

Across the Ocean: Nine Essays on Indo-Mediterranean Trade

Edited by

Federico De Romanis and Marco Maiuro



BRILL

LEIDEN | BOSTON

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Pearls, Power, and Profit: Mercantile Networks and Economic Considerations of the Pearl Trade in the Roman Empire

Katia Schörle

Introduction

In the second half of the first century BCE, the end of the Civil Wars and the unification of the Mediterranean under more or less direct Roman State control brought security and enabled greater capital investments and profits to be made. A general increase in wealth combined with a rise in the demand for luxury goods can be seen as the catalyst behind Rome's involvement in the Indian Ocean trade. This upsurge of wealth is noticeable in the appearance of luxury goods in archaeological contexts, for instance in mosaics such as that from a household in *Insula VI.15.14* in Pompeii depicting a matron wearing a gold and pearl necklace and pearl earrings.¹ Luxury and Eastern goods also became intricately woven into the fabric of the early imperial literature and poetic writings of the Golden Age, particularly in love elegies.²

The trade with India and the East relied on substantial organisation and far-reaching and complex networks of exchange. The imported goods fetched considerable prices, engendering substantial profits for the willing, those who were capable of investing in the lucrative but also highly risky Indo-Roman trade. Both individuals and the State benefitted substantially from it—despite claims to the contrary in the literature.³ To begin with, I will contextualise the pearl trade and look at the origins of pearls and the mechanisms of trade and

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- 1 For finds in Pompeii and Herculaneum: Siviero 1954, esp. cat. 271 (forty-eight examples of these two pearl earring types were found); cat. n. 283 and colour plate 189 for a *crotalum*-type pearl earring (earrings with a bundle of pearls) from the House of Menander in Pompeii. Museo Nazionale, Naples, inv. 124666 for the mosaic of the matron with pearls. For a history of pearl fishing in the Classical World, Donkin 1998, 80–104; finds in archaeological contexts, Donkin 1998, 90–91.
 - 2 E.g., Prop. 1.8 boasts of having managed to convince Cynthia to stay with him due to his verses rather than gold or pearls from India.
 - 3 Plin., *HN* 12.83–84: 'But it is the sea of Arabia that has even a still greater right to be called "happy," for it is this that furnishes us with pearls. At the very lowest computation, India, the

production (whether real or fake) within the empire, and ultimately identify those who were involved, whether the State or the merchants and families who organized the trade. As we will see, vertical integration (the absorption of various phases of production and/or distribution of a product) was a recurrent market strategy in the Roman world.⁴ The general role of the State in setting up and maintaining the infrastructure in the Eastern Desert⁵ is an important element for the development of the pearl trade. This is in contrast to trade with the East via Palmyra, where the local infrastructure consisted of a communal organization of goods into caravans. This trade route however benefited from the presence of Palmyrene communities along the Euphrates and in the Persian Gulf, notably on the island of Bahrain.⁶

Pearls: Origins of the Trade

The origins of the trade in pearls, the quintessential luxury from the Indian Ocean and the East, date from well before the Roman period. A growing number of pearls found in Neolithic sites across the Arabian Peninsula suggest an early pearl-fishing tradition in the Persian Gulf. Currently, the oldest known find of a pearl in an archaeological context comes from the Persian Gulf (Umm el Quwain), and is radiocarbon dated to 5547–5477, 5410–5235 BCE.⁷ Excavations at a pavilion in the royal garden at Pasargadae in southern Iran dating from the second half of the sixth century BCE revealed a cache with 244 pearls, the largest pearl measuring just under 1 cm across.⁸ Pearls were imported from India, Sri Lanka, or the Persian Gulf; the awareness of the pearl in the Mediterranean basin is said to have begun at the end of the fourth century BCE, in the Hellenistic period, with Alexander the Great's conquest of the East and travels into India.⁹ The early find of a pearl oyster shell (*pinctada*

Seres, and the Arabian Peninsula, withdraw from our empire one hundred millions of sesterces every year—so dearly do we pay for our luxury and our women.'

