ALLEGHENY COLLEGE

History 610
Senior Project

The Lasting Impact of Roman Infrastructure on the Use of Black Pepper in Europe

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-Rudra Schultz-Ray

Abstract



Using a long standing web of trade infrastructure through the Red Sea and Mediterranean, new Imperial Roman authority between the first century B.C.E. and the second century C.E. allowed for vastly improved access to spices like black pepper amongst the urban masses of Rome. As Rome expanded its border deep into Africa and Europe, it brought with it the taste of black pepper, intertwining the spice with local European cuisines. The collapse of the Western Roman Empire prompted the decay of that authority that helped to maintain and construct expensive trade infrastructure throughout Europe. Doing so led to decreased access to black pepper, shifting social and economic outlooks on the spice. Locations like Germany proved less damaged due to its immediate proximity to the Venetian pepper trade, but reduced connections to the Roman trade in Gaul and Britain was exacerbated by the collapse. Prompting a cultural upheaval against the use of black pepper in the sixteenth century C.E within France and the British Isles.

Introduction

In this essay I endeavor to demonstrate the relationship between infrastructure and food culture, specifically in the transitional period in Europe after the collapse of the Western Roman Empire from the second to fifth centuries C.E. This specific timeline explores the roles that Tyrian trade networks, which would grow to become Pheonician and Carthaginian, laid the groundwork for Rome's maritime control of the Mediterranean after the Bronze Age Collapse. Such networks were difficult to maintain as they required the utmost political cooperation between varying states. The Pheonicians secured this through economic control, while Rome secured this through military occupation and client states. That same military occupation that helped to facilitate trade networks through Europe, Africa, and the Near East was cyclical, as it required significant investment of resources and labor to feed large occupying armies alongside the burgeoning urban populations that characterized Rome's urban core. The aforementioned "urban core" was an immense population with Rome, Constantinople, and many other major cities on the Mediterranean. Considering that the climate of the Mediterranean, except for a few select locations, was not able to support millions of people within a small area, grain had to be moved from fertile regions in Sicily, Egypt, and Anatolia. This resulted in the movement of large amounts of grain, enough to feed between fifty and one-hundred million people, between production sites and consumption sites either in urban environments, or rural areas at the frontiers of occupied territories in the British Isles, Africa, and Asia. The movement of said grain was in itself a hurdle to overcome. Prior to Rome's need for grain Ptolemaic Egypt facilitated the movement of grain on a few large ships up the Nile. Ptolemaic Egyptian shipbuilders helped to design and create ships of incredibly large size that could be used for the transport of elephants

over long distances. After Egypt's consolidation under the Roman Empire in 30 B.C.E. Rome transitioned the type of ships to be much smaller and much more frequent, allowing for significantly more consistent travel on the Nile as sailing seasons were much less of an issue for river transport. Port infrastructure constructed for large river-going grain vessels, and the more impressive ocean-going elephant carriers existed under the Ptolemies, but was revitalized and reinvested into under Roman occupation as the empire was seeking to feed its burgeoning population with grain, along with semi-luxuries like tortoise shell, pepper, ivory, and other spices from the Indian subcontinent. Such a trade relationship was known as the Indo-Roman trade which specialized in those aforementioned goods although many others were also involved to a minor extent. This revitalization happened over the period of the Early Roman Empire, which would be from 30 B.C.E. to 200 C.E. Said revitalization coincided with a period of class reconfiguration within the Roman Empire, essentially facilitated by the exploitation of resources and manpower of conquered territories. This gave rise to the "middling" class, which is very difficult to compare to modern day class stratifications here in the U.S. They were small property holders, characterized by bakers, tavern owners, and small merchants, all of which would not be considered part of the elite of Rome's society. As this middling class grew alongside resources typically restricted to the elite, the overlap between the two grew too. The middling class, those who frequented taverns to purchase food and drink, who were often mobilized within the military, and essentially made up a large part of the non-elite Roman body gained access to goods like black pepper. Of course, black pepper had existed in European diets prior to control of the Red Sea trade route, but it was on a much more reduced scale. The Indo-Roman pepper trade had reached its peak potential between the first and second centuries C.E. A single ship running the Red Sea pepper trade was capable of supplying each Roman individual, approximately fifty

to one hundred million individuals, between 11 and 5.5 grams of black pepper per head annually. Black pepper soon became a crucial part of European gastronomy as well as medical theory due to its rare trait as a source of "dry heat." Pepper quickly cemented itself as a cornerstone of both Roman cuisine and healthcare. The effects that this had on broader non-Roman culture is not to be understated, as the previously noted military occupation that stretched across Europe, Asia Minor, and Africa meant that there was a constant intermingling of Roman and local cuisines and cultures. Black pepper was noted in archaeological digs in Germany and England as they remained intertwined with pepper networks facilitated by Roman central authority. Cultural exchange was not a one-sided phenomena, as not only did the ubiquity of pepper under Roman occupation in Germany leave a lasting impact on German food culture, but foodstuffs like beer and pork rose to unprecedented popularity amongst Rome's urban population within the Empire. Prior to extended occupation of Germanic territories pork and beer were viewed as barbaric and peasant foods, essentially low on social capital unlike wine and beef. This changed slowly, culminating in the third century C.E. when pork was included into government rations for Rome's urban masses.

The collapse of the Roman Empire was a slow and arduous process characterized by ceaseless infighting, foreign invasions, and boundless corruption. All of these flaws had lasting impacts on the complex networks of trade infrastructure that knitted together Indian pepper production with consumption points throughout Europe, Africa, and Asia Minor. As previously noted Rome set itself apart by its ability to invest heavily in the continued construction, and more notably maintenance, in expensive forms of infrastructure like roads, ports, warehouses, and waterways. As the Roman imperial structure was devastated by destruction in many of the places it could extract resources and wealth from it became less able to invest in those regions.

Essentially opening up a cycle of failures, decay, and collapse. There was a devastating loss of trade infrastructure that connected production sites of black pepper in South India, urban consumption sites within the Mediterranean core, and farther colonized sites out in, say, the British isles as an example. Of course locations closer to the Silk Road and the Red Sea trade suffered less from the decay of expensive infrastructure, but they were not wholly immune to the effects of Imperial decay. It became significantly more expensive, dangerous, and more cumbersome to move large amounts of goods over long distances. Black pepper became even more vulnerable than other stable goods, as it could be spoiled, damaged by seawater and pest, and its higher value to weight ratio made it a target of theft. With the state not there to protect merchants or their goods on their journey to bring black pepper to the mouths and noses of Europeans, the cost of black pepper skyrocketed. The increased cost of black pepper meant that it fell out of favor with those same palates vital to Roman occupation. It soon became a foreign taste alongside previously common food goods like *retsina* and *garum*, a wine and fish sauce that was mass produced and consumed throughout the Roman world.

With decreased supply black pepper reentered its role as a class signifier amongst post-Roman European elites outside those still well connected with pepper trade networks like the Byzantines. This is not a simple matter, as factors like location and cultural context found themselves dictating the value of pepper throughout Europe. Take for example the vast differences between black pepper use in Germany, France, and England. Where Germany continued to be well connected to Venetian pepper networks in the Medieval and Early Modern periods, in spite of the collapse of the Western Roman Empire in the fifth century C.E. So, Germanic cuisine continued to incorporate black pepper into sausages, as was common in Italy during Roman conquests. As was the continued popularity of mulled wines, very similar to

Roman spiced wines which were used in a culinary and medical context. French cuisine was similarly connected during the Roman occupation of Gallic lands. But after the collapse of Rome, France found itself disconnected from Venetian pepper networks, which proved to be the only method of import of black pepper. Essentially, black pepper fell out of favor in French palates which exemplified European haûte cuisine. English elite cuisine, exposed heavily to French food culture due to extended occupation and interaction, reflected to significant similarities.

Essentially the collapse of the Roman Empire forever impacted European food culture, specifically German, French, and English cuisines, in terms of their outlook and use of black pepper in the culinary context.

Chapter One

What is Roman Trade Infrastructure?

The city of ancient Rome was hungry, and I don't mean hungry for gems, slaves, and luxuries, but literally hungry for food. According to Paul Erdkamp's *A Cultural History of Food in Antiquity*, "few parts of the Mediterranean are rich enough in wild foods to sustain even small villages without exchange at a very favorable rate for agricultural staples."[1] Thus urban megacenters of the Roman world, such as the city of Rome itself, are a real challenge to provision. Between the first and second centuries C.E. the population of Rome is estimated to have been one million residents.[2] A figure that would remain unmatched until nineteenth century urbanization.[3] The major flaw with urban settlements is that while they are significantly more efficient in their use of certain resources, such as energy and space, the scale of some of the resources they consume often outstrips the local foodscape.[4] So the issue then becomes, how does a civilization in antiquity not only feed such a large population, typically grain, but move it over vast distances prior to the availability of modern technology.[5] This problem becomes two-fold as not only did Rome need to move food into its urban centers, but also out into its militarized frontiers to keep its vast professional armies standing. Such frontiers were not only populated by their native inhabitants, but also by occupying Roman soldiers, who could quickly outstrip local food supplies. The problem could not be solved easily, much like the saying Rome was not built in a day, but with small changes and experimentation over time. Take for example the early neolithic rise of barley and einkorn, both of which are glume grains – referring to the leaf-like structure below the flower cluster – that need dehusking to release the grain from the glumes. They are much less productive and need more work than free-threshed grains that came

