New Maritime Trade Under Augustus

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ABSTRACT

Scholarship widely recognizes the reign of Augustus (30 BCE – 14 CE) as a time of heightened economic development for Rome, mostly credited as a fortunate by-product of the *pax augusta* that resulted from a lack of wars, civil and foreign. However, the Augustan government took a far more active role in ensuring economic prosperity for the Roman citizens during this time. The crux of this thesis posits that the economic 'boom' which happened under Augustus has the expansion of maritime trade as one factor. Having newly captured territory in the form of the Roman province of Egypt provided access to the Red Sea, which allowed the Romans to utilize the trade routes therefrom and create economic relationships with new trading partners. In particular, the Roman economy established trade routes to the Persian Gulf and Indian Ocean trade spheres, allowing for the establishment of relationships with new trading partners and the import of new goods, including luxury products. Changes to laws and improvements in infrastructure facilitated mercantile investments, while diplomatic relations with Arabia, India, and minor kingdoms maintained a hospitable trading environment for Roman merchants and their proxies. Upgrades to Rome's existing ports ensured they would be able to accommodate the increases in imports and exports. The combined result of these changes means that the Augustan regime created the conditions for an expanding and more diversified economy.

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INTRODUCTION

The last century of the Roman Republic was a period fraught with war and corruption. According to Cicero, the values of the old Republic, which made the Romans who they were, had been replaced with indulgence and debauchery ('Our people, [while] in peace and at home, command and threaten the magisters themselves: object to [them], move against [them], challenge [them].' *De Republica* 1.63).[1] The economic situation added to this, as debts and prices were at an all-time high. The Republic sent most of its money into its armies, letting public works and services fall by the wayside. Continued civil war brought disruption to trade routes and interruptions in the grain supply, while lack of spending on infrastructure negatively impacted trade.

After the civil war of the 30s BCE, Augustus was able to add newly-conquered Egypt to Rome's provinces, integrating it into the existing Roman legal system.[2] As a result, Egypt's exports and trade partners became available to Rome, which resulted in a significant increase in the Gross Domestic Product (GDP) and, most critically, a corresponding rise in the overall the standard of living.[3] Additionally, through interactions—both diplomatic and military–with the Arabian Peninsula, Rome was able to secure a trade route through the Persian Gulf in order to access more regularly luxury products from nearby nations at a cheaper price than was possible during the Republic. Thus, Rome experienced a double-benefit: new trade opportunities and more regular access to goods. These factors, along with strategic taxation and diverse trade

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[1] *sic noster populus in pace et domi imperat et ipsis magistris minatur, recusat, appellat, provocat…*

[2] Even though Augustus was still referred to by the name Octavian at the time of his victory and even in the aftermath of the civil war, he is called Augustus here because it is after he took the title that his work on maritime trade, which is explored in this thesis, took place.
For ease of understanding, the nation shall be referred to as 'Rome' within this paper, while its capital city shall be called 'Roma.'

[3] Growth *per capita* was not drastically increased, but the small increase it underwent in conjunction with the expanded population had a significant positive effect on the GDP: Wilson and Bowman 2009, 29.

agreements, laid the strong foundation that enabled the economy to prosper for the next two centuries. Finally, the Augustan government expanded and improved the existing infrastructure, rather than expending superfluous resources building a system *de novo.* In other words, as was typical of the Roman way of doing things, they took what already existed and made it work better for them.

Despite this, scholars do not seem inclined to ascribe credit for this positive economic situation to Augustus. While scholarship from the past half century or more agrees that there was significant economic expansion during his reign, it fails to explain that the reason for such an expansion was due to Augustus' impact on trade. Instead, scholars ascribe it as a passive result of the newly-achieved harmony that came from the extending peace (*pax Augusta*) after years of civil war. This is certainly a factor in the stability that the Empire achieved, but it alone was not enough for the many improvements that Rome—especially within the capital city itself—was able to undergo in such a relatively short time, as Augustus so thoroughly declares is his *Res Gestae*.[4] In order for these changes to happen, the government needed to take decisive action which was much easier to take without the looming threat of war.

In order to appreciate properly the changes made under the Augustan regime, it is important to understand the state of trade and economy in the years immediately leading up to the Battle of Actium and the beginning of the *pax Augusta* (below, page 4). This thesis then explores three inter-related aspects of the Augustan maritime economy: (1) the products which made up the bulk of Rome's imports and exports, especially those that were secured or gained

[4] According to Augustus himself, the improvements made to the city of Rome were the following: the *curia Julia,* the Lupercal nymphaeum, thirteen named temples and 82 unnamed temples, the portico at the Circus Flaminius, the *forum Iulii* and its associated basilica (twice), the *via Flaminia*, the *forum Augusti*, the theatre of Marcellus, and reparations on all decayed aqueducts and temples already standing (*Res Gestae* 19-21). Detailed commentary on these buildings is available in Cooley 2009: 182-202.

new recipients under Augustus' rule; (2) the new laws and infrastructure that the Augustan administration created; and (3) the results that these two factors had on the Roman people, the economy, and the standard of living.[5]

A survey of goods transiting ports at both ends of the Roman trade routes clarifies the increasingly diversified nature of the Augustan economy and establishes the diversity of production, which relied upon, and in turn supported, a healthy economy under Augustus. The results of such an economy are obvious from the transformations that he made to the city of Rome proper—the rebuilding and improvement of so many public buildings do not come at a low cost. Increased trade revenues as well as the spoils of conquest funded the infamous 'city of marble' of which Augustus was so proud.[6]

This thesis frames its exploration of trade in the Augustan period by taking into account two important factors. First, one needs to recognise the interconnected nature of land and ocean trade. Every ocean route, despite its name, incorporated *some* land travel both before and after the naval journey (and sometimes between two distinct sea journeys): products must be gathered from their various places of production into one port from which the ship sets sail, and the reverse is true once the product arrives at its destination. For example, Rome's export products came from places as far as Gaul and the Spanish provinces, and yet most were actually shipped off from Alexandria or Puteoli.[7] There were dedicated spice routes from India for which nearly half of the time (but not the distance) was made up of road travel.[8] Fortunately, most of Rome's

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[5] The rubric by which this thesis measures 'the economy' (a modern term) is based on Bowman and Wilson's 2009 framework of production-distribution-consumption.
[6] See Duncan-Jones 2006, 12 for trade revenues going to public goods; Suetonius, *Divus Augustus* 28.3: *ut iure sit gloriatus marmoream se relinquere, quam latericiam accepisset*.
[7] Gaul was especially famous for its pottery (Holleran 2012, 25) and Baetica Hispania was a heavy exporter of wine (Koeck 2020, 214). Spain was also the Empire's main producer of oil (Garnsey 1978, 240).
[8] Miller 1969 gives a detailed explanation of the roads upon which spices travelled and includes a helpful map that illustrates ways in which the routes could branch depending on which stopping points the traders wished to make.

trade routes contained ocean travel at some point, and so will be able to be discussed here. Local trade that relied only on roads, as well as the famous ancient Silk Road from China, which had their own unique features, therefore fall outside the scope of this study.

Second, there was less of a distinction between state-driven trade and private trade in Augustan Rome than there is in the modern capitalist economy. Merchants were shipowners who also had access to warehouses (*horrea*), whether purchased or rented.[9] Sometimes they were the ones to strike business deals with manufacturers or at emporia, but usually they sent hired negotiators (*magistri*) in their stead, making it easier for them to oversee their entire business from their base of operations.[10] They would then sell to anyone with whom they were able to make an agreeable deal, but there were times when the government hired them to secure specific goods, especially when it needed them in bulk.[11]

The Republican State of Affairs

During the late Republic, before the Roman invasion of Egypt, certain private moneylenders had a system in place to keep track of their debtors and outstanding payments. The Sulpicii were one such family who stored their archive at Puteoli, where they presumably owned property. They kept two copies of each receipt, which contained the name of the debtor, due dates, and payment information. Upon completion of repayment, one of these copies would be given to the former debtor, so that neither party would be able to make a false claim against the other.[12] However, in light of the customs dues that became a defining feature of the early imperial economy, receipts

[9] The *horreum Galbana*, for example, was home to vendors who rented individual chambers from which they could sell their goods directly out of storage: Holleran 2012, 74.
[10] Kessler and Temin 2007, 319.
[11] Rickman 1980b, 269; 1980a, 32.
[12] Therefore, most of the extant receipts that have been found have only one copy, as the other would have been given away and may not have survived: Candy 2019, 75-76. If it did, it would have been preserved in a context that centred far less (if at all) on archiving financial documents and could easily have been overlooked.

for long-distance trade started to be issued as well. Related is the idea that new laws began to be passed in the early Empire that were related to the ones from the Republic, but skewed much more noticeably towards trade and large-scale economy rather than private enterprises.

Under the Republic there were two types of similar agents who contributed toward private trade: *negotiatores* and *publicani*. The former had direct contact with producers and providers of goods in foreign places; they were also knowledgeable about where or from whom the best prices for specific goods were, though they were not based in any specific place.[13] The latter were static, usually focused on one province. Under the Republic, the *publicani* would enter a bidding war each year for the right to oversee taxation contracts in their province (the exchange of money for taxpaying in return for a quantity of product that the citizens of that province had produced).[14] Their interests lay in collecting a specific resource, which they could then sell off at higher prices, thereby making back and exceeding the money they had spent on the auction.[15] Because only one *publicanus* could win the bidding war in each province, this resulted in a near-monopoly of the chosen resource, almost invariably resulting in higher prices. It also provided a putative source of corruption at a provincial level. It would certainly not have been uncommon for politicians to accept bribes, especially those outside the city of Rome, where it would be far more difficult to catch and prosecute them. If the winning *publicanus* was especially greedy, he might also artificially inflate the price of the product on which he held a monopoly much higher than he needed to turn a profit. Under this structure, regulating corrupt governors and *publicani* was difficult for the Senate.

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[13] Holleran 2012, 81. The author also mentions that provincial governors, who often subsidised missing resources out of pocket, made an effort to stay within the good graces of the *negotiatores*, lest they be deliberately misled.
[14] Kessler and Temin 2007, 315.
[15] Bang 2007, 45; Kessler and Temin 2007, 318.

Similarly, large-scale trade was far more divided under the Republic than it became during the Principate. Wealthy families or specific offices often controlled a large portion of the trade for a specific product. For example, the Peticii made a name for themselves exporting wine from their vineyards to Roman territory in North Africa.[16] The quaestor at Puteoli, in addition to his other duties, was also directly responsible for ensuring gold and silver were not illegally exported from his city.[17] As with the monopolies held by *publicani*, responsibility for the entirety of a product or region by a single person (or small group) could lead to artificially inflated prices, favouritism for certain consumers, or other forms of corruption. Under the Principate, it is important to note, these people did not necessarily lose their privileges or power, but the market was far more accessible for anyone wishing to partake: there were far more vendors than there had ever been, which meant there were far more sources from which consumers could buy their products. Those making money off sales (though not necessarily doing the selling themselves) would be forced to undertake less exploitative business practices or risk losing their customers to the ever growing number of other vendors.

Trade routes during the Republic, while expansive, were limited mostly to the Mediterranean Sea and the lands immediately next to it. Certain longer routes, such as those into the Pyrenees, were conducted by land (ox-driven carts, mules) or by narrow rivers.[18] For the most part, however, Rome relied on secondary trade to extend their import and export range past the Mediterranean Sea: they sold to merchants of peoples within easy reach, who then went on to sell their products further to the east.[19] The same principle applied in reverse for imports.

[16] McLaughlin 2010, 156.
[17] Houston 1980, 162. More recent scholarship by Pina Polo and Fernandez indicate that this practice is most notable in the case of P. Vatinius, who was later criticized by Cicero for overzealousness. Nevertheless, the regulation of port trade seems a reasonable and significant duty for the *quaestor* of a port city to undertake.
[18] Koeck 2020, 221.
[19] Thorley 1969, 217; Young 2001, 90.

Major changes during the Augustan Period included the addition of new trade routes accessible only by sea, a shift towards free-market practices, and the first age of peace Rome had experienced in decades. Roman traders took advantage of all of these factors to initiate a period of sustained economic stability and expansion, which led to a higher quality of life for many Romans. Those most affected were people who had already been wealthy during the Republic, but some lower-class Romans also received benefits, leading to the emergence of a new 'middling class'.[20]

Chapter One will discuss some of the new imports and exports available thanks to the new maritime trade routes which centred on the Red Sea, Indian Ocean, and Persian Gulf.[21] With an understanding of some of the new products available to the Roman people, it will be possible in Chapter Two to detail the laws and infrastructure established to support this extended trade network. Chapter Three will then explore how these interconnected aspects improved the Romans' quality of life based on demonstrable phenomena in literature and archaeological remains. These three factors combined can shed some light on the large role maritime trade played in a successful economy (and empire) under Augustus.

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[20] Holleran 2012 explains that this group of people was not a true 'middle class' as defined by modern economics, but instead a section of the population which increased their consumption of luxury and imported products. Other than increased buying, these people lived the same way of life as the plebeians: no additional or extravagant properties, the same occupations, and mixed family backgrounds (39).

[21] Despite debates over the name of this body of water, 'Persian' is used here instead of 'Arabian' in order to remain in keeping with ancient sources; additionally, the *Periplus* refers to the Red Sea as the Arabian Gulf. 'Persian Gulf' avoids confusion in that regard as well—in this thesis, neither body shall be called 'Arabian Gulf.'

CHAPTER ONE

IMPORTS AND EXPORTS

The most important change that occurred in the Roman economy during Augustus' reign was the significant expansion of Roman trade in the East, which featured the introduction of new products. This chapter will detail the three new trade spheres to which Rome gained access thanks to the newly acquired province of Egypt: the Red Sea, the Persian Gulf, and the Indian Ocean. Rome (through Augustus) entered into trade agreements with nations within these trade spheres, which allowed for the import of new products. Their form and functions are important to understanding the changes brought about to the Roman way of life. Following the section of imports will be an examination of the new ways in which Rome exported her goods, both those which were available during the Republic and those that became accessible only after the conquest of Egypt. It is important to note that old trade routes, such as the ones to North Africa and Greece, were not forsaken in favour of the new. Instead, Augustus built new trade in order to strengthen the existing (and newly enhanced) old trade facilities.

New Routes

During the Augustan age, the Romans came to control six ports on the Red Sea: Aila, Arsinoe, Berenike, Myos Hormos, Nechesia, and Philoteras. However, not all of these ports boasted significant amounts of activity. Aila and Arsinöe, though they had been established for centuries, did not flourish until the mid- and late-Empire respectively.[22] Philoteras was both smaller and witnessed less traffic than Myos Hormos, which lay slightly to the north of it. Though Pliny the

[22] Sidebotham 2016, 131-133.

Elder mentions it with the other Egyptian ports ('soon is the little town of Aenum—some write of this by [the name] Philoterias', Pliny, *Historia Naturalis* 6.52), excavations in the early twentieth century have revealed that its natural harbour was far less accessible than that at Myos Hormos and that there were no artificial port structures.[23] Nechesia did experience her peak in activity during the first century CE, but was not among Rome's commercial ports. Instead, it acted as a way station for ships that needed to dock between Myos Hormos and Berenike.[24] These latter two were the core of Red Sea trade even before the Roman takeover, both founded by the Ptolemies to facilitate large volumes of elephant trade.[25] Their activity waned near the end of the first century CE due to new, quicker land routes through Parthia from the East.

The town of Koptos, though not a port, was just as important to the Red Sea trade route as the seaside towns. It acted as a gathering point for the goods received at both Myos Hormos and Berenike before they made their way to Alexandria to be redistributed.[26] Most of the goods received through the route were from the Arabian peninsula, the Indian subcontinent, or from elsewhere in Africa, but the Red Sea was not the only means of transport these goods had.[27] Indian goods, the same as those which Rome was newly able to access overseas, also travelled on overland routes through Parthia and the western half of Asia. This occurred in part because Parthians would also have been interested in such products; therefore, this overland route was an efficient way to serve the Parthian market and those that lay beyond it. However, thanks to the sea routes, Indian goods such as cinnamon and black pepper became much more abundant. Not only were Romans able to buy directly from Indian merchants (negating the cost of the middle-

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[23] *mox oppidum parvum est Aenum - alii pro hoc Philoterias scribunt*. See Murray 1925, 142 for excavations at Philoteras.
[24] Ibid., 150-152.
[25] Tomber 2012, 203.
[26] Cobb 2015, 375.
[27] Thorley 1969, 209.

man), but they were able to buy in much larger quantities, since now they could freely negotiate without the Parthians' interference.[28] Moreover, the Parthians were not keen on having Roman traders near or inside their borders. While they allowed Indian traders to pass through, there was no guarantee the products the Romans wanted would still be available by the time these traders had left Parthia. Therefore, the Egyptian ports allowed Rome to remove this potential trade complication.

Aside from the Egyptians, there were three groups of highly influential people on the shores of the Red Sea: the Ethiopians, the Axumites, and a subset of the Arabian people known as Himyarite-Sabaeans.[29] The presence of foreign ships on the Red Sea waters made trade more complicated for the people living in Egypt, though there is an ongoing scholarly debate as to the nature of these complications; competitive prices, cross-border rivalries, and privateering (piracy committed by sailors that had been hired by another nation) could all have been causes.[30] No matter the exact nature of the cause, Augustus and his delegates took action through various representatives in order to ease the complications for Rome's newest province.