4 See Brockaert 2012 and Silver 2009 on the issue.

5 See Wilson, this volume.

6 Young 2001, 139–148, esp. 144.

7 Charpentier et al. 2012.

8 Ogden 1996, 37; Stronach 1965, pl. xivh.

9 Ogden 1996, 37. They are mentioned in the accounts of Androstenes of Thasos, who accompanied Nearchus, commander of Alexander's fleet, along the coast from Indus to Tigris, and Chares of Mytilene (Alexander's chamberlain) also mentions pearls found in oysters in the Indian Ocean and the Black Sea, Persian Gulf, and Arabian Gulf. (Ath., *Deipn.* 3.93).

margaritifera) in a tomb at Amathous, Cyprus (600–475 BCE), and the gradual appearance of the shell from the early Hellenistic period onwards on Cyprus, also testifies to the introduction of pearl oyster shells as objects of trade in the Mediterranean.¹⁰

Nevertheless, no pictorial representations of pearls are known before the Roman period. It has previously been suggested that the earliest pictorial evidence may be deduced from a wall painting in the tomb of Petosiris in Tuna el Gebel (Hermopolis Magna, Middle Egypt) from the end of the fourth century BCE, which depicts a bag full of what the author understood to be pearls examined with care.¹¹ Unfortunately both the colour (red) and the context make it clear that these are red bays being prepared for making perfume,¹² and not pearls. The first pictorial representations of pearls are therefore from the Roman period, whether from Pompeii, as mentioned earlier, from funerary scenes in the Fayum Portraits, or on the famous tondo of the Severans in Berlin.

Overall, the trend would seem to indicate a gradual increase in the use and trade in pearls: the novelty of pearls is particularly well reflected in poetry, and becomes a necessary reference in love elegies.¹³ In the first century BCE, pearls were still considered products of considerable worth. The literary trope concerning the disapproval of their popularity develops over time; Pliny's comment that Cleopatra drank pearls dissolved in vinegar is meant to arouse feelings of disgust for her, given the cost of a single pearl;¹⁴ Seneca complains that women wear the value of two or three estates on each earlobe. And Caligula's wife Lollia Paulina was criticized for appearing at a banquet covered with emeralds and pearls valued at 40 million sesterces and carrying the papers of ownership of the jewels—presumably to show off.¹⁵ These texts, however, are generally not concerned with the trading networks involved in the acquisition of these goods, but with wealth, power, and prestige.

10 Michaelides 1995.

11 Ogden 1996, 37–38.

12 Cherpion et al. 2007, 47. To Ogden's credit, no colour prints have previously been published of the wall painting; the article otherwise presents an excellent overview on the pearl in Antiquity.

13 E.g., Varro, *Menippeae* frags. 97, 283; Tib. 2.4; Prop. 1.8; Mart. 8.81. For non-poetic texts, e.g. Cic., *Verr.* 2.4.1, 2.5.146; Vitruvius, *De arch.* 8, 8.3; Sen., *Ben.* 2.12; Petron., *Sat.* 55, 63, 64; Plin., *HN* 6.89.

14 Plin., *HN* 9.119–121.

15 Sen., *Ben.* 7.9; Plin., *HN* 9.117.

Pearl Imports

Pearls entered the Roman Empire via the eastern Mediterranean, in particular from Egypt and Syria. They came from India and Sri Lanka, but also from the Persian Gulf via Palmyra and Syria: sculptural portraits of Palmyrene women show them wearing jewellery which in all likelihood included pearls.¹⁶ The light weight of pearls, as with silk, made them particularly suitable for long-distance trade across difficult terrains, and a likely source of good profits for merchants. Palmyra's trade monopoly in the east relied on the reach of its mercantile network to the Persian Gulf and its presence on Bahrain as well as in India.¹⁷ Spasinou Charax, a recurrent destination on the Persian Gulf for the Palmyrene caravan trade, may have been a major pearl market for the India trade, leading to the continuation of a pearl market tradition in nearby Ulla during the Sassanid/early Islamic period.¹⁸ The nomination of a Palmyrene as satrap on the island of Bahrain in 131 CE, as well as two other Palmyrenes as archons,¹⁹ presumably further secured mercantile connections. The island was already famed for its pearls by the time of Pliny,²⁰ and must have been an important pearling centre by then.

