islet ship which also carried northern Italian and Hispanic amphorae, could have assembled its cargo at an emporium or gradually through trade at various points through the Mediterranean. The case of the Cape Glavat wreck is slightly clearer. A cargo of mostly south Italian goods combined with some Eastern commodities was quite likely assembled at some Campanian port before being transported to the Adriatic.

Exports are more difficult to identify archaeologically, both because of their perishable nature and because of our poor knowledge of Dalmatian ceramic production. Metals, timber, and textiles are exports for which we have literary evidence, and these exports also match the type implied by imports of cheap, bulk goods: relatively reliable and valuable materials. Although trade in metals and timber shows an export of raw materials as Škegro argues, the production and export of wool and textiles, possibly dyed purple, shows a more sophisticated commercial relationship between Dalmatia and the rest of the Roman empire than merely the exploitation of an area's natural resources by a dominant power.

Distribution of material, both imports and local products, points toward Salona, Iader, and Narona as the major commercial centres of the Dalmatian coast through which a wide variety of goods were imported and exported, not only within the province but also across the Mediterranean. Distribution of imports within the province shows a much greater variety of imported materials found in the coastal region than further inland. While inhabitants of the coast would have benefited greatly by the general

increase in long-distance trade during the Roman period and would have had constant reminders of the empire through articles of everyday use, the global market of the Roman empire would have had less effect on those living in the interior of the province, who depended more on local manufacture for their everyday needs. However, the presence of imports in the continental region of the province shows a participation in long-distance trade, although on a much smaller scale than that seen on the coast, and this commercial interaction was doubtless aided by the construction of military roads across the mountainous terrain of the province.

Further study of the nature of Dalmatian trade requires identification of local products and their distribution both within the province and in the wider Mediterranean, a study which would add greatly to our knowledge of both external and internal trade. Pottery is a common proxy indicator of trade, and for this reason, the recognition of local forms and the establishment of typologies is vital to the study of Dalmatian trade. Not only would knowledge of Dalmatian pottery indicate patterns of external and internal trade, but combined with the quantification of ceramic assemblages at various Dalmatian sites, it would also help us to see better the contribution of imports to the Dalmatian ceramics market over time, which could be used as an indicator of the scale of external trade.

A similar study of Dalmatian amphorae would also be extremely useful; although La.2 and Dr.6 are important forms to consider, we must also keep in mind that other forms may also have been produced in the region. Whether we can be certain of amphora production in Dalmatia or of the absence of such activity, this knowledge would help us better to understand Dalmatian agricultural production and export, and it would also clarify the commercial relationship between Dalmatia and Italy between the second century BC and the first century AD.

Knowledge of glass forms being produced in Dalmatia would also help us to see trade relations both within the province and with other parts of the empire. Gluščević (2000) has already demonstrated the possibility and the usefulness of this study. However, the study needs to be taken much further; a more systematic analysis of the forms and their difference from similar types produced elsewhere would aid in the establishment of more reliable distributions.

Although most natural resources like timber, wool, and metals are either unable to be provenanced or even invisible archaeologically, stone can often be traced to its quarry. Analysis of finer local stone used for sarcophagi and for architecture and comparison to known quarries would be useful for the study of Dalmatian trade. A better knowledge of the characteristics of Dalmatian quarries would perhaps enable the identification of the export of limestone, and it would also illuminate the stone trade within Dalmatia, especially as regards the transport of limestone to Salona for the manufacture of sarcophagi. A more complete study of Salonitan sarcophagi, such as Cambi (1998) has begun, would also show the extent to which the Salona workshop was producing for an immediately local market and the extent to which these sarcophagi were traded within the province.

Continued excavation and careful analysis and recording of small finds including quantification of assemblages are, of course, necessary to the study of trade, but the reevaluation of finds, where they are still in existence, from past excavations could also potentially add much to our current store of knowledge. As well as the study of terrestrial sites, continued discovery and excavation of shipwreck sites is also important to our understanding of trade along the eastern Adriatic coast. They can tell us more about the types of cargoes and the combinations of materials being transported through this area. The excavation, especially, of the tile wrecks would aid our understanding of the import of *tegulae* and of the commercial relationship between Dalmatia and northern Italy in the first century AD.