[1] Paul Halstead, *A Cultural History of Food in Antiquity* (New York: Bloomsbury, 2016), 23
[2] Ian Morris, *The Measure of Civilization* (Princeton: Princeton University Press, 2013.)
[3] Morris, *The Measure of Civilization*
[4] William Rees and Mathis Wackernagel, "Urban ecological footprints: Why cities cannot be sustainable-And why they are a key to sustainability," *ScienceDirect* 16, 4-6 (July 1996): 223-248.
[5] Win Broekaert and Arjan Zuiderhoek, *A Cultural History of Food in Antiquity* (London: Bloomsbury, 2016), 46

to be selected later.[6] As human populations grew – they butted up against the issue underlined by Erdkamp – there just was not enough food in the environment to handle larger human populations. It could be for any number of reasons why humans changed their behavior when it came to food production. Erdkamp specifies that it could be "exposure to new species, tastes, and perhaps technologies promoted changes in food production in temperate europe alike."[7] Essentially claiming that while it's impossible to know what specific reason pushed humans from relying on glume grains towards free-threshed ones, the way labor was organized could've changed, on top of changing tastes, the movement of food surplus and cooperation, and finally just plain old need for more food in denser populations. So alongside technological innovations in storage and transportation came the rise of free-threshing grains, like modern day wheat.[8] They were more susceptible to pests, but they could be processed and transported with much less drag on storage facilities. Technology like ox husbandry, large scale irrigation, and complex drainage systems helped Greco-Roman agriculturalists produce enough food from the land to create a surplus to feed the urban, non-agricultural, population.[9] Rome utilized Egypt's capacity for grain production to further supplement its stocks.[10] Trade grew to complement local supplies. Erdkamp writes "Egypt became a structural supplier of grain to outside consumers."[11] In his book titled *The Indo-Roman Pepper Trade and the Muziris Papyrus* Federico DeRomanis goes into further detail, stating that after Rome gained control of Ptolemaic Egypt in 30 B.C.E. the process in which grain was shipped up the Nile was reformed to be significantly more efficient

[6] Halstead, *A Cultural History of Food in Antiquity*, 26
[7] Halstead, *A Cultural History of Food in Antiquity*, 39
[8] Halstead, *A Cultural History of Food in Antiquity*, 26
[9] Halstead, *A Cultural History of Food in Antiquity*, 36
[10] Paul Erdkamp, *A Cultural History of Food in Antiquity* (New York: Bloomsbury, 2016), 11
[11] Erdkamp, *A Cultural History of Food in Antiquity*, 11

and reliable.[12] The Ptolemaic rulers had utilized a handful of large grain carriers that slowly made their way up the river, making numerous stops along the way. This is not the first time that a Roman system was built over a pre-existing system. As is the nature with ancient cities they were often built over each other. The same is true for trade networks within the Mediterranean. Prior to Rome being the primary power of the Mediterranean there were the Greeks, later Pheoniceans, and finally Carthaginians. As Carolina López-Ruiz writes in *Pheonicians and the Making of the Mediterranean*, Tyre was a major economic, political, and social power of its time.[13] As a large proto-urban city-state along the Mediterranean, they also imported food supplies from outside its limited state borders.[14] In doing so Tyre helped to found the network that Rome would so readily adapt to its own uses.[15] Trader city-states of the Levant, primarily Tyre, also pioneered technological advancements in infrastructure, disseminating them along its networks.[16] Many of which the Romans attributed to Carthage.[17] Some examples of the aforementioned technology would be mortise-and-tenon joints, the rudder, and ram.[18] Periods of extended conflict between Rome and the Punic state forced Rome to adapt technologically to its competitors.[19] One of those adaptations was the introduction of new kinds of ships – biremes and quinqueremes.[20] Romans replaced the Ptolemaic system with a fleet of smaller ships, at roughly half the capacity of each of the Ptolemaic ships, which made "few to no stops."[21] According to DeRomanis, while it was more resource intensive in terms of ships and crews "it

[12] "Roman Egypt" Accessed November 13, 2023, https://www.metmuseum.org/toah/hd/regy/hd_regy.htm#:~:text=Rome's%20rule%20over%20Egypt%20officially,in%20the%20battle%20at%20Actium.
[13] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 11.
[14] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 285.
[15] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 288.
[16] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 298.
[17] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 290.
[18] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 290.
[19] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 315.
[20] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 290.
[21] Frederico De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus* (Oxford: Oxford University Press, 2020), 204.

offered speedier and more flexible service: handling more loading points simultaneously, reducing loading and unloading times, and shortening voyage times up and down the Nile."[22] Roman administration furthered their control of the grain trade and established the *Cura Annonae*, also known as the grain dole. Where rations of grain, later bread, pork, wine, and olive oil, were made available to select Roman citizenry. While in modern social-democratic societies we expect such government intervention to be expressly pointed towards the poor and destitute as a tool to relieve poverty, this was not always the case. Oftentimes the dole was used as a tool to drum up support amongst the voting body. The majority of which would be the poor and destitute, but it also included the more well-to-do as a mode of currying favor. Such advancements made cereal crops like grain core to the Roman diet, supplemented with various fruits, vegetables, nuts, herbs, and spices, as the commercial and political influence of Rome grew.[23]

As Roman power expanded, barriers that previously separated social and economic classes began to break down. Allowing for resources and luxuries traditionally exclusive to the elite and wealthy to begin the process of seeping into broader Roman culture. As the military, much like the role it plays today, in post-Marius Imperial Rome (more on those military reforms below) was not only a place for the elite to earn their political careers, but non-elites to prove their mettle and climb up the social ladder. Erdkamp writes; "the elite of bronze age Greece used herbs and spices - several of east Mediterranean origin - in perfumed oils and exclusive cuisine."[24] Asserting that herbs and spices, which we will later see become commonplace amongst the Roman population, were once the playthings of the elite. He goes further asserting that herbs and spices that were much rarer in the pre-Roman context suddenly become much

[22] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 204.
[23] Halstead, *A Cultural History of Food in Antiquity*, 36.
[24] Halstead, *A Cultural History of Food in Antiquity*, 29.

more common. “Species that could not be grown locally, such as olive, date, or black pepper, are initially concentrated in military contexts, but are well represented in urban elite and elite rural sites from the later first century C.E., and as funerary offerings.”[25] This, in combination with the presence of archaeobotanical evidence shows that some spices were introduced earlier. That leads me to believe that those tastes were cultivated at home, in the urban centers, and carried with middling citizens out towards the frontiers.[26] I say middling because it is an important distinction to make. While the poorer classes may have still benefited from the Roman empire and its consolidation of resources from non-citizens into the pockets of citizens, either the elite or poor, the middling citizens were the ones who would gain access to these spices that had been previously relegated to the elites.[27] The middling class would consist of small property owners, such as a tavern keeper or baker. The poor to some degree enjoyed some of the benefits. Rome was not an egalitarian society, and much like today there were a handful of super rich deeply intertwined with the policies of the empire. Their complex systems of trade infrastructure allowed for goods, like grain, and luxuries to be quickly and cheaply moved throughout the empire, driving down costs in the process of decreasing scarcity[28]. Specific innovations, especially within the shipbuilding industry allowed for such cheap movement of grain and luxuries like pepper.[29] *Tabernas* were how these *opson*, or semi luxuries, would end up in the hands of the middling classes.[30] They were places to drink, eat, and socialize, sometimes they specialized in some vittles. For example Amarantus’ shop in Pompeii, a wine seller who catered to the middling citizenry, offered wine from Gaza. As Newitz puts it in *Four Lost Cities: A Secret History of the Urban Age*, “I like to think he was trying to offer his customers something a

[25] Halstead, *A Cultural History of Food in Antiquity*, 29.
[26] Halstead, *A Cultural History of Food in Antiquity*, 29.
[27] Win Broekaert and Arjan Zuiderhoek, *A Cultural History of Food in Antiquity* (London: Bloomsbury, 2016), 46.
[28] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 52.
[29] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 252.
[30] Annalee Newitz, *Four Lost Cities* (New York: W. W. Norton & Company, 2021), 107.

little different". According to Stephen Ellis, the author of *The Roman Retail Revolution*, "researchers found that one taberna had a very simple menu of locally grown fruits, grains, and vegetables with some cheese and sausage. The other, two doors away, had a much wider variety of foods. '[There were] cumin, peppercorn, and caraway coming from India,' going on to say 'Middlers going to Pompeii's tabernas could choose to dine on imported delicacies or local comfort food options. Delicacies once available only to elites were now part of everyday life for more people than ever before."[31] *Tabernas* were not just places for the average Roman to go eat and drink; they often played key roles of social importance. For example, middling citizens also took part in *collegias*, which are something along the lines of guild or club, and would often be formed around *tabernas*.[32] They were, much in the way cafes were in the early modern period, hubs of inclusivity and hierarchy amongst the non-elite. Such behavior threatened the status quo enough that some emperors would ban the sale of hot water and food there, seeking to dismantle such intellectual rebellions. There might have been attempts to do the opposite, that is drown rebellions in alcohol, analogous to the ways in which the Russian empire glutted its citizenry on state-owned vodka.[33]

As general access to spices increased, so did the accessibility of medical doctrine at the time. Such medical doctrine used humor theory, which was the idea that sickness was caused by an imbalance of the bodily humors, and organized into a hot-dry-wet-cold index.[34] Culminating into a yellow bile, black bile, blood, and phlegm classification.[35] While this seems simple in comparison with modern medicine, almost everything from the weather to your sex life affects

[31] Newitz, *Four Lost Cities*, 107-108.
[32] Ellis, *A Cultural History of Food in Antiquity*, 111.
[33] "Tsar Nicolas II Thought Vodka Was Hurting Russians-But Banning It Helped Destroy His Empire," TIME, Accessed November 13, 2023, https://time.com/6082058/russian-revolution-vodka/.
[34] "The Four Humors: Eating in the Renaissance," Folger Shakespeare Library, Accessed November 13, 2023, https://www.folger.edu/blogs/shakespeare-and-beyond/the-four-humors-eating-in-the-renaissance/.
[35] "The Four Humors: Eating in the Renaissance," Folger Shakespeare Library,

how your humors are balanced. Spices were useful as they could adjust the humoral qualities of food to make it more palatable for your humoral disposition as well as the taste profile.[36] Take for example black pepper, which was often used to make a dish "dry" to help balance out humors being introduced by the seasons or other humors present in the dish. When the humoral qualities of black pepper were paramount it was administered as a "dry soup", essentially water and spices like black pepper which were considered "dry" to help promote a better humoral balance.[37] Essentially contemporary medicine became available to the average person in Rome as luxury goods became more available. There is also some debate as to if Galen was influenced by Ayurveda, but my sense is there was some level of relationship in the medical field between the two places. The former being Greek and the latter Indian, both supporting humoral theories, that while the specifics are different, the principle is similar.[38]

While I do wish to avoid talking too much about spices in this section, it is difficult to talk about trade in Rome without introducing a few spices. DeRomanis writes on how the healthiness of the Indo-Roman trade was based on a cultural infatuation with black pepper and associated goods. I can't help but agree, as access to black pepper increased, so did non-elite's use of it. Erdkamp writes that the "aggregate demand could be quite substantial."[39] Considering that the price of a pound of pepper was between four and six denarii in the second century CE, which would put it well within reach of the common soldier who made 180 denarii per year[40]. Further substantiating DeRomanis' claim that "pepper consumption was geographically ubiquitous - from the Red Sea ports to Hadrian's Wall in Britain - and often crosscut social

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[36] Andrew Dalby, *Tastes of Byzantium* (New York: I. B. Tauris, 2003), 123.
[37] Dalby, *Tastes of Byzantium*, 45.
[38] Parasecoli, *A Cultural History of Food in Antiquity*, 185.
[39] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 45.
[40] "Pay (Roman Army)," Wikipedia, Accessed November 13, 2023, https://en.wikipedia.org/wiki/Pay_(Roman_army).
De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus,* 240.

strata."[41] What I intend to assert is that advancements in transportation infrastructure allowed black pepper, a former *opson* or semi-luxury, to enter the hands of almost every Roman, regardless of location and class.