For example, in the years leading up to 21 BCE, Cornelius Gallus, the governor of Egypt, was urged to undertake negotiations with the Ethiopians on Rome's behalf. The terms were clearly favourable for the Romans: Ethiopia gained Rome's military protection, but in return they agreed to stop impeding trade on the Red Sea and sacrificed a portion of their territory to be added to the Roman province.[31]

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[28] Thorley 1969, 219; McLaughlin 2010, 1.
[29] Ibid., 211.
[30] See Ibid., 211 for competitive prices; McLaughlin 2010, 70 for privateering and raiding. Thorley 1969 does not explain why the mere presence of other nations made trade more difficult, so the causes listed above are speculation. However, they do seem extremely likely, especially considering the additional ongoing scholarly debate as to the lengths the Arabians went in order to protect the trade monopoly that they held during the first century BCE.
[31] Again Thorley 1969 is vague: he mentions that the terms were settled after some 'small altercations' (211). One might speculate that the Ethiopians preferred the partial sacrifices they made over being completely invaded and subjugated by the Romans.

Gallus also led an expedition into Arabia (c. 24 BCE) under Augustus' urging, which resulted in overall better trade conditions for the Romans, though the reason for this journey is hotly debated. Originally, scholars such as John Thorley thought that the Arabians were taking malevolent actions against the Egyptians (and anyone else trading along their coasts) in order to protect their monopoly on Indian goods and accused them of keeping secret the monsoon-sailing techniques so that no one would be able to sail directly to India and thus undercut the Arabian prices. Such scholars also believed that the Arabians purposely tried to stop Egyptian ships from reaching India even during the Augustan period in order to protect their ability to sell Indian goods to the Romans at higher prices.[32] Scholars therefore surmised that Rome took military actions against the Arabians in order to protect its newly-acquired province and trade interests.[33] In recent decades, however, other scholars have argued that it was an expedition to attempt to survey the goods available in the area and negotiate Roman acquisition of these products, rather than an invasion.[34] Naturally, a military escort would have been necessary in case the negotiations turned sour.

The Indian Ocean trade routes centred—as their name suggests—on goods from the Indian subcontinent, which was a diverse region with access to many luxuries and products hitherto not easily accessible by the Romans. Before Augustus' reign, Romans had access to goods from India, but they received them from the Arabians, who were able to use the monsoon winds in order to reach India and return faster than would have been possible for the Romans.[35] Egyptian traders also knew how to sail using monsoon winds, but they used a different method

[32] Thorley 1969, 213. This theory has been disproved by Cobb 2019.
[33] Thorley 1969, 211, 213; Miller 1969, 15.
[34] Young 2001, 91.
[35] Thorley 1969 213.

than the Arabians did; theirs had been discovered by the Greeks during the second century BCE.[36]

India boasted three major ports during the first centuries BCE and CE: Barbaricon, Barygaza, and Muziris.[37] Through Augustan Rome's consistent friendship with India, all three of these ports eventually connected to the Egyptian Red Sea ports, giving Rome a multitude of access points to India.[38] Though he does not offer the specifics of negotiations, Augustus expended much effort in creating a more detailed trade agreement with India. He mentions in his *Res Gestae* that ambassadors were sent to him often and he emphasizes the fact that he was the first of the Roman leaders to have this privilege: 'Representatives of the kings were often sent to me out of India, never before having been seen beside any leader of the Romans' (31.1). [39] Clearly, with repeated overtures to Rome, it was just as important to the Indian kings to maintain the newfound trade relationship between the two nations. Aside from the newly connected maritime routes from Indian to Roman territory, there appear to have been other benefits to their treaty .

According to Strabo, trade from Egypt to India drastically increased under Roman rule: in his *Geography* he mentions that 120 ships left Egypt annually for India, whereas under the Ptolemies there were only a few: 'I learned that as many as one hundred and twenty vessels were sailing from Myos Hormos to India, whereas formerly, under the Ptolemies, only a very few

[36] Cobb 2015, 364.
[37] This last of these is famous for a preserved receipt of Roman goods, but this is from the secondary century CE (Ibid., 369).
[38] Ships out of Muziris went straight across the Indian Ocean towards Myos Hormos, but ships out of Barbaricon and Barygaza detoured through the Persian Gulf. The ships from Barbaricon even travelled up the Euphrates for some distance: Miller 1969, 143.
[39] *ad me ex India regum legationes saepe missae sunt, nunquam antea visae apud quemquam Romanorum ducem.* Commentary by Frederick Shipley indicates that these visits happened near the beginning of Augustus' reign (26-20 BCE) and took place primarily at two locations: Hispania and Samos. It is likely that *saepe* is an exaggeration on Augustus' part, as evidence for more than two visits is tentative (Cooley 2009: 250). That being said, regular correspondence between leaders is certainly not out of the question.

ventured to undertake the voyage and to carry on traffic in Indian merchandise' (2.5.12). It was not only Egypt that was able to increase its traffic to India: Augustus' actions also allowed easier trade between India and Greece (also a Roman province at the time). Greek cities had access to goods that Egypt did not, which gave the Romans further options for exports.[40] The Greek island of Delos, for instance, was particularly known for perceived high-quality of its slaves; foreign slaves were considered a status symbol in most ancient nations, so these would have been in high demand in India.[41]

Unlike the settlement with the Ethiopians, the relations between Rome and India were mutually beneficial. Material remains of Indian-style vessels at Myos Hormos show that repairs took place there for Indian merchants as well as Roman ones.[42] The two nations had different ways of building ships, meaning that Myos Hormos would have needed to house builders who had been specifically trained in the Indian method of shipbuilding: using the builders who were already there and built ships the Mediterranean way would not suffice.[43] To reflect the new volume of Roman-Indian trade, Augustus commissioned specialty merchant ships with larger holds, which—using the monsoon winds—were able to sail directly to India with only a single stop en-route.[44] It is worth noting that most of the Egyptian repairs concerned the hull and rigging—a far more rigorous task—while repairs on the sails of ships were more commonly done in India.[45] This shows that the Egyptian work was of a high enough skill level to merit building a port around the very industry.

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[40] Miller 1969, 179.
[41] Bang 2007, 44.
[42] Ross 2011, 180.
[43] Mediterranean ships were built shell-first, with the skeleton added afterwards; this type of ship required less planning than skeleton-first ships, which India used: Greene 1986, 20-23.
[44] Miller 1969, 14.
[45] Whitewright 2018 and Ross 2011 both discuss hull and rigging repairs at Myos Hormos. Indian sail repairs can be differentiated from Egyptian and Mediterranean repairs even when remains are found off-site because Mediterranean repairs used linen in the sails. Egyptian and Indian repairs both used cotton, but Egyptian cotton was

Once regular Roman-Indian trade was established, a schedule accompanied the agreement, making use of the aforementioned monsoon winds. The southwesterly monsoon was active from June to September, so India-bound ships left Egypt anywhere from late July to the first week of September; the monsoon winds flowed the opposite way from December to March, so the northeastern return trip happened during that time.[46]

The high numbers of luxuries that came out of India were far more valuable than most products the Romans could offer in return, so the bulk of Indian transactions were paid for in coin.[47] Unfortunately, the types of coins from each era in Indian hoards cannot be used to determine the volume of trade, because even into the second century, Indian traders preferred to be paid in coins from the early Julio-Claudian era due to their greater purity. From this, one can infer that the coins were used as bullion, rather than being redistributed as currency.[48] Since gold and silver were not among Indian trade goods, this seems to be a reliable source of obtaining it, although it is unclear why the Indians would not simply trade with Rome for raw metals, since they were among Rome's exports.[49]

Although the furthest from Rome, the Persian Gulf was the single body of water among the three discussed that was full of Roman commerce even before the reign of Augustus.[50] The Palmyrenes, a semi-independent group of tribes that lived in the area (though not directly on the coast), participated in this trade chain by receiving Roman goods and passing them on; the Romans did not export directly on the Gulf, but they were visited by traders who came directly

different than Indian cotton (Whitewright, 154). Ross 194 mentions that Roman sails began to be made of Egyptian cotton after Egypt was added to their territory.

46 Cobb 2019, 22.

47 Thorley 1969, 223.

48 Cobb 2015, 385. He also suggests that the Indians were more familiar with the weights and measures of the old coins, so they would be guaranteed to be fairly compensated.

49 Miller 1969, 205; Cobb 2019, 22.

50 Cobb 2015, 368.

from there.[51] Around the time of Augustus' accession, the tribes of Palmyrenes began to organize themselves into a united nation.[52] Though the Romans were not directly involved in this process, they still needed to respond to the changes that their trade partners were making: Palmyrene tribes no longer lived on the coast, having gathered around the oasis of Tadmor, which became their main urban centre of Palmyra, but Augustus had sent scouts into the Persian Gulf.[53] Since the waters were now known, Rome was able to trade directly on the Gulf and did so with the port of Charax, capital city of Characene.[54]

The Persian Gulf was one of the naval routes to China, upon which Rome depended for its silk. The principal route was, of course, the famous Silk Road, which was entirely land-based, but one of the alternative routes entailed at least partial sea travel: goods moved across the Persian Gulf after having passed through the Indus Valley and roads in northern India.[55] Palmyra was an important stop for this silk. Here, local artisans reweaved the silk with linen or wool before passing it along to the traders who would bring it to the Gulf proper.[56] Pure silk was far too expensive to obtain in the volumes necessary for trade: by reweaving it with other, coarser fabrics, the Palmyrenes were able to sell more of it at the prices befitting silk. As such, the Romans received this impure form of silk for their garments, but still paid luxury prices for it, since they favoured it above all other dressmaking fabrics.[57]

Late in Augustus' reign (likely after 10 CE), Palmyra and its surrounding territory was incorporated into the Roman Empire, having become part of the province of Syria.[58] Not only

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[51] Ibid.
[52] Young 2001, 123.
[53] Thorley 1969, 212.
[54] Young 2001, 128.
[55] Thorley 1969, 215. The other partly naval route made use of the Caspian and Black Seas.
[56] Ibid., 217. Petra and Antioch participated in the reweaving as well. Palmyra is used as an example above because it has already been shown to be deeply connected to the Persian Gulf trading sphere.
[57] Miller 1969, 137.
[58] There is a small possibility that this happened early in Tiberius' reign: Young 2001, 123.

did Rome now have direct control over the silk-processing centre, but due to Palmyra's efforts to make herself relevant along the trade route, Rome also now had control of a popular stopping point for wealthy merchants who took part in trade in the area.[59] Because of this, Rome would have paid less for the modified silk from Palmyra; it would also receive taxes from the region, increased by the high revenues from shopping and lodging. Thus, adding Palmyra an already-existent Roman province caused a huge benefit to the revenue from the Persian Gulf area, even if the city itself was not on the water.

Imports

New trading partners guaranteed new types of goods of which the Roman people could make use. Each area had its own specialty goods which introduced a new aspect into Roman living. The Red Sea and surrounding areas were excellent for ivory and live animals, but also precious stones for jewellery making. From India and nearby places, came wood, spices, and a collaboration on ship-building and repair. Near Southern Arabia and the Persian Gulf, Romans were able to acquire ceremonial reagents and persuade the merchants themselves to make trips to Roman territory. Medicines, fabrics, and slaves came from all three regions.

Trade across the Red Sea and through its ports would naturally heavily feature, but not be limited to goods produced in the places on and near the Red Sea's shores – Egypt, Libya, Ethiopia, and eastern India most prominently. South of Libya and north of Ethiopia (that is to say, Ethiopia separated the two regions) lived people whom the Greeks referred to as Βάρβαροι, and the name carried over into the Latin naming convention so that the regions were known as

[59] Before the city of Palmyra was founded, the oasis of Tadmor was not a regular stopping point along the trade routes in the region. It is speculated that the Palmyrenes made a distinct effort to change this, using the oasis as a draw (Ibid., 125).

Barbaria (the land of the Barbaroi). The Romans made use of many of these 'specialty products' and those uses were made much easier by the new direct access to the Red Sea.[60]

Large animals, particularly elephants and rhinoceroses, were common near Adulis and north of it, slightly more inland (*PME* 4). Romans used elephants as war animals, having learned of their utility from the Hannibalic War. During Claudius' invasion of Britain, for instance, he used an elephant (Cassius Dio 60.21).[61] Due to the presence of Roman territory on the Red Sea, Romans had a much more direct avenue for obtaining elephants. The elephants living adjacent to Egyptian territory were much larger than those that had already been accessible near the former Carthaginian territory, thus more desirable for combat.[62] In addition to war, elephants were used by Romans for entertainment (*venatio* combats); rhinoceroses were also a popular choice for these events.[63] The rate of rhinoceros acquisition was able to increase after Rome's incorporation of Egypt, but most likely would not have. Certain patricians in the Late Republic and emperors following Augustus sponsored games more than others, but this was a product of the political climate more than a reflection of the economic situation. Nevertheless, once introduced, these animals became a popular and desired feature of the games, and Augustus' new routes secured a steady supply.

Both elephants and rhinoceroses were 'luxury' goods in another respect: Romans coveted both for their ivory, which they used to make ornamental pieces such as diptychs, usually celebrating a personal event like a wedding or formal dinner. On the Red Sea across from the

[60] 'Specialty products' are the present author's emphasis, designating a shorthand form of 'products which are available exclusively (or mainly) along the shores of the Red Sea'. The designation would work for other places as well, provided that place is specified.
[61] καὶ παρασκευή γε ἐπὶ τῇ στρατείᾳ πολλὴ τῶν τε ἄλλων καὶ ἐλεφάντων προσυνείλεκτο ~ 'extensive equipment, including elephants, had already been got together for the expedition'.
[62] *Loxodonta africana* in the Red Sea region versus *loxodonta cyclotis* in North Africa. The latter were those used by the Carthaginians and are now endangered. See Charles 2014, 115.
[63] Elephants were more common, at around 3,500 killed in the games during the Augustan era, but all manner of exotic animals were used to produce a notable spectacle: Woolf 2005, 397.

city of Adulis are islands from which turtle shells are harvested (*PME* 4). These were used to make lyres, which featured at parties and festivals. In Avalites in the southern half of Barbaria, there were many vendors of precious gems and glass ornaments, which were coveted for jewellery (*PME* 7). Opone, near where the Red Sea opens to larger bodies of water, was an optimal place to obtain 'mightier slaves' (δουλικά κρείσσονα, *PME* 13); the anonymous *Periplus Maris Erythraiae* does not specify in what ways these slaves are better, but it is reasonable to infer that they were proficient in more complex skills.[64]

Once direct trade contact was established and *stabilized* between Rome and India, Romans began to receive woods besides ebony from their new trade partners. This is most obvious through the remains of shipbuilding sites, though again on the Red Sea shores rather than on the Indian Ocean shores, simply because Rome had no territory in the latter place. Where before the main materials used to make Roman ships were teak and African blackwood, Indian wood began to make an appearance in ship remains at Roman ports.[65] At Myos Hormos, for example, ships were made with wood exclusively from India and surrounding regions, but were still built according to the Mediterranean method, while at Berenike wood from both trade spheres were used together in the same ships.[66] Such was the level of co-operation that

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[64] The primary definition of κράτυς (comparative = κρείσσως) is 'strong,' but more nuanced definitions of the comparative includes meanings such as 'master of,' 'superior,' and 'morally better': HLR, Liddell, and Scott. Many Roman-owned slaves acted as teachers for young children, and there were several who used their skills to contribute to their masters' businesses as artisans (Temin 2006, 142; Holleran 2012, 28 specifies jewellers). A 'morally better' slave might be educated in philosophy and thus more trusted for the art of pedagogy; anyone well-versed in a craft could reasonably be called a 'master' of the craft. κρείσσονα is an inherently comparative word, though, so no matter the specifics of these slaves, they were more adept than the usual stock of which Romans made use. However, use of the word κράτυς in its base form probably does refer to physical strength here, since Greek-born slaves were preferred for child-education.

[65] Thomas 2011, 186.

[66] Whitewright 2018, 144. Greene 1986 discusses how it is easy to determine which ships were built using which technique, even with minimal amounts of hull remains. Because Romans built their ships shell first, they attached the planks by fitting thin pieces of wood (tenons) into grooves on the sides of the planks (mortars) and attaching them with wooden dowels and copper wire—thus, the planks did not overlap (21). In skeleton-first ships, of which India made use, the planks which made up the shell were nailed directly to the skeleton, but not attached to each other along the whole length of the plank. The shell planks also overlapped slightly (23).

standardized sizes for brail rings (used in rigging) developed, though it is doubtful that this was intentional rather than a product of convenience.[67] Then again, since ship builders with knowledge of both building techniques were employed at the Romano-Egyptian ports, it is possible that they worked to find common ground between the two techniques and incorporate universal elements into their designs.

