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Latin, Literacy, and the Roman Economy

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1 Introduction

In this chapter I examine the role of certain economic structures and activities in spreading the use of Latin, and of literacy, across the Roman West. One might identify three main sociopolitical forces that helped drive the spread of Latin: first and most obviously the administrative apparatus of the Empire, including the levying of taxes and the administration of justice; second, the army; and, third, trade and economic activities. These are not always rigidly separable; the second often acted as a tool of the first. And economic activity may be imbricated with administration, for example, in the collection of taxes, or the state's bulk purchase of Spanish and African olive oil for the supply of the city of Rome;¹ or inextricably linked with the army, both in the long-distance supply of the army by private traders and in the communities of *vici* and *canabae* that sprang up around forts, providing goods and services for the soldiers.

Perhaps it may help to consider the broad mechanisms (rather than the forces) by which Latin spread from Italy to the conquered provinces, or, as time progressed, from more established provinces to more recently acquired ones, such as Britannia and Dacia. Foremost of these was the movement of people—permanent, in the case of settlers and colonists; temporary (perhaps) in the case of the army, and of certain kinds of mobile craftsmen or specialist workers; more certainly temporary and indeed frequently in the case of traders, going to and fro between different regions. This spread of the language by the movement of people is most obvious, of course, when the colonists, or legionaries, or traders, were themselves Italians who spoke Latin as their first language. Less immediately obvious but just as, if not more, importantly, it was the interprovincial movement of people of many different non-Latin linguistic backgrounds that helped establish the critical mass needed for the adoption of Latin as a lingua franca in the West, where Latin was used as a second language by many whose native language was Gaulish, Punic, Iberian, and so on. We see this most clearly with auxiliary units in the Roman army (and well exemplified by Adams's study of the Latin

¹ As attested by the amphorae of Monte Testaccio: Wilson (2008a), 187–8.

influenced by Punic in the Bu Njem ostraca from Libya; see also Speidel, this volume),² but it is also evident in the case of traders, and of slaves imported from elsewhere. Over time, the proportion of those speaking Latin as a first language, rather than as a second language or lingua franca, increased.

Besides the movement of people themselves, there was also the movement of documents, and of inscribed objects, and of the practice of inscribing things in Latin. I am thinking not only of the promulgation of decrees and laws, and the exchange of wooden writing tablets, but also of the circulation of coinage with legends in Latin, and of artefacts bearing stamps or inscriptions in Latin (table pottery, lamps, amphorae, glassware, and so on). These latter certainly made the Latin alphabet more familiar and we shall look shortly at some aspects of writing on *instrumentum domesticum* and workshop accounting documents where the Latin alphabet was used to write non-Latin languages. The movement of documents, and of documentary practices,³ raises of course the question of literacy, and very often our evidence for the spread of Latin is also primarily evidence for the spread of Latin literacy.

I shall focus on several particular economic phenomena that I think contributed to the spread of the use of Latin in the Roman West, and to some extent also to the spread of Latin literacy. I am going to consider slavery, traders, and mobile craftsmen (principally miners and potters). This is not, of course, an exhaustive list, and Pieter Houten's contribution in this book deals with another arguably economic factor: the role that cities played as concentrators of linguistic exchange, a role that doubtless intensified as the Roman world became increasingly more urbanized between the second century BCE and the third century CE.

2 Slavery

Slavery was a fundamental structural feature of the Roman economy, and of Roman society, and we should consider its impact on the spread of Latin. Slaves might be either bred or imported (from captives obtained either in war or through trade).⁴ The sources of imported slaves changed over time, but whether the slaves were Gauls or Britons before the incorporation of these areas into the Empire, Germans, any number of tribes from across the Danube frontier or north or east of the Black Sea, easterners, Garamantians, or sub-Saharan Africans,⁵ it was very

² Adams (1994).

³ On legal documents used in commercial transactions generally, see Johnston (2022).

⁴ Scheidel (1997; 2011) believes that the main source of slaves was those bred within the Empire; Harris (1980), 107–9; (1999); (2011), argues that trade, captives, exposure of abandoned children, and so on played a much greater role. But even Scheidel's model in which most slaves were born to slave mothers creates a substantial deficit of 55,000–200,000 slaves per year that had to be made up from trade, warfare, or other sources.

⁵ For the trans-Saharan slave trade in antiquity, see Wilson (2012b), esp. 432–5; (2017).

unlikely that their new masters were going to bother to learn the language of their slaves. Rather, to survive and adapt in their new surroundings, the imported slaves in the western provinces would have to learn at least enough Latin to understand orders and function in Latin-speaking households or on agricultural estates. (For the Greek east, the same is no doubt true of Greek.) In a household with slaves of mixed linguistic backgrounds but where the master was a native Latin speaker, Latin would naturally be used as the chief medium of communication. This point is perhaps reflected in the fact that many slaves were renamed with Latin names.

So it is evident that many first-generation slaves would have to learn some Latin, and many, existing for years in a Latin linguistic environment, might come to speak it quite fluently. In the case of *vernae*, second- or later-generation slaves bred in a slave household, they would presumably grow up learning Latin (as well perhaps as their mother's tongue if that was not Latin); and it is a fair guess that these home-bred slaves, even if bilingual, might be more fluent in Latin than imported slaves. Those slaves fortunate enough to be freed would (in the West) certainly have learnt Latin to the point where they would be fluent, since freedom usually came as a result of good and profitable service to the master in business affairs (therefore difficult to achieve without Latin, or, in the East, Greek), and in many cases they may also have acquired Latin literacy. Indeed, it is not hard to imagine that Latin-speaking and literate slaves may have commanded higher prices on the slave market in the predominantly Latin-speaking parts of the Empire.

We might therefore propose that slavery was one of the engines driving a growth in the number of Latin speakers in the western provinces; it imported non-Latin speakers from elsewhere, forced them into an environment where they had to acquire some degree of functional Latin, or bred them as Latin-speakers, and generated a supply of freedmen (only a small fraction of the total number of slaves, of course) who had become Latin speakers as a result. How important one considers this route to Latin acquisition to have been is dependent on the view one takes of slave numbers in the Roman world, and what proportion of the population one thinks might have been enslaved. Estimates vary wildly: Scheidel and Harris between them suggest figures of between five million and ten million slaves, which would be up to perhaps 10 per cent of the total population of the Empire, while Morley guesses that slaves may have formed as much as 35 per cent of the population.⁶

⁶ Harris (1980); (2011), 61, estimates ten million at any point up to the mid-second century CE, with a need for half a million new slaves *per annum*. Scheidel (2011) estimates a total slave population of between five million and eight million, with the requirement for replacement at 250,000–400,000 *per annum*. Morley (2011), 265.

3 Traders, Translation, and Transaction Costs

In any economy, transaction costs—the costs of doing business, which include the costs of information—are important, and these inevitably rise when operating across linguistic boundaries. With the rare and possibly fictional exception of Herodotean silent trade,⁷ all trade between different linguistic regions is going to involve translation at some point—either implicitly in the mind of a merchant who has invested in some prior degree of language learning, possibly to the point of bilingualism, or explicitly through the employment of a bilingual interpreter. The extensive archaeological evidence for bulk long-distance trade crossing linguistic regions both within the Roman Empire and beyond its boundaries is therefore indirect evidence for some widespread translation or bilingualism among merchants in the Roman world. That, however, is hardly a startling claim to make, since the coexistence of two main *lingua francas* (Latin in the West and Greek in the East) alongside a multitude of other languages in various regions (demotic Egyptian and Coptic in Egypt; Arabic, Hebrew, the many dialects of Syriac and Aramaic in the East; Punic, Iberian, Gaulish, and so on in the West) in any case implies a level of widespread bilingualism at least at the interface between officialdom and local communities.

