



The Impact of Markets and Roads on the Domestic and Foreign commercial Financial Transactions in Egypt during Greco Roman Period

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Abstract

Domestic trade was played an important role in ancient Egypt. Control of trade and exchange networks were important sources of power and wealth. Trade began in the Predynastic period in ancient Egypt and continued through Roman Egypt. Foreign trade with other lands attracted covetous attention from abroad. Temples in ancient Egypt used agents for internal trade and local markets flourished. As well as trade and communication between the Pharaoh and foreign rulers established Egypt as a powerful unified nation in the ancient world. In addition, ancient Egypt traded goods with other countries such as Asia Minor and Arabia. Egypt's ingenuity in building and sailing boats was vital to the land's economic and political strength. Egypt and its neighbors through the Ptolemaic period used the economic and artistic exchange system. The economy of the Roman Empire was an exchange economy.

The currency was not known in Egypt until after the fourth century B.C when it was introduced from Greece. Ancient Egypt knew the currency system only in late times. Ancient Egypt's economy operated on a barter system without cash. Social change that the Ptolemais introduced in Egypt such as coinage. Therefore, the Greco Roman world indicates clear historical correlations between monetization and the developments of markets. The Ptolemaic initially issued gold, silver and bronze coins. As well as Egypt played an important part of the Roman administration, because of the economic importance of its agricultural resources, its geographic location on trade routes from the Red Sea and Nubia.

Taxation was a part of trading arrangements so the trade was important in the country's income, as well as ancient records mentioned ancient transaction documents of trade. Ptolemaic tax receipts are generally Greek, Demotic receipts are found as well as Greek receipts with Demotic subscriptions showing native scribes at work in the bank. Alexandria great harbor had a paramount trade, military and political value both for the city and for the country as a whole. Under Romans, one of the major changes was taxation. In both Ptolemaic and Roman Egypt, public registers played an effective role in trade. Under Ptolemaic and Romans Alexandria became an important transshipment center. As well as under Roman rule Egypt became the main conduit for seaborne trade in products from India such as spices and incense. Eastern desert of Egypt and the red sea were strategically and economically important. Under Roman rule, a number of ports along the Egyptian red sea coast and routes across the eastern desert were established. The Nile River was essential for the development

of internal and foreign trade and for contacts with abroad. During the Hellenistic period, the Nile was linked with the red sea by an artificial canal.

Keywords: Market, harbor, commercial, desert, domestic, trade, financial, road, Red Sea, foreign, coinage, transaction.

Introduction

There is no doubt that trade was a vital aspect of any civilization whether at the local or international level (<https://www.worldhistory.org/article/1079/trade-in-ancient-egypt/>, 2022; García, 2017). Although, many goods one has, whether as an individual, a community, or a country, there will always be something one lacks and will need to purchase through trade with another (<https://www.worldhistory.org/article/1079/trade-in-ancient-egypt/>, 2022). In addition, markets were able to work well in the environment created by public authorities who provided local public services in cities and a functional rule of law across most of the empire (Arruñada, 2020). Further, the ideal of autarky pervaded and shaped the ancient economy and there was no trade in goods which could be produced everywhere in sufficient quantities, only trade in luxuries and cereals. In addition, the ancient economy was in a constant flux (Minnen, 2000) as well as land and maritime trade routes determined the offloading points where goods were exploited or transformed (Sydney H. Aufrère, Cale Johnson, Matteo Martelli, and Marco Beretta , 2022).

Besides, a good communication system is important for any civilization to develop and flourish and this is particularly so with Egypt (Lloyd, 2010). In other word, ancient Egypt was a country rich in many natural resources but still was not self-sufficient and so had to rely on trade for necessary goods and luxuries (<https://www.worldhistory.org/article/1079/trade-in-ancient-egypt/>, 2022). And Egypt looks like a crossroads of diverse populations and a hub of political and economic power also ancient Egypt had a unique advantageous position, not matched elsewhere because of the concentration of wealth, trade routes and political power (García, 2017) so trade began in the Predynastic Period in ancient Egypt and continued through Roman Egypt (<https://www.worldhistory.org/article/1079/trade-in-ancient-egypt/>, 2022).

Meanwhile, the ancient Egyptians had left a lot of information, carved and painted on the walls of temples and tombs, on how they moved around the country (Lloyd, 2010). In the meantime, foreign trade and contacts with other lands attracted covetous attention from abroad (Ruiz, 2001) and commercial contacts between the Indian Ocean and the Mediterranean Sea have followed various land and sea routes (Aubert, 2015). As well as ports and harbors can be located in extremely diverse political and geomorphological settings (Najeeb M. A. Rasul and Ian C. F. Stewart , 2019).

As with, the exchange of luxury goods and objects of prestige already appears in Predynastic times like the Nagada I period (Barich, 2014) for example, in the ancient world aromatics were highly prized luxuries so trade routes developed around the pursuit of solid perfume ingredients and they were used by the ancient Egyptians, Persians, Assyrians, Hindus, Buddhists, Greeks, Romans, Christians, pagans, and all others (Tatomir, 2017; Lloyd, 2010). In addition, Nubia supplied ostrich feathers and leopard skins, rings of gold and slaves and animals such as cattle in exchange for Egyptian processed goods including copper tools, salted fish, leather goods and linen as well as grain (Ruiz, 2001). Clearly, Egypt was trading with the Libyans in the Early Dynastic period (R.Bunson, 2012).