Pearls also entered the Roman Empire via the Red Sea—they are recorded in the mid first century CE nautical handbook from Egypt, the *Periplus Maris Erythraei*, as an item that could be found in various ports of India and the Arabian Peninsula. Korkai on the south-eastern tip of India was celebrated for its pearls both in the *Periplus* and in Tamil literature.²¹

Pearl Fishing on the Red Sea

Although pearls typically came from the Indian Ocean, two inscriptions from the Eastern Desert of Egypt mention the pearl industry, giving us crucial information about the origin of *some* pearls much closer to the Mediterranean, namely from within the Roman Empire.²² Both inscriptions are rock-carved dedications from the mountainous area of the Eastern Desert of Egypt, an

16 Chehade 1987.

17 Young 2001, 123–168.

18 Carter 2005, 144.

19 Gawlikowski 1994, 29.

20 Plin., *HN* 6.148.

21 Casson 1989, 59: 19.22–23, and 226.

22 De Romanis 1996, 161.

important corridor for the Indo-Roman trade and an area exploited for its marble, gems, and precious ores.²³ These inscriptions were located in sanctuaries to the god Pan along *wadis* (dried-up riverbeds) that were used as throughways between the Red Sea and the Nile.

The first document is an inscription from a shrine in the Wadi Semna (a quarrying area to the north of the Myos Hormos–Coptos route), dated to the first of Payni of the year 40 of Caesar (26 May 11 CE); it records the dedication of a shrine to Pan by Publius Juventius Agathopous, freedman of Publius Juventius Rufus, tribune of the III legion and eparch of Berenice, and supervisor of the mines of emerald, peridot, *pearls* (which are obviously not mined), and all the mines and all the quarries of Egypt.²⁴ The second inscription, very similar to the first, is also from a temple dedicated to the god Pan, located this time in the Wadi Hammamat, an important quarry that produced stone used for imperial portraiture and sculpture, which was continuously used from the Pharaonic period onwards.²⁵ The inscription records a dedication by the same Publius Juventius Agathopous, and is dated to the reign of Tiberius, 14–37 CE, specifying again that Publius Juventius Rufus was in charge of the mines of emeralds, peridot, *pearls*, and all the mines and all the quarries of Egypt.

The mention of pearls as part of the remit of Publius Juventius Rufus, along with mines and all the marble and gem quarries, may at first seem odd, but it is particularly relevant here. We have seen that pearls were usually imported from India and Sri Lanka or from the Persian Gulf, and it has been suggested that no pearls were produced in the Red Sea and that the inscription referred to pearl imports as part of the responsibility of this person.²⁶ I am not, however, fully satisfied with this answer. Among the various elements of P. Juventius Rufus' remit mentioned in the inscriptions—marble quarries, goldmines, and gems—the clear common denominator is geographic unity, and the inclusion of imported pearls strikes one as odd. The inclusion of peridot, which comes from St. John's Island, is not a problem here: the island was part of the same administrative district as the Eastern Desert. Consequently, the marble, gold, emeralds, and peridot in the inscriptions and all the items invoked make it clear that the eparch's responsibility concerns territorial production, not imports. The alternative proposed by Ogden, that the pearls are mentioned because the official was in charge of both local products and of goods traded

23 Schörle 2008; Sidebotham 2008.

24 *I.Pan*, 121 = *SEG* XX, 670.

25 *I.Ko.Ko.* 41.