The evidence for trade in Dalmatia during the first four centuries AD shows a participation in the thriving commercial network which spread across the Mediterranean during the Roman period. While trade seems to have been focussed on export, especially in the first two centuries AD, the expensive tastes of the Dalmatian elite provided a market for the import of luxury goods as well. Although most of the trade seems to have been oriented towards the coast, the interior regions of the province, to a lesser extent and at a later date, also benefited from commercial contacts with the wider Mediterranean world, probably due in part to their valuable natural resources, especially metals. Our insights into Dalmatian trade are limited, however, by the nature of the evidence and the present state of archaeological research in the area. Future advancements in Dalmatian archaeology, especially the study of local manufacture, should give us at the same time a wider and more precise knowledge of the nature of trade in this Roman province.

ABBREVIATIONS

BARRINGTON ATLAS	R. J. A. Talbert (ed.): *Barrington atlas of the Greek and Roman world*, Princeton, 2000.
AV	Arheološki vestnik, Ljubljana.
CIL	*Corpus Inscriptionum Latinarum*, Brandenburgische Akademie der Wissenschaften, Berlin.
GZM	Glasnik Zemaljskog muzeja, Sarajevo.
VAHD	Vjesnik za arheologiju i historiju dalmatinsku, Split.

BIBLIOGRAPHY

Abramić 1926–27	M. Abramić: "Žigovi na opekama i amforama iz Narone", VAHD 49, Split, 1926–27, 130–138.
Atanacković-Salčić 1978	V. Atanacković-Salčić: "Gračine, Humac, Ljubuški – antički vojni logor s naseljem", *Arheološki pregled* 20, Beograd, 1978, 73–77.
Basler 1972	Đ. Basler: *Arhitektura kasnoantičkog doba u Bosni i Hercegovini*, Sarajevo, 1972.
Bojanovski 1974.	I. Bojanovski: *Dolabelin sistem cesta u rimskoj provinciji Dalmaciji*, Sarajevo, 1974.
Bojanovski 1980	I. Bojanovski: "Materijali, tehnike i strukture antičkog graditeljstva u unutrašnjosti provincije Dalmacije", in M. Suić & M. Zaninović (eds.), *Materijali, tehnike i strukture predantičkog i Antičkog graditeljstva na istočnom jadranskom prostoru*, Zagreb, 1980, 41–72.
Bojanovski 1982	I. Bojanovski: "Antičko rudarstvo u unutrašnjosti provincije Dalmacije u svjetlu epigrafskih i numizmatičkih izvora", *Arheološki radovi i rasprave* 8–9, Zagreb, 1982, 89–120.
Bonifay 2004	M. Bonifay: *Etudes sur la céramique romaine tardive d'Afrique*, Oxford, 2004.
Brun 2004	J.-P. Brun: *Archéologie du vin et de l'huile dans l'Empire romain*, Paris, 2004.
Brusić 1976	Z. Brusić: "Late Antique and Byzantine underwater finds along the eastern coast of the Adriatic", *Balcanoslavica* 5, Beograd, 1976, 31–39.
Brusić 1993	Z. Brusić: "Vrste importa helenističke i rimske keramike u Liburniju", in N. Kudić & M. Vicelja (eds.), *Umjetnost na istočnoj obali Jadrana u kontekstu Europske tradicije*, 1993, Rijeka, 81–90.
Brusić 1999	Z. Brusić: *Hellenistic and Roman relief pottery in Liburnia (north-east Adriatic, Croatia)*, Oxford, 1999.
Cambi 1961–62	N. Cambi: "Amfore kao građevinski materijal u bedemima Salone", VAHD 63–64, Split, 1961– 62, 145–150.
Cambi 1975	N. Cambi: "Spanish amphorae found near Split", AV 26, Ljubljana, 1975, 115–124.
Cambi 1977	N. Cambi: "Die stadtrömischen Sarkophage in Dalmatien", *Archäologischer Anzeiger* 1977, Berlin, 444–459.
Cambi 1980	N. Cambi: "Amfore kao građevinski i izolacijski materijal u antičkom graditeljstvu Dalmacije," in M. Suić & M. Zaninović (eds.), *Materijali, tehnike i strukture predantičkog i antičkog graditeljstva na istočnom jadranskom prostoru*, Zagreb, 1980, 73–80.