The main strategies employed by merchants trading between different language zones in antiquity were bilingualism/language acquisition in the target language (which might be a *lingua franca*), the use of interpreters, and delegating overseas trade to trading diasporas who had already acquired the necessary degree of bilingualism. I shall argue that language learning was a primary solution, far more important than the use of interpreters.

In a perceptive article from 1995 entitled ‘Translation as a Transaction Cost’, Anthony Pym highlights the importance of language learning as long-term strategy:

Translation is just one of several strategies for intercultural communication. The main alternative strategy is probably language learning, which does away with the need for translation by having one actor speak the language of the other or by having both adopt a *lingua franca*. Since language learning requires very high initial effort and costs, it is a bad strategy for one-off or short-term cooperation. However, once a language has been learnt to any degree of proficiency, the repeat costs become minimal and will reduce with continued use. Language learning is thus a good strategy for long-term cooperation. Translation costs, on the other hand, decline minimally.⁸

⁷ Herodotus, *Histories* IV.196; for discussion, see de Moraes Farias (1974).

⁸ Pym (1995), 600.

A lingua franca simplifies the business of long-distance trade because it extends the range within which an individual merchant can trade. By learning just one additional language—for example, Latin—a native speaker of Punic or Gaulish could potentially broaden his or her range of trading contacts to include the entire western Mediterranean, and even a number of port communities in the eastern Mediterranean. Having access to this lingua franca then reduces both the costs of information and transaction costs. A lingua franca functions like a single currency or a single system of weights and measures in avoiding the costs of third-party translation (or currency exchange, or weight checking). The adoption of Latin as a lingua franca in the western Mediterranean and Greek in the East thus facilitated a greater degree of economic integration in the Roman Empire—though we should of course remember that, in the case of Greek, its status as a lingua franca resulted from Alexander’s conquests. Italian businessmen at Delos in the second and first centuries BCE, for example, actively adopted Greek because it extended their range of contacts.⁹

But, just as several standards of weights and measures remained current in the supervised markets of the Roman world (e.g. the *macellum* at Leptis Magna displayed a set of length standards based on the Roman foot, the Punic cubit, and the Alexandrian foot),¹⁰ the adoption of a lingua franca did not replace or drive out local languages. Traders with knowledge of several such languages had potentially better access to local information in these languages, and a potential advantage in negotiations or bargaining.

There may be occasions where the choice of which language to use in trading negotiations may affect the outcome—how good a deal one can negotiate—by altering the psychology of the encounter. One may choose to trade in the lingua franca because it is also the language of an educated and powerful elite, and one thus positions oneself as cultured, sophisticated, not to be deceived. Or, if one has the necessary language skills, one might choose to negotiate in the language of the other party (even though it is neither the lingua franca nor one’s own), as an act of courtesy designed partly to ingratiate and set a favourable mood from the outset of negotiations. Alternatively—and this is more likely to be the case when playing at home rather than playing away, so to speak—one might insist on trading in one’s own native language so as to put the other party at a linguistic disadvantage. Whatever tactic one chooses to adopt in a particular situation will be influenced by a variety of factors. Linguistic competence in particular languages will be important, since one tries to avoid negotiating in a language where one’s ability to understand and express oneself is so poor as to create a business disadvantage, but it may not be the overriding factor—it may be trumped by cultural expectations or other considerations. And, while the relative linguistic

⁹ Cf. Adams (2003a), 642–9; Hasenohr (2007), 231–2.

¹⁰ Ioppolo (1967).

competences of the negotiating parties will be factors in affecting the outcome, the extent of their effect will vary from case to case and transaction to transaction. None of these strategies, of course, is restricted to the ancient world, or indeed to pre-industrial or pre-capitalist economies.

Third-party interpretation makes the cost of translation in bargaining explicit but adds substantially to the transaction costs. Not only does it slow down the entire process of negotiation, but nuances and subtleties of communication may be lost. Importantly, the translator's neutrality in the proceedings may not always be assured. Anthony Pym sums up the downside of translation in the following terms:

In general, however, translation must be recognized as a relatively high-cost operation, whether measured in terms of social effort, rates of pay, or the consequences of error. The use of pretranslations can reduce costs but it cannot do away with the fact that translation should only become a transaction cost when significant mutual benefits are projected. Translation is not for any old cross-cultural contact.¹¹

Viewing the acquisition of additional languages for trading purposes as an investment that reduces subsequent transaction costs and may gain comparative advantage, we can suggest that it is likely that:

1. most traders operating over long distances will have had a working command of at least one language other than their native language;
2. in many cases that second language will have been the *lingua franca* (Latin, in the western provinces, or Greek in the East);
3. knowledge of a third language—another regional language—will have equipped a trader with a potential negotiating advantage in particular regions, or with particular diaspora communities—for example, a Syrian trader who also knew both Greek and Hebrew;
4. acquisition of additional languages further extends range and potential advantage;
5. trading diasporas enabled intensive investment in language learning to be delegated to specialists in these communities;
6. the use of third-party translators is likely to have been a practice of last resort, in circumstances where neither party spoke a common language sufficiently well for the purposes of a transaction—for example, in very complex high-value negotiations, or when trading initially in unfamiliar territory.

¹¹ Pym (1995), 598–9.

It is unclear how far this general model can be tested against the observed reality of the ancient world, since most multilingualism and translation in the mercantile environment are oral, and translation is difficult to spot in the physical record. Some of the points, however, can at least be illustrated.

Let us start with language learning and bi- or multilingualism. This, possibly the most common strategy or practice in trading environments across language boundaries, is the most difficult to spot in our evidence. In large part this is because of the linguistic dominance of Latin and Greek in the bulk of our sources, and especially because the epigraphic habit in Latin and Greek was much stronger than in most of the other languages of the Empire (Beltran, this volume). How many of the traders commemorated in Latin inscriptions in the western Empire actually spoke Latin as their first language, and how many spoke it as a second language when their first was some form of Gaulish, Iberian, or Punic? Hanno the Punic trader in Plautus' *Poenulus* speaks Punic, as we would expect him to in reality, although the representation of this in literature is highly unusual, offering a whole prayer at the opening of Act V (lines 930–45), which is then translated into Latin for the audience's benefit. The subsequent exchanges between Hanno and Milphio have Hanno speaking in Punic and Milphio mistranslating into Latin, until Hanno reveals that he can speak Latin too; at which point Milphio calls him a deceitful swindler, a half-Libyan, *migdilix, bisulci lingua quasi proserpens bestia* 'a double-tongued creature, with a forked tongue like a crawling reptile'.¹² Bilingualism is here equated with forked tongue in the morally dubious context of trading; but this is of course comedy, and the point is simply to draw a laugh, albeit from a scenario that might resonate with the audience.