The direct roles that the military, and Roman administration, played in this complex ecosystem proved significant. Non-elite members of the military were gaining access to traditionally elite resources and luxuries, which would then be carried along with them towards the frontiers.[42] While this was good for the individual soldiers, it applied additional strain to Roman trade networks and infrastructures to supply frontier troops with goods like wine, oil, garum, pepper, and the all important grain on a scale that could not be easily accessed in the frontier regions.[43] Such strain was not necessarily bad, as it was often used to bolster investments into infrastructure in certain regions. DeRomanis connects the strength of Roman-Egypt grain infrastructure post-162 C.E. as a consequence of preparations for the Parthian War.[44] On the other hand, those same troops often supplemented their diets of Roman comfort foods with fresh foods harvested, bartered, or looted from the surrounding countryside. Take for example how Roman troops deployed into Gaul had access to black pepper, a keystone Roman commodity from India, as well as pork and beer, foods that were common to Germanic tribes.[45] Such interactions between Roman and German food cultures culminated in the third century CE, where the *Cura Annonae* included rations of pork and wine.[46] The influence of Roman soldiers was not only confined to Europe. According to Strabo, Roman soldiers were deployed to help construct and

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[41] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus,* 255.
[42] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus,* 292.
[43] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 46.
Halstead, *A Cultural History of Food in Antiquity, 36.*
[44] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 201.
[45] Dalby, *Tastes of Byzantium*, 91.
[46] "Cura Annonae," Wikipedia, Accessed November 13, 2023, https://en.wikipedia.org/wiki/Cura_Annonae.
De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus,* 49.
Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 46.

maintain wells along caravan roads in Egypt and North Africa.[47] Such deployments along caravan routes were intended to prevent banditry and piracy, in the case of naval patrols along maritime routes, and to enforce tolls and customs[48]. Oftentimes the standards changed depending on the location. DeRomanis writes:

> Since they were given no military assistance and had to provide for their own safety, the tax farmers who levied customs duties on the English Channel trade probably paid a flat sum in advance. The collectors of the duties on Indian Ocean imports, on the other hand, who were protected by military garrisons, sent the revenues to the treasury while keeping a portion for themselves.[49]

In locations of significant trade the lack of a strong military presence proved exceptionally dangerous to merchants, as pirates found them easy prey. Take for example how "Pliny provides pertinent details about the South Indian emporia. In particular, he advises against docking at Muziris on three accounts: the neighboring pirates who occupy Nitriae, the scarcity of Muziris supply, and the distance between anchorage and shore."[50] Significantly, this quote mentions logistics, or how the Roman administration supported the flow of trade. As seen in the previous quote, merchants needed supplies and easy access to their goods, a lack of either could prove to be significantly detrimental to their success in maritime trade. Trans-oceanic trade was resource intensive, so in order to facilitate said trade Roman imperial administrators made sure to guarantee the accessibility of resources.[51] One such example was the previously mentioned series of wells constructed to supply caravans moving through Egypt. As Erdkamp puts it "whenever food had to be moved over large distances, water transport, which was quicker and cheaper, was preferred", but this expression can be extended to any goods that were heavy and required long

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[47] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus,* 51.
Bill Thayer, "Strabo: The Geography," Accessed November 13, 2023, https://penelope.uchicago.edu/Thayer/E/Roman/Texts/Strabo/home.html.
[48] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 48.
[49] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 134.
[50] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 147.
[51] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 188.

distance trade. Of course it was still costly to transport anything of mass over long distances, but while capacities of certain ships varied on a case by case basis, many specialized in the transport of perishable goods like wine, oil, garum, and grain.[52] While containers like *amphorae*, a type of tall narrow ceramic vessel with a pointed bottom and handles, had been present for a significant amount of time in the Mediterranean, the sheer production rate of such vessels during the Roman Republic, and later Empire, was enough to bring it from a luxury as it would have been seen in Pheonician times.[53] These *amphora* could also be waterproofed to protect whatever was contained, or to allow the movement of liquids that could move through clay; more details are given in chapter three. Later advancements increased the capacity of shipping perishable goods by fifty percent through the introduction of large ceramic *doila* to cargo vessels.[54] *Doila* are much like *amphora* in that they were waterproofed ceramic vessels used for the transport of liquids and solids, but they were much larger and rounded, meaning that there was less wasted space used by the vessels themselves or air between containers. Fortunately transportation over land, while costly, was well organized by imperial Roman administration. Infrastructural investments like the construction, maintenance, and protection of wells along caravan routes were part of Rome's emphasis on water infrastructure.[55] The Imperial administration also sought to cut down on costs directly related to the shipping of large quantities of goods over land between Berenice, or Myos Hormos, and Coptos. A product of this was the imperial service of camels, in which camels were taken through the form of tax or gift, into the hands of administrative herds. These herds were then loaned to a single cameleer entrusted by the state for the transportation of vast quantities of goods over the Berenice-Coptos route.[56]

[52] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 53.
Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 48.
[53] López-Ruiz, *Phoenicians and the Making of the Mediterranean,* 291.
[54] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 53.
[55] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 143.
[56] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 203.

Access to such infrastructure was not free in the Roman world, as there were numerous tolls, taxes, and customs applied to the import and export of goods throughout the Empire. The Red Sea trade was, after all, "vital to the Roman state's budget", and "these customs duties were one of the major sources of revenue for the Roman Empire."[57] So the Roman administration had to balance the line between taxing too little and coming up empty handed to pay for the extensive forms of infrastructure and military intervention, or taxing too much and stifling the trade they had grown so attached to in an economic and social sense. One such example of customs is the double customs duty. Where, on paper, Indian imports were taxed twenty five percent of their cargo's value upon entry into Egypt, and exit.[58] While literally this may be correct, there are many more factors at play. The way that Strabo writes on the existence of a level of tax on the Red Sea trade leads DeRomanis, and also myself, to believe that it was not a Roman invention in its entirety.[59] What I mean to say is that Strabo, who was very pro-Roman, did not gloat on Roman inventiveness of this system.[60] Merely the further alterations on top of initial taxes were made by Romans.[61] This tax was also not actually fifty percent of the market value of the goods being imported, rather it was 43.5 percent.[62] Breaking down mathematically as 25 percent of the whole of the cargo, and a further 25 percent of the remaining 75 percent of the cargo.[63] Such divisions were taken into account so that a merchant could, if necessary, pay in kind, in the goods being taxed. On top of these quarter-taxes, a surcharge was applied, typically at the behest of tax farmers. Further steps were taken in order to protect merchants from unfair practices by the

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[57] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 276.
De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 320.
[58] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 133.
[59] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 133.
[60] Ralph Berhwald, Review of *Strabo of Amaseia: A Greek Man of Letters in Augustan Rome*, by Daniela Dueck, *Byrn Mawr Classical Review*, May 11, 2001.
[61] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 229.
[62] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 291.
[63] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 285.

actions of the tax farmers.[64] In order to help balance out this surcharge a discount was often applied to the imperial tax rate.[65] This is not to say that the relationship between tax collector and merchant was abusive, rather the opposite.[66] Oftentimes those same collectors charged with the farming of trade were the wealthy, elite, and well connected lender to the merchant.[67] They would often pull strings to allow for their economic venture to be done at less cost to them.[68] Again, they were not being taxed at the market value, rather a fiscal pre-market value determined by the imperial administration.[69] Such state interventions in price control were not rare, as the Emperor was given free reign to determine maximum prices of all kinds of goods throughout the empire.[70] Such a bureaucratic system was invented to help support merchants paying to ship goods from beyond the fringes of the empire.[71] As DeRomanis puts it; "In other words, the actual rate of the tax varied according to the prevailing economic trends: higher market prices meant lower tax rates, and lower market prices meant higher tax rates. When the market prices fell below the fiscal values, the possibility of payment in kind limited the tax rate of the two quarter-taxes to a maximum of 25 and 18.75 per cent, respectively."[72] As mentioned above it is an exaggeration to say that the merchants were paying for whatever costs were incurred during their venture. In reality they were bankrolled by wealthy lenders within the empire.[73] As well as there were many merchants working together due to the sheer scale of goods being shipped on individual vessels. In the specific case of the *Hermapollon*, the massive trade vessel that the Muziris papyrus records the intricacies of, the scale of cargo must have been the combined

[64] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 264.
[65] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 295.
[66] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 311.
[67] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 320.
[68] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 207.
[69] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 289.
[70] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 104.
[71] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 280.
[72] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 293.
[73] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 192-193.

efforts of "dozens of merchants".[74] Meaning that while the trade infrastructure was expensive to maintain and the Roman state did not hesitate to pass down some level of cost down to the user, there were still liberties taken by the state to prevent the stifling of trade through high costs. Alongside the state, private investors of immense wealth and political connections also applied pressure to facilitate the trade of luxury goods that they could not only make money from, but use themselves.