Besides, there were already Greek living in ancient Egypt since the seventh century B.C, they had been attracted to the country as traders and merchants (ROWLANDSON, 1998). Additionally, social change the Ptolemies introduced in Egypt such as coinage (Reden, 2006). As with, a prominent feature of Ptolemaic fiscal policy was the “state” or “royal monopoly” on the production and sale of vegetable oils (DOGAER, 2021). For example, not only had Ptolemy I accomplished his goal of building a strong buffer around Egypt, but he had also greatly increased Egypt’s wealth (Burstein, 2007). For instance, the Fayum oasis produced several amphora sealings made of clay and stamped with considerably abbreviated inscriptions (DENECKER, Evelien and Vandorpe, Katelijn, 2007). Specifically, in Roman Egypt was the perfect place with its regular harvests and fertile lands to find the grain necessary to sustain a population growing in Rome (Hardy, 2017). Therefore, I will discuss through this paper the main development of financial transactions in Egyptian economic during the Greco Roman times.

(1) Role of Trade in Ancient Egypt

(1-1) Domestic and Foreign Trade in ancient Egypt

As for Domestic trade: trade in Egypt plays a more important role (حسن، ٢٠١٢). In addition, temple in ancient Egypt used agents for internal trade, and local markets flourished (Bierbrier, 2008), and the temples played a vital role as an administrative and economic institutions during the New Kingdom (Bard, 1999). Besides, traders were buying and selling goods for temples, kings, and individuals (Snell, 2005), for example, the workshops of Amen Re temple at Karnak, supervised by the treasury department of the temple. Further, a great deal of Egypt’s economic production was controlled by the government (Bard, 1999). Clearly, warehouses of government departments and major temples were filled with goods to supply workers; the surplus is used for trade. It seems the products of a department or agricultural land are sold to traders, which they distribute and sell in markets (علي، 2005). In other word, the importance of private production was restricted to local markets (Bard, 1999), while all categories of traders met in commercial markets located in city and provincial capitals (علي، 2005). As with, a scene in a Theban tomb shows craftsmen of the Karnak temple producing chariots and weapons (Bard, 1999). In the same way, in some of Saqqara's tombs from the Old kingdom, we see scenes of poultry owners slaughtering, cleaning and hanging on wood in front of the shops and offering them for sale. In particular, there were multiple paved roads as well as water channels, donkeys were used to carry cargo and weights on paved roads and boats and boats were used in the Nile and inner channels (علي، 2005).

While for Foreign trade: external trade was regarded as a royal monopoly (Bierbrier, 2008), so the importance of navigation has been confirmed in the country by the continuation of shipbuilding since the first dynasties (حسن، ٢٠١٢). Specifically, trade and communications between ancient Egypt and foreign lands established ancient Egypt as a powerful unified nation in the ancient world (Ruiz, 2001), also foreign traders were of facially stated to be bringing tribute to the king and then rewarded for doing so (Bierbrier, 2008). Similarly, grain was a plentiful and profitable export commodity (Ruiz, 2001), and the traders were exporting cereals and there were several cities in the delta that are important centers of trade located at the crossroads where the yield trade was passing and connecting it to the foreign country (حسن، ٢٠١٢).

As well as in ancient times, Egyptians traded with many lands (Ruiz, 2001), and there was a large scale trade exchange (الأمير، 2017). Immediately, foreign merchants settled in Egypt during the New Kingdom in Memphis and Pi-Rameses and later during the Saite Period when Greeks were assigned the town of Naukratis (Bierbrier, 2008), and international commerce was also under government control, and all brokers of trade between countries were state employees (W. Z. Wendrich, R. S. Tomber, S. E. Sidebotham, J. A. Harrell, R. T. J. Cappers and R. S. Bagnall , 2003). Meanwhile, Egypt traded with and sometimes campaigned against her neighbors, seeking gold, hard stone, turquoise, good quality timber, and incense and spices (David, 1999). In the meantime, trade routes were established, over time, to Nubia, Punt, Cyprus, Syria, Greece and Crete (Fig.1-2). Therefore, Egypt’s ingenuity in building and sailing boats was important to the land’s economic and political strength (Ruiz, 2001).