Cambi 1983 — N. Cambi: "Le anfore Dressel 20 nella Jugoslavia", in J. M. Blázquez Martínez & J. Remesal Rodríguez (eds.), *Produccion y comercio del aceite en la antiguedad. Secundo Congreso Internacional (Sevilla, 24.28 Febrero 1982)*, Madrid, 1983, 363–389.

Cambi 1987 — N. Cambi: "Fragmenti antičkih sarkofaga na otoku Koločepu", in *Arheološka istraživanja u Dubrovniku i dubrovačkom području* (*Izdanja Hrvatskog arheološkog društva* 12), Zagreb, 1987, 129–137.

Cambi 1988 — N. Cambi: *Atički sarkofazi u Dalmaciji*, Split, 1988.

Cambi 1989 — N. Cambi: "Anfore romane in Dalmazia", in *Amphores romaines et histoires économique: dix ans de recherché* (*Actes colloque Sienne, 22-24 mai 1986*), Roma, 1989, 312–337.

Cambi 1991 — N. Cambi: "Amfore kasnorepublikanskog doba i njihova produkcija u Dalmaciji", in B. Čović (ed.), *Zbornik radova posvećenih akademiku Alojzu Bencu*, Sarajevo, 1991, 55–65.

Cambi 1993 — N. Cambi: "New Attic sarcophagi from Dalmatia," in G. Koch (ed.), *Grabeskunst der römischen Kaiserzeit*, Mainz am Rhein, 1993, 77–90.

Cambi 1994 — N. Cambi: *The Good Shepherd sarcophagus and its group*, Split, 1994.

Cambi 1998 — N. Cambi: "Sarkophage aus salonitanischen Werkstätten", in G. Koch (ed.), *Akten des Symposiums '125 Jahre Sarkophag-corpus'*, Mainz am Rhein, 1998, 169–181.

Cermanović-Kuzmanović 1968 — A. Cermanović-Kuzmanović: "Late Roman glass from Doclea", *Archaeologia Iugoslavica* 9, Beograd, 1968, 31–47.

Cermanović-Kuzmanović & Srejović 1967 — A. Cermanović-Kuzmanović & D. Srejović: "Rezultati novih arheoloških istraživanja u jugoistočnom delu rimske provincije Dalmacije," *Materijali* 4, Beograd, 1967, 21–28.

Cipriano & Carre 1989 — M. T. Cipriano & M.-B. Carre: "Production et typologie des amphores sur la côte adriatique del'Italie", in *Amphores romaines et histoires économique: dix ans de recherché* (*Actes colloque Sienne, 22-24 mai 1986*), Roma, 1989, 67–104.

Clairmont 1975 — C. W. Clairmont: "Stone monuments", in C. W. Clairmont, *Excavations at Salona, Yugoslavia (1969–1972)*, New Jersey, 1975, 209–212.

Clairmont & von Gozenbach 1975 — C. W. Clairmont & V. von Gozenbach: "The excavations", in *Excavations at Salona, Yugoslavia (1969–1972)*, New Jersey, 1975, 38–82.

Crnković *et al.* 1990 — B. Crnković, D. Slovenec & A. Sokač: "Ceramics from the Roman city of *Salona* near Split", *Vjesnik Arheološkog muzeja Zagreba* 23, Zagreb, 1990, 75–96.

Curtis 1991 — R. I. Curtis: *Garum and salsamenta: production and commerce in materia medica*, Leiden, 1991.

Čremošnik 1962 — I. Čremošnik: "Nalaz terre sigillate chiare iz Višića (Čapljina)", GZM 17, Sarajevo, 1962, 115–140.