J. N. Adams, in his *Bilingualism and the Latin Language*, discusses a second-century CE document written at Ravenna but found in the Fayum (a nice illustration of how documents found in Egypt did not necessarily originate there)—a receipt written by a slave trader, Aeschines Flavianus from Miletus, for the sale of a female slave to a soldier of the Ravenna fleet.¹³ The text is in Latin, but in Greek characters, and with grammatical errors. It follows a standard formula familiar from auction sale receipts from Pompeii, that may have been dictated or copied from a template with details particular to this sale filled in. Adams points out that certain features of correct orthography and especially the correct reporting of the date suggest that the writer, Aeschines, the slave trader, was copying from a written exemplar. But Adams notes 18 errors in the text, 14 of which are in the variable parts (even though the formulaic and variable parts are of similar length, 18 words and 17 words respectively); and some of these show interference from

¹² *migdilix* is found only in this passage, and it may be an invention of Plautus. Its meaning is uncertain: Rochette (2000a) suggests that it is a bilingual concoction of *μίγδα* ('promiscuously, confusedly') and *licium* (a thread of something woven).

¹³ Adams (2003a), 53–63.

Greek—for example, *κλασσης* in line 10 is not a straightforward transliteration of *classis* but the genitive inflection in a Greek form; *milite pentero Augusti* is a Greek speaker's creative composition. Adams argues that the text is 'an important specimen of a Latin learner. It reveals the types of deviations from the standard language which might have been heard from an imperfect bilingual.'¹⁴ Aeschines the slave trader was a Greek, and literate in Greek, with a working knowledge of spoken Latin, but he did not know the Latin script and thus wrote in Greek letters; his Latin reveals strong interference from Greek. Moreover, his speech was influenced by 'the lower social dialects of Latin'—for example, *bigenti* for *viginti*, *betrane* for *veteranae*.¹⁵

One of the wooden tablets from Murecine near Pompeii, *TPSulp* no. 78 (11 April 38 CE, written at Puteoli), is a document with texts in both Latin and Greek. The Greek text is a receipt by Menelaos son of Eirenaios, a citizen of Keramos in Caria, for 1,000 denarii from a freight contract; and the Latin text is written by a third party, Q. Aelius Romanus (a scribe or notary?), on behalf of the guarantor, M. Barbatus Celer, who was illiterate.¹⁶ Here, we are clearly dealing with a transaction between Greek and Latin speakers in the port of Puteoli.

It seems likely, though it is hard to prove, that a degree of fluency (though not necessarily literacy) in more than one language was normal among long-distance traders, and it is the success of the *lingua franca* (Latin and Greek) in the literary and epigraphic habits that swamps the evidence for bilingualism in these and more local languages. But, in addition to the direct evidence for bilingualism, we can also make inferences from the existence of certain expatriate trading groups and diaspora communities of merchants. Under the Empire the evidence for expatriate mercantile communities tends to be in the form of inscriptions by formal corporations or trading groups, often described by specialized terms such as *navicularii* or *stationarii*.¹⁷ The obvious archaeological illustration of such merchant groups is the so-called Piazzale delle Corporazioni at Ostia, originally the *porticus post scaenam* of the Augustan theatre there, but by the late second century CE apparently turned into a series of offices or *stationes* for guilds (*collegia* or *corporata*) and companies of *navicularii* or shippers who are identified with particular port cities.¹⁸ These are clearly specialized groups of traders working particular routes between Ostia/Portus and their home cities; presumably their offices in Ostia were where one went to arrange shipments of cargoes out of nearby Portus to particular ports. Nearly all of these, with the exception of the shippers of Alexandria, were from Latin-speaking regions of the central and

¹⁴ Adams (2003a), 54. ¹⁵ Adams (2003a), 57–8.

¹⁶ *Quintus Aelius Romanus scripsi rogatu et mandatu Marci Barbati Celeris coram ipso, quod is literas nesciret. . .* 'Quintus Aelius Romanus wrote this at the request and order of Marcus Barbatus Celer, in his presence, because he does not know letters. . .'

¹⁷ Terpstra (2013; 2015; 2016); Rice (2016), 104–8.

¹⁸ Rohde (2009); Terpstra (2014); Rice (2016).

western Mediterranean, and we can expect most of their business to have been done in Latin, the lingua franca and indeed the first language of many people in the region, although we should not underestimate the degree of bilingualism that the traders from, for example, Narbonne and Sabratha are likely to have had. Alex Mullen has demonstrated the evidence for the continued vitality of Gaulish in parts of Gaul,¹⁹ and of course in the cities of Tripolitania Punic remained the first language even of elite families such as the Severi of Lepcis Magna into the third century CE, if not later.²⁰ While the *navicularii* and other groups at Ostia are perhaps the clearest example of such organized groups specializing in particular routes, a polyglot community of Palmyrenes, including workers from the Horrea Galbana, dedicating in Latin, Greek, Palmyrene, and Aramaic is known from Rome,²¹ and mercantile diaspora communities seem to have been quite common in the major emporia of the Roman world.²²

Puteoli (Pozzuoli) on the Bay of Naples has provided evidence for several such groups, including the *mercatores qui Alexandr[ia]i Asiai Syriae negotiantu[r]* ‘merchants who trade at Alexandria, Asia, and Syria,’²³ and the *cultores Iouis Heliopolitani Berytenses qui Puteolis consistunt* ‘worshippers from Beirut of Jupiter Heliopolitanus, who are residing at Puteoli’ (undoubtedly also traders).²⁴ These merchants would have spoken Greek, Syriac, or Aramaic as a first language, but, unsurprisingly given the location, we find them dedicating in Latin at Puteoli. Most famously, another group, of Tyrian merchants resident at Puteoli, wrote back (in Greek) to their mother city, Tyre, in 174 CE, because, although they had once been many and wealthy, their numbers had been severely reduced, almost certainly by the Antonine Plague, and they were having difficulty paying the rent on their *statio*.²⁵ Passing the buck in the best tradition of wily merchants, Tyre wrote back and told them to seek help from the *statio* of the Tyrians in Rome. We can imagine that the members of such communities would typically have been at least bilingual in the languages of their home city and of the region in which they were resident, and possibly multilingual, with command of other useful trading languages too. We can glimpse the multilingual contexts of thriving Mediterranean and Red Sea port cities through the variety of different scripts and languages

¹⁹ Mullen (2013a; 2013b; 2022).

²⁰ According to the unreliable *Historia Augusta*, Severus’ sister could hardly speak Latin (*Historia Augusta, Severus* 19.9.15.7); Apuleius (*Apologia* 98) claimed that his stepson Sicinius Pudens could not speak Latin. Barnes points out that neither of these sources is a reliable indicator that the aristocrats of Tripolitania could not speak Latin (Barnes 1967, 96); but they do nevertheless provide some support for the continued vitality of Punic as a first language in the late second century. On Latin and Punic bilingualism in Tripolitania, see Wilson (2012a).

²¹ Adams (2003a), 248–53.

²² Rice (2016), 104–8. For communities of Nabatean traders at Puteoli, and Palmyrenes at Rome, see Terpstra (2013; 2015; 2016).

²³ *CIL* 10 1797 (= *ILS* 7273, *AE* 2002, 348, *AE* 2005, 336).

²⁴ *CIL* 10 1634 (= *ILS* 300).

²⁵ Mommsen (1850), 57–62, *CIG* III 5853; *IG* XIV 830. For discussion, Sosin (1999).

found in inscriptions, ostraca, papyri, and informal graffiti,²⁶ although of course in the Mediterranean the overwhelming dominance of Latin and Greek epigraphic habits masks the full multilingual reality of these communities.