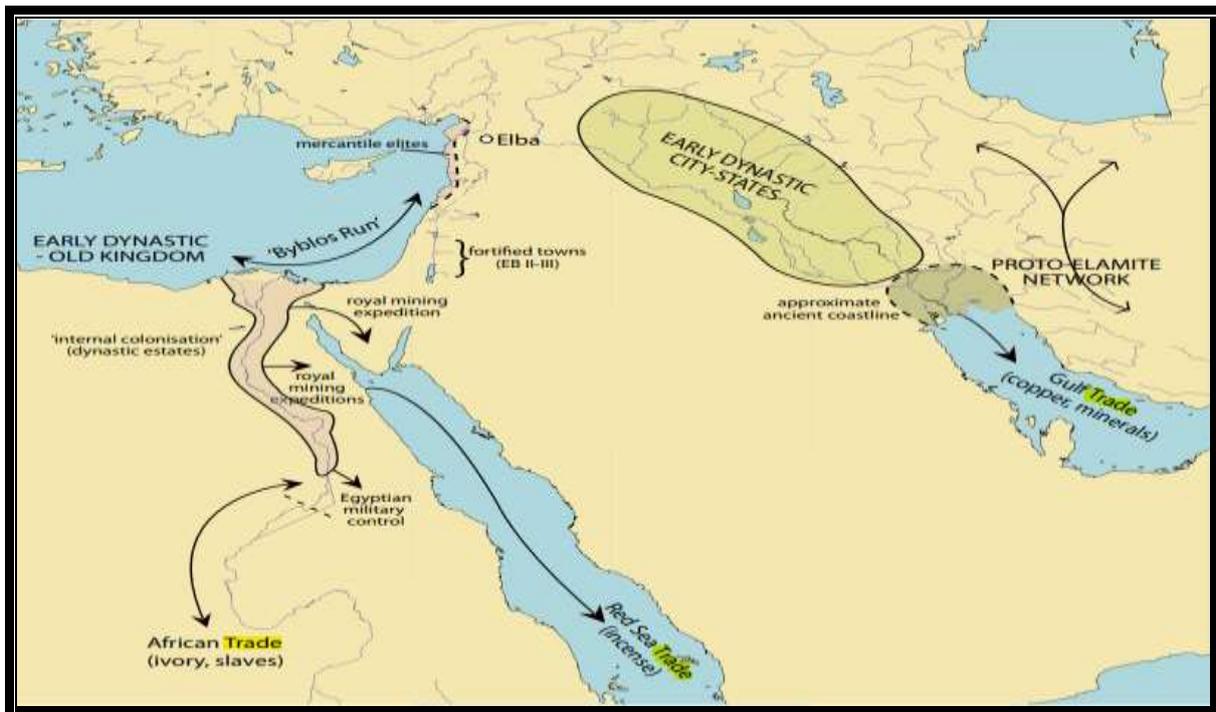


Fig.1. Major Trade during the early Dynastic and Old Kingdom period, (Gilbert, 2008).



Fig.2. Mediterranean trade routes during the old and middle kingdom, (Gilbert, 2008)

It seems, in a period of intense international exchange and of development of new trade routes across the Near East and northeastern Africa, such as Egypt as its rulers sought to profit from and control (when possible) the flows of wealth across or near its borders (García, Trade and Power in Ancient Egypt: Middle Egypt in the Late Third/Early Second Millennium BC, 2017). Therefore, with the beginning of the age of the Old Kingdom, Egypt's relations with its neighbors from the Old near East countries expanded (ديوب، 2014). At that point, in the New Kingdom, a few tombs include scenes of ships from Canaan/Syria-Palestine, along with scenes of foreign traders bringing exotic materials from Western Asia, the Aegean, and Nubia (Vinson, 2009). Nearby, the kings sent expeditions and fleets regularly, and many officials led the commercial ventures, some coming from the bureau established for foreign trade (R.Bunson, 2012). Also, royal expeditions were occasionally sent to the south and the Levant (Bierbrier, 2008), and it is thought that Egypt conducted trade with Cyprus, Crete, and perhaps even with mainland Greece (R.Bunson, 2012). In other word, Egypt was largely self-sufficient in agriculture and raw materials (Bierbrier, 2008), but received wood, wines, oils, silver and cattle in exchange for gold, papyrus paper, leather goods, and grains (R.Bunson, 2012).

Therefore, Egyptians attended from remote areas gum, incense, gold, animals, ostrich feathers, ebony, ivory, leopard skins and other products, and there has been a trade exchange between Egypt and the Syrian Coast (علي، 2005). Adjacent to, trade with Nubia and Sinai contributed to the political and economic status of Egypt. Wood was imported in large quantities, as do not produce wood of a quality suitable for doors, window frames, sarcophagi, furniture, weapons, musical instruments, and ships (Ruiz, 2001). Besides, Syria remained a popular destination for trading fleets and caravans (R.Bunson, 2012). So, a number of stone vessels were found in Syria dating back to the age of the third dynasty in Egypt (ديوب، 2014).

Additionally, ancient Egypt traded goods with other countries such as Nubia, Asia Minor, Libya, Mesopotamia and Arabia (Magdy, 2017). Specifically, the Egyptians built forts and opened trade routes to import exotic goods, animal skins, and ivory from deep in Africa (Remler, 2010). At that point, from Nubia came exotic spices, copper, ivory, resin and granite, and amethyst; these were traded for Egypt's papyrus scrolls, and for wheat and barley (Ruiz, 2001; R.Bunson, 2012). Currently, trade between Egypt and Punt goes as far back as the 5th Dynasty (Ruiz, 2001). So, since the age of the old kingdom, kings have been sending their merchant vessels to Puntland, the heart of Africa and the Red Sea for the purpose of trading, such as Punt's journey under Queen Hatshepsut (علي، 2005), which is well documented on Deir el-Bahri temple (Ruiz, 2001). It seems, from Punt (probably situated on the east coast of Africa near the south end of the Red Sea) (David, 1999), the Egyptians carefully bought, transported, and stored their frankincense and myrrh (Wise, 2009) for use in religious rituals (David, 1999). In addition, there were conducted punitive campaigns probably to protect the trade centers being operated in the Libyan region, as well as caravans moved through the Libyan Desert area oases (R.Bunson, 2012).

(1-2) Financial and Commercial Transactions in ancient Egypt

Currently, ancient Egypt knew the currency system only in late times (علي، 2005). Money was not in use in Egypt at this time (R.Bunson, 2012), and ancient Egypt's economy operated on a barter system without cash (<https://www.worldhistory.org/article/1079/trade-in-ancient-egypt/>, 2022), as well as the ancient Egyptians used weights and balances (الأمير، 2017). Immediately, the exchange or barter system was common and known and determined the value of each commodity according to its weight (علي، 2005). No currency existed in Egypt's long history for exchanging commodities at set values, essential goods were generally

manufactured by the user or members of his immediate family (W. Z. Wendrich, R. S. Tomber, S. E. Sidebotham, J. A. Harrell, R. T. J. Cappers and R. S. Bagnall , 2003) (Fig.3).