26 Ogden 1996, 39. Furthermore, Ogden only mentions the Wadi Semna inscription.

up the Nile,²⁷ does not seem a viable option. As we know, considerable quantities and varieties of other goods were imported and exported via the Red Sea to and from India and Arabia; that pearls alone would have been singled out from the wide variety of such goods—frankincense, pepper, elephant ivory, gems, and other items—is less than probable, not least of all because goods coming into the Roman Empire via the Red Sea travelled under seal from Berenice to Coptos. The separation of pearls seems unjustifiable, particularly as they are mentioned amongst items that would not be subject to import taxation. A possible tax exemption cannot be envisaged; the *Digest of Justinian* mentions pearls amongst all items subject to the *vectigal*,²⁸ and we will see that the smuggling of pearls further dismantles this hypothesis.

The twin inscriptions of Publius Juventius Rufus suggest that diving for pearls happened on the Red Sea, and that the State controlled it. Two varieties of pearl-producing oysters from the Red Sea come into consideration: the *pinctada margaritifera* and the *pinctada radiata*. Both species produce pearls, are non-comestible, and are found in Roman contexts at the Roman Red Sea ports of Berenice and Myos Hormos.²⁹ The shell middens, located at the south-eastern tip of the lagoon that formed the southernmost part of the ancient harbour basin of Berenice, are currently inaccessible due to landmines, but may also contain oyster shells.³⁰

In the Persian Gulf, the pearl oysters were gathered and tossed back into the sea. Nineteenth-century Bahraini pearl fleets could be out at sea for several months and go through millions of shells in a season, since ships with twenty to thirty divers could collect up to 8,000 pearl oysters per day, although the scale and market were not necessarily the same in Antiquity.³¹ Pearl divers were working from the boat itself: on average, pearl oysters only yield a few small pearls for every five hundred oysters.³² Ethnographic work by the MARES project on the Farasan Islands (Red Sea), however, suggests that pearl

27 Ibid.

28 *Dig.* 39.4.16.7.

29 Berenice: Van Neer and Erwynck 1998, 355; Van Neer and Erwynck 1999, 434; A gold and pearl earring has also been found on site (Sidebotham 2007, 165); Myos Hormos: Hamilton-Dyer 2011, 272–273; she also notes that the pearl oyster constitutes 28% of finds at Mons Porphyrites, where there was a clear manufacture of objects from it such as dishes and palettes.

30 Personal observation. I am grateful to Ross Thomas, who initially drew my attention to these middens.

31 Strack 2008, 13.

32 Ibid.

divers there preferred to bring the oysters to the shore, leaving middens.³³ So the question of whether shells were thrown out at sea or discarded in Berenice must remain open, but both inscriptions and later pearl-diving traditions suggest that pearl diving did occur in the Roman period.

While Red Sea pearls are now a rarity, the port of Quseir, close to Quseir al Qadim (ancient Myos Hormos), was a centre of pearl-fishing activity in the nineteenth century.³⁴ The Farasan Islands, as well as the Dahlak Islands, were important pearling centres.³⁵ Roman presence, in the form of the army, is attested on Farasan in the second century CE,³⁶ though in this case no direct document testifies to pearl diving, as is so in the Egyptian Red Sea. Fishermen's activities on the Red Sea were apparently tightly regulated, as suggested by a permit granted to Pakubis Ichthyophagos to move his ship from Myos Hormos to Philoteris.³⁷ It is therefore not surprising, given the worth of pearls, to find that the regulation of diving was a duty of the eparch.