Čremošnik 1970 — I. Čremošnik: "Nalazi Mediteranskih radionica u BiH i njihova hronologija", *Materijali* 8, Beograd, 1970, 73–89.

Čremošnik 1974 — I. Čremošnik: "Rimsko naselje na Paniku kod Bileća", GZM 29, Sarajevo, 1974, 41–164.

Čremošnik 1984 — I. Čremošnik: "Rimski castrum kod Doboja", GZM 39, Sarajevo, 1984, 23–84.

Damaevski 1974 — V. Damevski: "Pregled tipova staklenog posuđa iz italskih, galskih, mediteranskih i poranjskih radionica na području Hrvatske u doba Rimskog Carstva", AV 25, Ljubljana, 1974, 62–87.

Decker 2001 — M. Decker: "Food for an empire: wine and oil production in North Syria", in S. Kingsley & M. Decker (eds.), *Economy and exchange in the East Mediterranean during Late Antiquity*, Oxford, 69–86.

Del Chiaro 1973 — M. A. Del Chiaro: "An Iberian sherd in Yugoslavia", *American Journal of Archaeology* 77, Boston, 1973, 65–66.

Dodge & Ward-Perkins 1992 — H. Dodge & J. B. Ward-Perkins (eds.): *Marble in Antiquity. Collected papers of J. B. Ward-Perkins* (*British School at Rome Archaeological Monograph* 6), London, 1992.

Doumenge 1995 — F. Doumenge: "The natural environment of the Adriatic Sea and its coastline", in *Protection of coastal areas of the Adriatic Sea* (*Council of Europe Press*), Strasbourg, 1995, 15–44.

Doumet 1980 — J. Doumet: *Étude sur la couleur pourpre ancienne: et tentative de reproduction du procédé de teinture de la ville de Tyr décrit par Pline l'Ancien*, Beirut, 1980.

Dvoržak-Schrunk 1979 — I. Dvoržak-Schrunk: "Terracotta lamps", in S. McNally, J. Marasović & T. Marasović (eds.), *Diocletian's Palace. American-Yugoslav joint excavations.* Split, 1979, 83–105.

Dvoržak-Schrunk 1989 — I. Dvoržak-Schrunk: "The red slip wares", in S. McNally, J. Marasović & T. Marasović (eds.), *Diocletian's Palace. American-Yugoslav joint excavations. Vol. V*, Minneapolis, 1989, 47–206.

Dyggve 1928 — E. Dyggve: *Recherches à Salone I*, Copenhagen, 1928.

Fadić 1982 — I. Fadić: "Tipologija i kronologija rimskog stakla iz arheološke zbirke u Osoru", in B. Čečuk, I. Marović & Ž. Rapanić (eds.), *Arheološka istraživanja na otocima Cresu i Lošinju* (*Izdanja Hrvatskog arheološkog društva* 7), Zagreb, 1982, 111–135.

Fadić 1984 — I. Fadić: "Antičko staklo u arheološkoj zbirci franjevačkog samostana u Sinju," in B. Čečuk, I. Marović & Ž. Rapanić (eds.), *Cetinska krajina od prethistorije do dolaska Turaka* (*Izdanja Hrvatskog arheološkog društva* 8), Zagreb, 127–148.

Fadić 1993 — I. Fadić: "Antičko staklo istočne jadranske obale u kontekstu rimske civilizacije", in N. Kudić & M. Vicelja (eds.), *Umjetnost na istočnoj obali Jadrana u kontekstu Europske tradicije*, Rijeka, 1993, 71–79.

Fulford 1987 — M. G. Fulford: "Economic Interdependence Among Urban Communities of the Roman Mediterranean", *World Archaeology* 19/1, London, 1987, 58–75.

Gluščević 1986 — S. Gluščević: "Neki oblici staklenog materijala iz antičke luke u Zatonu kod Zadra", AV 37, Ljubljana, 1986, 255–278.