Fig.3. Barter business, (above) a man selling thickness to a sitting woman and another replacing a small bag with two pieces of cake, (under) men trotting to a transport ship, **Abou cemetery**, (1937، كمال)

Further, trade flourished through an exchange of goods and services based on a standard of value both parties considered fair (<https://www.worldhistory.org/article/1079/trade-in-ancient-egypt/>, 2022), such as pots were produced by women in their homes. In addition, commodities, such as bronze plow blades, which could not be made in the average home, were secured, not by purchase from a store, but by barter (W. Z. Wendrich, R. S. Tomber, S. E. Sidebotham, J. A. Harrell, R. T. J. Cappers and R. S. Bagnall , 2003). While foreign trade (García, Trade and Power in Ancient Egypt: Middle Egypt in the Late Third/Early Second Millennium BC, 2017), access for foreign merchants was probably strictly limited, and when they were permitted to enter the country they were controlled by the government and sometimes confined to their own cities within Egypt (David, 1999), as well as the currency was not known in Egypt until after the fourth century B.C when it was introduced from Greece (2017، الأمير).

Additionally, at the Old Kingdom, it was ranging from senior central administrators dealing with economic and legal affairs of the entire country to local scribes responsible for collecting and recording taxes (Bard, 1999). Clearly, taxes are levied on the amount of income so the trade was important in the country's income (حسن، ٢٠١٢). In other word, the trade offs were taking place in the markets of cities and villages according to the scenes of the old kingdom continued in the era of the Middle kingdom. While in the New Kingdom, ships were used in the transport and exchange of goods (1937، كمال), and the crops that brought to Egypt were taxed (حسن، ٢٠١٢). In addition, Egypt's economic exchange serviced with other foreign countries by receiving tributes and the importance of these exchanges was depicted in the tombs of the major economic actors of the state, especially those of viziers, who held a tight control on foreign trade (Beretta, 2021). Likewise, in Dynasty 18, the king protected the state's interests by imposing customs duties at Egypt's frontiers (David, 1999) and the kings of the New kingdom made constant efforts to secure internal markets, ensure their stability, control markets and protect transactions (2017، الأمير). In the same way, purely commercial goals and private activities appear in the written and archaeological record, because of the modest, perishable, and many of the goods traded, the fact that some of their protagonists hardly produced documents, and when they used documents in their everyday operations (García, Trade and Power in Ancient Egypt: Middle Egypt in the Late Third/Early Second Millennium BC, 2017).

Also, taxation was a part of trading arrangements from the early days such as, Nakhthorheb, who held the position of Overseer during the reign of Amasis, prided himself as having re-instituted the custom of payments as taxes levied of trading ships to the sanctuary of Neith at the capital Sais (Villing, 2008). Specifically, royal and diplomatic inscriptions concern very specific transactions included exchanges of gifts, dynastic marriages, expeditions in search of coveted precious goods in which trade operations that emphasizes tributary relations with others (García, Trade and Power in Ancient Egypt: Middle Egypt in the Late Third/Early Second Millennium BC , 2017). As with, ancient Egypt's exports included papyrus, textiles, dried fish, gold and luxury manufactured goods were also traded for the commodities the country lacked such as wood and copper (David, 1999), as gold, silver, copper, and even grain were used as bartering values (R.Bunson, 2012). In the meantime, Egypt dominated Syria-Palestine to the Upper Euphrates region and each ethnic group is shown paying its tribute by bringing different raw products it had exploited or traded, or with objects that displayed the craftsmanship in which the group excelled (Beretta, 2021).

Immediately, an ancient record of documents that the trade of an ox for one fine tunic and two ordinary ones, plus ten sacks of grain and some necklace beads (W. Z. Wendrich, R. S. Tomber, S. E. Sidebotham, J. A. Harrell, R. T. J. Cappers and R. S. Bagnall , 2003). In the meantime, foreign vessels have been constantly flocking to Egyptian ports and unloading their cargo to be traded for Egyptian products (2017، الأمير). Two steles were erected under the reign of Nectanebo I (380–362 B.C). At that point, the first of these was discovered in Naucratis, the second in Thonis-Heracleion (a port located at the outlet of the Canopic branch), which exchanges by the payment of customs duties on the imported and exported products at the entrance and the exit of Naucratis (Beretta, 2021). Also, at Beni Hasan and Thebes for example, salted and dried fish were prepared for export, and fish were given as rations (wages) to state employees and numerous market scenes also depict the sale and barter of fish (Bard, 1999).

(2) The Significance of Trade in Greco Roman Egypt

(2-1) Domestic and Foreign Trade and Markets in Greco Roman Egypt

In particularly, the Greco Roman world indicates clear historical correlations between monetization and the development of markets, money as the growth of markets allowing strangers to trade with each other (Eichhorn, Barbara, Hendrickx, Stan, Riemer, Heiko and Stern, Ben, 2005). Specifically, in the Greco-Roman Period the trade with Egypt was substantially changed by the requirements and expectations of the country's new Ptolemais and Romans rulers also by the considerable presence in Egypt of Greek immigrants who brought with them their own commercial enterprise and expertise (David, 1999) so the importance of trade as a pillar of the economy (2008، محمد). In the same way, the economy of the early Roman Empire was an exchange economy (Arruñada, 2020) and markets played a vital role in the lives of the ancient Greeks and Romans. Likewise, each Greek city-state had an agora, or marketplace, where goods were bought and sold. In Rome, the forum was originally the main market site for the city (<https://erenow.net/ancient/ancient-greece-and-rome-an-encyclopedia-for-students-4-volume-set/273.php>, 2022). Currently, this was achieved "through markets for goods, labor and capital, which allowed specialization and efficiency" (Arruñada, 2020).