Collaboration on ship design and repair affected both parties. Repairs to merchant ships could be made at either end of the ocean voyage, ships better designed to withstand specific Indian Ocean (and monsoon) sailing conditions would have been more reliable in delivering their cargo, and the personal rapport achieved between the sailors and shipbuilders from both cultures would have helped to create a more co-operative industry. The influx of wood at Myos Hormos and Berenike (old parts from ships needing repairs) was used to reinforce buildings already at the settlements.[68] These recycled pieces were much needed, since there was a shortage of pieces of wood suitable for shipbuilding or house construction in Egypt's natural deserts.[69]

Frankincense, which was used in the production of incense for religious purposes, originated in Arabia, specifically in the very south of the peninsula.[70] Previously, the Romans' main source of these plants were the Nabataeans, who would have sold it at a higher price in order to turn a profit.[71] Gary Young speculates that Gallus' Arabian expedition (see above, page 14) was for economical purposes in an attempt to negotiate a more direct way for Romans to obtain incense materials, while Strabo believes the emperor's actions were more benign: Augustus simply wanted to include Arabia in the lucrative trade of which Rome was a part.[72]

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[67] Whitewright 2018, 160.
[68] Ross 2011, 179.
[69] Ibid., 185.
[70] Tomber 2012, 205.
[71] Young 2001, 82.
[72] Ibid., 91; Strabo *Geography* 1.2 or 16.4.

Since incense was associated with both divinity and royalty, the city of Rome would have needed ample amounts for the multitude of religious festivals it held each year, which increased under Augustus as he made a serious effort to rebuild temples and maintain cults.[73] This religious movement evoked the high moral standard that had supposedly existed during the Middle Republic.

Moreover, the relationship between Rome and some Arabian kingdoms later in Augustus' reign did not reflect two nations who had been at war over so petty a cause as withheld knowledge. Augustus sent gifts of goodwill to Arabian ports, and the two nations held a special trade partnership.[74] It is entirely logical that Augustus would want to preserve a friendly relationship with Arabia, since it was one of the five principal spice regions.[75] Once luxury goods began to flow from Arabia to Rome, it would have been a practice that neither Augustus nor the populace would have wanted to stop. This relationship was not one-sided. There is ample evidence for the regular usage of Egyptian trade routes by Arabian traders. Along the road from Myos Hormos to Koptos, for example, traders identified themselves with ostraka and papyri that Egypt's dry climate has preserved.[76] Some of Arabia's coins actually featured Augustus' face: such an honourable gesture would not have been undertaken by a nation who felt bitterness, or even ambivalence towards the ruler of another.[77] And to maintain the open communication between nations, Arabia sent frequent ambassadors to Rome.[78]

Material remains provide evidence for continuous trade with Arabia, especially for the second through fifth centuries CE, where much of the pottery found in the Arabian Peninsula

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[73] Potter 2014, 182.
[74] Miller 1969, 14.
[75] Along with China, India, East Africa, and the Roman Empire itself. However, each region had distinctive soil and climate conditions, which meant that what grew in one region could not grow elsewhere. Ibid., 32.
[76] Cobb 2019, 20; Gates-Foster 2012, 740.
[77] Ibid., 32.
[78] Ibid.

comes from deep within Roman territory.[79] This shows that even long after Augustus' time (and the reign of his dynasty), the trade connections he built with the Arabian peoples continued to be a significant part of Roman trade and a reliable source of income.

Exports

Wine, metal, pottery, and olive oil were Rome's main exports. Each of these goods was traded to multiple places, a prudent decision on Rome's part to avoid ever having a lull in demand. Because most of these products were practical rather than luxurious, Rome was able to produce and sell them in bulk. Their usefulness also dictated a high value when in such large quantities, which made the various luxuries discussed in the previous section possible to import.

First and foremost, wine was Rome's most common export, though the way it was exported changed during the early Principate. Prior to the final century BCE, most Roman wine came from Italy: a good deal of it was sent to soldiers on the front lines in Gaul and Northern Europe, while the rest was sent to Ostia for transportation across the Mediterranean.[80] Much of these exports were, in turn, sent to Greek territory in the Aegean and along the foreign (non-Roman) shores of the Mediterranean, as indicated by the large quantity of wine amphorae found in these locations.[81] Under the Principate, wine production and distribution changed. Italian wine was still sent in large quantities to Greece and other Mediterranean locations, but Gaul was now under Roman control. This region too had high capacity for winemaking, and so Gallic wine began to feature heavily among Rome's exports.[82] Gallic wine then found heavy favour with

[79] Cobb 2015, 373.
[80] Martin 2003, 109.
[81] Bang 2007, 43 discusses that wine exports to Greece were important to secure tribute from the province.
[82] During the Republic, Romans would have some limited access to Gallic wine, since it would have been a spoil of war. This was not an issue once Rome governed Gaul as a province. See Martin 2003, 108 and Bang 2007, 42-43 for the integration of Gallic wine.

Italian locals, while the Italian wine that the Romans used to send to soldiers in Gaul they instead directed to Berenike for export further East by the Red Sea and adjoining bodies of water.[83]

The shipping of wine was a matter which could be handled in a variety of ways, but the first step was always to provide appropriate amphorae in which to store it for travel. In Central Italy, vineyards—often one part of a larger property—pressed and stored their wine on site, with amphorae ready to be used for the finished product. One way to facilitate this was to have a pottery workshop on the same property.[84] Despite amphorae being designed for shipping, wine was not always carried across large bodies of open water in these ceramic containers. Beginning in the Augustan period, some ships contained *dolia*, which were cavities built into the ship itself.[85] The *dolia* did not occupy the entire ship, but other cargo often filled the hold. In many cases, low-quality wine was stored and transported in the *dolia*, while higher-quality wine was transported in amphorae alongside it. The rationale for this was probably that finer-quality wine would be purchased in smaller quantities and came in a well-made container, while the large quantities of cheap wine would likely be stored in coarse pottery once they were sold.[86] The largest trade ships during the Augustan era could hold around 12,000 amphorae of wine, but for smaller ships, *dolia* may have been the only way to transport enough wine to meet the needs of the end consumers, since more wine can obviously be carried if it is transported in fewer containers.[87]

As the journeys that Roman wine took became longer, there became a greater need to preserve the wine at sea. Like the Greeks, Romans did not drink their wine pure, instead heavily

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[83] Sidebotham 2011, 232; Gates-Foster 2012, 742; Peacock, Williams, and Jones 2007, 62.
[84] Lowered processing costs (for instance, not having to order the containers or transport the wine in bulk before it could be 'bottled') lowered the price for end consumers as well: Greene 1986, 96.
[85] Essentially, a large pool in which one could transport wine. See Rice 2016, 177 for Augustan *dolium* find (Grand Ribaud D wreck); Marlier 2008, 153 and 158 for capacity of Augustan *dolia*-bearing ships.
[86] Rice 2016, 178.
[87] Pomey and Tchernia 1978, 236 for largest ship capacity; Marlier 2008, 170 for *dolia* on small ships.

diluting it with water. This meant that the most effective preservative at the time, salt, could be added to wine without spoiling the taste.[88] This was not new knowledge, but without it access to markets further abroad would have been far less impactful.

In addition to the obvious monetary benefit from sending wine long distances into the Indian Ocean area, the Romans also used Indian trade to improve their wine recipes, thereby allowing them to sell better wine at higher costs and receive more of the luxuries for which they had begun trading. In fact, even the cheapest of Roman wine was popular among the Indian elite.[89] Black pepper was the most common import Rome received from India, so much so that it was not priced as a luxury the way other spices may have been.[90] With such easy access to pepper, Romans could begin experimenting with it, including adding it to their wines, perfumes, and incense. This could come about in two ways: either the pepper was added directly to the wine in order to enhance its flavour, or the spices that were intended to make a certain perfume (often including pepper) would first be soaked in wine before they were added to the perfume vat.[91]

Metal ores and concrete were also common export products, as the places Rome traditionally traded with for 'luxury' products (for example, gems, spices, exotic animals) lacked more 'practical' resources. Rome's vast territory also encompassed some of the most bountiful sources of metals, such as the Carthago Nova and northwestern Spain regions; both of these were integrated into Hispania Citerior by Augustus, possibly to ensure access to larger quantities of metal for building and improvement, but the importance of trade quickly eclipsed these other two

[88] Sometimes seawater was used without extracting the salt first; either method is effective, since water was added to the wine before drinking anyway: Sidebotham 2011, 233.
[89] McLaughlin 2010, 51.
[90] Thorley 1969, 219 mentions that by 20 BCE pepper was a staple good and could easily be obtained at any Roman market; Sidebotham 2011, 223 calculates the price of pepper at 4 *denarii* per pound near the end of Augustus' reign.
[91] See Miller 1969, 2-4 for different types of spice usage and perfume additives. See Sidebotham 2011, 226 for direct additives to wine. See Thorley 1969, 218 for other common wine and perfume spices.

purposes.[92] Military campaigns which were resolved during the last years of the Republic secured additional sources of metals, but the years of civil war meant that large quantities of these new metals were being used to forge weapons and coins for each side. Weapon and coin forging was still necessary under the principate, but Augustus' implementation of a permanent standing army reduced the number of new soldiers enlisting and needing to be supplied, while he also no longer had to compete with Antony or the consuls to mint coins that would effectively convey his ideals.[93] Metal export was such a large source of revenue in the Augustan era that Andrew Wilson and Alan Bowman name the discovery of several new mining sites as 'pivotal for economic growth'.[94] More mining sites meant more types of metals and more ore being smelted simultaneously. Increased quantity and diversity of export goods would in turn allow for this same increase of import goods. Metal is singled out as the most important of these exports due to the relative lack of sources in places with which Rome traded.

Ownership of mining sites also played an important role in how metal export factored into the Roman trade economy. Beginning in the early Empire, mining sites—especially those dealing in coin-minting metals—began to be bought up by the wealthy elite, thus allowing their goods to enter the trade cycle (as opposed to being provided to Rome as tribute or plunder).[95] Because all internal Roman trade was private by nature (that is, independent agreements between buyer and seller without government mandated conditions, even if one of those parties did represent the government), an increase of metal ores on the market meant an increase that could be used as export, whether under an official trade agreement between Rome and another nation

[92] Orejas and Sánchez-Palencia 2002, 581.
[93] Romans took control of iron mines in the Pyrenees mountains and gold mines in the Spains: Howgego 1992, 7 and Koeck 2020, 214 near the end of the Republic and the beginning of Augustus' reign, respectively.
[94] Wilson and Bowman 2007, 65.
[95] Howgego 1992, 8.

or simply by a merchant carrying out their trade.[96] Not only was there greater access to metal products beginning in Augustus' reign, but those that had had a specific use before suddenly became available for sale. For example, Julius Caesar accrued a massive debt while funding his campaign against Pompey, borrowing heavily from his own soldiers in order to be able to march on Rome ('from the tribunes of the soldiers and the centurions he [Caesar] obtained many funds', *Bellum Civile* 1.39.3).[97] Thus, the gold ingots (bricks of metal rather than coins or other finished goods) in Rome's treasury, which may have been used for minting coins or trading bullion, were instead used to pay off Caesar's debts with no return product to show for it.[98]

The western coast of Europe—sometimes referred to as the western façade—began to rise in prominence in the tin trade during the first years of the Principate.[99] The main tin processing site was Gadir, which had once been a Phoenician colony.[100] Carthage, and by extension Phoenician territory, had been under Roman control for a long while before Augustus came to power, yet it was only after Augustus took control that the tin industry there became notable. There is little primary evidence as to what changes were made there, but there must have been some action that made trade more efficient, such as an improvement in facilities or negotiations with new trade partners in the form of other Atlantic coast colonizers. Cèsar Carreras and Rui Morais attest that the Augustan government worked closely with the city of Gadir in order to attract traders from the Atlantic Ocean, especially those from Baetica and Hispania, which resulted in increased exports from Rome's western provinces and economic growth of the receiving nations along the western façade.[101]

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[96] Bang 2007, 10.
[97] *a tribunis militum centurionibusque mutuas pecunias sumpsit.*
[98] Schwei 2020, 204.
[99] Carreras and Morais 2012, 419.
[100] Ibid., 421.
[101] Ibid., 436-437. As a result of the defeat of Sextus Pompey's forces—many of which included those labelled 'pirates' (*praedones*): *Mare pacavi a praedonibus. Eo bello servorum, qui fugerant a dominis suis et arma contra*

Considering that Augustus made changes to Myos Hormos and the Red Sea, it is not illogical to consider that he may also have taken similar actions in the Atlantic Ocean region. Bringing the whole economic system up to a single level of development that matched the city of Rome herself would be no easy feat, and some areas would require more work than others. Many of the Ptolemaic practices remained in Egypt and were simply restored to a more functional level than they had been at the end of the dynasty. Other regions, such as Gaul, may not have had the same cohesion due to its inhabitants living in smaller independent groups. After remedying the situation in Egypt and integrating it with the existing Roman practices, the Augustan government would then have been able to spread this idealized system to its other territories. The whole Empire thus benefitted from wide-scale improvements to infrastructure that facilitated trade, beginning with those actions taken in Egypt.

Some metal products, such as coins and raw ingots, were present in India even before Rome's direct contact with the nation, but this number increased significantly once the two empires were able to trade directly and more consistently.[102] Based on shipwreck evidence, metal ingots were often shipped with other household goods and often themselves used as bullion (stored raw wealth). For example, the Comacchio wreck, which was outfitted for coastal sailing, contained a cargo of lead ingots and sculptures, along with tableware, pottery, and decorative

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rem publicam ceperant, triginta fere millia capta dominis ad supplicium sumendum tradidi ~ 'I freed the sea from pirates. During that war of the slaves, who had fled their own masters and had taken up arms against the Republic, I handed over nearly thirty thousand captured ones to their masters in order to accept punishment,' by Augustus—the sailing route between Italia and Hispania was far safer for merchant ships, resulting in larger and more regular shipments: de Souza 1999, 201. *Res Gestae* commentary by Frederick Shipley indicates that the war mentioned was that against Sextus Pompey, since many of his naval forces were runaway slaves.

[102] Cobb 2019, 22. This discovery shows how far objects could travel by moving through overlapping trade spheres thanks to itinerant vendors, but Cobb provides little discussion about Roman trade habits. However, an increase in metal exported to India after direct contact proves that Roman metals were in demand and not simply bought due to their convenient presence in a travelling merchant's stock.

wooden boxes—all trinkets that would not be out of place even at a modern ‘household goods’ store.[103]

Much of Rome’s lead came from mines owned by Marcus Vipsanius Agrippa, whose performances at the Battles of Philippi and Actium cemented him as an invaluable part of the early Augustan regime. [104] He continued to prove his importance until his death in 12 BCE. In fact, Agrippa was heavily involved with Rome’s trade in a variety of ways. In addition to owning mines which provided the metal ore discussed above, he also owned a number of quarries (in Numidia and Anatolia) which produced stone, part of the building materials that were also among Rome’s chief exports.[105]

Aside from his stake in the private ownership of Roman mines and quarries, Agrippa also held an academic interest in trade, which is conveyed through his maps. Agrippa created a map of Roman territory which was displayed in Rome and is commonly believed to be one of Pliny the Elder’s sources concerning the naming of ports, roads, and waypoints relevant to Roman trade.[106] This is fortunate because it both reinforces the idea that Agrippa—and by extension Augustus—considered trade interesting and relevant, and demonstrates that locations discussed by Pliny were definitely of importance during the Augustan age; if structures or routes had been long abandoned, or were about to be discontinued, Agrippa would likely not have included them on his map.

Pottery was another of Rome’s most important exports: not only the coarseware in which other liquids were transported, but also fine tableware made in a variety of regional styles. In fact, in the site of Qana’ on the Arabian Peninsula, most of the excavated pottery from the mid-

[103] Rice 2016, 185; Parker 1984, 102.
[104] Dušanić 2009, 109.
[105] Ibid., 108.
[106] Cobb 2019, 30 states this explicitly.

first century BCE to the late-first century CE is Mediterranean rather than Arabian. Curiously, 'Mediterranean' pottery encompasses a variety of styles: while pottery shapes and styles were distinctly Italian, the most common material was actually clay from Greece and Egypt.[107] Thus, not only was the pottery trade heavily influential with Arabia, but it was also the result of multiple regions of the Roman Empire working together to produce an end result. To compensate for this massive outpouring of pottery, artisans needed very large workshops, and such remains have been found in common pottery-producing regions such as Gaul and Spain.[108]

Most of the pottery trade under Augustus came not from international trade, but from intra-empire, interprovincial trade. With a more stable supply of essential goods that would result from the new peace, the quality of life would have improved at least to a small degree, but surely enough to allow some citizens more time to devote to crafting, performing, or social leisure. The city of Rome was the priority, and there is overwhelming physical evidence that it received a staggering amount of continuous pottery import, largely in the form of containers for other goods. Monte Testaccio in the south of the city was an artificial hill created out of the remains of oil-storing pottery that could not be further recycled.[109] While it was quite significantly located in the capital, upon examination most of the pottery therein was discovered to have been made in Spain.[110] This is far from the only example where a collection of pottery was brought in from elsewhere in the Empire. Bracara Augusta, in Hispania Ulterior (present-day Portugal), was to the Atlantic Ocean trade what Puteoli was to the Mediterranean or Myos Hormos was to the Red

[107] Cobb 2015, 373.
[108] For example, the workshop at La Graufesenque in Gaul could fire up to 30,000 vessels at the same time in its massive kilns: Holleran 2012, 25. Obviously, this was not the workshop that produced most of what was found in Arabia as discussed above, but Rome exported pottery to multiple locations.
[109] Holleran 2012, 76.
[110] This trend began to change during the reigns of much later emperors like Marcus Aurelius and Lucius Verus, where Blázquez 1992, 180 offers detailed analysis.