Gluščević 2000 — S. Gluščević: "Roman glass in Zadar. Certain characteristic forms", in *Annales du 14e congrès de l'association internationale pour l'histoire du verre*, Lochem, 2000, 182–189.

Gunjača 1985 — Z. Gunjača: "Bribir/Glavica: antičko i srednjovjekovno naselje", *Arheološki pregled* 26, Beograd, 1985, 86–87.

Harris 1993 — W. V. Harris: "Between archaic and modern: some current problems in the history of the Roman economy", in W. V. Harris (ed), *The inscribed economy: production and distribution in the Roman empire in the light of* instrumentum domesticum, Ann Arbor, 1993, 11–29.

Hirt 2004 — A. Hirt: *Mines and quarries in the Roman empire. Organisational aspects. 27 BC-AD 235*. (Unpublished D. Phil. Thesis, Oxford, 2004).

Howgego 1994 — C. Howgego: "Coin circulation and integration of the Roman economy", *Journal of Roman Archaeology* 7, London, 1994, 5–21.

Jurišić 1988 — M. Jurišić: "O. Mljet/rt Glavat: Potonuli antički brod s teretom", *Arheološki pregled* 29, Beograd, 1988, 135–136.

Jurišić 2000 — M. Jurišić: *Ancient shipwrecks of the Adriatic: maritime transport during the first and second centuries AD*, Oxford, 2000.

Karagiorgou 2001 — O. Karagiorgou: "LR2: a container for the military *annona* on the Danubian border", in S. Kingsley & M. Decker (eds.), *Economy and exchange in the East Mediterranean during Late Antiquity*, Oxford, 2001, 129–166.

Krigin 1979 — B. Kirigin: "Nalazi rimskih natpisa i reljefa kod Škripa na Otoku Braču", VAHD 72–73, Split, 1979, 129 –142.

Kirigin 1984 — B. Kirigin: "Roman glass bowls from the Archaeological Museum at Split", VAHD 77, Split, 1984, 121–131.

Kisić 1988 — A. Kisić: "Rezultati podmorskih rekognisciranja i istraživanja na dubrovačkom području", in *Arheološka istraživanja u Dubrovniku i dubrovačkom području* (*Izdanja Hrvatskog arheološkog društva* 12), Zagreb, 1988, 153–168.

Macheboeuf 2005 — C. Macheboeuf: *Exploitation et commercialisation de la poupre dans l'Empire romain* (Thèse de Doctorat. Université du Littoral Côte d'Opale, 2005).

Makjanić 1983 — R. Makjanić: "Istočna sigilata na Kvarneru", *Prinosi Odjela za arheologiju* 1, Zagreb, 1983, 51–64.

Makjanić 1985 — R. Makjanić: "Terra sigillata iz rimskih nekropola u Osoru i Bakru", *Prilozi* 2, Zagreb, 1985, 39–50.

Mardešić 1998 — J. Mardešić: "Keramički nalazi s lokaliteta Sv. Vid u Vidu kod Metkovića", VAHD 87–89, Split, 1998, 95–121.

Mardešić & Šalov 2000 — J. Mardešić & T. Šalov: "Keramički nalazi s istraživanja bazilike u Erešovim Barama – Vid kod Metkovića", VAHD 94, Split, 2000, 105–163.

Marin *et al.* 2004 — E. Marin, M. Kolega, A. Claridge & I. Roda: "The statues from the Augusteum", in E. Marin & M. Vickers (eds.), *The rise and fall of an imperial shrine: Roman sculpture from the Augusteum at Narona*, Split, 2004, 70–174.

Matejčić & Orlić 1982 — R. Matejčić & M. Orlić: "Rezultati prve faze hidroarheoloških istraživanja u Cresko-Lošinjskim vodama," in *Izdanja Hrvatskog arheološkog društva* 7, Zagreb, 1982, 161–169.

Matijašić 1983 — R. Matijašić: "Cronografia dei bolli laterizi della figulina Pansiana nelle regioni adriatiche", *Mélanges d'archéologie et d'histoire de l'Ecole Française de Rome* 95/2, Roma, 1983, 961–995.

