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Southern Mediterranean Port Cities as Microcosms of Connectivity

“Maritime cities also suffer a certain corruption and degeneration of morals; for they receive a mixture of strange languages and customs and import foreign ways as well as foreign merchandise, so that none of the ancestral institutions can possibly remain unchanged. Even their inhabitants do not cling to their dwelling places, but are constantly being tempted far from home by soaring hopes and dreams; and even when their bodies stay at home their thoughts nevertheless fare abroad and go wandering…Many things too that cause ruin to states as being incitements to luxury are supplied by the sea, entering either by capture or import; and even the more delightfulness of such a site brings in its train many an allurement to pleasure through either extravagance or indolence. But nevertheless, with all those disadvantages, they possess one great advantage – all the products of the world can be brought by water to the city in which you live, and all your people in turn can convey or send whatever their own fields produce to any country they like.”

(Cicero, *De Re Publica* II, 7-9, Loeb Translation)

Archaeological research reveals a Roman world which was highly interconnected. This connectivity was experienced on a daily basis by the Romans and as the above quote from Cicero exemplifies, they were well aware of this concept – even if it was not always viewed in a positive light. In modern scholarship, however, the concept of connectivity is relatively new. The idea, and particularly the terminology, has been most influentially advanced by Horden and Purcell in their work *The Corrupting Sea*. What Horden and Purcell term ‘dispersed hinterlands’ – networks which extend beyond immediate geographical boundaries – are a far cry from the work of scholars such as Finley who saw the ancient world as consisting of cities locked within a parasitical relationship with their immediate hinterland.

Furthermore, recent work has gone as far as to refer to the Roman world in terms of ‘globalization’. For some scholars, globalization provides an alternative to the controversial term ‘Romanization’ and for others, it is a concept that indiscriminately applies modern practice to the ancient world. The fact that such terminology has been applied is a testament to the growing awareness that the Roman world was connected in a way which was unparalleled in its time. Many factors were involved in the creation and sustaining of the

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1 HORDEN, PURCELL 2000, particularly Chapter V.
3 MATTINGLY, ALCOCK 1997; HINGLEY 2005.
network in which the Roman Empire existed, but at the centre of this was what has been termed the ‘principal agent of connectivity’ – the Mediterranean Sea.

Yet, what does this connectivity look like in the archaeological record? Simply noting that imported objects are present at a site is not sufficient evidence to argue for a connected, much less, global world. In order to apply the principles of connectivity justifiably to the Roman world we must be able to demonstrate not only that various regions of the Empire were in contact with each other but that these contacts were significant and sustained. There are several ways in which the archaeologist might attempt to illustrate such ideas both on a social and economic level. Perhaps the most obvious economic indicators are traded goods such as ceramics, marble and bricks. Traded goods, however, are not the only markers of connectivity and in addition to surveying the imports and exports of selected North African port cities this paper will highlight the social landscape of ports by examining the various communities active within them.

**Exports**

Let us begin by examining briefly the export of North African products abroad. When North Africa became part of the Roman Empire it was incorporated into an extensive Mediterranean-wide economic system which had a vast market for surplus crops. In particular, the city of Rome benefited greatly from African agricultural imports. The amount of grain needed to supply the city of Rome has been estimated by multiple scholars and usually ranges from 30 million *modii* to 40 million *modii*. By the first century, it is estimated that two-thirds of Rome’s grain supply came from North Africa.

The extensive exportation of grain stimulated trade in other goods, perhaps most importantly olive oil; by the second century AD African oil was being exported across the whole of the Western Mediterranean. Other amphora-borne products were exported as well, including fish products and even wine. Basic distribution maps of African amphorae are useful for illustrating the extensive nature of trade, but it is quantified assemblages which provide reliable information concerning the relative importance of these amphora-borne products throughout time and allow one to assess the general evolution of trade throughout time.

Certainly the ceramic assemblages from Ostia show an increasing dominance of African products over the Roman imperial period. Analysis of the assemblages from the *Terme del Nuotatore* reveals a steady increase in the importation of African amphorae over the imperial period. As illustrated by the graph in fig. 1 North African amphorae comprise only 6% of the total deposit of the third quarter of the first century AD and only 8% of the early second century AD, but by the early third century make up 27% of all amphorae recovered and documented from the baths.