Sea.[111] Much like the journey to Myos Hormos, the wares that made their way across Portugal to Bracara Augusta made several stops first, from which the trade route can be reconstructed.

Rome also partook in a closed trade route with Qana', meaning that these two terminals were the only stops on the merchant journey.[112] Yet, this does not break the rule that Roman trade was 'free market' trade, because it would still have been a special deal negotiated between two parties wherein goods were transported through the same channels and by the same agents as regular sales. Even where it concerns much easier goods to track (such as grain), the state itself did not purchase from its provinces. Any material gain received was due to tribute paid in goods rather than coin. On some occasions, this would still lead to shortages in certain provinces, but in those cases the aedile (or equivalent) in that province would pay for the remainder out of pocket, and to do that they would have to go through the same avenues as everyone else—the Roman 'free market.'[113]

Though its destination is unknown, the wreck of the Comacchio contained a significant cargo of coarseware pottery.[114] This is abnormal since there were so many other products on the ship; trends from other wrecks in the same period show that while pottery was the most common homogeneous cargo (a single type of cargo on the same ship, even if it comes from multiple regions), it is less likely to be among the products in a heterogeneous cargo the more different types of cargo there were.[115] Usually this is because it is worth so little that it would not be worth the cost of the route unless it was being transported in as large of a bulk as possible.

[111] Carreras and Morais 2012, 423.
[112] Tomber 2012, 205.
[113] Casson 1980, 26.
[114] Parker 1984, 102; Rice 2016, 185.
[115] Parker 1984, 102. The Comacchio was carrying coarse pottery (both amphorae and roof tiles), lead ingots, bronze vessels, tin and/or wooden decorations.

Most food was not suited to long-distance overseas travels, since long-term preservation methods were virtually non-existent and ships were much slower. However, there were some food products for which the Romans were famous in regard to mass production and exportation. These are olive oil and fish sauce (*garum*).[116] Part of the reason these products were so widely desired was because as the Romans took control of other regions, their culture naturally spread through interaction with the locals. While some foreign cuisine became popular in Italy, some Roman cuisine became popular in the new provinces. Unfortunately for those provincial populations, their climate or geography did not always allow the cultivation of olives (e.g., parts of Africa Proconsularis with dry, sandy soils: central and southern Tunisia, for one) or the catching of fish (e.g., southern Gallia Transalpina or eastern Hispania Citerior which had access to rivers, but not oceans).[117] Rather than paying to import the raw products—likely paying extra to ensure a direct route and prevent spoilage—and then building the equipment to process them, provincial populations instead imported the finished products, which were better preserved and could be shipped in higher quantities due to longer shelf-life. This arrangement worked best for the people producing olive oil and *garum* as well, because they already processed the products immediately after harvesting. Often, processing centres were built right next to harvesting locations in order to minimize transportation distance.[118] This allowed for mass production and shipment, where two or three prominent sites could provide a product not only for all of Italy, but for the whole empire *and* external markets.[119]

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[116] Wilson, Schörle, and Rice 2012, 369; Martin 2003, 109.
[117] Mayer 2012, 64.
[118] Greene 1986, 96 demonstrates this phenomenon with wine (which was pressed and stored right next to the vineyards), but it is not unreasonable to presume that it applies to other perishable products as well.
[119] For example, the oil and *garum* that came into Ostia in order to be exported to Roman allies came from the Iberian Peninsula region of Hispania or in Africa Proconsularis: Martin 2003, 109. The Iberian Peninsula is especially important due to its position on the Atlantic Ocean; *garum* was made from saltwater fish, usually tuna: Teichner and Pujol 2008, 103.

In some cases, one site could provide resources to another and also contribute its product to the overall circulation nationwide. For example, two interconnected *garum*-producing sites were in Mauretania Tingitana and in Hispania Baetica. Both sent any *garum* that needed to go overseas to Puteoli in order to be shipped, but there was an extra step involved, wherein the Baetica site sent amphorae to store the product to the Mauretania site, since the former produced it but the latter did not.[120] Of course, since the Baetica site was producing two things, it either had to be larger than the Mauretania site or produce less *garum*.

It can be difficult to track the impact of the oil and *garum* trade simply because the products were so widely used. Unlike certain rarer goods like ebony or elephants, there was rarely a single spot where these food products were gathered before being sold or transported. The quantities are quite staggering. For example, J.M. Blázquez estimates that during the principate, one Roman legion (5,320 men plus any support workers) used approximately 288,000 pounds (130,365 kilograms) of olive oil annually.[121] In simpler terms, each Roman used approximately 54.13 pounds (24.55 kilograms) of olive oil annually; this figure is an average, since the individual habits of people could call for more or less oil than others. Thanks to the spread of Roman culture through cuisine and bathhouses, those living in extra-Italian provinces would also have consumed olive oil as a household staple. Large amounts of it would thus have to be constantly sent between provinces, which leaves very little product left to export to foreign nations, who likely would have found less use for it in any case due to its relatively large cultural importance in Greece and Rome compared to other ancient nations. Perhaps if Arabia or India

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[120] Teichner and Pujol 2008, 305 have discussed this relative to the presence or absence of kilns as well as evidence of interprovincial land trade.
[121] Blázquez 1992, 176.

had desired significant quantities of olive oil, an adjustment on price or production would have had to be made in order to meet the demand both inside and outside the empire.

Construction

Roman methods of construction also began to vary during the Late Republic, with the changes growing in popularity during the early Empire until becoming standard by the end of Augustus' reign. While state-funded buildings were still primarily built from fine stone, a significant number of privately-funded buildings used concrete instead. In the final century BCE, coastal fishermen in Campania discovered how to modify the existing concrete formula to allow it to set underwater. This began with fish farms, but the technology was quickly expanded to be used in harbour structures, namely jetties and breakwalls. The first harbour to implement successfully underwater construction was Carthago Nova in the first half of the first century BCE.[122]

By the time of Augustus' reign, the underwater concrete process was nearly perfect, though still slightly tricky, therefore it was still necessary to send practised artisans to locations where the material was to be used.[123] There are two examples of gigantic concrete harbours built under Augustus' direct influence. The first is not in Roman territory at all, but rather constructed in Judaea for the Roman client king and close friend King Herod under Augustus' express orders. The port Caesarea Maritima, measured around 100,000m^2 but was given freely as a gift to show good favour between rulers.[124] The second port was named Portus Iulius and was constructed near Lake Avernus under the direct supervision of Agrippa.[125] It was then connected to Puteoli by means of a series of docks and warehouses that stretched the whole way along the

[122] Gianfrotta 2011, 188.
[123] Ibid., 189.
[124] Ibid., 191.
[125] Keppie 1996, 376.

coast, thus making it more of an extension of Puteoli than a discrete entity.[126] The rest of Augustus' reign is similarly marked with new harbour constructions, such as the port at Neapolis, which included two long jetties with attached quays, allowing multiple ships to dock in a row in water deep enough for merchant ships to sail.[127] Outside of Italy, Augustus undertook a systematic upgrading of the ports on Crete and mainland Greece, thereby optimizing Rome's Aegean and Mediterranean trade routes rather than simply focusing on the new eastern ones.[128] Rather than simply taking new opportunities, Augustus made effort to protect those which had already been established, rather than forsaking them in favour of more novel pursuits. This demonstrates not only his understanding of the trade system, but his agenda in its improvement.

No matter where Roman concrete harbours were built, the key material, *pozzolana*, came from only one place: Campania.[129] One thus needed substantial shipments (around 52,000 tonnes) of *pozzolana* and builders skilled in its use before a city could construct a harbour.[130] Since all the materials were destined for one place, rather than for general sale, it was far more common to send a ship on a direct charter to the end destination, instead of bringing the building materials along on one of the usual shipping routes.[131] Because the task was so monumental, most of the harbours were built exactly the same way, which meant that the builders would be able to implement forms they knew worked, while each worker probably had their own niche task to perform in the construction process.[132] An infinitely repeatable master plan speaks of a desire to be as efficient as possible, which in itself is a boon to improving the economy; the faster one could build or modify a harbour, the sooner the port could accept more ships. This

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[126] Rickman 1988, 258.
[127] Di Donato et al. 2018, 545.
[128] Gianfrotta 2011, 192.
[129] Volcanic ash—*pulvis puteolanis* in Latin (Ibid., 188).
[130] Gianfrotta 2011, 188 on shipping *pozzolana* to places in need of it.
[131] Rico 1995, 799.
[132] Ibid., 191.

would also help reduce complications in the building process. The materials could nevertheless be transported on the same ships as the builders, since many shipowners contracted their services to anyone in need of maritime transport of goods. As it was Augustus who set the precedent for concrete upgrades in ports—thus beginning the process of an efficient master blueprint—he both made use of Rome's extensive trade routes and enhanced them, implying that he knew how important trade was for Rome's overall prosperity.

Conclusion

By providing an understanding of the new imports and exports happening in the Roman Empire during the reign of Augustus, it becomes possible to see the scale on which her trade operated, as well as the minutiae involved in each product. Such a detailed operation leaves no question as to how the active encouragement of its growth led to significant change for the Roman people. The products involved in trade also provide a basis on which to discuss the trade routes while being able to focus on the logistics and maintenance involved in each location, rather than focusing too heavily on which products interacted in each sphere. Chapter Two shall thus examine the three new spheres in which the products discussed above were traded and how the Augustan government contributed to each, while Chapter Three shall scrutinize the effects the products and routes had in tandem on the Roman people.

CHAPTER TWO

LAWS AND INFRASTRUCTURE

Both the late Republic (c. 100 BCE-30 BCE) and the very early Principate (here defined as the reign of Augustus, 30 BCE-14 CE) saw new trade laws come into play for Rome. These can be somewhat difficult to identify, since the Romans did not specifically have a legal subsection for 'trade' or 'maritime' laws. Rather, the laws fell within the broad rubric of the Roman Law of Contract (*obligationes ex contractu*), focusing on the making of contracts and restitution of broken contracts as well as travel and carriage by sea. As trade increased in the half-century before and throughout Augustus' reign, an increasing portion of these contract laws specified commercial contracts.[133] These in turn led to the variety of imports and exports that were specified in Chapter One. Along with new laws, trade-specific infrastructure constructed in key areas of the Empire (Egypt, the city of Rome, and rural Italy) contributed to an overall improvement in the economy and a rise in the standard of living.

Laws

The set of laws with the most visible evidence are the receipt laws, which ensured that all products were accounted for at each step of their journey and, perhaps more importantly, they were not counted twice. According to Geoffrey Rickman, this practice was especially visible where it concerned the grain trade. This should come as no surprise, since paying close and careful attention to Rome's grain shortages was a particular source of pride (not to mention

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[133] For sea travel, see Candy 2019, 4; Kessler and Temin 2007, 321 discuss how there were no particular laws concerning the operation of *magistri* on behalf of merchants (*mercatores*). However, due to Rome's strict laws around the breaking of contracts, *magistri* could be punished for their conduct if they acted out of accord with the deal that they had made with their respective *mercator*.

political necessity) for Augustus, as he boasts in his *Res Gestae*: 'I gave rations and many tokens [for free grain] from my treasury and patrimony, sometimes to one hundred thousands of men, sometimes to many more men'.[134] The process for harvesting, preparing, and sending the grain happened thus: from April to late May, pack animals from the farms where grain was grown carried the harvest to threshing buildings; an official (*sitologos*) examined each local granary to ascertain the quality of the grain; the local granaries sent their stock to the closest urban granary; part of the grain was stored, while the rest was sent away to an emporium, where it would be sold to either private merchants or government agents.[135] Each stage featured the creation of a written receipt containing information on the quantity and sources of all the grain accumulated. These receipts were written in triplicate—one for the location at which it was written, one to accompany the grain on its journey, and one to be sent back to the city of Rome for the permanent records, which could be used to track the city's grain consumption on a year-to-year basis, especially where it concerned the *annona*.[136] This method was traditionally used in Egypt (where it dated to the Ptolemaic period), but there were other provinces from which Rome received its grain supply—Africa and Sardinia, for instance.[137] The new implementation of triplicate receipts ensured that officials in Rome (first the Aediles, later in Augustus' reign the

[134] *tum centum millibus hominum tum pluribus multo frumentarias et nummarias tesseras ex aere et patrimonio meo dedi.* (18). Shipley's commentary indicates this began in the year 18 BCE, about halfway through Augustus' reign. Cooley 2009 indicates that this was a supplement to the regular grain distribution when there was not enough to go around (181).
[135] Rickman 1980b, 264.
[136] Ibid.; Temin 2006, 139.
[137] While Rome certainly had records of trade agreements, they would not have been so thorough in their grain-producing provinces until their introduction to the Ptolemaic system. Rickman 1980b, 263 mentions that under the Principate, Egypt and North Africa became more important for providing Rome's grain than Sardinia and Sicily. Garnsey 1978, 240 estimates that around 30% of the total grain grown in Africa was sent to Roma as tribute.

praefectus annona) would always be aware of how much grain they needed to procure to ensure all citizens were fed for the year.[138]

Receipts were not the only quality assurance that Rome took where it concerned their food supply. When the grain was finally packed onto the ships, a small sack would be filled with a sample of the grain and sealed. Upon arrival at the destination, the sample sack would be opened and compared to the main cargo, to ensure that the transporting merchant had not substituted or augmented their supply with anything dubious, sawdust being the most common additive.[139] At a minimum, Egyptian grain sold for eight drachma per *artaba* (a leftover unit of measure from Ptolemaic times), though this price could rise depending on how far away from the last harvest the sale was taking place.[140]

As merchants—or *magistri* working on their behalf—transported their goods through Roman territory, they had to pay duty at each place they stopped. And it was not only Roman merchants who sold their goods in these places: for example, Parthia regularly sent her merchants into Roman territory.[141] Customs dues at any stop were based on the total amount of product carried, as well as which products were in the shipment.[142] Each product was taxed individually, so at each stop whatever the merchant intended to sell had to be unloaded and counted, with customs paid up front, before the sales could even begin.[143] The receipts from

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[138] Rickman 1980a, 48; 1980b, 263.
[139] Rickman 1980b, 265.
[140] Duncan-Jones 1976, 144-145.
[141] It was only thanks to Augustus' actions in 20 BCE, when he negotiated a tentative peace with Parthia, that Rome was able to trade with them at all: Thorley 1969, 214.
[142] A fixed percentage of the value of each product was to be paid in customs, but on issued receipts, these prices appeared as flat rates as the result of the person calculating the dues (the *scrutator*) having done the calculations before asking the merchant for payment: Duncan-Jones 2006, 6. This means that the *scrutator* would have had to have measuring tools on hand as well as either comprehensive knowledge or a written list of the latest tax rates on all trade items.
[143] Rice 2016, 185 mentions that higher-value cargo was taxed higher at the various customs points throughout the Empire, but that not every port had a customs point. See also Arnaud 2011, 64.

these customs payments were so essential to the trade process (both in order to apprise merchants of which goods they were selling where and to ensure their legitimacy as they continued along the trade route) that ship crews sometimes delayed their launches in order to wait for the receipts to be issued.[144] It is impossible to determine the degree to which this would have slowed the movement of goods. On the one hand, delaying a ship launch would affect sales in destination towns and, if the cargo was perishable, would increase the likelihood that it would spoil before being sold. On the other hand, the Augustan Principate saw about six times more ships leaving Roman ports than the Republic ever had. Fortunately, if one shipment was delayed, it was entirely possible that another carrying the same type of good would leave on time and that the delay would not lead to a major shortage. Additionally, the importance of receipts and record keeping, as well as the highly specific offices designated to ensuring receipts accompanied shipments of goods would mean that when delays *did* occur, they would not have lasted long enough to make a difference in shipping and selling patterns. In other words, there was always someone available to take down the record of a particular sale, eliminating any bureaucratic aspect to the delay.

Under the Augustan regime, the tax-collection structure changed from the *negotiatores* and *publicani* discussed in the introduction (see page 8 above). Augustan law dictated that provincial governors take a more active role in collecting taxes in their province.[145] As he would have had a say in each governor's appointment, Augustus could also have ensured that the men chosen for the positions would be those more likely to pay attention to economic stability. As they began collection independently, in the form of both cash and goods, the role of the

[144] Kessler and Temin 2007, 235.
[145] Bang 2007, 45.

publicanus was slowly phased out; the transaction no longer needed an intermediary.[146] *Negotiatores* would also have diminished in importance: Alexandrian merchants, more familiar with the contacts with whom they had been working before Rome took control of Egypt, would have been more knowledgeable about specific goods and merchants within the Red Sea area than Roman *negotiatores* were. Once Egypt became a province, however, the Alexandrian merchants would also have been able to expand their trade into other provinces, meaning the *negotiatores* were no longer the only commerce experts accessible to Roman merchants and *magistri*. It is unlikely that the position of *negotiator* disappeared entirely the way the *publicanus* did, but the power of one in that position would certainly have diminished, since they were no longer part of an exclusive group with specific knowledge and thus could no longer charge such a high price for it.