In the end Rome relied on a mastery of infrastructure to thrive, benefitting from a rich tradition between state and private wealth in ventures. But as López-Ruiz states in the context of Pheonician trade networks; "the title of my book does not propose that the Pheonicians alone 'made the Mediterranean,' although it was them who first knitted it all together. The Pheonicians were in a position to represent the old prestigious world of the lost Canaanite palace-kingdoms in an evolving Levant of emerging new states. They acted as conduits for both empowering tradition and creating bold innovations; their art and culture was prestigious, valued, and adaptable by those who wanted a piece of that post-Canaanite heritage."[75] The same applies to the Roman Empire, in which previous networks and technological advancements were built upon by Romans to readily support their growing empire. Successfully leaving a heritage of stitching together old prestige with new accessibility.[76] The Roman Empire could not only give "appropriate visibility to the highest elites of the empire;" but also "offered opportunities for upward mobility to the most enterprising middle classes."[77] The new rising middling classes, while similar to what we would consider "middle class" now, were classified by their ownership of small amounts of property like bakers and tavern keepers. They could benefit from resources

[74] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 315.
[75] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 316.
[76] López-Ruiz, *Phoenicians and the Making of the Mediterranean*, 317.
[77] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 320.

typically reserved for the elite, and worked to disseminate “good taste” amongst occupied territories in times of war. Such times which initiated vast networks of infrastructure investments, specifically suited the long distance trade of vast quantities of perishable goods. These networks would then be continually maintained, protected, and expanded once they proved fruitful to the Roman imperium. Not only would the size of the imperium remain unchallenged until the sixteenth century, but so would the access to luxuries and cultural dynamism through food culture. The impact of the latter can be seen in food culture across Europe, specifically in the contrasting the use of black pepper in German and English cuisine.

Chapter Two

The Diversified Use of Black Pepper in Roman Society

As stated in the previous chapter the Roman Empire opened the door for a massive increase in the import of black pepper from Indian production sites to Rome's urban core, and the far reaches of its Empire into the British Isles and Germany in the first century C.E. But this did not happen overnight, as the previous chapter demonstrated the complexity of early Imperial Roman trade. Prior to the rise of the middling class in Rome in the early empire, the consumption of goods like black pepper was limited to the elite. As the Roman Empire expanded its domain it became able to readily exploit the resources and manpower present in the outer reaches of the empire, allowing for a shift of resources away from those outside communities into the urban centers of the Roman Empire. In order to achieve this, Rome invested heavily in infrastructure that would allow for easier transport of goods from Egypt and India. One example of this would be the opening of Trajan's canal, which according to DeRomanis, heralded the beginning of the next era of Roman commercial operations.[78] Doing so not only made a handful of Roman elites filthy rich, but allowed for there to be an increase in accessibility of class signifying *opson*, or semiluxuries, amongst the middling class. Some of these goods could be grown if the climate allowed for it, such as some herbs. But others like black pepper could not be grown, yet the demand needed to be satiated.[79] Unlike the climate of the Mediterranean, which is characterized by hot and dry summers, alongside cool and wet winters, black pepper necessitated a tropical climate.[80] The increased demand of such goods paved the way for an increase in supply from the East, specifically the Indian subcontinent, which was developed further by Rome's unequaled dominion over the Mediterranean and much of its eastern trade networks. There are records of the remains of black pepper being discovered in Roman camps in modern day

[78] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 34.
[79] Halstead, *A Cultural History of Food in Antiquity*, 29.
[80] "Pepper (Piper Nigrum)," Indian Council of Agricultural Research, Accessed November 13, 2023. https://kvk.icar.gov.in/API/Content/PPupload/k0605_93.pdf

Germany.[81] The archaeological presence of black pepper in a Roman military camp hints to the ubiquity of the spices with the presumption that there was a direct effort on the part of the Roman military to supply either soldiers or their commanding officers with such a speciality good.

Demand for black pepper reached such heights as to warrant the construction of speciality warehouses called *horrea piperataria.*[82] As Dalby notes when talking about the rarity of spices in his book on Byzantine food culture, "it had probably been true, in the Roman past, that except a few spendthrifts, and except for pepper, most of the spices that were imported from India at such enormous cost went into the medicine cabinet (or into divine worship and funeral rites)." The sheer scale of import significantly impacted the cost of black pepper.[83] Alongside investment on infrastructure, Roman engineers endeavored to revitalize technological investments made by Ptolemaic and Punic shipbuilders that allowed for the construction of incredibly large merchant ships. A more direct comparison can be made between Roman pepper carriers and Ptolemaic ships as their size was comparable for two major reasons. The first were ships designed by the Ptolemies to transport elephants for military and ceremonial use from Asia and farther south into Africa.[84] Vessels of such large size were carrying more than black pepper, but according to DeRomanis, pepper and another spice , namely malabathron, made up the "bulk of the cargo on the very large ships returning from South India."[85] The second would be the construction and extended use of large river boats that could carry grain up the Nile towards the urban centers of Egypt along the Mediterranean coast. Both of which created circumstances for Egyptian infrastructure to be specifically suited for the import of large quantities of perishable

[81] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 49.
[82] Broekaert and Zuiderhoek, *A Cultural History of Food in Antiquity*, 45.
[83] Unknown, *The Periplus Maris Erythraei*, trans. Lionel Casson (Princeton: Princeton University Press, 1989), 220.
[84] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 48.
[85] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 141.

goods from the Red Sea and then along the Nile. A specific example of this would be the port of Berenice, which proved to be especially well suited for the large pepper carriers of the South Indian pepper trade, and thus became the "sole terminus" for trade ships from India.[86]

As asserted in the previous chapter the state played a crucial and direct role in the organization of trade into and outside the boundaries of the empire. DeRomanis states that camels taken into imperial service for caravans from Berenice would almost certainly be used to help move the massive pepper cargoes coming from South India.[87] Such organization was necessary as thousands of tons of goods offloaded from those South Indian trade ships, the majority of which would be black pepper , had to be moved quickly to keep up with constraints asserted by loan contracts.[88] The quick turnaround time meant that there was little time left to organize the tens of thousands of camels required to move black pepper, amongst other goods, through Egypt and onto Nile river boats. A single ship like the *Hermapollon*, which had a cargo of ~600 tons and would remain unrivaled until early modern ships, would need approximately 3,000 camels to be able to move its cargo within a reasonable timeframe.[89] According to DeRomanis a single ship of the size of the *Hermapollon* would be capable of supplying the entire Roman population, of approximately 50,000,000 to 100,000,000, roughly 5.5 to 11 grams of black pepper each.[90] To give some context it is estimated that in 1621 the import of black pepper into Europe amounted to only 6,000,000 pounds, of which England consumed 400,000 pounds. The initial figure would only be around four times the pepper brought into Berenice by the *Hermapollon*. While there is little to no evidence of how many ships of similar size ran the Indian Ocean route, there is ample evidence that more than one did, and thus Egyptian

[86] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 54.
[87] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 201.
[88] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 202.
[89] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 200.
[90] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 255.

emporiums could be supplied with thousands of tons of pepper per year.[91] DeRomanis proposes 12,000 tons as the upper limit for the amount of black pepper that could be shipped into Rome. This is considering the production capabilities of Cottanara, or Kottanarike depending on translation, which would serve as the major producer of black pepper in India.[92] On a modern map Kottanarike would be located on the Western coast of South India. The price of pepper varied depending on location, but also on the source. If one were to rely solely on the prices determined by customs documents you could be misled into believing that the price was significantly less for the common individual in Rome, as this was the wholesale price determined by the state, not the retail price. DeRomanis claims that the market price would be between 900 and 1200 *sesterces* per weight talent. A *sesterces* amounted to a quarter of a *denarii* in value, and a Roman weight *talent* would roughly be seventy-one US pounds. What evidence we have is from Pliny, who records the market price in Rome as 4 denarii per Roman pound of pepper in the first century C.E.[93] A Roman pound amounted to three-quarters of a US pound. If one were to consider the annual pay of a Roman professional soldier at the time, it would amount to 225 denarii.[94] Doing some basic calculations this would mean that a professional soldier in the first century could spend ~1.7% of their salary on a pound of pepper. This accessibility is further proved when the ratio of cost in Muziris (its export location in India) to Rome (its end user market) was 1:13.6, while the ratio in the mid-sixteenth-century between Cochin and Lisbon was similar.[95] Meaning that the scale of pepper present in Lisbon in the 16th century was at least equal to the scale of pepper available in Rome in the First Century C.E.

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[91] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 260.
[92] Unknown, *The Periplus Maris Erythraei*, 221.
[93] Pliny the Elder, *Book XII: The Natural History of Trees*, trans. John Bostock, Accessed November 13, 2023, http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.02.0137%3Abook%3D12%3Achapter%3D1.
[94] "Pay (Roman Army)," Wikipedia, Accessed November 13, 2023, https://en.wikipedia.org/wiki/Pay_(Roman_army).
[95] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 323.

The scale of use of black pepper was spurred on by not only class signification, but also for medicinal and culinary reasons.[96] Mehr Singh cites the Early Modern historian Ken Albala when discussing the culinary uses of black pepper, where he says "It's kind of the universal spice before others in the West, and that's mostly because, in Western cuisine, there really is no heat."[97] Essentially claiming that prior to the import of chili peppers from the New World, slowly facilitated by Portuguese merchants so as not to undercut their own import of black pepper, it was one of the first fiery tastes that could provoke heat in the mouth. Of course this also wraps around into medicinal and ceremonial use as it could be found as a near "cure-all" for humoral balancing as it could provide a dry heat that much of western dietary doctrine could not find anywhere else. As noted in many different dietary schedules as were common in the Byzantine and Roman Empires, pepper found itself as a keystone in Roman diets during many of the cold and wet months indicative of Mediterranean winters. Doing so helped to promote humoral balance and prevent illness amongst those who could afford to supplement their diets. Alongside the advent of cheap pepper in Rome, this essentially meant that there was an increase in access to early forms of perceived healthcare amongst the Roman masses.