3.1 Interpreters

But to what extent, and in what contexts, were professional specialist translators or interpreters used in trade? Interpreters were used in legal cases, as attested in Egyptian papyri.²⁷ There is some anecdotal evidence for translators from the complex linguistic landscape of the northern Black Sea region: Strabo says that seventy tribes, mainly Sarmatians but all speaking different languages, traded in the marketplace of Dioscurias (Sukhumi in Abkhazia), a context in which interpreters were absolutely necessary (Fig. 4.1, no. 7).²⁸ Pliny describes an even larger number:

reliqua litora ferae nationes tenent Melanchlaeni, Coraxi, urbe Colchorum Dioscuriade iuxta fluvium Anthemunta nunc deserta, quondam adeo clara, ut Timosthenes in eam CCC nationes dissimilibus linguis descendere prodiderit; et postea a nostris CXXX interpretibus negotia gesta ibi (Pliny, NH 6.5.15)

the rest of this shore is inhabited by savage tribes: the Melanchlaeni, the Coraxi, with the Colchians' city of Dioscurias next to the river Anthemun now deserted, but once so famous that Timosthenes claimed that 300 tribes with different languages came down to it; and later business was transacted there by our merchants through 130 interpreters.

We are not told whether these interpreters translated between the local languages and Greek or Latin, but Greek appears more likely given the regional context. The two epitaphs, carved on different faces of the same stone, of a Bosphoran interpreter with the Sarmatians and of a Bosphoran ambassador from Phanagoria, who both died at Rome, are in Greek, lending some support to this idea.²⁹ A rapid survey of inscriptions, using the rough-and-ready method of searching the EDCS for *interpretes* and *PHI* for *hermeneus* and their related forms, suggests some broad

²⁶ e.g. at Myos Hormos on the Red Sea, besides papyri and graffiti in Greek, there are ostraca in Hebrew and the Prakrit–Brahmi script of the Deccan, and Tamil–Brahmi graffiti: Tomber (2008), 61, 73–4. From Berenike on the Red Sea comes a graffito in Tamil–Brahmi script of the first century CE, an inscription in South Arabian script, and a Nabatean pot with a Palmyrene inscription: Tomber (2008), 78–9.

²⁷ Mairs (2012b). ²⁸ Strabo 11.2.16.

²⁹ IGR I 261 = IGUR II 567: (a) Ἡδύκος Εὐόδου | πρεσβευτῆς Φαναγορειτῶν τῶν κατὰ Βοῶς πόρον· (b) Ἀσπουργος· Βιομ|άσου· υἱὸς· ἔρμηνε|υς· Σαρματῶν· Βω|σπορανός.

(a) 'Hedykos son of Euodos, ambassador of the Phanagorians around the Bosphoros'

(b) 'Aspourgos son of Biomason, interpreter of the Sarmatians, from the Bosphoros.'

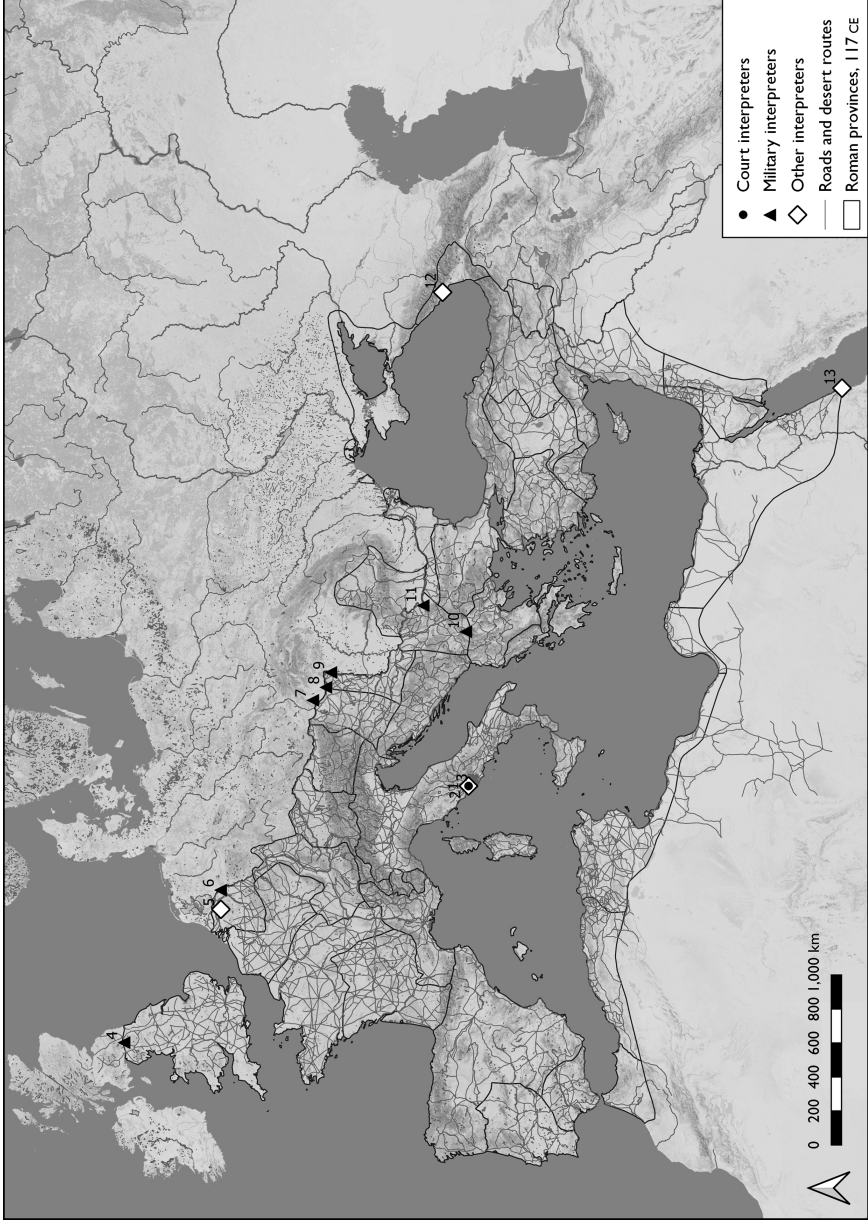


Figure 4.1 Distribution of evidence for interpreters discussed in the text. (Map by author.)

Key: 1. *CIL* 6.4871; 2. *CIL* 6.8481; 3. *Inscriptiones Christianae Urbis Romae* 4.10888 (Rome); 4. *Tab. Vindol.* 213 (Vindolanda); 5. *CIL* 13.8773 (Ruimel); 6. Bowman, Tomlin, and Worp (2009), 161–2, 164 (Xanten/Vetera); 7. *AE* 1988, 938 (Baldog); 8. *AE* 1951, 103 (Komarom/Brigetio); 9. *CIL* 3.14349, 5 (Budapest/Aquincum); 10. (Scupi); 11. (Ratiaria); 12. Strabo 11.2.16; Pliny, *NH* VI.15.15 (Sukhumi); 13. *O. Ber.* II.121 (Beternike).

patterns (Fig. 4.1). It is striking, though perhaps unsurprising, that the evidence comes either from the centre (the court, at Rome, where foreign envoys were received), or the frontiers. Within the Empire it appears that bilingualism or the use of one of the two *lingua francae* was perhaps sufficiently widespread that specialist interpreters were not commonly required.