Preliminary results from the more recent Deutsches Archäologisches Institut (DAI) – American Academy in Rome (AAR) excavations at Ostia complement this picture. While there are some variations in the patterns, the basic trends of changing imports agree. The dominance of African amphorae is even clearer in the quantification of these assemblages visible in fig. 2. African amphorae comprise 12% of the assemblage during the latter half of the first century AD, and 16% of the first half of the second century AD. By the end of the third century AD, African amphorae make up 50% of the deposit and in the late fourth through fifth centuries are at 61%.

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5 HORDEN, PURCELL 2000, 133.
6 GARNSEY 1983.
7 RICKMAN 1980.
9 MATTINGLY, HITCHNER 1995, 190.
10 BONIFAY 2003.
11 MARTIN 2008.
Fig. 1 – Graph of percentages of amphora imports at Ostia, Terme del Nuotatore.

Fig. 2 – Graph of percentages of amphorae, DAI-AAR excavations.
While quantified assemblages of this quality are not common, the clear importance of North African amphorae – and therefore North African products - particularly after the second century AD seems to be the standard for the majority of the Western Mediterranean. The East, however, does not show the same permeation of North African amphorae. Indeed, even the inhabitants of Berenice in Cyrenaica imported amphora-borne products primarily from the Eastern Mediterranean.

This regional divide seems to be present in the amphorae, but does not extend to finewares and by the second century AD, African Red Slip Ware is the predominant fineware across the Mediterranean. At Ostia, the finewares have not been quantified to the same precision as the previously discussed amphorae, but nevertheless both the results from the Terme del Nuotatore excavations and the DAI-AAR excavations show that by the second half of the second century, ARS has completely displaced Italian Terra Sigillata (ITS) as the principal fineware. At Corinth, ARS appears c. AD 125 and by the early third century is, along with Çandarli ware, the most common fineware. By the middle of the third century, ARS had increased significantly\(^\text{12}\). Berenice is also thoroughly dominated by African finewares with ARS making up 55% of the assemblages of the second century AD and 98% of the assemblages of the third century AD\(^\text{13}\).

### Imports

But while North Africa was known for its exports, numerous imports are identifiable in the archaeological record of North African ports and provide evidence for the nature of trade during the Imperial period. At Carthage, the early periods are characterized by Italic finewares – first black gloss wares and then Italian Sigillata – whose dominance continues until the early second century AD. The late first century BC sees considerable quantities of Eastern Sigillata A. Italic and Spanish amphorae also are present in significant numbers during the first and early part of the second century AD\(^\text{14}\).

Bricks from Italy also appear in a number of North African port cities\(^\text{15}\) and are likely indicative of return cargoes. Leptiminus provides a good illustration of a city whose trading connections encourage a greater number of imports. A number of the bricks from the second phase of the East Baths bore the stamp of Ti. Claudius Felix, a brickmaker from Salerno whose stamp is also found at Thapsus, Sousse, Salerno, Paestum, Cumae and Rome\(^\text{16}\). The pumice in the East Baths was also imported and recent scientific analysis has shown that it was from Cossyra, Pantelleria\(^\text{17}\).

Of particular interest is the fact that iron ore was also imported to Leptiminus. While its origin has not yet been ascertained, there is no local source of iron ore and yet artefacts collected during survey work at Leptiminus, including furnace and hearth linings, slag and iron bloom indicate that two primary metalworking activities, iron smelting and smithing, occurred on-site\(^\text{18}\). The current theory is that the ore functioned as a type of saleable ballast for the incoming ships which would in turn carry away the fish products from town and the oil from the hinterland\(^\text{19}\). It is interesting that we have literary documentation for this type of action in a passage from Diodorus Siculus:

> “[Pieces of sponge iron smelted in Elba] are brought in by traders in exchange and are then shipped to Puteoli and other trading stations, where there are people who purchase these cargoes. With the aid of a great number of metal workers, whom they have assembled, they then work the metal further and manufacture iron objects of every description. Some of these are worked into the shape

\(^{12}\) Slane 2000, 300–303.
\(^{13}\) The figures for Berenice are taken from Riley 1979, Appendix 1.
\(^{14}\) These statements are based on quantified ceramic studies from the Circular Harbour excavations at Carthage (Fulford 1994, 97–114).
\(^{15}\) To name a few, Cherchel, Hippo Regius, Carthage, Lepcis Magna, Utica (Wilson et al. forthcoming).
\(^{17}\) Lynne Lancaster, personal communication.
\(^{18}\) Mattingly et al. 2001, 80.
\(^{19}\) Ibid.
of armour, and others are cleverly fabricated into shapes that are suitable for two-pronged forks and sickles and other tools; and these are then transported by traders to every region…


While the reference is to Puteoli, the action being described is surely similar to what was occurring at Leptiminus in that the level of connectivity allowed for production that would have been otherwise economically unsupportable.