Merchant Connections

The long-distance trade between India and Egypt was dependent on the monsoon winds, which regulated maritime commerce on the Red Sea and the Indian Ocean. The exotic goods that arrived via this route could produce vast sums of money: the second-century CE Muziris papyrus records a loan taken out for one such transaction, representing a portion of cargo worth some seven million sesterces.³⁸ Even allowing for a several-fold mark-up between India and Egypt, this suggests a trading investment only the wealthiest could afford. Prominent Italian families were therefore involved in the trade, their slaves and freedmen most often accompanying the goods to their final destination. Several families are known through inscriptions found in rock shelters along the main roads crossing the Eastern Desert of Egypt, and they serve as excellent examples of the merger of different market specializations. The Peticii, from the famous wine-producing area of Minturnae in Campania, handled

33 John Cooper. Pers. comm.

34 Ibid. 15.

35 Strack 2008, 15; Ogden 1996, 39; Kuntz and Stevenson 1908, 139, 142.

36 See Nappo, this volume.

37 Thomas 2011, 217–218.

38 Rathbone 2000; other aspects of the papyrus are referred to in the chapters of Wilson, Nappo, Aubert, and De Romanis.

long-distance commerce with North Africa,³⁹ and were also involved in commerce with India via the Red Sea and the Eastern Desert of Egypt. One of them, Gaius Peticus, is known from a graffito in a sanctuary of Pan in the Wadi Hammamat, on the Coptos–Myos Hormos road to the Red Sea, where the majority of graffiti date between 9 CE and 238 CE. Wine was one of the well-known exports to India; given that we know the Peticii were in the wine business, we can probably assume that Gaius Peticus was exporting wine across the Eastern Desert on the backs of camels—such as those shown on the relief from l'Aquila, which Tchernia has suggested may have belonged to one of the Peticii.⁴⁰

The Annii family was similarly well connected and had considerable interests in the Indian Ocean trade. Annius Plocamus is known as a *publicanus* (tax collector) for the 25 per cent import tax levied at Berenice, while Lysas, his slave, known from a graffito in a cave shelter at Wadi Menih dated to 6 CE,⁴¹ may well be the same Lysas whom Pliny mentions as Plocamus' agent in the tax collection.⁴² The family was sufficiently wealthy to build the basilica Anniana in Puteoli; in the last quarter of the second century CE, we hear of a meeting in the *curia basilicae Augusti Annianae*,⁴³ so the building must be Augustan in date, contemporary with Plocamus. It is likely therefore that the Annii were involved in the luxury trade, and that while their main base was at Puteoli, they also organised themselves in various ports from which they controlled their local business ventures. While Puteoli was Rome's first port for all Eastern Mediterranean goods as well as the largest seaport on the Italian coast in the Augustan period,⁴⁴ the Annii were also working from Ostia, the city connected to Rome's harbour at Portus. From the Hadrianic reconstruction phase at Ostia, one thing in particular stands out: the inscription on the façade of the Casa di Annio: *Omnia Felicia Anni*.⁴⁵ The owner made his connection with maritime business very clear—underneath the words *Omnia Felicia Anni* are two terracotta plaques, one of which shows a *dolia* ship under sail. The owner

39 Tchernia 1992, 296.

40 Ibid. 298–300.

41 Meredith 1953, 38.

42 Plin., *HN* 6.84; Tchernia 2011b, 62–63.

43 D'Arms 1974, 107–108; Tchernia 2011b, 63; *CIL* X 1782, 1783 and 1786. Some of the Annii from Puteoli are also known from the Sulpicii archives (*TPSulp.* 46, 57, 121).

44 On the Red Sea / Indian Ocean trade and the Nabataean community residing at Puteoli, see Terpstra, this volume.

45 Casa di Annio III, XIV, 4.

of the house was probably Annii Felix, probably a descendant of another Annii Felix attested at Ostia during the Claudian period,⁴⁶ when the other Annii were busy with Eastern Mediterranean and Indo-Roman commerce at Puteoli. Whether the two family networks were connected remains unclear.