There are not many relevant texts, it has to be said; just nine inscriptions, plus two writing tablets. Almost all the inscriptions mentioning interpreters are funerary, so we are dealing with a data set in which our targets show up only if they (or their executors) defined themselves primarily as an interpreter or translator. But the situation is complicated by the semantic ambiguity of *interpretes*, which besides the meaning of ‘translator’ could also mean intermediary, go-between, even, in a military context, perhaps suggesting a liaison function with local peoples.³⁰ Effective communication with foreigners involves more than just linguistic translation; it requires also an understanding of cultural habits and background. The semantic range of *interpretes* may capture some of that requirement. The two Latin inscriptions from Rome both attest *interpretes Augusti*, imperial or court translators, presumably employed to deal with foreign emissaries.³¹

Leaving aside a dedication to Isis in Greek by a secretary/translator late in the reign of Trajan (113–117 CE) from the Red Sea port of Berenice (Fig. 4.1, no. 13),³² the other main evidence consists of four military tombstones of *interpretes*, from Upper and Lower Pannonia (Fig. 4.1, nos 7–9). These are of great interest because they denote a specialized function in the legions, and they provide some clue as to the nature of that function. One tombstone from Budapest (Aquincum) describes the deceased both as a *miles* and as an *interpres S[armatarum]*, interpreter with the Sarmatians;³³ the other from Budapest seems to have been an interpreter with the Germans (*[du]pl[icario]/[e]t interpretri Ge[rmanoru]m*);³⁴ and M. Ulpius Celerinus from Brigetio was an interpreter or translator with the Dacians (*interpres Dacorum*).³⁵ That these specializations are with particular language groups supports the idea that we are dealing with interpreters in the sense of translators, and there is a strong likelihood that one of their prime roles would have been ensuring the purchase of supplies from locals. There is, of course, the semantic ambiguity of *interpretes* as both an interpreter and an agent or go-between, and this nicely fits the assumed trading role in the context of military supply.³⁶ More explicitly in support of this reading is the tombstone of Q. Atilius Primus (reused in a medieval church at Boldog in Slovakia but perhaps brought

³⁰ On this ambiguity, see Mairs (2012a; 2012b; 2020).

³¹ CIL VI 4871, 8481.

³² O. Ber. II.121.

³³ CIL III 14349, 5. The name of the people that must follow the word *interpres* begins with S and has been restored as Sarmatians, who by the first century CE inhabited (among other regions) the great Hungarian plain as far as the left bank of the Danube opposite Aquincum.

³⁴ CIL III 10505.

³⁵ RIU II 590 = IDRE II 273 = AE 1947, 35 = AE 1951, 103.

³⁶ Cf. Mairs (2012b; 2020).

there from Carnuntum), who is described both as an *inter<p>rex* of the XVth legion and as a *negotiator*, ‘merchant’.³⁷ *Interpres* from Ratiaria and Scupi are mentioned in a list from Viminacium of veterans discharged from *Legio VII Claudia*; but with no further information on their role beyond their title of *interpres* (Fig. 4.1, nos 10–11).³⁸ A now-lost epitaph from Ruimel (near ’s-Hertogenbosch) in Germania Inferior also commemorated an *interpres*, not necessarily a soldier (Fig. 4.1, no. 5).³⁹

Relevant here is Vindolanda tablet 213 (c.92–97 CE; Fig. 4.1, no. 4), in which Curtius Super, writing to Cassius Saecularis, asks him *ut interpretaris ut hordeum commercium habeant a te* ‘that you might *interpretare* [translate; explain?] so that they [unspecified] might have barley as commercial goods from you.’⁴⁰ The editors of the tablets note that he might be being asked to act as a go-between, but the verb is only really used in that sense of verbal or written communication. ‘Alternatively, [they continue] it may be that the verb has a general sense and that Cassius Saecularis is simply being asked or told to explain something. We should presumably not rule out the possibility, however, that he is being asked or instructed to act as interpreter (*OLD*, s.v.6) in some transaction with non-Latin speakers. In that case the implication would be that military personnel are selling barley to the natives.’⁴¹ Given the context of the tombstones we have just looked at, I would be inclined to favour this latter interpretation. A loan-note from Frisia, dated 29 CE, between people belonging to, or in some way associated with, *Legio V Alaudae* at Vetera (Xanten), has the phrase *Quadratus interpretauit* ‘Quadratus acted as interpreter [or intermediary]’, perhaps also here in a linguistic sense (Fig. 4.1, no. 6).⁴²

We thus find specialist interpreters in legal contexts, attested in the papyri; at the imperial court; and in the army, probably involved in purchasing supplies. But with the exception from Berenike on the Red Sea, there is little or no evidence for specialist translators (commemorated in inscriptions, at least) from civilian commercial contexts. Although this may seem like a largely negative result, it is a useful one; it is very much what we should expect if the model I sketched earlier is valid. Private merchants will have made relatively little use of specialist third-party translators; instead, they preferred to invest in language learning, because it gave them greater commercial advantage, and did not force them to rely on translators whose impartiality in a transaction might not be ensured. There may have been insufficient demand for civilian translators to support those who specialized in it sufficiently to make it worth epigraphic commemoration; what civilian translation there was may have been done in an ad hoc fashion alongside other jobs.

³⁷ TPSSR 36 = *LegioXVApo* 13 = AE 1978, 635 = AE 1988, 938.

³⁸ *CIL* III 14507; *IDRE* II 308; Mairs (2020), 214. ³⁹ *CIL* XIII 8773; Mairs (2020), 214–15.

⁴⁰ *T. Vindol.* II.213; <https://romaninscriptionsofbritain.org/inscriptions/TabVindol213>; see also Mairs (2012b).

⁴¹ Bowman, Thomas, and Adams (1994), 188.

⁴² Bowman, Tomlin, and Worp (2009), 161–2, 164; cf. Mairs (2012b), 20–2.

Rather, it is the state, both in the military and probably in the case of collecting customs dues or regulating of the trade at Berenike, which was able to sustain the specialist translators needed for its own large-scale operations. Most traders will have developed a substantial degree of bi- or multilingualism, and will have concentrated on or specialized in routes where not only had they become familiar with the cultural conditions and the economic opportunities, but, crucially, they had the language skills to negotiate profitably. This in turn underscores the role of traders in learning Latin, and the role of Latin in facilitating trade.

4 Mobile Craftsmen

The third major element of what we might call the linguistic economy that I want to examine is the role of mobile craftsmen in spreading Latin. I shall concentrate on miners and potters, though one could imagine that many other specialist craftsmen played analogous or comparable roles.

4.1 Miners

Miners, obviously, are workers who need to move to where the ore deposits they are working are located. The scale of that movement is dependent on the size and value of the deposits concerned, and the extractive technologies used. The vast and numerous alluvial gold mines of north-western Spain (over five hundred of them) may have seen relatively little inwards migration of labour, as they were worked largely by indigenous labour, probably as a form of tributary exploitation; but there will have been a need, at least in the first generation or two of workings, to import specialist surveyors and engineers for the aqueducts bringing water to the head of the opencast to erode the alluvial deposits and set up the channels for hydraulically sorting the gold particles from the alluvial dross.⁴³ Underground mining, by contrast, probably saw a greater influx of mining personnel—most evidently in the case of Dalmatian and Dardanian miners brought into Dacia after Trajan's conquests.⁴⁴ Earlier views that opencast and underground gold mining in Dacia predate the Roman conquest are in my view unfounded; they rest on assumptions about the wealth of the Dacians, the erroneous supposition that the trapezoidal galleries of Dacian mines are a local technique, and on radiocarbon dates from the gold mines at Roşia Montană (ancient Alburnus Maior), poorly reported only to one sigma (one standard deviation from the mean,

⁴³ On hydraulic mining in north-western Spain, see, e.g., Domergue (1990); Orejas and Sanchez-Palencia (2002); Domergue (2008; 2012).