**Production**

Turning to production, let us look at the evidence for a few cities which illustrate the extent to which port cities could capitalize on their highly connected position within the trading networks. Port cities have immediate access to the sea, which is useful both for the acquisition of raw materials and the export of finished products. Sea transport was considerably cheaper than land transport thus reducing the initial costs of preparing the final product for export to other markets. In addition, the number of people travelling through a harbour city on a regular basis would have been higher than for a typical inland city, thereby increasing the opportunities to sell products.

In the suburban areas of Leptiminus multiple kiln sites were identified through geophysical survey and waster density patterns and several of these were subsequently excavated. Based on the evidence of the wasters, these kilns were used to manufacture both coarseware vessels and amphorae. The kilns were often quite large with main chambers having a diameter of 2-3 meters and combustion chambers having a depth of up to 3.5 meters. These kilns were thus capable of producing extensive amounts of pottery. A wide range of amphorae was manufactured at Leptiminus. In particular, two primary groups of amphorae were produced during the second to fourth centuries AD: Africana I and Africana II. Recent work by Bonifay has shown that the Africana I vessels were used for the transportation of olive oil and Africana II vessels – of which there are four varieties – were used predominately for the transportation of various fish goods. Kilns have also been discovered at Neapolis and two workshops have recently been surveyed. Multiple amphora types were produced including variant C of the Africana II. These amphorae have been shown through chemical analysis to have contained fish products. This is further supported by their discovery on the Cabrera III shipwreck where fish remains were still visible.

Survey in central Tunisia has also revealed a number of kilns at the coastal site of Sullecthum. In particular, four kilns located on the coast (sites labelled El Hri I, El Hri II, Salakta and Catacombs) were producing Africana I and Africana II A. The scale of production at these sites was extensive and they exported significant numbers of amphorae. The majority of amphorae from the Plemmirio B wreck in southeast Sicily were shown by Instrumental Neutron Activation Analysis (INAA) to be from Sullecthum. The Africana II A amphorae were lined with pitch and therefore likely held fish products. Indeed, fish processing tanks have been documented at Sullecthum.

Amphorae for the purpose of bottling olive oil and wine were certainly manufactured at inland sites. A number of harbour cities, however, also produced olive oil amphorae. As already mentioned, the site of Leptiminus produced Africana I oil amphorae. Additional harbour sites that produced these amphorae

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20. **MATTINGLY ET AL.** 2001, 76.
23. Ibid., 41.
25. **GIBBINS** 2001, 326.
26. Ibid., 315.
include the Tunisian sites of Neapolis, Hadrumetum, Sullecthum, Acholla and Thaenae. In the late third and fourth centuries AD, Neapolis, Leptiminus, Sullecthum and Thaenae also produced Keay 25 amphorae, which were possibly for wine. Oil and wine could be transported to the harbour locale in skins where they could then be bottled into amphorae for their sea voyage. While amphorae are the containers par excellence for maritime transport, their bulk and weight created an unnecessary burden for land transport. Harbour cities thus worked as bottling plants for the products of the hinterland. Furthermore, combining the production of amphorae into one area worked to capitalize income by creating an economy of scale.

Connected with the amphorae production is the manufacture of fish products. Pliny praises the garum of Leptis (Historia Naturalis XXXI, 94) showing that as early as the first century AD the fish products of Leptiminus were well known. Multiple tanks have been found which would have been used in fish processing, including tanks which are comparable to tanks for the fermentation of fish and entrails for garum found elsewhere. The evidence for fish product manufacture in combination with the large-scale amphora production (particularly the Africana II type which is thought to have been primarily made for fish products), seems to indicate production on more than a local scale.

The Tunisian Coastline Survey, conducted between 1987 and 1997, documented 40 fish salting areas, only two of which had been previously excavated. As a result of this survey, excavation was undertaken in Nabuel (ancient Neapolis) under the auspices of the Nabeul Fish Salteries project with the Institut National du Patrimoine of Tunis and the Centre Camille Jullian of Aix-en-Provence. In total, there were three fish salting factories at Neapolis. The first factory (Factory A) was installed during the latter third of the first century AD. At its largest, during the early third century AD, it covered approximately 1000 m² and had a total of 13 vats of varying sizes. Factory B was adjacent to Factory A but was clearly distinguishable by a double wall. Built during the second century AD, it measures approximately 225 m² and contains 6 vats. Factory C is the smallest and contains only one vat but seems to pre-date Factory B.