The Calpurnii also seem to have invested in luxury goods from the Eastern Mediterranean, and their names appear in Naples, at Puteoli, and at Rome. We can associate them with different phases of the niche pearl trade, a strategy usually referred to by economists as 'vertical integration'.⁴⁷ Several Calpurnii were involved in maritime trade, as for example L. Calpurnius Capitolinus, to whom traders from Alexandria, Asia Minor, and Syria dedicated a statue in Puteoli, along with one for his brother, C. Calpurnius.⁴⁸ (Alexandria and Syria—especially Antioch, where the tax collector of the 25 per cent tax for Palmyra's eastern trade resided⁴⁹—were important entrance points for all eastern goods, including pearls.) Gianfrotta has suggested a possible connection at Ostia with Calpurnia Ptolemais and Calpurnius Ianuarius, whose second-century CE burial on Isola Sacra bears a terracotta plaque with a ship, referring to their maritime activities.⁵⁰ *Horrea* and commercial spaces in Ostia would certainly have been ideal selling points for Eastern goods such as pepper, silk, or pearls. Tantalizingly, the Calpurnii were not only working with merchants from the Eastern Mediterranean: the name of Laudanes, slave of Calpurnius Moschas, is also found amongst graffiti carved in the *paneion* in the Wadi Menih in the Eastern Desert of Egypt, on the Coptos–Berenice road. Laudanes was probably supervising the transport of luxury goods, such as the pearls that other members of the same family would have been selling on the Via Sacra in the Roman forum.

In Rome, most pearl sellers known to us were located in the Via Sacra, with a *margaritarius* also attested in the *Velabrum*, perhaps by the Porticus Margaritaria,⁵¹ but Rome (or Ostia) also served as an important centre of redistribution for the empire, though the retail trade from Rome to other cities is also attested through an inscription mentioning a *negotiator margaritarius ab Roma* from Aquileia.⁵² Among the eight inscriptions concerning pearl

46 Gianfrotta 2008, 75 and n. 78.

47 As noted above, n. 5.

48 Gianfrotta 2008, 74–75; *CIL* X, 1797; Tchernia 201b, 64.

49 *AE* 1947, 180.

50 Gianfrotta 2008, 75.

51 Monteix 2013; Papi 2002.

52 *ILS* 7603. I wish to thank H el ene Rougier for pointing this inscription out to me.

sellers from the Via Sacra,⁵³ there are references to L. Calpurnius Antiochus,⁵⁴ L. Calpurnius Nicaei f. Cor. Antiochus, L. Calpurnius Rufus, and L. Calpurnius Strato.⁵⁵ The involvement of Laudanes as a direct supplier of goods from India or the Eastern Desert indicates backward integration (integration of the activities preceding the main commercial activity) in order to control the market and prices. Could the reference to the L. Calpurnius Antiochus Nicaeus as a *margaritarius maior* (see note 49) imply some sort of hierarchical organization amongst pearls sellers? His son, L. Calpurnius Nicaei f. Antiochus, himself *margaritarius*, may have begun operating under his father's supervision, along with Calpurnius Rufus and Calpurnius Strato.⁵⁶

In the case of the Calpurnii, the family network or business is attested at every stage of the chain: the Calpurnii and their agents or freedmen are evident from the Wadi Menih on the route to Berenice in the Eastern Desert, through the ports of Naples, Puteoli, and Ostia/Portus, all the way to individual sellers on the Via Sacra in Rome. This suggests vertical integration and a particular investment in the pearl business, although it is likely that this was just one venture within a larger trading and investment portfolio.

Fakes, Emulation, and Smuggling

The Fayum portraits best capture the frenzy for pearls and the spirit of the times, with most portraits showing women adorned with precious gems and pearls dangling from their ears or on their necks. In Egypt and Syria, pearls may have been more accessible to a greater proportion of society than in other provinces, as there were no further transport costs, customs dues, or transaction costs involved. It is therefore not at all surprising that smuggling pearls from these areas into the Roman Empire was common. Pseudo-Quintilian

53 *CIL* 6.9545–9; 33872; 37804; *CIL* 10.6492.