Matijašić 1987 — R. Matijašić: "La produzione ed il commercio di tegole ad Aquileia", *Antichità Altoadriatiche* 29/2, Udine, 1987, 495–531.

Matijašić 1993 — R. Matijašić: "Oil and wine production in Istria and Dalmatia in Classical Antiquity and the early Middle Ages", in *La production de vin et de l'huile en Méditerranée* (*Bulletin de correspondance hellénique, Supplement* XXVI), Paris, 1993, 247–261.

McNally 1989 — S. McNally: "Pottery from the Roman drain", in S. McNally, I. Dvoržak-Schrunk, J. Marasović & T. Marasović (eds.), *Diocletian's Palace. American-Yugoslav joint excavations. Vol. VI*, Minneapolis, 1989, 115–119.

Mirković 1971 — M. Mirković: "Sirmium – its history from the I century AD to 582 AD", in Đ. Bošković (ed.), *Sirmium I: Archaeological investigations in Syrmian Pannonia*, Beograd, 1971, 5–90.

Mirnik 1989 — I. Mirnik: "Roman architectural fragments", in S. McNally, I. Dvoržak-Schrunk, J. Marasović & T. Marasović (eds.), *Diocletian's Palace. American-Yugoslav joint excavations. Vol. VI*, Minneapolis, 1989, 1–56.

Oreb & Marin 1980 — F. Oreb & E. Marin: "Kasnoantičko groblje na Sućidru u Splitu", VAHD 74, Split, 55–59.

Oxé *et al.* 2000 — A. Oxé, H. Comfort & P. Kenrick: *Corpus Vasorum Arretinorum*, Bonn, 2000.

Parker 1992 — A. J. Parker: *Ancient shipwrecks of the Mediterranean and the Roman provinces*, Oxford, 1992.

Pašalić 1960 — E. Pašalić: *Antička naselja i komunikacije u Bosni i Hercegovini*, Sarajevo, 1960.

Paškvalin 1990 — V. Paškvalin: "Arheološko nalazište Ograja u Putovićima kod Zenice", GZM 45, Sarajevo, 35–92.

Paterson 1998 — J. Paterson: "Trade and traders in the Roman world: scale, structure, and organisation", in H. Parkins & C. Smith (eds.), *Trade, traders and the anciecity*, London - New York, 1998, 149–167.

Patsch 1907 — C. Patsch: *Zur Geschichte und Topographie von Narona*, Vienna, 1907.

Peacock & Williams 1986 — D. P. S. Peacock & D. F. Williams: *Amphorae and the Roman Economy. An Introductory Guide*, London - New York, 1986.

Remolà 2000 — J.-A. Remolà: "Sobre la interpretación arqueológica de los vertederos", in X. D. Raventós & J.-A. Remolà (eds.), Sordes urbis: *la eliminación de residuos en la ciudad romana*, Roma, 2000, 107–121.

Rendić-Miočević 1991 — D. Rendić-Miočević: "Theatar u Saloni s osobitim obzirom na neke njegove kompozicijske i tehničke karakteristike", in N. Cambi (ed.), *Antička Salona*, Split, 1991, 255–267.

Riley 1979 — J. A. Riley: "The coarse pottery from Benghazi", in J. A. Lloyd (ed.), *Sidi Khrebish Excavations, Benghazi (Berenice), Vol. II*, Tripoli, 1979, 91–497.

Saletty 2004 — C. Saletti: "Aquileia e la *Dalmatia*: spunti da una statua femminile aquileiese", *Athenaeum* 92, Pavia, 2004, 5–13.

Sheridan 1990 — J. A. Sheridan: *Roman military clothing requisitions in Egypt*, New York, 1990.

Slapšak 1974 — B. Slapšak: "Tegula Q. Clodi Ambrosi", *Situla* 14–15, Ljubljana, 1974, 173–181.