During the previous excavation of the Neapolis fish salting tanks, DARMON had the foresight to leave much of the organic material in situ. This allowed for the preserved fish remains found in the vats of Factories A and B to be characterized in terms of the fish species used and the approximate type of salted fish product being made at Neapolis. Vat III of Factory A contained the best-preserved layer of fish and it was determined that a variety of fish species were used consisting predominantly of anchovies (60%) along with sardines (20%), pickerel, mackerel and pandora. Other tanks, some of which seem to have secondary deposits, contained remains from the above fish as well as tuna, bonito and grouper. Vat XLIX in Factory B contained a usage deposit again with whole anchovies and sardines.

The fact that an initial factory was built (Factory A) and subsequently enlarged with further vats in combination with the installation of new factories, clearly speaks to the success of the fish salting industry at Neapolis. The calculated maximum production capacity is 183 m³ for the vats. While this is by no means one of the largest capacities known from the Roman period, the site was fully capable of production for export and is the largest known to date in North Africa.
Returning briefly to ceramics, coarsewares and cookwares provide a good illustration of the economic logic for production at port cities. Coarseware vessels and ARS cookwares were produced in a wide variety of shapes at Leptiminus. The number of kilns and the amount of wasters indicate that the pottery was manufactured on a substantial scale exceeding the needs of the local population\(^{42}\). Cookwares were also produced at the coastal Tunisian sites of Sullecthum and Thaenae\(^{43}\). Coarsewares were also produced at Sullecthum as well as at Neapolis\(^{44}\). Both coarsewares and cookwares seem commonly to be produced at harbour cities that are also engaged in amphorae production. This is different from finewares, which are commonly produced at inland sites\(^{45}\). Perhaps the production of these relatively low-value ceramics in conjunction with amphorae production explains their export; such low value goods would not be financially viable exports were they to incur land transport costs but if produced in a harbour city where there would be a ready market for space-filler cargoes, they could bring a profit.

Production is prolific in harbour cities both on a local and export-driven scale. Once trading networks are established it stands to reason that they be exploited to their fullest extent. This is clearly the case with the cities discussed, particularly Neapolis and Leptiminus, and it may be expected that it occurred at many other such cities. The scale of production illustrated above was possible precisely because these cities were part of a developed trading network.

**Foreign Communities**

Moving to the social face of trade, imports and exports were managed by people and it is constructive to examine ways in which we can gain insight into the communities of port cities. One useful way is through associations. Associations were organizations which encompassed funerary, religious, social and economic aspects. They provided an outlet of expression for non-elites and encouraged a sense of community. The evidence concerning professional associations in harbour cities points to the formation of communities of merchants and those associated with trade and industry. Membership in such associations served a variety of purposes but importantly created a sense of solidarity amongst traders and craftsmen and foreign communities. In particular, groups of foreign communities allow us a look at the agents behind the movement of traded goods.

A particular type of association involves groups of foreign traders, a common occurrence in harbour cities. Our best examples of this again come from Italy at Puteoli (particularly with the *statio* of the Tyrians) and Ostia, though such groups are attested elsewhere across the empire. *Stationes*, or offices where merchants and shippers could organize trading ventures, are attested in several harbour cities and were probably present in many others. The best attested *stationes* are those in the *Piazzale delle Corporazioni* at Ostia with 61 individual *stationes*, many of which preserve mosaics revealing various economic activities. Surviving inscriptions attest *navicularii* and *negoziatores* from 13 different cities, 10 of which are in North Africa: Misua, Musluium, Hippo Diarrytus, Sabratha, Gummi, Carthage, Sullecthum, Colonia Iulia Curubis (Kurba, Tunisia), Alexandria, and Mauretania Caesariensis\(^{46}\). Offices are also indicated for traders of flax and rope, leather traders and wood traders. The individual offices in the *Piazzale* are relatively small; they were certainly not for the storage of any goods and were most likely offices where one could coordinate trading agreements with members of various represented areas of the Empire. The central location of the

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\(^{42}\) MATTINGLY ET AL. 2001, 79.
\(^{43}\) BONIFAY 2004, 66.
\(^{44}\) Ibid., 70.
\(^{45}\) Ibid.
\(^{46}\) Two in Sardinia: Turris Libisonis (Porto Torres) (*CIL* 14.4549.19) and Carales (Cagliari) (*CIL* 14.4549.21); One in Gaul: Narbo Martius (*CIL* 14.4549.32).
Piazzale is indicative of the organisation of trade in that there was a defined location where one could find the representatives of key trading centres such as Carthage and Narbo Martius.