⁴⁴ Eutropius, *Breviarium* VIII, 6, 2 and evidence discussed below. For labour mobility at underground and opencast (but not hydraulic) mines in the Iberian Peninsula, see Holleran (2016).

or 68.3 per cent probability) rather than the more normal 2-sigma range (95.4 per cent probability).⁴⁵ In fact, such study of pre-Roman Dacian gold artefacts as has been done suggests that they all come from alluvial gold, consistent with panning in rivers.⁴⁶ Recalibration of the radiocarbon dates from Roşia Montană to 2-sigma shows that the wooden elements and mine props supposed to be Dacian all have a dating window that extends significantly after the Trajanic conquest.⁴⁷ Roman mine galleries of trapezoidal cross section have now been recognized at Tresminas in Portugal and at Roman mines in Serbia;⁴⁸ they are a Roman, not specifically Dacian, technique. The emerging picture from Roşia Montană thus suggests in fact that the entire mining complex was developed in the Roman period soon after Trajan's conquest, and much of it before the abandonment of many mine galleries in 167 CE as a result of the Antonine Plague and the invasions of the Iazyges during the Marcomannic Wars.

Roşia Montană and other less well-studied mines in Dacia were thus dug by miners who migrated into the region in the early second century CE. Eutropius (*Breviarium* VIII, 6, 2) says that Trajan had transplanted 'an infinite number of men from the whole Roman world, to people the country and the cities', following considerable slaughter and depopulation in the Dacian Wars. The onomastic evidence from funerary epigraphy and the wax writing tablets found at Roşia Montană show that many of the miners there were of Dalmatian and Dardanian origin, along with men of Greek origin.⁴⁹ Both the epigraphy and the writing tablets also show us that the Dardanians did not merely form a Dardanian-speaking ex-patriate community, but used Latin to communicate with other miners and, in particular, for legal and administrative documents. At least thirty-eight wooden tablets, many still with their wax on them, have been found in at least five (and perhaps eight) different mines in the Roşia Montană complex, dated between 6 February 131 and 29 May 167.⁵⁰ It seems that they represent the documentary archives of different mining concession owners and that they were hidden in the different mine galleries when the Iazyges invaded Dacia in summer 167, following

⁴⁵ Cauuet et al. (2002), 16, 64. ⁴⁶ Constantinescu et al. (2012).

⁴⁷ Wilson, Mattingly, and Dawson (2013), 10–11.

⁴⁸ Serbia: Wilson, Mattingly and Dawson (2011), 52. Tresminas: Wahl-Clerici et al. (2017), 19, fig. 15.

⁴⁹ Daicovicu (1961), 72; Mrozek (1968); Tudor and Vladescu (1972); Sântimbreanu and Wollmann (1974), 241–7; Russu (1975), 183–5, 189–91; Noeske (1977); Russu (1984); Wilson, Mattingly, and Dawson (2011), 72).

⁵⁰ Russu (1975), 172–4; (1984). Individual tablets are referred to according to Russu's publication, as *TabCerD* followed by a numeral. Tablets were found in the following different early modern mines when they broke through into ancient mining galleries: Laurentiu Igren mine (1786); St Joseph mine and perhaps also other mines in the Lety massif (several different finds, not necessarily all in the same ancient gallery, in 1788, 1789, and 1791); St Ladislau mine in the north side of the Cărnic massif (1820); Ohaba–St Simion mine in the south side of the Cărnic massif (1854); Cătălina Monuleşti (1855); Sântimbreanu and Wollmann (1974), 274, pl. IV, nos 4–8; Russu (1975), 172–4; Wilson, Mattingly, and Dawson (2011), 25, 37, 39, 42. The find-spots of several other tablets remain unclear, and, given the different dates of discovery, these may have come from additional ancient mine galleries.

the depopulation of the region already caused by the Antonine Plague (a document of 9 February 167 dissolves a funerary *collegium* because there are insufficient surviving members and one of the magistrates has fled).⁵¹

The tablets include contracts between people both of whom have Dardanian names (Verzo Beusantis and Dasius Verzonis);⁵² a Dardanian, Dasius Breucus, buying a Greek slave boy for 600 *denarii* from Bellicus Alexandri in the *canabae legionis* of the XIIIth legion;⁵³ sale and loan contracts;⁵⁴ *societas* (partnership agreements),⁵⁵ and labour contracts.⁵⁶ In these latter, people hire out their labour, often for a year. These contracts show us that much of the work at Roşia Montană was done by free wage labourers, working for different concession holders: Memmius son of Asclepius working for Aurelius Adiutor;⁵⁷ L. Ulpius Valerius working for Socratio (son of, or slave of) Socrates;⁵⁸ Restitutus Senior working for Titus Beusantis *qui et Bradua* (a Dardanian name).⁵⁹ Some of the labour contracts are drawn up by notaries, who state that they wrote the document because the miner contracting his labour was illiterate;⁶⁰ but the concession owners seem to have had some level of literacy, as they sign as witnesses—for example, Socratio and Titus Beusantis—and they are presumably the people who cached the documents in their own mine galleries when the Iazyges invaded. Nearly all of the writing tablets from Roşia Montană are in Latin; one (and perhaps a second) is in Greek; they are thus evidence for people who could speak and in some cases write Latin moving into Dacia.⁶¹

4.2 Potters

The second group of mobile workers I want to examine is potters. We know from studies of potters' stamps that a number of potters working in the Italian terra sigillata and Gaulish Samian traditions moved from one production area to another. Potters moved from Arezzo to Pisa, and to Lyon and La Graufesenque, taking with them their skills in pottery production, glazing, and controlling the temperature and oxygen content of the kiln during firing.⁶² Alison Cooley's chapter in this volume examines some of the evidence for continental potters moving to Londinium within a decade or two of the Claudian conquest of Britain, and stamping their products with Latin stamps.

The layout of large-scale excavated workshops at Scoppieto in the Upper Tiber Valley and Le Rozier near La Graufesenque in southern Gaul shows the provision of infrastructure for multiple potters to work together side by side in a large

⁵¹ *TabCerD* I. ⁵² *TabCerD* XVIII. ⁵³ *TabCerD* VII.

⁵⁴ *TabCerD* II, III, IV, V, VI, VII, IX, XIX, XX, XXI, XXII. ⁵⁵ *TabCerD* XIV.

⁵⁶ *TabCerD* X, XI, XII. ⁵⁷ *TabCerD* XI. ⁵⁸ *TabCerD* X. ⁵⁹ *TabCerD* XII.

⁶⁰ *TabCerD* X, XII. ⁶¹ *TabCerD* IV, and perhaps also *TabCerD* XXIII.