Much like the legal alterations, the Augustan period experienced significant changes in Roman maritime trade. In order of proximity to Rome, the areas which represented new markets, during this period were the Red Sea, the Indian Ocean, and the Persian Gulf. During their reign, the Ptolemies acted as administrators for all trade taking place over the Red Sea, since they set up the trade networks across and within it.[147] Rome inherited this responsibility along with the trade routes; being able to take advantage of Egypt's senior position among the Red Sea trade partners would have resulted in a high amount of trade and tariff revenue. It was not only customs laws that brought in money, but also the shipbuilding and repairs that took place at certain ports along the coast.[148] Additionally, the annexation of Egypt gave the Romans access to

[146] Ibid.; Kessler and Temin 2007, 318.
[147] The Seleucids did the same for the Persian Gulf: Cobb 2015, 363-364.
[148] Ross 2011 and Whitewright 2018 discuss ship repair at Myos Hormos and Berenike, mentioned in Chapter One (page 13).

Alexandria, which had been the Ptolemaic capital and continued to act as an important trade emporium, one of the most important in the Eastern Mediterranean.

Perhaps the most notable tax throughout Roman territory at the time, Alexandria charged its vendors 25% of their products' value as import tariff, which would be removed by an official called the *arabarch*.[149] The Greek name of the official suggests that it was Ptolemaic in origin. In this instance, the *arabarch* merely had to change to whom the tax was delivered. This is in keeping with Bang's and Cobb's observations that the Romans allowed conquered peoples to keep their own economic practices for the most part.[150] Due to its position on the Mediterranean coast close to the opening of the Nile—which in turn gave access to Egypt's prominent lakes—Alexandria came to be one of the 'terminals' of Eastern trade alongside Antioch in Syria.[151] Both were under Roman control beginning with the Augustan era. Notably, Red Sea merchants on their way to Alexandria were prohibited from making stops to sell elsewhere on the way, which ensured the collection of the highest possible amount of import tariff.[152] Maximizing tax revenue would have been a high priority for a newly-established government (as changes on a state-wide level would not come cheaply), and this practice made that a reality. Since Alexandria was so important for Egypt and the Mediterranean, it was unlikely that a merchant ship could bypass her.

Alexandrian (and broader Egyptian) merchants had different privileges than Roman merchants thanks to their Trade Associations, which worked in a similar manner to guilds in Feudal England. Once Rome gained control over Egypt, Roman merchants began to see the draw

[149] Young 2001, 42, 59.
[150] Bang 2007, 10; Cobb 2019, 20.
[151] Thorley 1969, 209; Downey 2015, 165; Terpstra 2016, 43.
[152] Young 2001, 46. Given this rule, it would seem difficult for Koptos to receive as much traffic as it did. It is thus logical to infer that goods received at the Red Sea ports would have to be declared by their vendors to be bound either for Alexandria or elsewhere. The import receipt would then specify the final destination of the product and could be checked once the merchants arrived at their destination.

of Egyptian Trade Associations and many began to join.[153] Most material evidence of the Trade Associations comes from the Fayum, rather than the Delta or Red Sea areas, yet regulations for members seem to apply to all of Egypt.[154] Benefits to joining a Trade Associations included legal support in cases of unfair taxation, communal events such as feasts and parties, a free burial and funeral feast, permission to sell under the Association's name at festivals, and an appointed personal zone of sale to avoid competition with other members of the same Association.[155] The only condition seemed to be surrendering a portion of income to the Association itself, since it was taxed on behalf of all the merchants within it, rather than the merchants being taxed as individual businesses.[156]

Under the Augustan government, Egyptian Trade Associations became more successful, and the Roman government did not meddle directly in their affairs. Instead, the Romans removed much of the government intervention that the Ptolemies had in place concerning business practices.[157] While not interested in holding monopolies on certain products themselves, the Ptolemies were supportive of individuals who did hold a monopoly—they would simply demand a portion of that individual's stock as taxes whenever they needed to obtain large quantities of the product.[158] The Romans, however, had markets and free trade as their 'economic model', which gave more individuals a better chance of making a profit.[159] In the case of Trade

[153] Gibbs 2011, 291.
[154] Specifically, Tebtunis, one of the larger cities in the Fayum, although the geographical features of the area necessitate that all the settlements are placed in close proximity: Gibbs 2011, 293, 299.
[155] Ibid., 296, 300-305.
[156] Ibid., 292.
[157] While the governmental removal of restrictions from a certain industry is often described by modern economists as 'deregulation' (Corporate Finance Institute 2022), this action by the Augustan government cannot rightly be classified as such. Deregulation aims to increase competition between businesses in the same industry, but removing Ptolemaic influence meant removing the incentive to holding a monopoly on certain products, which would allow merchants a more relaxed approach to a wider variety of goods.
[158] Ibid., 298 n.30.
[159] Temin 2006, 133; Cobb 2019, 18 is careful to specify that the Ptolemies did not privatize trade, but simply benefitted from the private nature of trade—a notion which is expanded upon above; Gibbs 2012, 39 rephrases this change as 'abolishing [the Ptolemies'] interventionist methods'.

Associations, the combination of Roman and Egyptian cultures helped to make trade as lucrative as possible for a wide range of people. Merchants were centralized and organized in such a way so as to not undercut each other and they were given a plethora of resources to ensure they could afford to continue their trade. Thanks to centralized organization, merchants would have been spread out in a more even manner, allowing for more members of the population to take part in sales and consume foreign goods. The amount of people spending money increased, and those people that did spend money all experienced a higher quality of living thanks to products that were considered 'luxuries' only a few decades before.

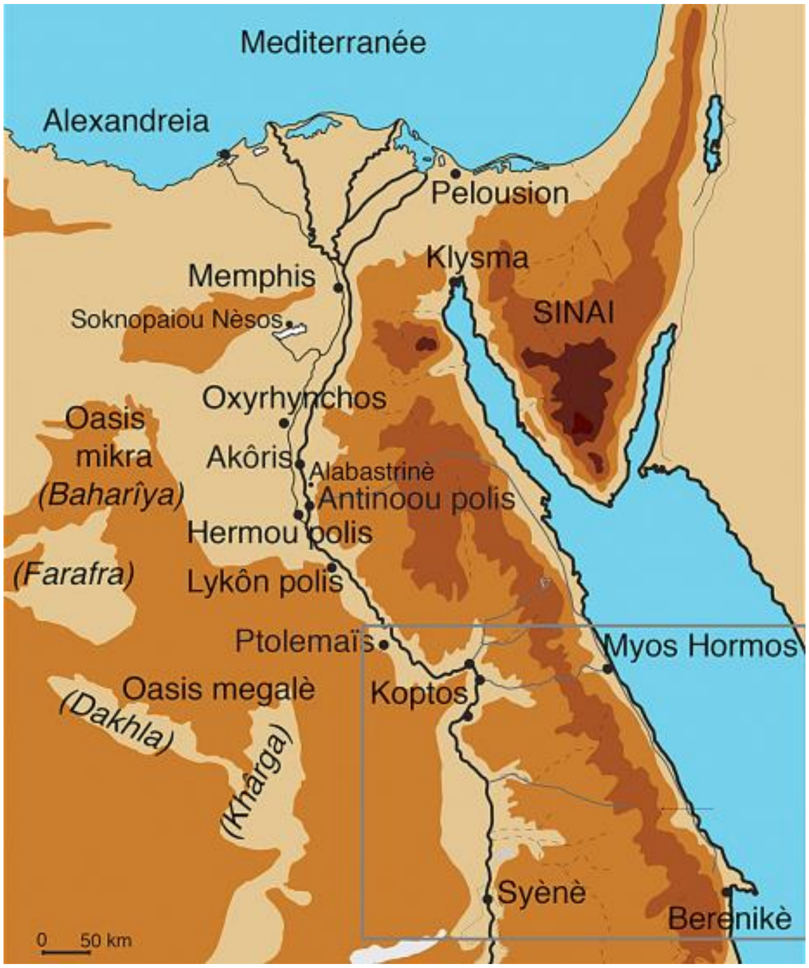

Figure 1. Map of Augustan Egyptian sites showing Quseir (Myos Hormos) on the shore of the Red Sea with its relative position to Berenike also depicted. The road leading east out of Myos Hormos leads to Koptos.

Infrastructure

Standardized architecture was common among the Romans; for example, all of their military camps (*castra*) were constructed in the same manner and their basic layout was even re-used in newly-founded colonies. As such, most of the territories under Roman control already featured Roman buildings. As a new province, Egypt lacked these buildings at the outset of Augustus' reign. Thus, most of the infrastructural changes made during the Augustan era were made to places in Egypt, though its extensive usefulness concerning trade also made it a high priority for optimizing the infrastructure. Aptly, the three major places that the Augustan government improved were Myos Hormos, Berenike, and Alexandria. The road system between Alexandria and the others also received significant attention.

The discovery of the location of Myos Hormos is relatively new. In his 2001 monograph, Gary Young gives a convincing argument for the site of Quseir al-Qadim (Figure 1: Blue 2007), no doubt stemming from information gathered from the recent excavations at the site by multiple scholars.[160] Since this publication, support has only grown for the identification of Quseir al-Qadim as Myos Hormos, to such a degree that this is now the consensus of the academic community.

Myos Hormos was founded during the Ptolemaic period in order to facilitate the receipt of military elephants.[161] Following the guarded roads laid out between them, Myos Hormos was a six-day journey to the nearby city of Koptos, which was far older ('but now Koptos and Myos Hormos are well known[…]and the journey is six or seven days.' Strabo *Geography* 17.1.45).[162] Trade for staples was, based on amphora evidence, mainly from Rhodes—if it had not been produced locally.[163] However, being situated directly on the Red Sea led to the prosperity of Myos Hormos far beyond an elephant-receiving location. The port's legacy instead takes the form of a ship-building and repair centre.

Egypt had a surprising amount of shipbuilding material, most of which came up the Nile

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160 Ross 2011 in Peacock and Blue (eds): all the authors contributing to this book conducted excavations in Quseir al-Qadim between 1993-2003.
161 Tomber 2012, 203.
162 ἀλλὰ νῦν ἡ Κοπτὸς καὶ ὁ Μυὸς ὅρμος εὐδοκιμεῖ[…]ἡ δ᾽ ὁδός ἐστιν ἓξ ἢ ἑπτὰ ἡμερῶν.
163 Tomber 2012, 203.

from the Delta area to arrive at Myos Hormos or from the interior of Africa.[164] Further material came from India and Arabia, but these nations probably would not have provided material before Myos Hormos had become established as a repair centre.[165] Despite the amount of timber that came up the Nile, Egypt's desert climate was otherwise short on wood; building materials had to be recycled from old timbers that were no longer seaworthy.[166] The dry climate then preserved these materials, so it is possible to see how ancient vessels were constructed based on the remains of houses, especially doorframes; ship remains are recognizable by a special type of joining along the edges called mortice and tenon (Figure 2).[167]

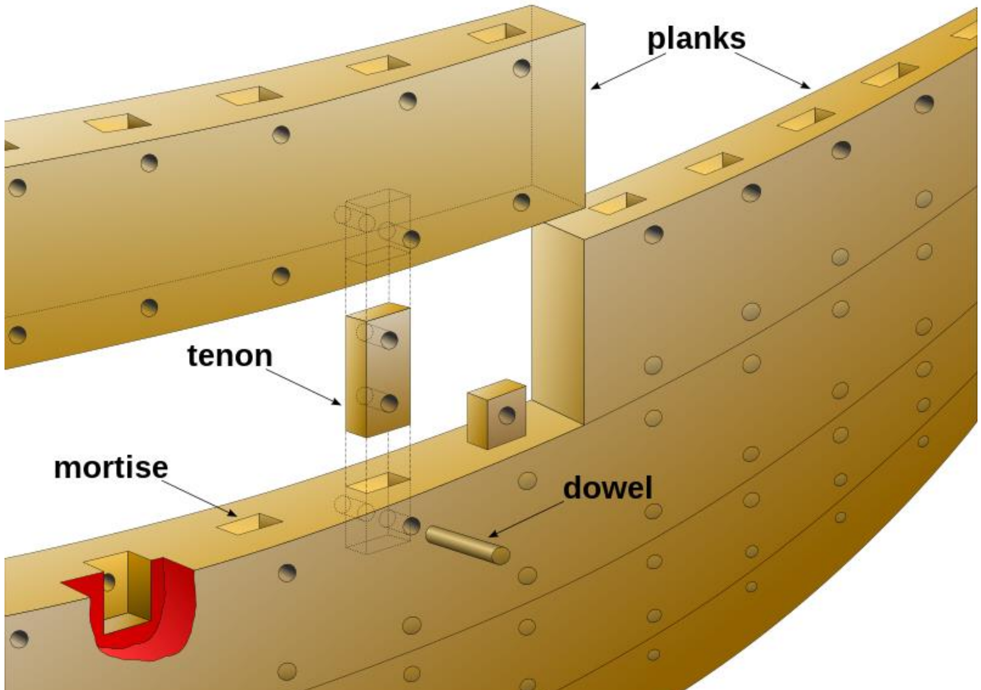

Figure 2. Diagram demonstrating the mortise-and-tenon technique of joining hull planks.

There are several indications that repair was done on-site, beyond simply the presence of recycled material. Brail rings, which were used to secure ropes at various points along the sails, have been found discarded, showing clear signs of wear.[168] The rings are made from a variety of

[164] Whitewright 2018, 140 for Delta timber, Ross 2011, 186 for African teak and blackwood.
[165] Bowen 1928, 205; Whitewright 2018, 124.
[166] Ross 2011, 185; Whitewright 2018, 141-142.
[167] Ross 2011, 179-180.
[168] Reinforced cloth strips (usually cotton or linen to match the sail material) were sewn horizontally or vertically onto sails, with the rings sewn onto the strips in turn, allowing a rope to be passed through multiple points in the sail

materials, many of which are not native to Egypt.[169] Woodchips were found near the docks, which indicate the trimming of timbers for ship building and repair. Additionally, barnacle

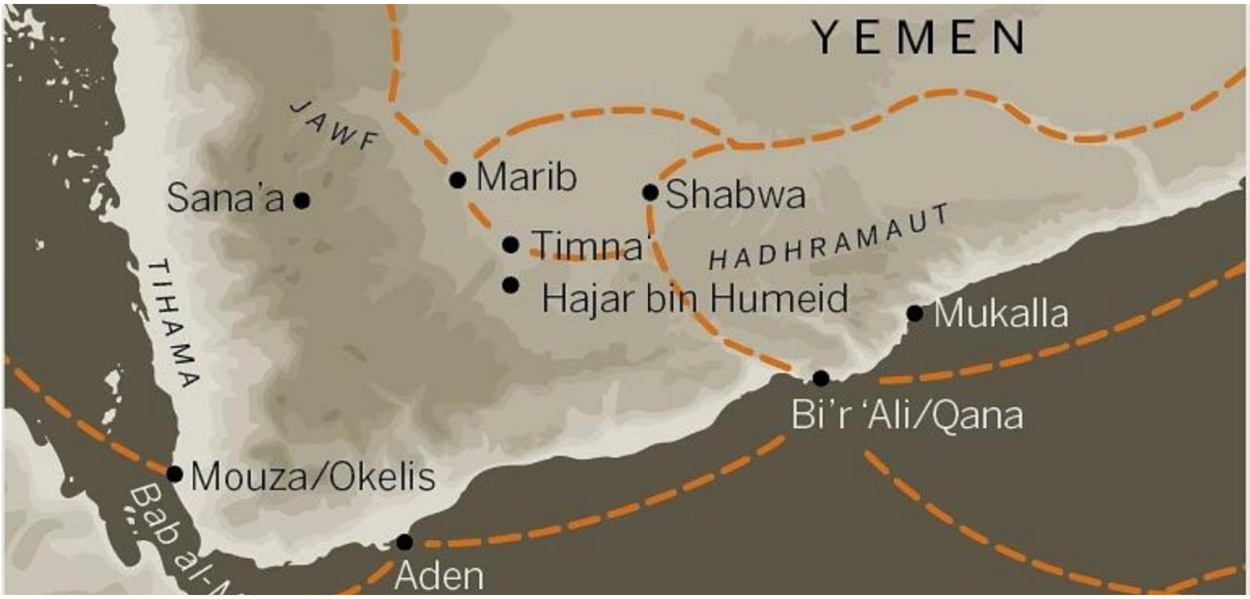

Figure 3. Map of the southern tip of the Arabian Peninsula, depicting major settlements in the area. Qana' is labelled here with its modern name, Bi'r 'Ali, while Arabia Felix is labelled by only its modern name, Aden.

removal tools and discarded shells were found among the detritus.[170] Discarded ballast among the same detritus can be used to determine from where the ships who stopped at Myos Hormos sailed. For example, some of the ballast was volcanic rock that originated from Arabia, which reinforces the notion that Arabian traders came through Egypt.[171] Basalt was another popular ballast material, especially since it itself could be used instead of discarded entirely; by analysing the source of the basalt, it is possible to determine from where the ship came, even if the other products (usually plant materials like spices and aromatics) did not survive.[172] This is especially

for easy furling and unfurling. They were replaced as they broke, rather than all at once, which can explain the variety of ring materials found in both garbage deposits and on shipwrecks: Whitewright 2018, 152-154.