This is shown in the dietary calendar attributed to Hierophilus the Sophist, who dictates which foods should be consumed during which specific months all the way up to how many times one is to have sex in said month. In January it is recommended to fast for the initial three hours after waking, then to eat lamb, suckling pig, and gravies flavored with pepper along other spices, cinnamon and spikenard included, which are indigenous to the Indian subcontinent. In February the author recommends consuming spices, sauces, aromatic, and old wines in moderation. While flatley recommending against consuming wild vegetables, vegetable soups

[96] Dalby, *Tastes of Byzantium*, 122.
[97] Mehr Singh, "Black Pepper: From India's 'Black Gold' to Afterthought," *The Juggernaut*, September 20, 2023, https://www.thejuggernaut.com/black-pepper-history-india-colonization.

are only allowed if they contain leek, celery, dill, and garlic. March starts off with a warning about how excess in anything can cause illness, advising moderate consumption of sweet flavors, a method to determine the humoral values of a food. Spices like spikenard and cinnamon are recommended within food, while pepper is recommended for use in sweet wines alongside the previously mentioned spices and clove. Spiced gravies, specifically those spiced with pepper, make a resurgence in April. The author then goes on to warn how May is "governed by black blood", and extra care should be taken to not consume foods that produce bad humors. While black pepper is not mentioned by name, dry soups are recommended, characterized by the use of "dry" spices like pepper and cinnamon, I assume that this was indeed a recommendation to the consumption of black pepper in a form that balances out its "dry" characteristics. This leads me to believe that dry soups were tools to include the flavor of spices during times where it was considered dangerous to consume something "dry". The same goes both ways, in which the addition of pepper to soup could make it less wet, and more apt for consumption in the winter months. June is characterized by hot weather, and is a humorally hot month, so the dietician recommends against consuming pepper and other spicy foods. July makes no mention of black pepper or other spices, either to consume or not to consume. August, much like July, makes no specific mentions of spices so I will assume the trend in the previous two months continues. Leading me to believe that those same recommendations from June carried over. September makes reference to encouraging consumption of "spicy sauce", which as we have seen forms of spice were quite limited in a pre-New World Europe, and as Ken Albala puts it, black pepper was the primary gateway to spice amongst European palates. Meaning that a spicy sauce, like that mentioned, could quite possibly contain black pepper. As we have seen in previous months, gravies and sauces spiced with black pepper are not few or far between, so I do not believe that

this is much of a leap in logic. October mentions "spicy leek soup" so I will rely on the logic I presented to claim that this most likely meant black pepper. Dry food and spiced meats, like which would contain black pepper, are recommended in November. Finally, December makes no specific mentions of spice or dry heat.[98] While this dietary manual does not give perfect insight into the culinary use of black pepper in Rome and the Byzantine Empire, it does go into great detail as to how and why black pepper wedged itself as a keystone of humoral medicine theory from the Roman Empire until the sixteenth century.

In Anithimus' *Letter on Diet 3* the author, presumably Anithimus, describes a recipe for a Byzantine beef stew or boiled beef with a sauce, depending on how it is chosen to be prepared by the cook. In the recipe a pot of water is brought to a boil, in which beef is added and boiled for an unspecified time. Then fennel, leek, celery, and pennyroyal are added alongside vinegar and honey to taste. Following these fifty black peppercorns, two measurements of putchuk, spikenard, and cloves in quantities distinguished by their weight in gold coinage, are added.[99] The next recipe is from Anithimus' *Letter on Diet 13*, in which they describe a recipe for hare. In which it is prepared in a sweet sauce that contains black pepper, ginger, spikenard, or tejpat (bay) leaf. The author then goes on to describe how it is a good remedy for dysentery, and if one was suffering from an earache they could consume the bile of the hare mixed with pepper.[100]

Within Apicius, the pivotal Roman cookbook that many historians look to there are numerous recipes for dishes containing black pepper. The following recipe is for smoked sausage, also known as *loukanika*, another form of shelf-stable food that could be easily carried by Roman soldiers on the march, and a form of forcemeat. The latter proves to be a staple of Germanic diets post-Rome as forced meats, alongside other foods, utilize black pepper as a

[98] Hierophilus the Sophist, *Dietary Calendar*, trans. Armand Delatte (Paris: Liege, 1939).
[99] Anithimus, *Letter on Diet*, trans. Mark Grant (Totnes: Prospect Books, 1996), 3.
[100] Anithimus, *Letter on Diet*, trans. Mark Grant (Totnes: Prospect Books, 1996), 13.

flavoring. This recipe specifically calls for various spices, including crushed and whole black pepper, cumin, as well as *garum* and various herbs being stuffed into an animal intestine and left to hang in smoke to cure.[101]

Prodromus, who the following recipe is attributed to was a Byzantine Greek writer well known for their poetry. Hisrecipe, for *monokythron*, or a one-pot meal, not only demonstrates continued use of black pepper in post-Roman Byzantine food culture, but also the emphasis on fish that characterized Byzantine cuisine. The recipe calls for four distinct fish, –mackerel, sturgeon, swordfish, and carp – with a "handful of pepper," garlic, and wine.[102]

According to Oribasius' *Medical Collections,* a specific spiced wine by the name of *konditon* utilized black pepper to get a remarkable taste. Its recipe called for one ounce of pepper alongside ten pints of honey, and thirty pints of wine. This same wine is mentioned in Hierophilus' *Dietary Calendar* that was mentioned earlier.[103]

Hopefully the preceding examples give the reader an understanding of the complex interwoven nature of diet and health in the Roman and Byzantine world. Specifically how a spice like black pepper, which now has made its home as a staple to much of the modern West's diet, grew to popularity not only for its unique heat and unmistakable taste within the Roman Empire, but also for its assumed medicinal properties as humoral theory grew to be the driving force behind medicine up until the seventeenth and eighteenth centuries. Such preference to its taste and medicinal properties are shown by its reference in eight out of twelve months in a dietary calendar and its mention inApicius a little over five hundred times.[104] It is worth pointing out that while Apicius is one of the most famous recipe books in Antiquity, it would be incorrect to

[101] Apicius, *De Re Coquinaria*, trans. Joseph Dommers Vehling (Chicago: Walter M. Hill, 1936), 2.4.
[102] Prodromos, Theodore, *Prodromic Poems*, cit. *Poemes prodromiques en grec vulgaire,* Ed. D.C. Hesseling and H. Pernod. (Amsterdam: J. Muller, 1910), 3.178-186.
[103] Orbasius, *Medical Collections,* cit. *Dieting for an Emperor: A Translation of Books I and 4 of Orbasius' Medical Collections,* trans. Mark Grant (Leiden: Brill, 1997).
[104] Apicius, *De Re Coquinaria*.

assume that it is an accurate portrayal of common taste during that time period. As Erdkamp puts it, Apicius is "haûte cuisine", essentially food for the elite.[105] It would also be incorrect to assume that it did not give a window into food culture in Rome, but it should be taken with a grain of salt.

The smoke of black pepper was pungent and unmistakable, and was often used to signify the wealth one could sacrifice for ceremonial purposes. Referenced in Singh's work, Nero, the Roman emperor who is the basis of the myth that he played the fiddle as Rome burned, set aside a years worth of cinnamon and cassia, another Indian spice to be incinerated to indicate the depth of his mourning after the death of his wife Poppaea.[106] This is on top of how over two-hundred individual spices were used at the funeral of Sylla to be consumed in a similar manner as recorded by Plutarch, a Roman historian.[107] [108] Furthermore Singh cites the "advent of global trade, advancements in transportation, and mass production methods," alongside improved packaging that really democratized access to the spice in the late 19th and early 20th centuries. I would be missing a chance to point out similarities with advances made and expounded by Rome in the first century C.E. As I have previously mentioned the Roman state in the first century C.E. helped to provide a stable foundation for a kind of global trade to take place, as well as significant advancements in transportation technology and infrastructure fueled by war and urban demand. What I find most compelling are the advancements in packaging that allowed for aromatics to go much longer without spoilage or going stale. I mention this because of the ubiquitous *doila* and *amphorae* ceramic jars which proliferate with Roman trade vessels and their ports of call. Without retreading ground on how common they were, they allowed for black

[105] Hugh Lindsay, *A Cultural History of Food in Antiquity* (New York: Bloomsbury, 2016), 176.
[106] Singh, "Black Pepper: From India's 'Black Gold' to Afterthought."
[107] Plutarch, *Parallel Lives of the Noble Greeks and Romans,* trans. Josh Dryden, ed. Arthur Hugh Clough (London: Arthur Hugh Clough, 1859.)
[108] Erdkamp, *A Cultural History of Food in Antiquity*, 14.

pepper to be transported over vast distances of salt water without risk of the spray, pest, or rot from damaging the quality of the goods.