Meanwhile, at first, markets were not just places where sellers set up stalls for the display of their retail goods or farm produce. With improvements trade expanded to overseas markets throughout the Mediterranean region, where the ancient system of open-air markets (<https://erenow.net/ancient/ancient-greece-and-rome-an-encyclopedia-for-students-4-volume-set/273.php>, 2022). The Egyptian commerce was in the hands of the Phoenicians and Greeks

during the late period (Magdy, 2017), there were Greeks living in Egypt as traders since the seventh century BC (ROWLANDSON, 1998), and under the Ptolemais more and more Greeks came to settle in Egypt (Escoffey, 2012). Meanwhile, Herodotus reported that fishermen were hunting abundant amounts of fish annually and supplying Fayoum markets with species (على، 2005).

At that point, Greek mercenaries had set up their own communities on the Nile and by the fourth century B.C had influenced much of the nation through their skill in trade and warfare. Besides, Achaean League a confederation of Greek city-states and allies that achieved considerable prominence in the reign of PTOLEMY II PHILADELPHUS impacted upon Egyptian TRADE practices until it became embroiled in a dispute with Rome, around the second century (R.Bunson, 2012). Additionally, commerce, was already well established by the time Augustus incorporated Egypt into the Roman Empire in 31 B.C. when the Romans finally took complete control of the Eastern Mediterranean region after 31 B.C. with the surrender of Ptolemaic Egypt, they acquired territories in which the long-distance trade with the East was already well established (Young, 1998).

Further, the economic and artistic exchange system that was used by Egypt and its neighbors through the Ptolemaic Period (R.Bunson, 2012). In addition, more typical for the Greco Roman economy seems to have been the way the Ptolemais transformed that, the Ptolemais did introduce a number of practices that made the system they encountered work for them. In addition, this included the introduction of Greek as the administrative language, the introduction of coinage as a means of payment (Reden, 2006). In other word, Egypt had the advantage of tighter control over foreign traders, easier taxation and easier exchange of goods (Villing, 2008). It seems, the Greeks traveled everywhere to set up trade routes, for example, “Forty Day Route”, a trail used by the ancient Egyptian trade caravans from the earliest periods, the route went from the KHARGA OASIS to the south. Such caravans brought vital minerals and luxury items, such as furs, ivory, and gems, into Egypt (R.Bunson, 2012). Clearly, Greek (and other foreign) trade amphorae were widely distributed in Egypt (Villing, 2008), as well as the Ptolemaic vegetable oil industry was strictly regulated and controlled by the government, through the so- called “state” or royal oil monopoly *έλαική*. Also, the regulations dating back to the middle of the third century B.C. (DOGAER, 2021).

At that point, pottery commissioned by traders/travelers indicates that trade routes and networks between the Greek Eastern Mediterranean and Egypt were well established by the late 7th century B.C. So Greek pottery played only a limited role in exchange and provide vital information about the interchange between Greeks and Egyptians. For example, figures holding vessels in the traditional Egyptian kneeling pose for making sacred offerings, as on an example from Naucratis of a man holding a lidded jar (**Fig. 4**), and another early example is a small imitation of a fractional Samian amphora from Tell Dafana (**Fig.5**) (Villing, 2008).



Fig.4. Faience figurine of a man holding a lidded, late 7th, early 6th century, British Museum, (Villing, 2008).



Fig.5. North Ionian late wild Goat style rimless cup with a votive dip into for "Aphrodite at Naukratis", London, British Museum, (Villing, 2008).

In the same way, findings of Egyptian pottery in Crete and so on enable us to trace many lines of commerce (Casson, 1954). As a market Egypt is characterized as a consumer primarily of trade amphorae (appreciated both for their contents and their functionality), its consumption of Greek painted pottery was highly limited outside the special case of Naukratis for production of vessels being customized for consumption abroad (**Fig.6**) (Villing, 2008).

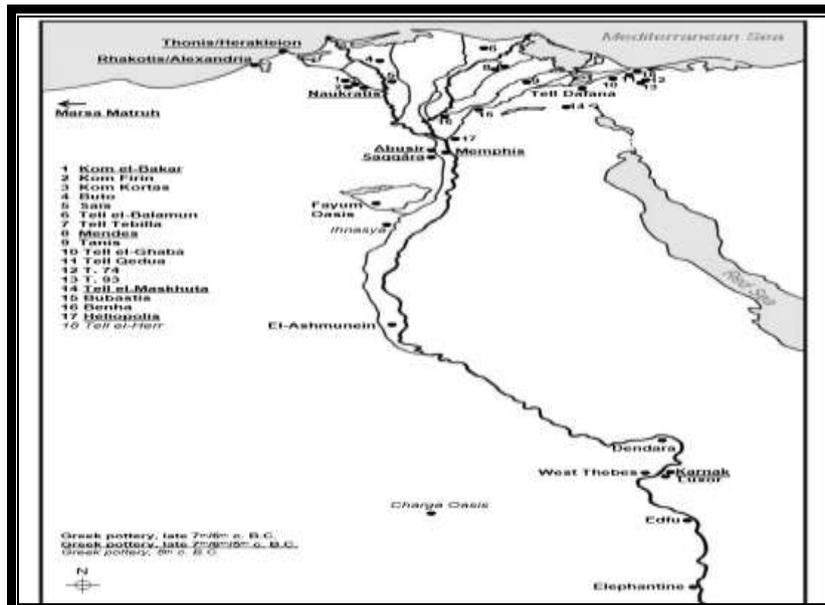


Fig.6. Map of find spots of Greek pottery in Egypt, (Villing, 2008)

Currently, recovered deity figures and pottery provide information about Greek imports and trade systems in Naucratis. Also, the city of NAUKRATIS in the Delta served as the hub of Greek trade for centuries (R.Bunson, 2012). By the late sixth century B.C, ancient Egyptian trade with the Aegean was extensive enough for the pharaoh (Burstein, 2007; Athr Anwr Abdel Hameed, Ali Omar Abdalla and Nashwa M. Solieman, 2020; Remler, 2010), PSAMMETICHUS I gave Greek merchants including permission to establish a trade center at Naucratis (R.Bunson, 2012) as well as Amasis, to allow a consortium of twelve Greek cities to found the city of Naucratis in the western Delta, which served as the center for all trade between Greece and Egypt (Burstein, 2007; (Athr Anwr Abdel Hameed, Ali Omar Abdalla and Nashwa M. Solieman, 2020; Riggs, 2013). In particularly, Naucratis was founded c. 630 B.C.E., and the name of the site meant “Ship Power” (R.Bunson, 2012) and was part of a complex and sophisticated system of transcultural market exchange, trade and taxation (Villing, 2008).