[169] Usually, brail rings were made of non-Egyptian wood and lead and were featured on ships from all over the East, not only from the Mediterranean. Unused brail rings, which were manufactured in Egypt, were made from a different type of wood (likely the trimmings from fitted timbers) and cattle horn instead: Whitewright 2018, 147, 160.

[170] Only certain ships needed barnacle removal services. If a hull was covered in pitch, the barnacles would not be able to stick to the wood; if the hull was built with copper nails, rather than mortice and tenon joining, the copper would poison the barnacles, which would then fall off on their own: Ross 2011, 186.

[171] On volcanic ballast, see Peacock, William, and Jones 2007, 30.

[172] Tomber 2008, 79.

useful when examining a ship with commodities that originated in multiple places. Based on this method, it is known that Myos Hormos regularly received shipments from the cities of Qana and Arabia Felix (Figure 3).

The improvements made in the ports—naval forts, jetties, seawalls, and metalworking facilities, outlined briefly in the previous chapter—merit further discussion with consideration for how they improved trade in the area—and indirectly for Rome. Funding for these improvements (as well as those at other locations) came largely from Rome's reduced military budget. In the new Augustan peace, fewer legions were needed (the total number reduced from 60 to 28); the focus was on frontier defence rather than active campaigning. Meanwhile, those enemy territories that had once been expending resources to build their own armies against Rome were now under Roman power, so their funding went directly to taxes or commerce. In the case of ships, labour that focused on the building of military ships now served to build and maintain merchant vessels instead.[173]

By 19 BCE, the Augustan government had constructed a naval station at Myos Hormos.[174] There is very little information on this building, but Strabo describes it as 'a station of (for) transport vessels' (17.1.45).[175] This implies that the station was intended to house ships, rather than to protect the harbour or deal with administrative tasks concerning naval trade. Throughout Roman territory, there have been only four buildings that scholars have identified as potential ship-sheds.[176] However, when considering the dimensions necessary for a ship to fit inside, it seems that the criteria implies the storage of warships, not merchant ships.[177] Thus,

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[173] Bang 2007, 47; Greene 1986, 17.
[174] Thorley 1969, 210.
[175] ἐστὶ Μυὸς ὅρμος, πόλις ἔχουσα τὸ ναύσταθμον τῶν πλοϊζομένων.
[176] Rankov 2003, 51.
[177] Ibid., 60-61.

Boris Rankov, who studied these four buildings, may have been incorrect in his assumption that they were the wrong size to fit ships inside, since he did not consider all possibilities. Significantly, each of the potential ship-sheds is a completely different shape and size, and while the estimation of the buildings' actual functions could be true, it could also be that ship-sheds were built to adapt to their surroundings and the kinds of ships being stored or repaired within.[178] For example, the identification of 'barracks' may be due to a series of trenches left in the remains of the building, which may represent walls, which divided the sleeping chambers of soldiers, while some scholars believe that the trenches were actually trenches, designed to hold the unfinished frames of ships under construction.[179] Ships from the East (India especially) made use of the skeleton-first method. Thus, it is entirely possible that a ship-shed in Myos Hormos could have contained a specialized place to hold the stripped hulls of ships, especially if the bottom planks (those most frequently underwater and most prone to destruction by barnacles) needed replacing. With such a specialized facility, Eastern ships would have been more likely to dock at Myos Hormos, thus also increasing the likelihood they would engage in trade there. Even without this specialized construction, having a place where ships could be stored and protected while being repaired or built would both have appealed to the shipowners and allowed for more space at the docks proper, since unfinished ships would no longer have been taking up room.

The jetty—a long artificial platform extending into the natural harbour—and the accompanying seawalls at Myos Hormos are definite products of Augustus' reign. Most of the structures are made from discarded pots: most common are the Pseudo-Koan type from Sicily, but there are also plenty of Arabian make.[180] Most scholars identify the most common type of

[178] Rankov interprets one as a barracks and two as granaries, but he gives no opinion on the fourth beyond it being unsuitable for housing ships (Ibid., 51, 53, 56-58).
[179] Ibid.
[180] Empereur and Picon 1986, 228, 231.

pot as the Dressel 2-4, but Cobb has determined that this is a misnomer: Dressel 2-4s did not rise to prominence until after the Augustan reign. Subtle differences in the construction point to a different named pot, the Pseudo-Koan (in turn named based on its further similarity to pottery from the Greek island of Kos).[181] Dressel 2-4s are made in Campania and Egypt, so most studies identify these regions as the centres of Roman pottery production for Augustus' reign. Pseudo-Koan pots are made on Sicily, however, which makes this island far more important for early Imperial pottery production.

Extending a jetty into the deeper parts of a harbour allowed larger vessels to dock without having to use rowboats or porters to bring their cargo ashore, while the seawall sheltered docked ships from waves and also allowed for easier defense of the port.[182] One might speculate that the easier it is for a large vessel to offload its cargo (and thus take on new cargo), the more likely it will stop and do so. Simply put, people tend not to do things that are difficult for them to do. However, it is also clear that the jetty at Myos Hormos was constructed for function only, rather than form. Often, especially in the case of Augustus, new or remodelled buildings were constructed with a political agenda: a beautiful building, made from expensive materials and very particular techniques, signalled not only the emperor's power, but how 'devoted' he was to the building and the people who would be using it. In the case of jetties at more 'prestige' locations—most notably Judaea—the primary construction material was Roman concrete.[183] Roman concrete had been in use in underwater contexts for a century by Augustus' time, as the earliest example was in Campania for small fish farms; larger examples promptly followed,

[181] Cobb 2019, 25.
[182] Stone 2014, 580 discusses these two means of bringing cargo ashore in harbours that had no port structures.
[183] Herod, a client king of Rome, was a notable ally of Augustus and as a token of his goodwill, the emperor sent King Herod engineers and materials for the building of a magnificent harbour in Judaea. One must thus consider this harbour an Augustan construction, even though it was built outside of Roman territory; it was called Caesarea Maritima and was over 100,000km^2: Gianfrotta 2011, 189, 191.

beginning with the port at Carthago Nova.[184] Thus, while the Augustan government had had access to underwater concrete technology and had shown its willingness to ship the materials over long distances, its deliberate decision to have the Myos Hormos jetty built out of pottery instead suggests that it was only the efficiency, not the prestige, that was meant to be improved at Myos Hormos. It is also possible that, because the journey to Myos Hormos would take a ship across the Mediterranean and a further journey through Egypt, it was not worth the resources (though surely available) needed to make the harbour from concrete. This further cements the idea that Myos Hormos was a location where function was far more important than form.

There is very little information about the metalworking shops constructed at Myos Hormos, but it is easy enough to discern the advantage of building them. Some of the most notable Roman forts in the Egyptian desert were around areas rich with metal, especially in the southern half of the Eastern Desert, where gold mining operations had taken place since the Ptolemaic era.[185] As stated in Chapter One, metal was a popular export to the East, especially gold and lead. Once the ore was mined, it would have to be smelted into ingots, if not worked further, before being exported. Having metalworking facilities at Myos Hormos shortened the journey and cut down on transportation costs, since ore extracted from the Egyptian desert could be sent there for smelting, rather than having to cross the Mediterranean and return. With lower transportation costs, the net gain from metal exports would be more significant, which would outweigh the cost of constructing the facilities.

At Berenike, similar improvements were made, but it is obvious from the remains that the two harbour towns had different foci. Since they were so close together (about the same distance

[184] Both of these locations had underwater concrete structures in the early first century BCE (Ibid., 188; Brandon, Hohlfelder, and Oleson 2008, 374).
[185] Gates-Foster 2012, 741.

as from Myos Hormos to Koptos), this was a wise decision. The improvements at Berenike during the first century included a seawall, expansion of the southern harbour, and an extension of the Ptolemaic road system within the city.[186]

Much like Myos Hormos, the seawall at Berenike would have been useful in protecting the ships within the harbour from tides and—if any were attempted—naval attacks. Although Augustus claimed to have ended the piracy on the Mediterranean (*Res Gestae* 25.1) he did not take similar action in the Red Sea. Piracy was a common problem on the Indian Ocean, which had a direct connection to the Red Sea and could well have been within raiding distance.[187] In fact, there were laws in place which allowed sailors and merchants to cite piracy as a reason for late arrivals or missed meetings, indicating that the seas were not completely secure.[188] Similar to Myos Hormos, the seawall at Berenike was made of discarded amphorae and sherds, although the archaeological record here shows that Berenike received imports from a wider variety of places than did Myos Hormos. Only 31% of the amphorae at Berenike had a local provenance, while the rest was made up of goods from Greek cities, North Africa, Italy, and 'miscellaneous' Eastern imports, with the latter category taking up 54% of uncovered amphorae.[189] Thus, the same conclusion can be drawn here as from Myos Hormos: Berenike's port was worth protecting, but not worth the expenditure of visually pleasing or expensive materials.

The southern harbour is much more interesting. The reason why ships from more places docked at Berenike than Myos Hormos is because of the strong northern wind prevalent on the Red Sea. Less powerful ships, or those that were not in dire need of repair, would not have

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[186] Cobb 2019, 28.
[187] *mari pacavi a praedonibus.* Cooley 2009 indicates that this is more than a boast on Augustus' part: late in his life Alexandrian traders personally thanked Augustus for ensuring that they were once again able to travel the seas (213). This is especially significant since the majority of Roman traders on the Red Sea and Indian Ocean were Alexandrian early in Augustus' reign, as mentioned above (page 40).
[188] de Souza 1999, 199.
[189] Wilson, Rice, and Schörle 2012, 371.

wanted to undergo the struggle of sailing against the wind to reach Myos Hormos, and so stopped at Berenike instead.[190] Since the port had more traffic, it was only logical to expand it, thus allowing more ships to be docked at the same time.

There is evidence that at Berenike ships intended to transport elephants (the original purpose of its foundation) were lined with lead along the bottom of the hull, so that the weight of the elephants stored belowdecks would not splinter the planks.[191] The metal provided additional protection against sea worms, which were known to chew through wooden planks, thus increasing its usefulness even for ships that did not carry elephants. It was already among the most common Roman metals, therefore it was not an expensive product and large quantities could be sent to Berenike to continue this trade.[192] With a combination of a large port and a unique service, Berenike would become a significant source of income for its Roman rulers.

Berenike's most noteworthy improvement, however, is its road system. As more ships were drawn to the port and its commerce grew, the city itself expanded. The roads likewise had to expand in order to service all new areas of the city, and these improvements were promptly made.[193] However, Berenike's road networks extended beyond the city itself. Under the Ptolemies, the elephants received at Berenike followed a set caravan route to Edfu, but this road was later redirected to end at Koptos instead.[194] Based on their positions, it was necessary for the Berenike-Koptos road to bypass Myos Hormos, though anything south of Myos Hormos would have most likely been considered the jurisdiction of Berenike. While the Myos Hormos-Koptos

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[190] Cobb 2019, 33.
[191] Thomas 2011, 188. By the end of the first century, this practice fell out of use, but still ran strong during the Augustan era: Marlier 2008, 156.
[192] Greene 1986, 21 for sea worm prevention; Bowen 1928, 204 lists copper, bronze, and lead as the other common Roman metals.
[193] Cobb 2019, 28 explains that the roads followed the same patterns which the Ptolemies had constructed in the original city.
[194] Gates-Foster 2012, 741; Cobb 2019, 26.

road made use of watchtowers (see below, pp.54-55), the Berenike section of the road made use of patrols in order to keep the route safe for caravans and travellers, thus protecting imports.[195] This would have resulted in more soldiers on the Berenike section than the Myos Hormos section, but still fewer than keeping an entire legion in the area. Berenike had several other connections as well: under the Ptolemies, it had a direct route to Apollonopolis, while the early Empire connected it to Phoinikon. The new road to Phoinikon was provided with a series of cisterns, so that travellers using it to cross the desert would have a ready supply of water.[196]

Finally, there is Alexandria. Perhaps Alexandria's most important contribution to Rome was its role as the final collection point of Egyptian grain prior to shipment overseas.[197] No matter where along the Nile it was farmed, Egyptian grain was sent down the Nile to Alexandria, though portions were taken out at each stop, enough to feed the people in and around the producing or processing towns.[198] Once all the grain had been gathered at Alexandria, it was easy for Roman officials to portion out the right amount to send back to Italy as part of the tax that the province paid. However, any prolonged disruptions to the routine operations at the port (for example, weather or military attack) would likely have crippled Rome. As such, it was a high priority to make sure it was well-defended.

Alexandria was also home to most of the merchants who conducted business with eastern traders.[199] Likely, the change in government did not affect their business, and by continuing as normal, these Alexandrian merchants would have allowed Roman merchants to carry on as before as well: trade with Anatolian nations or far-off Roman provinces (for example, Spain)

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[195] Similar patrols were stationed near mining operations to protect Roman exports: Gates-Foster 2012, 737.
[196] Brun 2002, 400.
[197] Greene 1986, 29.
[198] Rickman 1980, 264.
[199] Cobb 2019, 31.

could have remained the purview of Roman merchants. The Alexandrian merchants would also have already had the knowledge and connections necessary to make good business deals with their eastern colleagues, so there would have been no need (at least in the short-term) to send Roman merchants to replace them; in fact, it would seem bad policy to do so, since it could very well create at least some short-term disruption in trade due to the time required for the Roman merchants to acquire the necessary knowledge of trade-routes and build trade relationships, for instance.

The transport network built by Augustus spanned large swaths of Egypt, so it cannot rightly be considered a feature of any particular city. Koptos, where many of these routes converged, was the emporium city for Red Sea trade and had an extensive road network in order to facilitate acquisition of goods.[200] In the Augustan era, the Romans made use of stations along these major roads that had been built by the Ptolemies, though there is some debate over whether the stations were fully maintained, or it was only the cisterns that were operational during those years.[201] However, because most of the transport from the harbours to the emporium entailed animal labour, it is likely that there was some sort of structure maintained at each of the stopping points along the roads. Other land routes across Egypt, not connected with maritime trade, had stables for the specific purpose of sheltering cart-drawing animals. Animals that made up caravans were fewer, and so could fit inside the forts with their handlers.[202] Since these forts were the only options for animal shelter along the Koptos routes, they must have been maintained during the early Roman period. Additionally, forts along the Koptos roads were recorded on Agrippa's map, which was used as a source for Pliny; if they had been in disuse,

[200] Gibbs 2012, 48 identifies Koptos as the hub for Roman-Indian trade, but Indian goods were only a portion of what came in through the Red Sea.
[201] Cobb 2015, 378 acknowledges both possibilities.
[202] Young 2001, 40.

Agrippa would not have included them.[203] The cisterns, with their attached shelters, were called *hydreumata*, but were not the only structures maintained by the Romans along the Koptos roads.[204]

Many Roman building remains—not only in Egypt—come from their military presence: *castra* recur throughout Europe. Unlike with other Roman campaigns, however, the entire territory of Egypt was ceded to Rome at once, rather than a through a lengthy invasion with gradual Roman victories. Thus, instead of *castra*, military remains in Egypt consist of watchtowers and small forts (*praesidia*), which are smaller and contain fewer soldiers. Ten of these were built around Berenike, with additional buildings placed along the Koptos routes: all were in place by the beginning of the first century CE, though some were most likely built before others.[205] In addition to basic guard duties, the troops at the watchtowers could light fires atop them as signalling devices, warning neighbouring towers or towns about potential threats. Though important, these towers were cheap to maintain, since only two guards staffed each: one at the bottom to monitor the road and report sightings to the other, who manned the signal fire.[206]

In addition to maintaining and improving Egyptian roads, Augustus and his delegates devoted some attention to trade waterways. An alternative route through Egypt consisted of bringing goods down the Nile; however, with goods coming into Egypt via the Red Sea, there was still some degree of land travel in order to bring the goods from the port to the river. One of the early rulers of the Ptolemaic era, Ptolemy II (r.284-246 BCE), constructed a canal near the Delta to remedy this, linking the Nile River with the Red Sea. Augustus ordered maintenance performed on this canal, clearing away built-up detritus and making sure that it remained

[203] Cobb 2019, 30.
[204] Brun 2002, 395 provides the names of all ten *hydreumata* along the road from Koptos to Myos Hormos.
[205] Sidebotham 2011, 66; Cobb 2015, 377.
[206] Young 2001, 62-63.

efficient.[207] Due to the northerly wind (cf. page 53) featured on the Red Sea, the canal was probably used for exporting rather than importing: goods could come from the Mediterranean, up the Nile, and directly into the Sea via the canal, without having to use any land transportation. Until Trajan, no other emperor did so, implying either that Augustus' maintenance was of such high quality that it lasted nearly a century, or that the emperors between himself and Trajan cared little for the integrity of travel routes through Egypt. A combination of the two seems likely, with the maintenance lasting through most of the Julio-Claudian era; afterwards, wars on the frontiers or beyond Roman territory occupied the emperors' attention, perhaps seeming more urgent than canal maintenance.