On the other hand this supply was not consistent throughout the far reaches of the Roman Empire. It is worth considering that while the import of black pepper was common, it was still part of an exchange of goods between India and the Mediterranean world. Goods like wine, oil, silver, and gold, were predominant as Roman exports east, while spices, precious gems, and tortoise shells were among the majority of those goods exported west.[109] In Indian markets, and other foreign markets that traded with Rome, the imperial currency persisted to smooth the transactions between Rome and the various Indian kingdoms. While currency like *denarii* and *aureii* did exist, their quantity was quite limited for transactional uses. On the other hand, those various kingdoms assert that trade with Rome was an effective vector for the acquisition of gold and silver for their own currency.[110] The rate of that interchange grew to such levels that Roman historians and politicians lamented the loss of silver and gold to foreign markets during Nero's reign.[111] The exchange between the Roman Mediterranean and the British Isles were different, as according to Strabo there was limited interest in the extended occupation of Britain due to its perceived poverty, mostly due to the lack of exotic wares.[112] DeRomanis compares the vastly decreased customs rate on trade across the English channel to heavy customs duties on Indian Ocean imports. I argue that this would prove to be a major reason as to why there is such a variation between the English and German markets for black pepper. As noted in DeRomanis, the early modern Portuguese imports of black pepper along the Southern coast of Africa were competing with the Venetian run Red Sea trade, utilizing what was left of the ancient Roman

[109] Unknown, *The Periplus Maris Erythraei*, 85.
[110] Unknown, *The Periplus Maris Erythraei*, 53.
Unknown, *The Periplus Maris Erythraei*, 81.
[111] Young, Gary Keith, *Rome's Eastern Trade: International Commerce and Imperial Policy, 31 BC-AD 305*, (Oxfordshire: Routledge, 2001.)
[112] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 133.

network.[113] DeRomanis goes on to claim that as the majority of the Red Sea trade of black pepper ended up in modern day Germany, to be consumed by those various states that embody modern Germany. English markets on the other hand, only consumed 0.007% of the entirety of Europe's estimated imports of black pepper in the 16th century. To explain this vast difference there are two factors, logistics and taste, the former of the two having been discussed in chapter one. As stated in Singh's aforementioned work, Germanic cuisine utilizes black pepper on a significantly more common basis than that of French cuisine. It found its way into drinks, like that of mulled wine, to forced meats like sausages, and even desserts like Christmas cakes. All of which show the ample use of black pepper in typical peasant dishes like sausages, but more celebratory dishes like mulled wine and cakes. I point to the French, who as Singh aptly asserts, gave up the use of black pepper for white pepper or no pepper at all. Considering that white pepper grows alongside black pepper, this has to be a choice of aesthetics and taste. As well as cinnamon, which took presence in many French dishes with the same variation as their German counterparts according to Albala.[114] According to Singh, and my own culinary experience, there are five "mother sauces" in French cuisine, all of which help to form the basis of most of the simple or complex traditional French dishes. None of which mention black pepper at all.[115] Singh argues that is because French culinary traditions dictated European taste, and to an extent global, haute cuisine. I argue that this goes even further, as extended conflict between France and England, alongside extended occupation by both on their modern day mainlands, resulted in a very effective exchange of cultural capital like cuisine. The extended occupation of black pepper consuming Romans in Germanic territory must have had some sort of impact on local cuisines,

[113] Jack Turner, "The Spice that Built Venice," Smithsonian Magazine, November 2, 2015, https://www.smithsonianmag.com/travel/spice-trade-pepper-venice-180956856/.
[114] Mehr. "Black Pepper: From India's 'Black Gold' to Afterthought."
[115] Mehr. "Black Pepper: From India's 'Black Gold' to Afterthought."

especially with the introduction of black pepper into Germanic diets. On the other hand, extended conflict between France and England – as a form of contact – made it so that English cuisine tried to adapt and include aspects of French cookery, which means significantly decreased usage of black pepper. The English were ruled by French speaking Normans after 1066 so English elites mimicked French tastes. Such decreased use is exemplified by the incredibly small portion of Europe's pepper import which found itself in English markets.

In summary, the various forms of trade infrastructure that were either established or adopted by the Roman Empire in the first century C.E. facilitated the democratization of access for black pepper amongst the middling class of Rome. Those who wished to not only signify their growing economic, political, and social capital, but also wished to enjoy exotic goods in their cookery and medicine cabinet, did so at a much lower price point. Such access was enjoyed over much of the Roman Empire, reaching deep into occupied Germanic territories and cementing itself amongst local cuisine.

Chapter Three

The Collapse of the Empire and the Presence of Black Pepper in Post-Roman European Diets

Near the end of late antiquity the Western Roman Empire was experiencing upheavals in many of its core structures, challenging the systems that had existed for much of Rome's domination of the West and Near East. One example would be the fracturing of Rome's direct and indirect boundaries which helped to secure trade from far and wide. During the slow fall of Western Rome there began a power struggle between multiple military and political leaders, leading to a period of strife in the Empire. Such conflict led to the construction of new boundaries within the formally unified empire. Such boundaries inside, and outside, the Empire resulted in people, ideas, and goods being much more difficult to move through said boundaries.[116] This issue did not completely prevent the trade of goods, as is evident in the continued export of black pepper from India during local political upheavals. Alongside the creation of these new boundaries the major religious upheaval of the late Empire was the declaration of Christianity as the new state faith. Doing so allowed for the already growing, but previously oppressed faith to cement itself as a social guardrails for late Roman society. To some part this resulted in Christian philosophy trying to reject what they saw as flaws in pre-Christian Roman society, one being the ubiquitous consumption of luxuries amongst the Roman population as a moral threat.[117] So as Christian influence within the ailing empire grew, what was once the societal pressure to consume more luxuries as a class and status signifier transformed into a pressure to consume less and express temperance.

Direct comparisons between medieval Western European cuisine and Roman cuisine fortunately can be made due to the extended existence of the medieval Byzantine Empire, which proved to be an effective synthesis of both cultures. Prior to the Byzantines the use of spices by

[116] Erdkamp, *A Cultural History of Food in Antiquity*, 22.
[117] Nadeau, *A Cultural History of Food in Antiquity*, 156.

Romans was both culinary and medicinal, with little distinction between the two. As stated previously spices like black pepper were used to augment the humoral aspects of food, merging both early medical and culinary uses of spices into one. Oftentimes Roman cooks and physicians would find ways to make the "medically necessary" use of spices more palatable, like how many modern medicines taste of fruit. As time progressed those dietary manuals moved away from being for professional practitioners towards more open use by domestic cooks and other non-specialists.[118] As Dalby notes, there was a continued steady movement of spices out of the medicine cabinet and into the hands of domestic cooks.[119] I argue that this is because the Byzantines managed to remain well connected to the East, specifically the spice trade facilitated by Venetian merchants, and the pre-Ottoman silk road. Doing so allowed food culture that had thrived under the Roman Mediterranean to continue to exist and even further develop. Moving the use of spices even more into the reaches of the common domestic cook.

I find the Byzantine Empire a very useful example because it allows one to see what remained of Roman food culture, alongside what mutated, and what vanished all together. An example of something that had been so common during the Roman reign over the Mediterranean was the use of *garum* or *garos,* both of which are the same fermented fish sauce made of salt and, of course, fish layered in large ceramic pots. This sauce was once central to the Roman palate, but for one reason or another it had fallen out of favor. My argument as to why this happened was of course changing food culture, which as I have previously mentioned had been affected by post-Roman Christian ideals towards gluttony. A sauce like *garum*, salty and rich in umami, would almost definitely violate some level of culinary modesty proposed by Christian philosophers. Alongside this there also must have been some sort of distaste towards Rome in

[118] Dalby, *Tastes of Byzantium*, 123.
[119] Dalby, *Tastes of Byzantium*, 122.

post-Roman Western Europe. Such distaste was more than likely able to carry over to food culture as they could be perceived as remnants of old Imperial culture. But what I find to be the most compelling argument alongside changing tastes would be the significantly reduced pre-industrial capacity for trade, production, and consumption of such a speciality good. Roman trade networks facilitated the movement of the heavy liquid between its production and consumption centers. Speaking of consumption centers, the rapid depopulation of Roman urban centers must have not only decreased the demand for *garum*, but also made it much less attractive to move goods from farther distances.[120] The difficulties arising from producing *garum* on a scale to supply millions of Romans in a pre-industrial period must have also proven difficult. As the sauce, while fermented and thus not needing constant attention, was labor and resource intensive initially. The scale of salt and fish use must have proven especially uneconomic for the production of a good that already had a waning consumption base. Salt, already valuable in Roman times, almost definitely had to increase in value as difficulties arose in the movement of the heavy rock over larger distances. Fish, while less obvious, were possibly hamstrung by the reintroduction of Mediterranean pirates who accosted fishing vessels, but made it much more difficult to move the perishable goods over large distances.

A specific example that comes to mind to further this point is the ailing popularity of *retsina*, a pine-tar flavored wine common during Roman antiquity.[121] While to the outside viewer a tar flavored wine may not seem appealing, it was not only an acquired taste, but one of necessity. See, the *amphoras* or *doilas* used in the transportation of liquids were made of ceramic, which fired to a high enough temperature could reach a state called vitrification. This is fortunately where my expertise in ceramics comes in handy. Vitrification is when the clay

[120] Dalby, *Tastes of Byzantium*, 123.
[121] Dalby, *Tastes of Byzantium*, 123.

becomes dense enough to prevent water, or other liquids like oil, from permeating the clay and essentially flowing through. It is the same reason granite and marble countertops have to be sealed or they stain and wine or oil could permeate. The issue with the vitrification of clay is that it takes much higher temperatures, and is difficult to achieve in a pre-coal, gas, and oil world, that is almost all dung or wood. While super high temperatures can be reached with woodfired kilns, it is simply not time or energy efficient. The amount of labor and wood needed to get a clay to vitrify is not worth it when sealing the ceramic is an option. Another potential solution for this was the application of glazes onto a claybody, essentially creating a glassy layer over a ceramic base. This solution also proves to be resource intensive, as many different materials are needed to make a glaze viable and durable. Essentially the same problems arise, that being it is simply not resource, time, or labor efficient to put a ceramic vessel through another round of steps when trying to produce on such a large scale. But stone and clay vessels could be sealed by other means. In the day of modern science we can do that with any number of complex plastics and chemical sealants. But back then some of the only choices were pitch, tar, and resin, essentially all naturally occurring water-proofing materials. In the case of Roman wine transportation those vessels were waterproofed with pine-tar. Waterproofing those vessels also prevents salt water from permeating and spoiling whatever is being contained. That is the source of both the taste for retsina and garum, and their decline as populations and trade declined. The ubiquity of Roman transport vessels, and the techniques to do so, worked extremely well as long as there was high enough supply and demand. But as markets shrunk in post-Roman Western Europe, and palates adapted, the economic climate for what had previously been commonplace decayed alongside it.