Currently, Naucratis was essential to open a route to the Mediterranean Sea in order to promote trade with the Greeks and the Egyptians had to navigate to the Canopic branch of the Nile, to the emporium of Naucratis, where the Greek cities enjoyed the advantages of residence and commerce (Beretta, 2021; Roger S. Bagnall and Dominic W. Rathbone, 2017). For example, export played a role in the earliest history of Naucratis, and the Elephantine papyrus and the reference in Herodotus certainly seem to privilege the regular exchange of desirable raw materials and commodities such as wheat imports, also the import to Greece of such as papyrus and lax/linen, perfume and linseed oil, alabaster and Egyptian or Egyptian sing amulets, as well as perhaps foodstuffs such as salt or Nile fish – a Nile (Villing, 2008). Also, during the Ptolemaic period, Egypt traded with countries that were already under the Ptolemaic rule such as Cyprus and Nubia. Moreover, they traded with other foreign areas such as Rome, south Arabian cities and Punt (Magdy, 2017). Meanwhile, the city of Memphis, a major economic as well as religious center, included many Greeks in its cosmopolitan population (ROWLANDSON, 1998). Besides, the period from the second century BCE to the second century CE represents the zenith of the aromatic trade, with the territories ruled by Rome as centers of consumption (Tatomir, 2017). In addition, the Romans declared Egypt a province of special status and regulated such commerce out of

ALEXANDRIA (R.Bunson, 2012). Also, under Roman, control an abundant and steady supply of grain (KYLE MCLEISTER, 2011).

In other word, Egypt was an important part of the Roman administration, because of the economic importance of its agricultural resources, its geographic location on trade routes from the Red Sea and Nubia (Riggs, 2013). It seems, trade expanded and flourished after Egypt fell into Roman hands, bringing much-desired luxury goods¹ to the Roman elites and providing a valuable source of tax revenue for the Roman state (KYLE MCLEISTER, 2011). At that point, the Roman economy was not merely a collection of independent markets but the Roman market economy also showed there was specialization mainly in agricultural production. Since the second century B.C., provinces had specialized in producing different types of goods such as Italy exported wine and oil; Egypt and North Africa, grain; Spain, wine, oil and minerals, etc. (Arruñada, 2020).

As with, Egypt was the main source of food production for Rome itself because of Rome's population did not allow it to produce enough food to sustain the city (Hardy, 2017). Therefore, for the Roman Empire, Egypt became the “bread basket” from which emperors fed their imperial subjects and the strategic gateway to the Red Sea and the spices and trade of the east (R.Bunson, 2012). Specifically, access to grain made Egypt an economic and agricultural necessity for Rome; it fed the capital city, and this continued to be true even into the Byzantine era (Hardy, 2017). Besides, every country has what economists call a production possibility frontier, or PPF. The PPF shows how much of any one good or service can be produced, given how much of the other goods and services are being made, for example wine and wheat. For Example, At Egypt, where the PPF is flatter because Egypt is more suited to growing wheat. Wine therefore is more expensive in Egypt than in Italy because wine is scarcer—as represented by the flatter PPF. As well as the Italians imported wheat that is harder to grow (relative to wine). It seems, trade will make both countries and regions better off (Temin, 2017) (Fig.7-8).

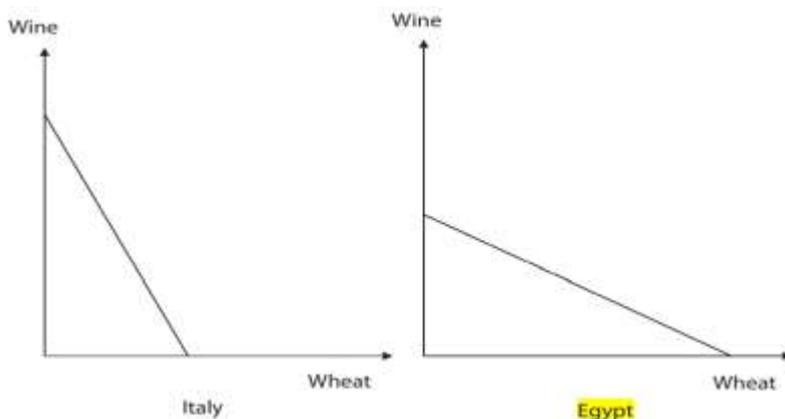


Fig.7. Production possibility curve, (Temin, 2017)

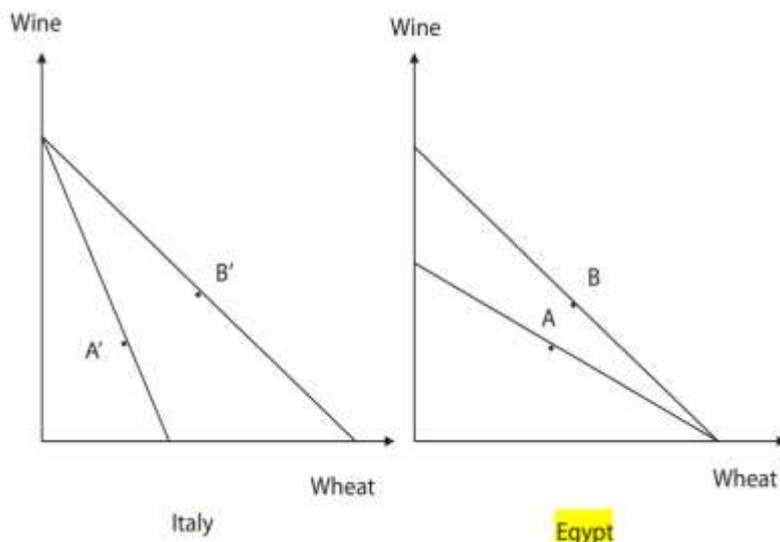


Fig.8. Effects of trade, (Temin, 2017).