The existence of foreign cults in harbour cities can be a useful marker of groups of foreign residents. Harbour cities were, without a doubt, cosmopolitan and as such one expects a high degree of foreign cults. One should not simply equate a foreign cult with a resident diaspora community without evidence beyond the simple existence of the cult. There are, however, several situations in which foreign cults can probably be linked with resident communities. Here, let us briefly examine two cases from North Africa in connection with the cult of Sarapis.

While nothing explicitly states that a group of Greek-speaking worshippers of Sarapis at Carthage were resident merchants, this seems to be the most likely explanation. This cult at Carthage appears to have been comprised of a distinct group of people, seemingly of Alexandrian origin; the known dedicators all had Greek cognomina and the dedicatory inscriptions are either in Greek or are bi-lingual. Furthermore, there are several dedications which show clear Alexandrian connections, perhaps most importantly a bust of the Egyptian priest Manetho – the priest Plutarch records as having assisted in the foundation of the cult in Alexandria. The presence of a group of Alexandrians at Carthage is certainly plausible and perhaps even to be expected.

It is possible that a similar situation existed at Lepcis Magna. While yet unpublished, a group of 30 Greek inscriptions dedicated to Sarapis were found inside the temple to Sarapis. These are apparently similar to five inscriptions published in IRT (310, 310a, 311, 312, 313), three of which bear the names of men with the Latin nomina of Aurelios with Greek cognomina. Out of the group of thirty unpublished inscriptions, 12 apparently have the nomina of Aurelios. Thirteen different dedicators are mentioned in total, but all are reported as having Greek cognomina.

The presence of Alexandrians is also rather to be expected at Lepcis, a city whose importance for trade can be seen in the harbour and the macellum with its ship iconography. At least two pieces of evidence, however, confirm the presence of Alexandrian traders in Lepcis. First of all, there was a measuring standard with the Alexandrian cubit, the Punic cubit and Roman foot in the macellum. And secondly, and of particular interest, inscriptions on the amphitheatre places reserve seats for Alexandrians, Nicomedians and merchants from other oriental cities.

While monuments to Sarapis are fairly common in North Africa, there are only four cities which have verifiable temples or sanctuaries: Carthage, Sabratha, Lepcis and Lambaesis. As discussed, the sanctuaries at Carthage and Lepcis contained Greek dedications whereas the dedications at Lambaesis are primarily in Latin. Indeed, the presence of Greek inscriptions in North Africa west of Cyrenaica is extremely rare and the two cities with the greatest concentration of Greek inscriptions are Lepcis Magna and Carthage. Other cities that contain more than a few are Oea, Sousse and Cherchel – all major port cities.

The importance of this material relates not to the general constituency of the cult of Sarapis as a widespread phenomenon but to the use of Greek in a province which was predominately Latin speaking. The majority of dedications in the western Empire are in Latin. Indeed, the use of Greek by dedicators with Greek cognomina, and in particular the strong Alexandrian connection of the dedications at Carthage point to a resident foreign community engaging in cultic practice by means of their own traditions.

The presence of sustained diaspora communities and particularly of resident foreign merchants links directly with an organized model of trade; that is, the idea of premeditated harbour-to-harbour trade linked with re-distribution through emporia. It was the recurring trade amongst specific parties that made the existence of Diaspora communities of merchants necessary. The money devoted to maintaining such

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47 RIVES 1995, 212–214.
48 Plutarch, De Is. Et Ost. 28.
49 BROUQUIER-REDDE 1992, 103.
50 SOUARCIAPINO 1966, 131.
communities whether for the maintenance of a statio, the installation of a new cult, or the inscribing of amphitheatre seats, suggests regular and sustained contact between regions.

**Conclusion**

Over the course of the Roman imperial period North Africa exported an increasingly large amount of material through her ports. These ports were, however, not just characterized by exports. The citizens of these port cities took advantage of the trading contacts and imported and produced a variety of goods. The extent of trade encouraged the sustained establishment of foreign communities. From amphorae and bricks to marble, languages and religion, the trends visible in the economic and social exchanges of Roman North African port cities provide a window into the highly connected nature of the Mediterranean.

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**Bibliography**