Alongside the shrinking of markets, post-Roman merchants and sailors had to suffer through the collapse of expensive to maintain infrastructure as the state became unable to maintain or protect their investments. An example of this would be the gradual decay of Trajan's Canal, which prior to the collapse of the Western Roman Empire only proved unnavigable during periods of low water. This canal relied heavily on water flow from the Red Sea and Nile to remain navigable, so sometimes it would become difficult or dangerous to navigate if water levels were low, or flooding had introduced large amounts of sediment to the canal. Both of which would make the bed of the canal rise in relation to the depth of ships, causing ships to runaground or sink. In order to prevent this, Roman engineers had continually dredged the canal to reduce sediment build up, and managed waterflow to keep the canal at a usable and safe level. Both of these were incredibly labor and resource intensive, relying on the continued upkeep of various other forms of water infrastructure to make sure there was enough, but not too much water. Meaning that as the Roman state lost the ability to invest so heavily in this canal, it would quickly fall into disrepair and become unnavigable.[122] This same type of care could be shown in Roman attention to aqueducts and other waterways, which were routinely maintained and cleaned to allow for the uninterrupted flow of water into urban areas, and facilitated the movement of waste water out.[123]

The previously mentioned port of Berenice on the Red Sea played a valuable role in the import of black pepper into West Roman palates. Its unique position, history, and pre-existing infrastructure set it up to be valuable in the large-scale trade of spices, primarily black pepper, alongside various other luxury goods. The Ptolemies had established Berenice to be a crucial point of trade for not only aromatics – for worship and mortuary rites – from the East, but also

[122] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 37.
[123] "Cloaca Maxima," Wikipedia, Accessed November 13, 2023, https://en.wikipedia.org/wiki/Cloaca_Maxima.

for the transport of elephants for social and military reasons. Its location halfway up the Egyptian coast of the Red Sea made it the crucial locus of infrastructural investment. But the importance of Berenice ebbed and flowed. It grew in popularity and use within the Ptolemaic dynasties, and then shrunk afterwards, wherein it began an exponential rise in use during Roman rule and the unprecedented import of black pepper. This all came to a head after the fall of Western Rome, in which Berenice seemed to have vanished from Medieval or early-Modern maps. What had once been the most popular port connecting the Mediterranean and Red Seas then became a location with no notable port infrastructure.[124]

Alongside infrastructural changes in the pepper trade, the way in which ships moved goods from South Asia to the Red Sea ports changed. Under Roman control the pepper trade was exemplified by long single routes run by massive cargo ships. Doing so allowed for these trade routes to remain active throughout the year. This diverged from Late Antiquity and Medieval methods which utilized smaller ships running more multi-step routes. By multi-step I mean the movement of goods was determined by one ship in the Red Sea, and one in the Arabian Sea.[125] This increased the number of load and unload times, and decreased the quantity of products that could be moved at once. Doing so resulted in, unlike Roman trade routes, trade ships oftentimes missing the window to sail that was dependent on changing wind patterns of the annual monsoons. If they did try to sail anyways they risked being further delayed or wrecked. Obviously a wrecked trade ship was not ideal, so merchants and captains would decide to wait until the next season. Unfortunately that often meant that their next season would be in the following year. In the sixteenth century Portuguese ships of large size, similar to that of the *Hermapollon*, by the names of the *Sao Joao*, *Sao Bento*, and *Garca* were used to attempt to sail

[124] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 47.
[125] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 62.

the route from India to Portugal. Which brought the ships, their crew, and their goods across the Cape of Good Hope, or as the Portuguese knew it, the Cape of Storms. While the size of these ships proved more than adequate for the movement of spices along the Portuguese-run trade, they suffered one major contextual flaw. The distance needed to sail, alongside the time needed to load, on top of the route that was to be sailed was burdensome. The amount of time needed to load and sail these ships across the Cape led their captains to run incredibly close to missing their window of safe voyage, so if any delay was caused they were often forced to delay their entire journey by a year. What made it even worse is that if they missed their window, and tried to force the voyage anyways the storms that ravaged the Cape would destroy their ships. Eventually, all three of these ships would be wrecked in attempts to sail them in unfavorable conditions.[126]

As DeRomanis points out, the ports of Berenice and Myos Hormos, a slightly less important but still notable trade port on the Red Sea fell out of favor with Indian Ocean traders. These ports were especially well accustomed to the use of very large cargo ships.[127] Smaller ships, like that used by Indian Ocean traders in the aforementioned multi-step networks, could navigate farther up the Red Sea due to their shallower keels and more maneuverable nature. Since they were able to navigate farther up they could take advantage of infrastructure like Trajan's Canal. But as already noted, Trajan's Canal had fallen into disrepair just as the methods of trans-oceanic trade shifted to benefit from that style of multi-step shipping.

Utilizing an account by the Venetian merchant Piloti, DeRomanis conveniently breaks down many of the differences between Roman and post-Roman trade through the Red Sea and Egypt. As I have already said plenty of times the size of ships changed, as well as the manner in which they moved goods from South Asia to Egypt. When trade goods were to be taxed in

[126] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 259.
[127] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 70.

post-Roman trade, customs officials were not already present at the port of trade, specifically al-Tur, but instead in Egypt. Meaning that when a trade vessel arrived on the Nile and began the process of offloading its goods, they had to wait the number of weeks necessary for an Egyptian customs official to make their way from Cairo, which would amount to roughly two hundred and fifty miles. After being summoned they would then return to Cairo and wait to be summoned again, suggesting that this was not a very common occurrence. But according to customs documents from Roman Egypt, customs officials were made present at all major ports on the Red Sea, alongside a detachment of legionnaires.[128] Obviously the location of customs officials in the port, and not two hundred miles away, allowed for the prompt processing of trade goods through Egypt. Upon a trade ship arriving in a Red Sea port the goods must then be offloaded and moved to cameleers, who would then carry the goods to the Nile for loading onto river going vessels. Under the management of the Roman state there would be one cameleer, supplied with enough fodder, water, and camels, to allow for massive shipments of goods to be moved with little worry. This is unlike the Medieval system, in which it was up to the merchant and cameleer to come to an agreement, oftentimes many different cameleers if the merchant hoped to move their goods in a reasonable time frame. Doing so delayed the movement of goods towards the Nile due to the lack of organization. The issue around the lack of central organization arises again with the organization of boats for transportation up the Nile. There were no pre-arranged agreements between captain and merchant, so they would have to come to one when they met then and there. This is juxtaposed against Roman times, where not only would shipping be guaranteed by the state, but organized by the merchant and their lenders. While waiting for a ship to carry their goods up river they were able to hold it at a local warehouse, where they could sell off some of their cargo. A distinction is made between the quantity of ships during Medieval or Roman

[128] Unknown, *The Periplus Maris Erythraei*, 61.

transport up the river as the Muziris Papyrus, a Roman maritime loan document, specifically states that a merchant is to wait for one ship to carry their goods up river.[129] While waiting for a ship to arrive Roman merchants could sell some of their goods to begin the process of paying taxes, as taxes were incurred during the sale of goods. This is different from that of Medieval merchants, who were charged with paying taxes, customs, and duties, on their goods when they arrived at a customs warehouse, let it be waiting for transport upriver, or at al-Tur. Doing so made Medieval merchants carry a much higher financial burden. I believe that this is the case because of the limited central control Egyptian officials had outside their direct borders. Of course this was very different from prior times, when Roman officials had control over almost all the legal trade in and out of the Mediterranean.

Mamluk merchants, Medieval Egyptians, and others passing through Egypt along the Red Sea trade routes incurred a much lower tax fee compared to those while Egypt was under Roman control. The two Roman quarter taxes, that of twenty-five percent on goods entering Egypt, and twenty-five percent on goods leaving Egypt on the remaining seventy-five percent of goods in case they are paid in kind. The tax rate was also based on whole-sale values determined by Imperial central authority, and thus was very difficult for local tax-farmers to exploit when one takes into account the numerous edicts and laws meant to protect merchants from unscrupulous customs officials.[130] Comparing that seemingly high rate with the ten percent rate of customs duties on trade goods in post-Roman Europe it would be easy to assume that it was more financially viable for merchants to move goods through Egypt. But the higher taxes were going into better infrastructure that reduced risk and transaction costs. Unlike the protections placed onto merchants by the state, or any other informal pressures applied by wealthy lenders, who

[129] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 206.
[130] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 206.

according to DeRomanis could actively be those same customs officials in Roman times, Medieval merchants were susceptible to any number of unfair trade practices at the hands of Egyptians customs officials.[131] That unevenness is a form of uncertainty and risk that raises transaction costs. Customs incurred in post-Roman Egypt had to be paid in currency, and not in kind, which as I already stated incurred a significantly increased financial burden on merchants. The weights and estimates, according to Piloti, used by Egyptian officials were oftentimes rigged to squeeze the most out of merchants.[132]

Essentially, what had once been a united pepper trade under Roman centralized control diverged into three different routes connecting East to West. The first being the continued Red Sea trade, which while diminished in the immediate aftermath of the collapse of Western Rome, would begin the process of recovering in the sixteenth century. A Venetian official by the name of Pinto states that roughly two thousand tons of spices, primarily pepper, was shipped through Alexandria annually during this time period.[133] The second route would be the much newer Atlantic route helmed by the Portuguese. As previously stated this route did bring ships across the dangerous Cape, but also allowed for Portuguese merchants to circumvent the innumerable political and economic boundaries that arose from a lack of central authority in the Mediterranean and would have undoubtedly put a damper on the economic success of their voyage. The final mode, while much more difficult to map, proved to be nevertheless important to the state of pepper consumption in Europe, that being the illicit trade. As the name denotes this was the illegal and untaxed trade of black pepper from India into Europe, and is thus very difficult to track. While some official documentation at the time tried to tackle the exact scale of the trade, much of it remains unknown. What we do know is that there was an illicit but thriving

[131] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 206.
[132] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 206.
[133] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 261.

black market trade of black pepper run between Portugal and India, either with or without the blessing of Portuguese authorities. The scale of this trade was enough to compete with the formal Portuguese pepper trade, by the name of *Carreira da India*, demonstrating not only a staying power in that particular illicit trade, but also in the demand for pepper amongst European palates in the sixteenth century,[134] Ken Albala, a food European historian focusing on the Early Modern period, goes on to say that "Europeans used 'piles and piles' of spices such as pepper," and that they were "applied liberally on all types of food."[135]