At the city of Koptos itself, administration of the trade route between Koptos and Berenike, including the watchtowers, took place. The *praefectus montis Berenicis*, a position that came into existence under Augustus, held jurisdiction over the entire region between the two cities and likely also oversaw the vast amounts of trade that happened Koptos.[208] Another Augustan-appointed legate resided at Myos Hormos who was responsible for overseeing import taxation and trade laws there. Since Koptos was the end point for goods that came in from Myos Hormos, it is only fitting that the prefect there hold the same duties for the other end of the trade process.[209]

Koptos was one of two emporia in Egypt, meaning that it had a permanent large market, designed to attract as many international traders as possible. According to James Miller, the criteria for emporia are as follows: the city has vast amounts of municipal wealth which it can

[207] Sidebotham 2016, 135-137 also asserts that the canal or river route was used for bulky items and 'staples' which had low value. It is important to note that river travel was cheaper than caravan travel. However, transporting small and valuable items via caravan would allow merchants to turn a profit, both by virtue of being able to carry higher quantities of goods and by the ability to make stops and sales along the way.
[208] Brun 2002, 396.
[209] Thorley 1969, 210.

Figure 4. A map of pre-Augustan Egyptian sites showing Koptos positioned on the eastern bank of the Nile and close to the Upper Egypt capital of Thebes.

channel into designing an attractive space for customers and vendors alike (such efforts might include one or more of beautification in the main vending area, luxury accommodations for travellers, or permanent and sturdy shops out of which to sell); it must be on along one or more major trade routes; and it must be difficult to bypass due to the surrounding geography.[210] Koptos, close to Egypt's north-south axis and right on the eastern bank of the Nile (Figure 4), easily meets the last two criteria. The city would have received high traffic due to its position, even well before the Roman period, thus allowing it to accrue the wealth necessary to support an emporium trade. Koptos also imposed heavy tariffs on its vendors, impounding goods until they were paid and thus insuring that they had the budget to continue to support so many visitors.

A natural consequence of more goods coming into the city of Rome was an increased need for storage facilities. Before Augustus, there were already warehouses (*horrea*) in Rome, especially along the banks of the Tiber where goods from Ostia were ferried down.[211] There were two types of *horrea*: the rarer corridor-type existed only at Ostia and lacked some distinctive

[210] Miller 1969, 173-176.
[211] Rickman 1980, 270.

features of the more common type.[212] Most *horrea*, which could be present in any city, used a ring construction including several rooms organized around an open courtyard, usually enclosed by a wall.[213] Some *horrea*, most notably the *Horrea Agrippiana* in Rome, were made using a modified design which included a single large chamber along the north wall, while the rooms along the east and west extremities were shrunken.[214]

As an accompaniment to the new storage facilities, Augustus or his designates changed how sales worked in the city of Rome, though he left practices in other locations to their governors. Due to the high population in the capital, high demand was created for any products that came in, whether by river or by road. Thus, the items were sold by auction, rather than at a fixed price set by the merchants. In order to benefit from the new volume of products being brought into Rome, Augustus designated a 1% tax on any item sold on auction, in addition to the import fees that had been in place before his reign.[215] As a result, a new profession became popular within the city: auction lenders, who would frequent the sales outside the Emporium (along the Tiber near the Aventine) in order to provide money to bidders who did not have the cash on hand to pay the full amount they offered.[216] These offered more favourable repayment terms for bidders than if they had struck a deal with the merchant, because the lenders would remain in Rome, giving the debtor a longer time to pay off their debt, whereas most merchants

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[212] Morais and Domínguez 2013, 144.
[213] Each individual building was also called *horrea*; one unit within the building was a *horreum*: Holleran 2012, 72.
[214] Morais and Domínguez 2013, 144. Presumably, this means that the large room in the *horrea* was where most of the activity took place, while the smaller units were used only for storage and not for any of the extra purposes that a *horreum* often served (see below). It can also be inferred that the corridor-type *horrea* followed this pattern, with the lack of a courtyard indicating the absence of public gathering.
[215] *centesimam rerum venalium post bella civilia institutam* (Tacitus, *Annals* 1.78). Jackson in this commentary indicates that revenue from this tax was mainly directed toward military pensions. However, without imperial receipts, there is no way to verify that it was all spent on this. The fluctuating nature of auctions also means that the taxed amount was not static; any excess revenue could easily have been put toward another cause.
[216] See Holleran 2012, 65, 82 for location of the Emporium (which was moved there in the third century BCE) and auction lenders (*coactores*), respectively.

would depart after the selling period and would need to be repaid in full before then. Lower interest rates would allow potential customers to borrow what they needed for the limited time merchants were in town, thus further increasing sales beyond what they had been in the Republic.

From the above evidence, both literary and archaeological, it becomes clear that the Augustan government devoted effort on economic development through attempts to improve trade, taxation, and contract laws. With the influx of new products and the presence of new exporters discussed in Chapter One, greater specification within this category of law became more necessary. The infrastructure at significant sites such as Myos Hormos, Berenike, Koptos, and Rome herself helped to support this new volume of trade. However, another effect of infrastructural improvement was the resulting change in the quality of life of those people living at the sites. This new and important change will be discussed in Chapter Three.

CHAPTER THREE
THE EXPANDING AUGUSTAN ECONOMY

It is not up to pure speculation to determine that the Roman quality of life improved due to the changes mentioned thus far; studies from prominent scholars of ancient economies and primary-source testimony both present measurable evidence of a period of sustained economic stability and expansion under Augustus. According to Wilson and Bowman, economic activity can be easily split into three categories, each of which needs to show a marked improvement in order to classify a period of time as one of overall economic growth: production, distribution, and consumption.[217] Chapter one indicated increased **production** in its survey of Rome's exports, while chapter 2 detailed the increase in **distribution** by highlighting the new trade routes Rome gained access to during the Augustan era.

Keith Hopkins famously provided a sound theory also pertaining to the increased distribution in the early Roman Empire. Under Augustus, Rome began specifying that its tribute should be paid in cash, where previously provinces had the option to send goods instead. In order to raise sufficient cash, provinces had to begin selling the goods they produced either to other provinces, or outside of the Roman borders.[218] With most Roman provinces following this pattern—grain-producing provinces (for example, North Africa) were an exception—the trade volume increased enough to create a notable spike in what modern scholars might call 'economy', even if a large portion of that trade was within Roman borders.[219] However, Emmanuel Mayer adds the important stipulation that the city of Rome herself was among the

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[217] Wilson and Bowman 2009, 31; Temin 2007 argues that it was due to a high demand of products, capital, and labour (i.e., high consumption) that led to Roman economic growth during the early first century CE.
[218] Hopkins 1980, 101.
[219] 'The economy' and the study of 'economics' did not exist as such until the eighteenth century, and were not considered in ancient times beyond knowing the laws pertaining to trade and moneys: Finley 1973, 21.

prime recipients of provincial trade, because it was here where gold coins were minted.[220] Thus, coins were produced in the city of Rome, given away in exchange for provincial goods, and then returned by those very same provinces. Both the capital and the provinces would be able to sell off the goods, and both would have been receiving an increased variety of goods, thanks to the fact that *each* province had to undertake so much trade. By demanding its tribute in cash, therefore, Rome did not produce higher revenues, but it did broaden distribution within its own territory. The city received both material goods (when it bought them from the provinces) and received the coins it had used to purchase those goods back from the provinces in the form of tax payments. Whereas, if the capital city had continued to ask tribute and taxation in product, she would only receive that product once a year for taxation purposes. Instead, she received a steady supply throughout the year through purchase, while the year-end tax in cash negated the deficit accumulated through purchases.

Consumption, the final factor in the equation, is, in the opinion of Wilson and Bowman, the most important. An 'economic decline' (or 'recession' in modern macro-economics) can only be defined by a decrease in consumption, rather than in the other two factors.[221] More money would be going into raw materials and production costs than would be made back through sales, which would result in a net loss for a large part of the population. By contrast, an increase in consumption would result in overall economic growth, and there is evidence for increased consumption by the Roman population at this time. In some settlements, remnants of household receipts have been found on ostraka. These track the daily expenses of the household, including grocery and service purchases. In his 2012 paper, Emmanuel Mayer emphasizes the importance of these receipts, as they prove that Roman households engaged in 'microtransactions': small,

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[220] Mayer 2012, 63.
[221] Wilson and Bowman 2009, 48.

frequent purchases of varied types of goods, much like modern grocery shopping. Conversely, this also proved that vendors did not always sell in bulk; selling small portions would also allow them to make more money, as they could overcharge by only a small amount on dozens of smaller sales, letting the extra revenue add up.[222] Mayer also raises the point that the economy was not based entirely around consumption of goods, but services also played an important—albeit sadly unpreserved—part in the everyday lives of the people.[223] Barbers and brothels are two significant examples where the services used by a significant percentage of the population could have been improved with the new influx of 'luxury' products, again allowing the establishments to charge more for their use. For example, barbers could use scented hair oils (Martial, *Epigrammata* 64.5, 'Let my sodden hair became rich with excessive nard')[224] or tools made of ivory, while brothels could clothe their employees in the finest silks (Seneca, *De Beneficiis* 7.9.5, 'I see Chinese-silken garments, if they must be called garments, which can neither cover their body or their shame; when wearing which, they can scarcely with a good conscience swear that they are not naked. These are imported at a vast expense from peoples unknown even to trade').[225] Some employed foreign slaves as a draw to customers. Writing only a few decades after the reign of Augustus, Seneca's complaints about women's fashions make it obvious the practices have been happening for some time. These specific examples potentially indicate newfound abundance of resources and income available to the citizens.

[222] Mayer 2012, 61.
[223] Ibid., 62.
[224] *Pinguescat nimio madidus mihi crinis amomo*. Martial's satirical address to his servants speaks of hair oils being abundantly in fashion. See Betts 2017, 35 for additional bibliography and analysis of perfumes during the early empire.
[225] *video sericas vestes, si vestes vocandae sunt, in quibus nihil est, quo defendi aut corpus aut denique pudor possit, quibus sumptis parum liquido nudam se non esse iurabit. Hae ingenti summa ab ignotis etiam ad commercium gentibus accersuntur;*

After Augustus' annexation of Egypt, Rome's interest rates on new loans plummeted to about 1% per month, or 12% annually. This is a 60% drop from their previous rates, which implies that the interest rates for loans during the Late Republic were 2.5% monthly, or 30% per year. This constitutes a marked decrease in merchant and household expenses, again allowing people to acquire better quality goods for more everyday use.[226] The inflation rate remained very low until the Antonines, allowing the cost of living to remain manageable, especially if most people had paid off or secured the cancellation of their outstanding debts early in the Augustan era. Inflation was approximately 1% per annum from Augustus' reign to Antoninus Pius, but there is little evidence as to when the gradual changes in monetary value took place. It is possible that there was no change under Augustus and that the minute inflation came during his successors' reigns, or that it happened at such a gradual rate that people living under Augustus were not truly affected by it at all.[227] Taken in combination with the fact that higher-interest insurance policies existed for merchant ships, this is a good reason why a moneylending family might choose to operate out of this city.[228] Based on his extensive studies of the loan receipts, Peter Candy concluded that to counteract high loan-rates, the interest was actually paid back immediately upon receiving the loan—thus, if a shipowner were to take out a loan of 100,000 sestercii with a 20% interest rate, they would actually only receive 80,000 sestercii from the loaning family, allowing them to undertake the journey without worrying about a change in the interest rate while away.[229]

[226] Duncan-Jones 1994; Temin 2006, 148; Howgego 1992, 5.
[227] Temin 2006, 149.
[228] See Temin 2006, 144 for insurance policies on merchant ships. He claims that interest rates were high because they accumulated throughout the ship's entire journey, outbound and inbound, instead of being able to be paid off early.
[229] Candy 2019, 77.

The connection that Rome was able to garner with the Red Sea through the acquisition of Egypt led to a higher volume of—or at least more affordable—leisure products. More specifically, the pursuit of activities which include watching public games, playing the lyre, shopping for jewellery, or engaging in philosophical debate with an educated slave would be classified as *otium*: leisure time. Many of these activities leave no trace in the physical record and so cannot be accurately measured, but it is certainly a reasonable inference to consider that they saw a large increase. Luxury products were more plentiful than before with more citizens able to afford them. Thus, even without considering Roman Gross Domestic Product (GDP), rate of employment, or other economic factors, it is possible to consider that Roman quality of life improved by being able to take part directly in the Red Sea trading sphere and being able to make use of the trade connections Egypt already possessed.

Another Republican trend gained popularity under Augustus thanks to the increased flow of 'luxury' products: the *macellum*, which might be best defined as an 'upscale food market.'[230] This space presented itself as a place for the elite, not only with its products (discussed below) but also with its physical composition: it was often in its own courtyard, complete with a colonnade and portico, a private well, and a decorative centre building, which could be used as a shelter, resting or waiting place. Nearby *taberna* offered food and drink to complement whatever patrons had purchased in the *macella* or a place to sit to enjoy their purchases, in cases where the food was ready-to-eat.[231]

Although the *macellum* already existed during the Republic, Augustus executed the many changes that make it easier to distinguish from the traditional Roman market. The reason why

[230] Ibid., 160 contrasts it with the open markets that often operated in Rome on designated days, in that the *macellum* had its own enclosed space, separate from the *fora* where the usual marketplaces operated.
[231] Ibid.

one can attribute this to Augustus is because many *macella* followed Augustus' own construction, the *macellum Liviae*, located on the Esquiline Hill, a prominent location due to number of elite residences and businesses during the early principate.[232] *Macellum* sales were all based on auction, with items such as honey, snails, fresh meats, and privately owned vegetable gardens being put up for sale; staples such as bread, wine, and oil were not featured.[233] Considering Augustus' newly established 1% tax on auctions, it is no wonder that he promoted the popularity of *macella*. Not only would the state make money from all *macellum* sales, but because only luxury products were sold—and marketed towards wealthy citizens—logic dictates that the end bid would be many times the object's original value, thus making the 1% tax many times higher than it could have gotten in a traditional market. The many new trade routes that emerged (discussed in Chapter Two), provided the luxury stock of the *macella,* especially the spices from India, and the continuance of this trade ensured that these markets could continue providing these desired goods and tax revenue.

Horrea, discussed in Chapter Two, were much more than warehouses. Most of the rented units were shops as well as storage, where vendors could go on specific days to sell to nearby people, without having to keep the goods in their home or rent out an extra building. Depending on where the *horrea* was located, the shops within would likely be open on different days. For example, the tenants of *horrea* near the Tiber banks in Rome would probably be selling on days when shipments were coming up the river from Ostia. If the *horrea* was closer to a city-centre, then tenants would probably sell on market days, when people were already out doing their shopping. Notably, the *horrea Galbana* near Rome's shipping district has been found to have evidence of vendors and craftsmen renting within. Claire Holleran theorizes that the upper units

[232] Ibid., 164.
[233] Ibid., 165-173.

in the building may have belonged to guard teams assigned to the building, due to the amount of valuable goods within.[234] *Horrea* in areas less focused on commerce were used mostly as storage places, especially for bulk quantities of staple products.[235]

While not immediately obvious, the storage capabilities of the city are an excellent indicator of the state of trade. As mentioned in previous chapters, more widely available goods enabled more vendors from varied backgrounds. In cases where the vendor did not have the income to sustain a shop in commercially dense areas of the city of Rome, an *horreum* was an excellent solution. *Horrea* buildings were concentrated around areas that received high amounts of foot traffic (such as near the *fora* or theatres) and featured colonnades where vendors could display products on sale while working on others inside the actual unit.[236] This also allowed vendors to sustain other professions while running their shops on specific days when more sales were guaranteed (in Rome, *nundinae*, or market days, were when most people did their shopping).

The *horrea Agrippiana*, by contrast, was an oddity in terms of composition as well as design. Rather than being used as personal storage lockers or occasional shops for the general public, this *horrea* had more of an elite air to it. The citizenry tended to associate clothiers with this building, especially luxury clothing items: for example, cloaks made with Tyrian purple dye were famously sold here.[237] Since the building was so close to the administrative centre of the city, many *horreum* units were transformed into *taberna*, which are usually described as establishments where food and drink are for sale, although the exact nuances of such a building

[234] Holleran 2012, 74.
[235] *Regio XIII* was famous for its number of *horrea*; among many other products grain from Egypt was stored here once it reached Roma: Rickman 1980b, 267.
[236] Holleran 2012, 115.
[237] Ibid., 82.

are lost in translation.[238] In this way, the *horrea Agrippiana* may be more akin to a modern-day mall or arcade than to a block of self-storage units, although it is still unclear what the large northern chamber contained. Thanks to the presence of so many *taberna*, which were consistently open for business, the vendors located within the *horrea* may also have been open consistently, again setting them apart from the vendors occupying more traditional *horrea*. It is no coincidence that this *horrea* was commissioned by Augustus and named after Agrippa: superficially, it was a structure that resounded with the common populace and was readily accessible, yet it carried an important declaration of its political and economic importance.