Sondi & Slovenec 2003 — I. Sondi & D. Slovenec: "The mineralogical characteristics of the *Lamboglia 2* Roman-age amphorae from the central Adriatic (Croatia)", *Archaeometry* 45/2, 2003, 251–262.

Suić 1976 — M. Suić: *Antički grad na istočnom Jadranu*, Zagreb, 1976.

Suić 1981 — M. Suić: *Zadar u starom vijeku*, Zadar, 1981.

Škegro 1991 — A. Škegro: "Rimska žigosna opeka na području Bosne i Hercegovine", in B. Čović (ed.), *Zbornik radova posvećenih akademiku Alojzu Bencu*, Sarajevo, 1991, 221–237.

Škegro 1999 — A. Škegro: *Gospodarstvo rimske provincije Dalmacije*, Zagreb, 1999.

Thompson & Thompson 2004 — T. Thompson & D. Thompson 2004: *Adriatic pilot: Albania, Montenegro, Croatia, Slovenia and the Italian Adriatic coast*, 4th ed, Cambridgeshire, 2004.

Tomber 1987 — R. Tomber: "Evidence for long-distance commerce: imported bricks and tiles at Carthage", *Rei Cretariae Romanae Fautorum* 25–26, Bern, 1987, 161–174.

Topić 2003 — M. Topić: "Stolne posuđe i glinene svjetiljke iz Augusteum Narone", VAHD 95, Split, 2003, 183–344.

Topić 2004 — M. Topić: "Posuđe za svakodnevnu uporabu grublje izradbe, amfore, terakote i kultne posude iz Augusteum Narone", VAHD 96, Split, 2004, 303–515.

Vicari 2001 — F. Vicari: *Produzione e commercio dei tessuti nell'Occidente romano*, Oxford, 2001.

von Gozenbach 1975 — V. von Gozenbach: "Pottery from closed deposits", in C. W. Clairmont (ed.), *Excavations at Salona, Yugoslavia (1969–1972)*, New Jersey, 1975, 181–208.

Wild 1976 — J. P. Wild: "The gynaecea", in R. Goodburn & P. Bartholomew (eds.), *Aspects of the* Notitia Dignitatum (*BAR International Series* 15), Oxford, 1976, 51–58.

Wilkes 1969 — J. J. Wilkes: *Dalmatia*, London, 1969.

Wilkes 1979 — J. J. Wilkes: "Importation and manufacture of stamped bricks and tiles in the Roman province of Dalmatia", in A. McWhirr (ed.), *Roman brick and tile: studies in the manufacture, distribution and use in the western empire*, Oxford, 1979, 65–72.

Will 1989 — E. L. Will: "Roman amphoras", in S. McNally, I. Dvoržak-Schrunk, J. Marasović & T. Marasović (eds.), *Diocletian's Palace. American-Yugoslav joint excavations. Vol. VI*, Minneapolis, 1989, 57–113.

Wilson 2001 — A. I. Wilson: "Ti. Cl. Felix and the date of the second phase of the East Baths", in L. M. Stirling, D. Stone & N. Ben Lazreg (eds.). *Leptiminus (Lamta): the east baths, cemeteries, kilns, Venus mosaic, site museum and other studies. Report no. 2*, Portsmouth, 2001, 25–28.

Wilson 2002 — A. I. Wilson: "Machines, power and the ancient economy", *Journal of Roman Studies* 92, London, 2002, 1–31.

Zabehlicky-Scheffenegger & Kandler 1979 — S. Zabehlicky-Scheffenegger & M. Kandler: *Burnum Erster: Bericht über die Kleinfunde der Grabungen 1973 und 1974 auf dem Forum*, Wien, 1979.

Zaninović 1977 — M. Zaninović: "The economy of Roman Dalmatia", in H. Temporini & W. Haase, *Aufstieg und Niedergang der Römischen Welt* II/6, Berlin-New York, 1977, 767–801.

Zaninović 1996 — M. Zaninović: *Od Helena do Hrvata*, Zagreb, 1996.

Zotović 2002 — R. Zotović: *Population and economy of the eastern part of the Roman province of Dalmatia*, Oxford, 2002.