As shown in the previous paragraph, the demand for black pepper in Europe reemerged in the Early Modern period after suffering a gradual decay over Late Antiquity. One can of course look at the increased price of pepper between Early Imperial and Late Antiquity, which according to Pliny the Elder would be four denarii per pound in the first century C.E. While the maximum price would then increase to eight hundred denarii per pound in the third century C.E.[136] As DeRomanis succinctly puts it, "the general level of the pepper prices inside the Roman Empire was considerably lower in the first than in the fourth or fifth centuries AD."[137] This increase in value must have signified a decrease in supply, its risks and costs, and the shifting of black pepper from the hands of the common Roman. The precipitous increase in the value of pepper can also be shown in the ransom of Rome under Alaric the Goth in 408 C.E., where he demanded three thousand pounds of pepper, amounting to less than one and a half tons of pepper. Considering that a single ship like the *Hermapollon* could have transported six hundred tons a year, merely one quarter of a percent of the annual import of one ship. Considering that Alaric had succeeded in besieging Rome and extorting a ransom I would not

[134] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 261.
[135] Singh, "Black Pepper: From India's 'Black Gold' to Afterthought,"
[136] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 104.
[137] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 103.

consider him a fool, so the price of pepper must have been high enough for him to demand three thousand pounds of pepper alongside five thousand pounds of gold.[138] This trend continued in much of Europe until its revival in the Early Modern period, but still cemented itself into the social contexts of Europe. An example of this would be the English saying that something or someone is as "dear as pepper," or even the colloquialism of "black gold" prior to the industrialized use of oil.[139] All of which denote a highly cherished value amongst the English for centuries. Such cherished value hints at a level of scarcity or material value. The relationship between Europeans and black pepper led to a continued decline in the fifteenth and eighteenth centuries. There was a shift in perception from "adoration" to "disdain" due to hyper-cheapness and varied political and aesthetic relationships, where spicy food came to be associated with the food of the ethnic immigrant. Much of this shift can be attributed to the further racialization of spices amongst Western perspectives. At this point in time the Indian spice trade had been revived for quite some time, which made it cheap, ubiquitous, and carried the mark of the other, which was no longer venerated due to modern over-development of Europe at the cost of the under-development of others, who appeared to be eating spicy food. That took hold after Europe became dominant, ca. 1800, which has been called the great divergence, and places such as India and China came to be seen as underdeveloped and inferior.[140] That was a new kind of relationship between the West and the East that had framed the Roman to Medieval experience. The overwhelming victory of modern biomedicine over humoral medicine dealt the death blow to the curative power of spices. French chefs, those who came to design haûte cuisine in the 19th century, preferred using white pepper, a less aggressive, more expensive, and of course white spice. Doing so allowed the innumerable pasty-white dishes of French cuisine to remain pale

[138] Singh, "Black Pepper: From India's 'Black Gold' to Afterthought,"
[139] Singh, "Black Pepper: From India's 'Black Gold' to Afterthought,"
[140] Kenneth Pomeranz, *The Great Divergence*, (Princeton, NJ: Princeton University Press, 2001.)

when introducing a little more flavor. From there the myth of spices being used to cover rotten or putrid foods came to develop, as elites sought to distinguish their cuisine from the poor and non-white.

In summary, Rome utilized an unprecedented scale of central authority to help organize the Indo-Roman spice trade. Doing so not only required reinvestments into pre-existing infrastructure, but also new levels of organization that either could not or would not be mimicked in post-Roman control of those same trade routes. As that central control collapsed, infrastructure and systems decayed, making what had once been a near effortless venture to become a costly, dangerous, and time consuming one. All of those reasons resulted in black pepper declining in use in Europe and increasing in value. In post-Roman Europe documentation of Byzantine cuisine helped to document what had changed in those hundreds of years, what commonplace foodstuffs had fallen out of favor and vice versa. As recorded in Dalby's "Tastes of Byzantium" the dietary schedules pushed by Byzantine physicians utilized black pepper as a humoral additive for the common person, and Byzantine cooks recorded recipes for Western European royalty which contained black pepper. Considering that a cook would not want to offend the class signification of European royalty I would assume that black pepper held much higher social and economic value in the West than in Byzantium. Meaning that while the Byzantine Empire contained many traits indicative of Western European royalty they held onto long standing Roman traditions, becoming an effective synthesis of the two cultures. Byzantium remained interconnected with pepper supplying trade networks due to its location, and cultural connection with the medicinal, culinary, and social uses of black pepper. Those same infrastructural and social factors still appeared within differences between various Central and West European uses of pepper. Take for example the extended use of pepper within Germanic

cuisine, which I argue was primed by not only extended occupation by Roman troops, but its geographic closeness to the Venetian pepper trade. Of course the intensity of use was less than that of Byzantine cuisine, which had both of these factors but to a much more intense degree, but it still had two major characteristics that allowed for the extended use of black pepper within their cuisine. Some of the aforementioned examples would be mulled wine, sausages, and spiced cakes. These factors differentiate themselves from the French perceptions of black pepper, which appear to be a concoction of aesthetics, race, and locality to varying degrees. According to Strabo, the Roman historian, "The cheap trinkets exchanged between Gaul and Britain were no match for the exotic items from India and East Africa."[141] Essentially it was far less profitable for Roman merchants to engage with trade that connected Rome's Mediterranean core with Britain and France culturally and logistically. France also found itself more removed from the Venetian pepper trade by location, black pepper aesthetically and racially spoiled the whiteness of food. It is worth noting that white pepper surpassed black pepper in use for French foods, even though their place of origin was the same, meaning that there was a level of discernment on the social context and aesthetics of using "exotic" black pepper. This resulted in Western European haute cuisine being mostly devoid of black pepper, as French chefs found themselves at the forefront of European elite diets. French and German diets in post-Roman Europe found themselves on different trajectories in relation to their use of black pepper in food as that spice shifted from medical to culinary use in the Byzantine era. The differences crystalized in English cuisine, which was heavily influenced by French cookery, and fell victim to more logistical stressors as a result of its more disconnected status from the European landmass.

[141] De Romanis, *The Indo-Roman Pepper Trade and the Muziris Papyrus*, 133.

Conclusion

In closing, the Roman Empire utilized pre-existing trade infrastructure alongside newer investments into warehouses, ports, roads, waterways, and bridges to help facilitate the movement of perishable goods over long distances. Pheonician ship building techniques alongside Ptolemaic port infrastructure specifically designed for massive ships along the Nile and Red Sea allowed Rome to utilize ships with cargo capacity between six hundred and seven hundred tons along the Indo-Roman trade route. Initially these advancements were made to help move grain and elephants over vast distances, but as Rome's need for grain grew within its urban core alongside its need to feed large standing armies throughout Asia Minor, Africa, and Europe those forms of trade infrastructure proved invaluable when it came to the movement of grain farther than before. Not only did the complex networks of trade infrastructure prove invaluable for the movement and supply of grain into Roman consumption sites, but it proved necessary for the movement of large amounts of perishable goods, like black pepper, from South India. As the capacity for trade of black pepper increased, so did the cultural role that black pepper played began to grow, soon cemented itself as a cultural and medical cornerstone of Roman society. Medical doctrines utilized black pepper as a near cure-all due to its unique traits of dry heat, something that has been noted as perhaps even the only form of dry spice within European food prior to the introduction of chili peppers from the New World. This same trait would prove dominant to Roman cuisine, as cookbooks like Apicius mention black pepper over five hundred times in stews, spiced wines, sausages, and desserts. Such access to black pepper was not solely restricted to the elites of Roman society, rather it found itself common amongst the middling classes of Rome, those being bakers, small time merchants, and tavern owners for example. All

of which owned small amounts of property and primarily ate out at establishments like *tabernas*, essentially a tavern which served food and drink. As those part of the middling class were not part of the elite, they played a foundational role in the Roman military. Serving part in extended periods of occupation throughout colonized territories in Africa, Asia, and Europe. Their extended time in those regions led to significant cultural exchange between Roman culture and whichever culture was represented in their occupied territory. Take for example how prior to Roman occupation of modern day Germany, pork and beer was considered barbaric and of lower social value than foodstuffs like wine and beef.[142] After extended occupation of Germanic territories both goods began to emerge as commonplace amongst Roman soldiers, eventually to the point in which pork was added to the *Cura Annonae*, or grain dole, essentially a government ration to urban populations. As Roman soldiers were exposed to Germanic cuisine, Germanic peoples were exposed to black pepper as a common flavor in Roman foods. This became so common that there is archaeological evidence of black pepper contained within Roman forts in modern day Germany. Not only does this signify the growth of black pepper in Germanic palates, but also the ability for Roman trade networks to move black pepper to its hinterlands to supply military locations, hinting at significant demand amongst its soldiery. Other difficulties arose as black pepper tried to permeate into the far reaches of the Empire, specifically on how much worth it had for merchants to take part in the exchange of goods. While it was very profitable to move Roman gold, silver, and wine into the Indian trade networks, it was significantly less worth so, in the opinion of Strabo, the Roman historian, for Rome to try and engage in trade with Gaul (modern day France) and Britain. This decreased trade led to less cultural impact by Roman trade networks, even though there was an extended history of occupation on both land masses by Roman military forces.

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These difficulties arose further after the collapse of the Western Roman Empire, leading to even more exaggerated logistical difficulties in the transportation of black pepper, alongside other goods, from India and the Red Sea trade network. Alongside increased racialization and class signification of spices between the seventeenth and eighteenth centuries, this resulted in black pepper falling out of favor in French diets, who dictated European haûte cuisine, and thus the diets of most of Europe's elite. Germany, on the other hand, found itself quite close to the Venetian pepper trade which took over the Red Sea route after the collapse of the Roman Empire. Pepper found its way into muddled wines, similar to Roman spiced wines, forced meats, like Roman *loukanika*, and Christmas cakes, a type of dessert bread. In summary, German food maintained a deep connection with black pepper in the post-Roman world due to its cultural connection, and its logistical closeness to newer pepper trades that succeeded that of the Romans. On the other hand, the disconnection French consumers suffered from the collapse of Roman trade networks, alongside growing hostility towards spices from the eighteenth century led French, and by proximity and conflict, English cuisine use significantly less black pepper in their diets even after Portuguese networks reopening French and English markets to pepper in the seventeenth century.

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