In particular, a large amount of the sealed stoppers from Greco Roman Egypt appear to have been stamped prior to drying, that inform us about trade and merchants, such as the Fayum oasis produced several amphora sealings made of clay and stamped with considerably abbreviated inscriptions and the abbreviations refer to names of vine yards or estates that is to the origin of wine which is meant for local trade. In addition, the identification of individuals recorded on stamps of Roman Egypt shows that a distinction should be made between local and international (DENECKER, Evelien and Vandorpe, Katelijjn, 2007).

In addition, in Greco-Roman times, vessels were developed system of exchange, and export of the goods (Rieger, Katharina and Möller, Heike, 2011). Clearly, it is necessary to distinguish between the sealed stoppers from clay popular in the local trade on the one hand and sealed stoppers from plaster popular in the international Eastern Desert trade on the other hand, since they seem to provide a different type of information, most often intended for long distance trade through the Eastern Desert. It seems, according to some wooden dies used to impress such amphora sealings; the abbreviations refer to names of vineyards or estates that is to the origin of wine, which is meant for local trade, where clay amphora sealings recorded the product and the producing institution.

At that point, the identification of individuals recorded on stamps of Roman Egypt shows that a distinction should be made between local and international trade. In other word, in case of local trade, the (clay) stamps rather refer to the origin of the wine, whereas the plaster stamps recorded the businessmen that involved in international trade (DENECKER, Evelien and Vandorpe, Katelijjn, 2007) (**Fig.9**). Egyptians were not allowed to sell land to wealthy Italians, all they could do was to sell their agricultural surplus (not just wheat, but also, e.g., wine and vinegar) and other goods abroad (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt, 2000).



Fig.9. Plaster sealing mentioning the businessman Gaius Iulius Epaphroditos, (DENECKER, Evelien and Vandorpe, Katelijn, 2007).

(2-2) Financial and Commercial Transactions in Greco Roman Egypt

In other word, Egypt offered a wide range of evidence on the conditions of production and sale of goods moving within and beyond Egypt such as the scale of profits, and who took what share of the profits and by what mechanism. Also, this is an argument for widespread commercial exchange in Egypt and, the ancient world (Reden, 2006; Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020) and the most important economic change was the monetization of sectors of the economy (ROWLANDSON, 1998). Documentary papyri show many aspects of the Egyptian economy such as taxation and contracts such as leases for private or public land, loans, and labor agreements (Lloyd, 2010). Currently, coinage as an all-purpose money used for daily exchange and circulating in the Delta, the capital, and the Nile Valley was a Ptolemaic innovation (Reden, 2006; Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020). And under the Greeks banking was with Greek language (Vandorpe, Katelijn and Willy, Clarysse, 2008) and more typical for the Greco economy seems to have been the way the Ptolemais transformed that they did introduce a number of practices that Greek as the administrative language, the introduction of coinage as a means of payments (Reden, 2006; Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

In the meantime, coins minted in Naukratis aided in modernizing Egypt's financial system. The Greeks provided silver ore, slaves taken from the northern Aegean area, and received Egyptian grain and manufactured artistic wares in return (R.Bunson, 2012). Immediately, the history of Egyptian coinage begins in about 322 BC when Ptolemy I received Egypt as a satrapy (Reden, 2006; Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020). Similarly, money was introduced in Egypt in the late fifth century B.C, when imitations of Athenian tetradrachms, states and other silver coins were minted in Egypt, first to pay Greek mercenaries and later perhaps to a limited extent within the native economy (Vandorpe, Katelijn and Willy, Clarysse, 2008). As with, Ptolemy I minted his own coinage with the image of the deified Alexander on its obverse. Never before had a human portrait appeared on coins. The choice of imagery shows the interdependence of the Alexander image and coin circulation in the self-definition of the first Ptolemy (Reden, 2006; Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

Besides, the Ptolemais issued gold, silver and bronze coins, but ordinary monetary transactions attested in documents refer to silver and bronze. In addition, from the late third century onward, transactions were conducted only with reference to the bronze currency (ROWLANDSON, 1998). It seems, the Greek of money shows up in the use of the term stater, one of the few Greek loanwords in Demotic appearing already in the late fifth century BC. The word became so fully ingrained into Egyptian the Coptic carepe was no longer felt as a loanword (Vandorpe, Katelijn and Willy, Clarysse, 2008). At that point, the currency was a closed system as Ptolemaic coins did not circulate outside Egypt and the Ptolemaic overseas possessions, while foreign currency was forbidden to circulate within Ptolemaic territory, and had to be exchanged for Ptolemaic coin (ROWLANDSON, 1998). So Ptolemy I's monetary policy that the circulation of any currency other than that issued by the royal house of the Ptolemais was forbidden and this economic policy may be measured to maintain the independence of this trading center so vital to Egypt's commercial interests (Hölbl, 2001).