Roman Shopping

As discussed in Chapter One, the major benefit to Rome's new trade alliances was the improvement of quality of life for the Roman people—highly visible for the wealthy members of society and slightly tangible for others, although all 'classes' did benefit to some degree. Even some slaves, who were often entrusted with shopkeeping while their masters were away on merchant journeys, were able to gain both education and income from the new arrangement and thus buy their own freedom.[239] While a traditional 'class system' as perceived in modern cultures was absent in Rome, the more expensive lifestyle and increased quality of life did create a group of 'middling consumers', which may be equated to the modern 'middle-' or 'upper-middle-class'. These people were well off and could afford some esoteric goods and service, whether they were a wider variety of spices, higher quality clothing, or an abundance of household decorations, but they were nowhere near wealthy enough to qualify as elites. Pliny the Elder,

[238] Ibid., 108.
[239] Holleran 2012, 28-31; Temin 2006, 142 also mentions that sometimes the reverse occurred: slaves negotiated on behalf of their masters while the masters tended the shop and workshop.

looking back at the fact, referred to them as *plebs media*, in contrast with the ‘regular’ *plebs humilis* (*Historia Naturalis*, 26.3).[240] During the Principate, the shopping system in Rome changed to reflect the new variety of products. There were three kinds of vendors in the city: producers, itinerant merchants, and secondary or specialty vendors. Each group was affected in their own way by the new trade changes.

Producers underwent the least amount of changes out of all three merchant types. These people used their shops as workspaces. In most instances, there was no room for customers to come inside, so the artisans would conduct business through a window onto the main street.[241] The acquisition of new materials allowed producers to expand their repertoire: for example, a carpenter might suddenly find wood from India and Africa available for much cheaper prices, due to Rome’s new direct connection with the regions.[242] This carpenter could then acquire larger quantities of the rarer wood for the same price they purchased smaller quantities before. They would be able to make more products, but sell the finished products for the same price (or even a slightly reduced price) than before, thus earning a larger profit. The same logic applies to retailers such as perfumers, cooks, smiths, glassblowers, animal tamers, and jewellers.

Itinerant merchants always had to beware of import and sale tariffs: whichever city in which they set up shop would grant them use of the land for their stall, but they would remit a certain percentage of the value of the goods they intended to sell, even if the sales did not get made.[243] With the new Roman control over Egypt, there was a sudden increase in the number of itinerant merchants selling in Rome; the majority of the merchants who were already in business

[240] Holleran 2012, 39.
[241] Holleran 2012, 22.
[242] Holleran 2012, 63 mentions that producers were likely to have obtained their materials straight off the docks.
[243] Arnaud 2011, 69 claims that because of this, merchants usually sold their goods for twice the rate at which they bought them.

in Egypt were Alexandrian and simply expanded their trade routes northward.[244] One of the city gates, the Porta Capena along the Via Appia, contained a small area to be used as a cart-park, since carts were not allowed on Rome's streets during the day.[245] Some merchants took this a step further, electing to conduct their business from their parked carts outside the city, rather than bring the goods inside and be forced to pay the import tariffs.[246] The price for this was the obvious decrease in foot traffic, as the merchants were now selling away from Rome's major fora. Fortunately, if they were carrying rare or limited goods, they would likely make the same amount of sales as they might have inside the city, since anyone who needed those goods would come outside to be able to acquire them. Being just outside the city gates, the distance consumers had to travel was minimized (not negated—a walk from one end of the city to the other was still a serious undertaking) and thus did not represent a significant disruption to their lifestyle the way travelling to another city would have. This is yet another example of merchants maximizing their profit. Possibly, products were discounted on the outside of the city to a degree which incentivized customers but still allowed merchants to make more than they would have selling for regular price after paying dues.

One might assume that exploiting such a legal loophole would incense the party who originally made the law, but this was not the case with Augustus. Upon his restructuring of Rome into named administrative districts, he named *Regio I* after the Porta Capena, since it was so influential in intra-city travel.[247] Most likely, the Porta Capena trade congregation actually increased Rome's revenues, even though the city did not receive import dues from the

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[244] Cobb 2019, 31.
[245] Holleran 2012, 36, 89.
[246] Ibid., 90. Import taxes were usually about 2.5%, unless the sale took place on the very border of the Empire: Rice 2016, 184.
[247] Ibid., 89; see Wallace-Hadrill 2003, 202 for a brief description of Augustus' division of the city into *regiones* and *vici*.

merchants. If they were selling for more than one day, some of them—if not most—would have to seek lodging within the city. Customers who lived in nearby towns were likely to visit and they too would need lodging if they lived too far away to make the trip there and back comfortably in one day. Any of these people might seek out food or entertainment while they were near Rome as well. One might then imagine a new rural middle class who would make occasional shopping trips to Rome once or perhaps a few times per year. While this group surely would have been small, the cumulative effect of their shopping trips would have had economic and social impact. Finally, the existence of such a 'duty-free' shop probably attracted additional merchants to the area: those who were not willing to come to the city of Rome before because of the heavy import fees suddenly had an option to sell in a highly populated area for free. It is important to note that selling outside of city limits to evade import fees was not a new occurrence under Augustus, but the increased presence of merchants and the population growth made it much easier to turn a profit by doing so.

Specialty merchants, who usually worked with a variety of raw materials in order to make very specific goods (for example, statuettes to be used as offerings, jewellery for upper-class women) would likely not have undertaken any changes to their business practices, but they would have been able to acquire more types of material with which to work. A second type of specialty merchant, discussed by Xenophon, is the type which uses one material to make one specific item (his given example is cobblers who only make women's shoes, but Claire Holleran provides additional examples of sculptors who only make eyes for statues or silverworkers who only smith bowls): 'In large cities, on the other hand, inasmuch as many people have demands to make upon each branch of industry, one trade alone, and very often even less than a whole trade, is enough to support a man' (*Cyropaedia* 8.2.5).[248] While Xenophon here refers to Persia in the Classical Period, surely a city the size of Rome during the reign of Augustus could also support such workers, and probably more so given the increased economic diversity. This type of highly specialized merchant usually acquired their materials from the general merchants in the same discipline, so cheaper market prices would not have affected their business.

Thus, the first type of specialty merchant would be able to upsell reliably their finished product simply because it was accented with a product that the Roman populace considered luxury, even if it was no longer priced in such a way. The second type would be able to focus on such a minute aspect of their craft that they were able to upsell, due to holding a monopoly or near-monopoly of the specific part which they crafted. Much like Roman politicians, merchants could be effective wielders of propaganda in order to reinforce what people already *wanted* to believe—in this case, that some goods were worth a much higher price than they really were.

As a hypothetical example, a women's jeweller might charge more for a gold ring with an inset malachite stone (from Ethiopia) than for that same ring inset instead with a stone that occurred in Italy, such as some agate; though the jeweller put the same amount of labour into each and—due to the increased trade—the raw materials cost approximately the same, they could advertise the malachite-adorned ring at a 'luxury' price. Conversely, a jeweller could make a piece inset with a gem that occurred both locally and in foreign places (such as carnelian, which occurs in both India and Italy), but claim it was Indian carnelian and thus charge a higher price. Surely the Roman Law of Contract dissuaded some merchants from such dishonest business

[248] ἐν δὲ ταῖς μεγάλαις πόλεσι διὰ τὸ πολλοὺς ἑκάστου δεῖσθαι ἀρκεῖ καὶ μία ἑκάστῳ τέχνη εἰς τὸ τρέφεσθαι. Clearly, this passage does not pertain to Rome in particular, but it does demonstrate that divisions among specialty craftsmen were often minute.

practices, but those who were cunning would have found increased opportunities under the expanded economy to swindle their customers.

The trade chain between Indian goods and Rome, or Roman goods and India, was another indicator of increased Roman elite standard of living. Augustus' efforts to gain and maintain trade with India are outlined in Chapter One, but it is also useful to discuss how Indian products could improve the Roman quality of life, much the same way that Red Sea specialty products did. In the case of India, industry rather than luxury benefitted from the new trade relationships. Even prior to Rome's direct trade contact with India, the two nations were still receiving each other's products. One such product was ebony, though the Romans were under the impression that it grew in Arabia rather than in India.[249] Ebony is an extremely hard wood, which also grows straighter than many trees and is relatively water resistant.[250] Because of this, it would have been useful in building edifices in rainy areas; it would *not* have been used in shipbuilding, because unlike most woods it is dense enough to sink and it is difficult to shape into precise or detailed pieces.[251] Its colour would also have made it an attractive material for accenting buildings and furniture.

Direct Indian trade also affected the health and well-being of Roman citizens. Medicinal ingredients such as cassia grew in India and the Romans were able to obtain them at much lower prices directly from the Indians rather than through Arabian middlemen.[252] Rice was another

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[249] Miller 1969, 218.
[250] There are several different species of ebony, and not all of them came from India. The type which the Romans received first from Arabian traders and then from India was most likely Ceylon ebony, which is native to Indian soil: K'nig 2020.
[251] Ibid.
[252] Cassia has been proven to help with low blood sugar; it is also rumoured to help with muscle pain, eye infections, and urinary tract infections, though no scientific study has been done on these elements: Pari and Latha 2002, 620. However, ancient Romans were not concerned with peer-reviewed medicinal studies and if cassia produced any kind of result when used as a medication, they would have accepted it.

product India exported.[253] While the Romans usually focused on luxury items from India, they could have made use of rice during one of the periods where there was a food shortage (such as 23 BCE) and the grain from Rome's three 'bread baskets' – Egypt, North Africa, and Sicily – would not have sufficed.[254] While it is true that the shipping of rice in large quantities would have been an arduous journey across both the Indian Ocean and the Mediterranean Sea, in times of famine any relief would be welcome. Consumption of rice for this reason is completely speculative, but deserves to be considered.

Based on evidence recovered from the city of Rome alone, it is clear that the expansion of the economy (thanks to the new products discussed in Chapter One from the new alliances discussed in Chapter Two) went far beyond material wealth. New luxury services, shopping options, and business practices transformed the cityscape, bringing with them different experiences for citizens of all social groups. Of course, Rome alone would not have been the only city to see these changes, but it is useful to study them on the largest scale on which they occurred. Surely, increased quality of living would have brought with it a favourable outlook on the current government, which explains why Augustus and his circle would have urged the continuation of and sought to protect the new trade routes that fueled this popular contentment.

[253] Thorley 1969, 222.

[254] Augustus also made it clear that he was willing to use personal funds in order to alleviate the famine at Rome (*Res Gestae* 15, *et consul undecimum duodecim frumentationes frumento privatim coempto emensus sum* ~ 'And during [my] eleventh consulship I measured out twelve portions of rations purchased privately'). Cooley 2009 clarified this to mean that Augustus subsidised the grain dole for one year (each portion is one month), responding to a shortage caused by flooding (171). Buying grain from a nation that was well-disposed toward him would not be unrealistic, especially since it was obvious that only using the harvests from Roman territory would not have been enough for the year.

CONCLUSION

HELP WITH THE OLD, IN WITH THE NEW

The reign of Augustus (30 BCE to 14 CE) was a time of vast change for the Roman trade sphere. Cost of living decreased while the availability of all products, whether luxury or staple, skyrocketed. On a governmental level, there were no major wars and an abundance of new trade partners.

As demonstrated in Chapter One, an influx of new products became available from a variety of new territories. Luxuries such as precious stones, exotic animals, and varied spices allowed for new innovations within Roman territory: the transformations of blood sports and perfumes are just some examples of these. In return, the Romans provided their new trade partners with a selection of more utilitarian materials. Smaller armies and new territories meant more access to metals and stone to offer for trade, making the trade relationship between Rome and the East one of mutual interest in preserving. Augustus expended diplomatic resources to maintain relationships with Rome's new trading partners, as evidenced by the Indian embassies in Hispania and Gallus' Arabian expedition.

Chapter Two demonstrated that the reign of Augustus was a time rampant with new laws concerning contracts and shipping, though there was no direct subsection for 'Trade Laws'. The influx of specific laws made it much easier for new merchants to make a living participating in the Roman trade business. In order to support the locations important to trade, such as Myos Hormos, Berenike, and Roma herself, the Augustan government also made changes and improvements to these cities. In Egypt's case, the government also enhanced the spaces between the cities with patrols and watchtowers. The recently perfected underwater concrete recipe was integral to upgrading harbours throughout the empire.

Based on literary and archaeological evidence presented in Chapter Three from Roman territories, South Arabia, and India, it is tenable to assert that the Roman way of life greatly improved during the reign of Augustus, especially for certain members of the elite. New types of merchants and specialized professions came to the city of Rome, while new legislation on taxation and the increasing popularity of mercantile structures like *horrea* and *macella* increased the national revenue.

Underlying the survey of Roman trade in this thesis, the capture of Egypt was the lynchpin in the changes made to the Roman trade and economic structures in the Augustan Period. New territories increased available resources and allies, of which the Augustan regime made full use by maintaining and improving foreign relations with these powerful trade partners and arranging for a vastly larger intake of luxury resources. The intake was in turn supported by increased attention to trade, shipbuilding, and storage infrastructure. New laws reflected the changed situation by making the market more accessible to part-time and foreign merchants. Protections on contracts and trade associations ensured that these new players in long-distance sea trade would be able to benefit from their businesses and be fairly represented in case of fraud.

With improvements in both the physical (trade goods and infrastructure) and intangible (laws and contracts) features of the economy, quality of life was vastly improved for a portion of the Roman population. Granted, the wealthy would have benefitted most from this expanded and more diverse economy, but even the class of citizens most lacking material wealth would have benefitted from the stability of the food supply and the lower prices on all imported goods. The sudden absence of war after many decades made this new way of life seem even further improved, as the government was now able to focus on city improvements, food, and citizen well-being.

Augustus himself is a notable figure in the overall improvement of trade not because of the timing of his reign, but because of the personal effort he or those working on his behalf expended on maintaining the aforementioned features, including favourable relationships with Indian kings, active exploration into South Arabia, harbour improvements in Egypt, monetary relief for grain distribution, support and spread of the Roman free market system throughout territories that did not previously have it, and new trade and contract laws such as auction tax, all of which encouraged and supported an expanded trade system. His reign set a precedent of attention to economy and trade being characteristics of a successful rule.

Claudius, who was alive during Augustus' rule, was responsible for the major improvements to the harbour of Ostia and the construction of her sister-city Portus, which eased the import process and expanded upon the storage facilities that had been in Ostia since the late Republic.[255] After his conquest of Britain in 44 CE, the Atlantic trade routes came fully under Roman control, further opening up trade options for Rome and mirroring the process which happened to the Red Sea after Augustus' victory at Actium.[256] Trajan and Hadrian, both considered among the 'Good Emperors' of Rome in the 'golden age' of the second century CE, made their own improvements to Egypt's infrastructure, building upon the previous work by Augustus. Trajan's work consisted of connecting Arsinoe, a prominent port at the time, to the Nile by ordering the construction of a canal; he was also responsible for building a second

[255] Candy 2019, 39
[256] Carreras and Morais 2012: 433.

harbour at Portus in Italy.[257] Hadrian also undertook work in Egypt, connecting the newly established Antinoopolis to Berenike via a coastal road.[258]

Without the significant effort put in by Augustus to build and maintain trade relationships, adjust import taxes, and standardize the trade infrastructure throughout the empire, later emperors would have had a much weaker foundation to build upon. The economic success that Rome saw during the Augustan era also paved the way for many more decades of success, even under emperors who were somewhat less attentive to Rome's monetary situation.

That being said, economic management has been and continues to be a criterion for evaluating an emperor's success. In ancient times, this manifested less in terms of which trade routes an emperor maintained or how often he revised contract laws, but moreso as an evaluation of the cost of living: were staples such as olive oil readily available to all citizens? How much grain was provided by the *Annona* at what cost to citizens? Wealthier citizens who had spent time in governmental positions may have reported on the finer details of an emperor's economic policies, but for most of the population, an emperor's worth was judged based on how his rulings affected their daily lives. Often, emperors under whom the economy was properly managed were able to provide for the people in other noticeable ways, such as the construction of new public buildings (baths, amphitheatres, etc.). Citizens remembered these emperors fondly due to their quality of life increasing, but underneath such constructions lay the funding to be able to commission them, thanks largely to competent monetary management.

Modern scholarship, with its privileges of hindsight and inside information, takes a more multifaceted look at emperors and their achievements. Often, scholars examine the achievements

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[257] See Cobb 2019, 27 for the Arsinoe-Nile canal. Sidebotham 2016 argues that this project was a re-digging of the original canal which had maintenance done on it during the reign of either Augustus or Tiberius. See Oleson and Hohlfelder 2013: 821 for the second harbour at Portus.

[258] Cobb 2019: 27.

of emperors in all aspects of government, from economics to military to domestic laws and beyond. Even if analysis of an emperor does not directly include examination of his economic competence, many of the deeds used as evidence to his expertise (or lack thereof) are contingent on the economic situation. An emperor who is remembered as a brilliant conqueror is only able to be such due to his ability to pay his soldiers. An emperor whose regular games for the amusement of the citizens increased overall happiness relied on animal and slave imports to execute those designs. Thus, economic policy plays a role in nearly every evaluation a modern scholar could conduct on a ruling figure.

Without the annexation of Egypt, Augustus' complete reforms of the Roman government would not have been as successful. It was largely thanks to the position and trade routes afforded by the new province that his economy was able to be so successful. And, as discussed above, without the funds acquired from a successful economy, the Augustan government would have been unable to implement all the changes that so improved the lives of Roman citizens from 30 BCE onwards.

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