54 *CIL* 6.33872: 'L. Calpu[---/Antioch[---/ Maior m[---/ de sacra [---/ vixit a[---. The *CIL* suggested restorations are: L. Calpu[rnius L.l./Antioch[us Nicaeus?/ maior m[argaritarius/ de sacra [via/ vixit a[---.'

55 *CIL* 6. 9546: 'L. Calpurnio Nicaei f. Cor. Antiocho/ margaritario de sacra via/ L. Calpurnio L. l. Rufo/ L. Calpurnio L. l. Stratoni/ Calpurnia L. l. Egale patrono suo/ et fratribus suis et sibi fecit.' Only L. Calpurnius Nicaei f. Cor. Antiochus is specified to be *margaritarius*, the activities of his freedmen are not specified, so that they may or may not be involved in pearl trading.

56 *CIL* 6.33872. Though as remarked by Federico De Romanis, one cannot entirely exclude the possibility that *maior* actually goes with the name to distinguish two homonyms, rather than with *margaritarius*.

presents the judicially complicated case of a woman smuggling pearls, claiming both her feminine right not to be searched by the *scrutatores* and also that the pearls are part of her personal belongings—her *instrumenta itineris*—and therefore not to be considered taxable.⁵⁷

When pearls became an obsession of the wealthy, the desire percolated down through the social strata.⁵⁸ Whether the pearls on the Fayum portraits or on the Palmyra sculptures were real or fabricated, these representations nonetheless serve as witnesses to an important social trend. Several Egyptian papyri refer to the many different ways one can create something resembling a pearl using various products.⁵⁹ The emergence of an industry of fakes is an indication of the growing fashion for pearls stimulated by the influx from India and the Persian Gulf, and also from the Red Sea coast of Egypt itself.

Conclusion

The trade in Indo-Roman goods presented the opportunity for remarkable profits, but also considerable risks, partly offset by the establishment of social networks, from the Red Sea across the Eastern Mediterranean and towards Rome. Indeed, we can trace vertical integration in the luxury Indo-Roman trade and the involvement of elite Italian families and merchants from Rome through the ports of Italy to the Eastern Desert of Egypt. The growth of the pearl market led to an expansion of the industry; while mainly a commodity from the Indian Ocean and the Persian Gulf, the market was supplemented by Red Sea pearl fishing, which probably resulted in pearls that could be sold for a high price even though they were obtained at a much lower cost. The State wanted to reap profits from pearl diving in the Red Sea so they closely

57 Pseudo-Quintilian, *decl. min.* 359: 'Lis publicani de unionibus. Praeter instrumenta itineris omnes res quadragesimam publicano debeant. Publicano scrutari liceat. Quod quis professus non fuerit, perdat. Matronam ne liceat attingere. Matrona iter faciens cum ad publicanos venisset, uniones habens quadringentos in sinum abdidit. Hos cum requireret publicanus, matrona scrutandi potestatem fecit. Publicanus noluit scrutari. Translatis manum iniecit et suos dicit.' As discussed by Duncan-Jones 2006, 7–8.

58 Plin., *HN* 9.114: 'cupiuntque iam et pauperes, lictorem feminae in publico unionem esse dictitantes.'

59 The Stockholm papyrus (c.300 CE) provides recipes for producing fakes. Recipe 18 discusses the elaborate production of a fake from ground mica, wax, eggwhite, and mercury held together by gum tragacanth. In Roman Egypt pearls are often mentioned as *pinna* or *peina*—though one text specifies 'real' pearls (*alethinopeinon*), presumably due to the commonness or popularity of fake pearls. Ogden 1996, 41; Caley 1926.

monitored it, and merchants drastically cut the risk and cost factors by obtaining pearls from Egypt in addition to India. The Indian Ocean trade had a transformative effect, both in the way the State dealt with and sought profit, as demonstrated in its dealings with the pearl trade. In addition, the regions originally at the margins of the empire became motors of production and consumption for this new market—pearls eventually reaching all levels of society—whether as real, smuggled, or artificial items.

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