⁶² Oxé, Comfort, and Kenrick (2000).

manufactory arrangement,⁶³ yet the stamps from these sites show a multiplicity of potters working there without necessarily indicating much connection with each other. The explanation seems to be that the pottery manufactories of Le Rozier and Scoppieto may be investments by landowners, who rented them out to potters attracted by the clay sources, marketing networks, and economies of scale that these sites provided.

What are the linguistic implications of these set-ups? In the initial stages of Samian ware production in southern Gaul, Italian potters arrived bringing with them not only Latin but also a tradition of stamping their products in Latin. We can be reasonably confident of the dominance of Latin in the Italian pottery tradition from which they came, even though the red slipped tradition had originated in coastal Asia Minor in the late Hellenistic period, from a study of the names of masters and dependent potters on the name stamps on Italian sigillata.⁶⁴ Landowners rented facilities to migrating potters, and the stamps expressing these relationships are in Latin, whatever the origin of the potters. Nearly all the masters have Latin names, whatever the origin of the dependants. A large minority of the dependent potters have Greek names, and this is likely to be related to the region of origin of the red slip tradition. Whether or not the dependent potters were free, freedmen, or slaves (their status is in fact unclear),⁶⁵ the fact that all but two or three of the masters have Latin names, and the stamps are in Latin, exemplifies for these dependent potters the same kind of pattern as the model I proposed earlier in the context of slaves adopting Latin as they were brought into Latin-speaking environments.

The function of stamps on pottery continues to be debated and was not necessarily always uniform;⁶⁶ it may also have varied between fine wares and amphorae, for example. In many cases, however, it seems to have been connected with some kind of organization of the workshop or production centre; in these cases the stamps imply a degree of literacy on the part not only of the potter but also of some other personnel in the workshop. This is confirmed by the firing lists from La Graufesenque and elsewhere, plates on which have been inscribed the names of potters and the numbers and often types of vessels that they contributed to a particular kiln load.⁶⁷ The vast kilns, which could hold about thirty thousand pots, fired the product of several different potters at the same time,⁶⁸ and some form of record-keeping was needed. Another list from La Graufesenque also records which workers or slaves were assigned to different duties—collecting fuel for the kilns, preparing the slip, and so on.⁶⁹ Famously, not all the firing lists from

⁶³ Wilson (2008b). ⁶⁴ Mees (2002), 279–85.

⁶⁵ For the case against seeing dependent potters on Arretine stamps as slaves, see Mees (2002), 286–8.

⁶⁶ Cf. Fülle (1997; 2000).

⁶⁷ Hermet (1923), 291–355; (1934); Albenque (1951); Aymard (1952; 1953); Duval and Marichal (1966); Marichal (1988); Vernhet and Bémont (1991; 1993); Bémont (1996).

⁶⁸ Hermet (1934), 309, a firing list recording 33,485 vessels (with a ready-reckoning total of 33,500).

⁶⁹ Bulmer (1980), 29; Marichal (1988), 226–7, no. 169.



Figure 4.2 Latino-Punic brickstamp from the Hadrianic Baths at Lepcis Magna (Bartoccini 1929, fig. 205).

La Graufesenque are in Latin: some are in Gaulish, or a mixture of Latin and Gaulish, written in the Latin alphabet.⁷⁰ This suggests that many were written by potters (whether slave or free) who were native Gaulish speakers but had learned some Latin and, importantly, had learned to write in the Latin alphabet, which they then sometimes also used to express Gaulish. A comparable inference can be made from one of the brickstamps found in the Hadrianic Baths at Lepcis Magna, with a text in the Punic language but in Latin letters (Fig. 4.2).⁷¹ The text is calqued on Latin brickstamp formulae, and may well be inspired by the bricks imported from the Tiber Valley with Latin stamps used in the Hadrianic Baths. It is clear that the brickmaker was a native Punic speaker but had been taught to write in the Latin alphabet, though not apparently in the Punic alphabet.

5 Education and Literacy

The question of literacy has been implicit throughout much of this chapter, and we have now reached the point where we must confront it explicitly, if briefly. We shall sidestep the vexed debate about levels of literacy, in terms of the proportion of the population who could read or write; instead I merely note some points about the economic *contexts* of literacy.⁷² It is abundantly clear from the Roman habit—we might even call it a mania—for stamping all kinds of artefacts and products, fine pottery, mortaria, amphorae, bricks, glassware, lead pipes, barrels, oculists' eye salve, even loaves of bread, that a level of literacy existed among many craftsmen. Stamped bricks are, of course, widely known from civilian brickworks around Rome and in the Tiber Valley, and usually from military

⁷⁰ Adams (2003a), 687–724; Mullen (2013b; 2023b).

⁷¹ Bartoccini (1929), 77 n. 1, nos 5–8, and pp. 186–7; Jongeling and Kerr (2005): Lepcis Magna, LPI; for discussion, see Wilson (2012a), 307–9.

⁷² For the debate, see Harris (1989); Bowman (1991); Humphrey (1991); Bowman and Woolf (1994); Curchin (1995); Cooley (2002); Harris (2018); Kolb (2018).

tileworks in the provinces, but graffiti from tile- and brickworks in Gaul and other provinces show that the use of writing in such workshops went beyond the stamping of bricks and tiles.⁷³ If we consider that some of the stamps on glassware, as well as *tituli picti* on some fish sauce and wine amphorae, were clearly aimed at the purchaser, this presupposes a degree of literacy among at least some of the intended purchasers too.

The Bloomberg writing tablets from Roman London show us some literate craftsmen: there are letters addressed to a brewer and a cooper.⁷⁴ Also from London, and not far from the Bloomberg site, comes a collection of forty-three unpublished iron styluses and one wooden writing tablet in the Ashmolean Museum (Oxford).⁷⁵ All these finds are reported as coming from the London Steelyard, the trading site of the medieval Hanseatic League (and before that in the Roman period presumably part of the city's river port), which was on the site where Cannon Street railway station now is. I assume therefore that the finds were made during construction of the railway station (1863–6), although their inventory numbers suggest they may not have been fully accessioned or catalogued until 1989. It seems plausible that these finds had something to do with recording commercial transactions at the river port of London.

We know much less than we would like about the processes by which craftsmen acquired literacy—was it in the workshops, from their masters or supervisors, in the course of a formal apprenticeship, or in some form of schooling as children even before they learned their trade? The latter scenario is certainly attested: in the *lex metalli Vipascensis*, a bronze tablet that set out the rules and laws for a mining community at Vipasca, modern Aljustrel in southern Portugal, *ludi magistri* (elementary schoolmasters) are exempted from the taxes levied by the procurator of the mining district.⁷⁶ These schoolmasters taught at least basic literacy and numeracy, and the children they taught were presumably the children of the miners and smelters of the settlement. The *lex metalli Vipascensis* is evidence not merely for the existence of schools in mining communities, but also of state incentivization for the provision of education there (Wolff, this volume). The evidence from Vipasca resonates with that of the writing tablets from Roşia Montană, where we have already seen that at least five different concession owners hid caches of documents in five different mining complexes.

Pieter Houten in this book discusses literacy in cities, but it is worth noting here that the distribution of writing implements from Roman Britain, whose mapping is

⁷³ See, for Gaul, Charlier (2004), with an introductory review of the evidence for other provinces too.

⁷⁴ WT 12, WT 14. See Cooley, this volume, for further discussion of writing materials from Roman London.

⁷⁵ Iron styli: museum inventory numbers AN 1989.86 to AN 1989.128. Writing tablet: AN 2002.40.

⁷⁶ *CIL* II 5181, *ludi magistri ludi magistros a procuratore metallorum immunes es[se placet]*; Domergue (1983), 56–7, 98–9.

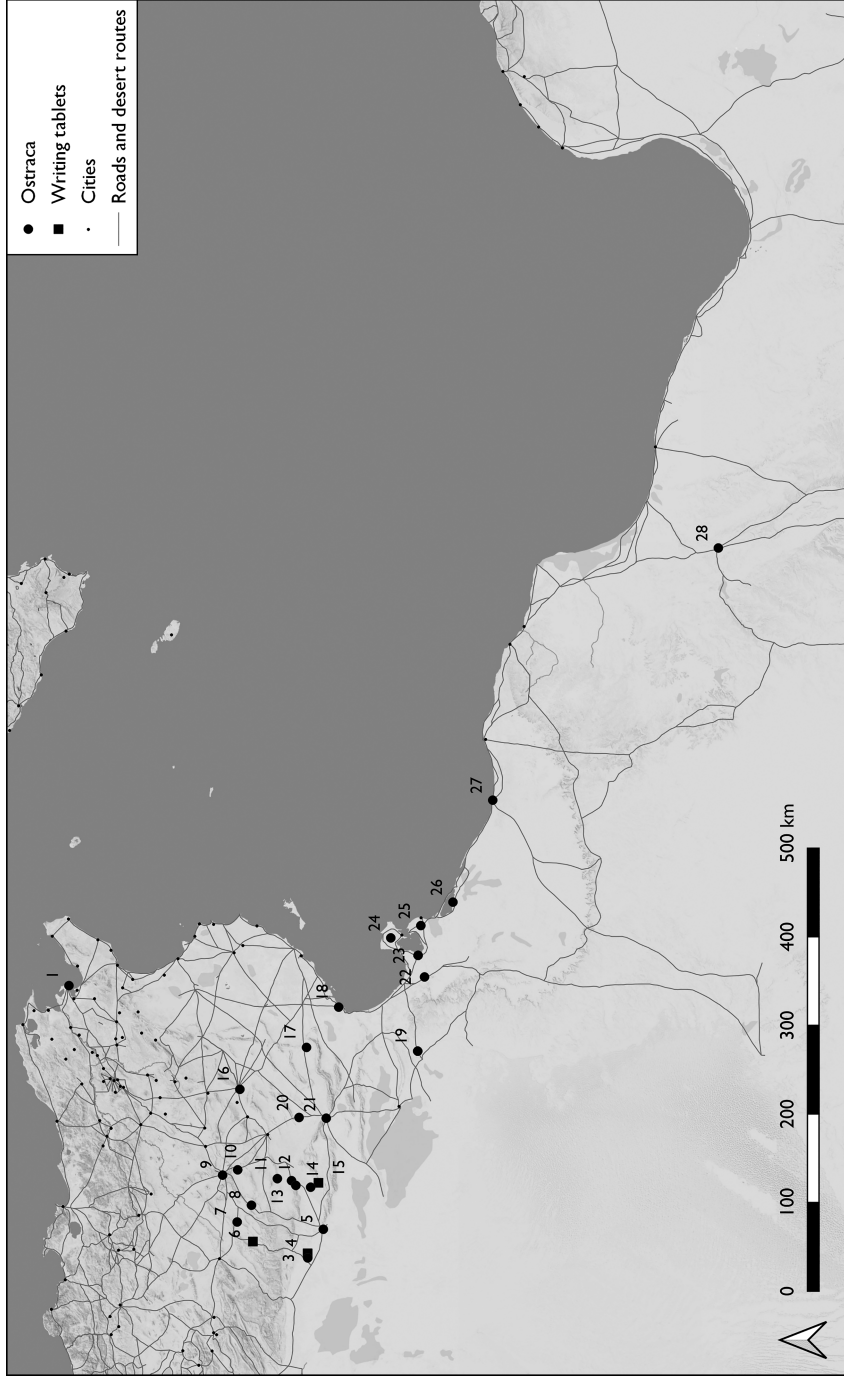


Figure 4.3 Distribution of Latin writing tablets and ostraca from Roman and late Roman North Africa. (Map by author; data compiled from Ast (2016) and Conant (2010)).

Key: 1. Carthage, circular harbour; 2. Gemellae; 3. near Bir Trough; 4. Bir Trough; 5. Henchir Besseriani; 6. Guert; 7. Henchir el Abiod; 8. Henchir Touta; 9. Tebessa; 10. Henchir el Matz; 11. Henchir El Sahfia; 12. Bir el-Ater; 13. Djebel Onk; 14. between Djebel Onk and Tamerza; 15. Albertini tablets; 16. Sbettla; 17. Maknassy; 18. Skhira; 19. Henchir Khanefi; 20. Sidi Aïch; 21. Gafsa; 22. Ksar Koutine; 23. Gightsis; 24. Jerba; 25. Ziane; 26. Henchir bou Gormine; 27. Sabratha; 28. Bu Njem.

enabled especially by the discoveries of the Portable Antiquities Scheme, also shows considerable evidence for the use of styluses and inkpots in rural areas.⁷⁷ This no doubt included the administration of villa estates. Much useful work could be done collating the evidence for writing equipment from other provinces, starting with the north-western provinces for which more information has been recorded.⁷⁸ But there is suggestive evidence for the normality of account- and record-keeping on rural sites in North Africa, for example, too. Figure 4.3 shows the find-spots of writing tablets and ostraca from North Africa.⁷⁹ They include tax receipts, registers of livestock and barley, and payments in money. Three points should be stressed. First, with the exception of the mid-third-century ostraca from the fort at Bu Njem, all the datable finds are relatively late (fourth to sixth centuries CE). Second, of the twenty-eight find-spots, eighteen are rural sites. Third, much of the evidence comes from the southern parts of Roman North Africa, in the pre-desert areas of the frontier zone. While this may be largely due to more arid conditions favourable to the preservation of wooden writing tablets and the ink on the ostraca, it is a reminder that these regions were not marginal in the sense either of agricultural productivity or of literacy.

6 Conclusion

I have concentrated on how economic processes and factors—slavery, trade, mobile craftsmen—might have helped the spread of Latin, and to some degree also the spread of Latin literacy. Slaves, if they were not brought up speaking Latin, had to learn it to survive. Traders learned it for commercial advantage, in preference to using interpreters. Language learning lowered transaction costs when trading across different linguistic spheres—which long-distance trade in the Empire was bound to do. Craftsmen migrating from core provinces towards the periphery in search of economic opportunity brought their Latin with them. These processes occurred alongside, and sometimes independently of, any impetus from the army or the administrative apparatus of the state to use or learn Latin. But the spread of Latin, and literacy, arguably also helped the growth of the Roman economy: the development of a *lingua franca* lowered transaction costs in all areas of commerce and trade, while a larger-scale and more complex economy functioned better with written records, and with the investment in human capital that even basic education represented.

⁷⁷ See Mullen (2021) for an overview and discussion of this material. Seal boxes are not good evidence for literacy; they were used to seal bags of coin rather than writing tablets: Andrews (2013), *contra* Derks and Roymans (2002).

⁷⁸ See Mullen (2021), 364–5.

⁷⁹ Data from Conant (2010); Ast et al. (2013); Ast (2016); for discussion, see Conant (2013).