As with, large amounts of taxes locally raised and collected in bronze coinage were spent locally in a labor regime that under the Ptolemies was based largely on monetary wages (Reden, 2006). While even though the Ptolemaic period was more "monetized" than earlier, and some taxes, license fees and so on had to be paid in silver but, Egypt was still heavily a redistributive economy and one of the functions of the palace was to serve as the collection and storage site for domestic and international produce, and as the site from which such goods then circulated through the general economy. Currently, temples and major agricultural estates served as secondary redistribution centers within the system dominated by the palace and such a system left plenty of room for local markets and local exchange of goods between individuals (Bard, 1999). Also, under the Ptolemais and the Romans taxes on most grain production continued to be collected in kind, but money taxes were introduced on some agricultural produce, trades and manufactured goods as well as taxes on most grain production continued to be collected in kind, but money taxes were introduced on some agricultural produce, trades and manufactures goods (ROWLANDSON, 1998).

Specifically, the use of taxes, especially the local recycling of tax money, related to the particular Egyptian situation. In addition, one of the most radical changes the Greeks introduced into Egypt was the monetization of taxation of all sectors apart from arable agriculture and (Reden, 2006). In other words, several money taxes were introduced in the early Ptolemaic period, falling on all strata of the population, such as the capitation tax (Vandorpe, Katelijn and Willy, Clarysse, 2008). As well as seeds, grains, and textile plants, as well as tools, were lent to the farmers by the state-operated agricultural offices and, the crops were repayments to the state and had to be delivered to the same agencies (R.Bunson, 2012). Moreover, the primary interest of the Ptolemais was to secure the revenues from the oil tax rather than to institute a centrally planned economy (DOGAER, 2021).

Clearly, though Ptolemaic tax receipts are generally Greek, Demotic receipts are found as well as Greek receipts with Demotic subscriptions, showing native scribes at work in the bank and in the early Roman period a native family of bankers in Thebes issues both Demotic and Greek receipts. In addition, the end of Demotic receipts in Thebes can be followed closely in the tax ostraca of the first century AD. About 265 BC, the second Ptolemy introduced state banks, where money taxes could be cashed. For instance, according to *vergote*, *sxn*, the Demotic word for bank is a calque from the Greek: a literal translation of the Greek word *trapeza* (Vandorpe, Katelijn and Willy, Clarysse, 2008). Specifically, the Roman Empire was much larger than the Hellenistic empires so it linked these regions in a practical sense (through a network of routes and through increased mobility of goods and persons), but also integrated them in a larger tax structure (Minnen, Agriculture and the

'Taxes-and-Trade' Model in Roman Egypt , 2000). Besides, under Romans, one of the major changes was taxation (Hardy, 2017). Also, under Roman rule the kind of estate-management and the sophistication of accounting were not just phenomena developing under exceptional conditions in Egypt (Reden, 2006).

Additionally, in the first two centuries of Roman rule Egypt had to pay hundreds of millions of its drachmas (equivalent to Roman sesterces) every year in money taxes. Also, in the course of the Roman period Egyptian temples received less and less state support, and taxes raised for the upkeep of the irrigation system in Egypt represented only a small part (about 15 million drachmas a year) of total taxes (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000). In other word, a more complex model of the Roman economy has been postulated; the so-called 'taxes and trade' model. His basic premise was that Rome's imposition of taxes in its empire itself stimulated trade, for, in order to pay their taxes, individuals had to sell their produce (Adams, 2007). Clearly, to protect tax collectors, Rome had multiple legions of soldiers in Egypt, but also, they were stationed to escort grain shipments and protect the mines in Egypt, which were still major economic assets for Egypt (Hardy, 2017).

In particularly, the Roman government managed this by exchanging the bulk of the tax money for foreign currency, which was brought to Egypt from the rest of the Roman Empire by traders. In the same way, the government could freely spend this foreign currency abroad, the traders in their turn spent the Egyptian money they received from the government on goods they bought in Egypt, and so thus, the money reentered the Egyptian 'whirlpool.' (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000). Similarly, in both Ptolemaic and Roman Egypt, public registers played an effective role in enforcement and trade of property rights in land, while the Roman provincial administration of Egypt created between 68 and 72 C.E, a sophisticated "registry of acquisitions" for property rights in land and slaves (Arruñada, 2020). In addition, under Romans at least 40% had to be paid for with the profits from trade in non-agricultural goods from Egypt itself. Roman Egypt could produce such goods very cheaply thanks to low wages and prices and sell them abroad with little or no competition from other providers. In particularly, Egypt provided the lion's share of the wheat consumed in Rome. Through trade, a lot of other wheat went to other cities abroad. Also, the amount of wheat shipped to Rome was collected as taxes in kind because constant pressure was exercised on Egyptian agriculture by taxation, both in kind (direct) and in money (direct and indirect) (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000). In other word, Alexandrian citizen figures in a document as lessor of a perfume shop in the Fayum who is subletting in this contract one quarter of a one-half concession which he had from the authorities to manufacture and sell perfume and the shop appears to have been a big workshop and store, and his lessor seem to have been wholesale dealers in a system of government monopoly leased out to wealthy individuals. Alexandrian man is attested to have leased from local men part of a pottery shop *κεραμείονα* in Oxyrhynchus at the rate of nine obols a day (William V. Harris and Giovanni Ruffini , 2004).

Likewise, the documents related to the large private estate of the Alexandrian businessman Appianus in the Fayum showed accounts were kept in a sophisticated way and probably allowed calculation of profitability in cash terms, while the estate as a whole was run in a highly centralized, efficient, resource-sharing and cash-conscious manner. Also, under Roman rule, and appear to have been adopted from the system of individual salary accounts used by the Roman army (Reden, 2006). In addition, hundreds of leases of land from Roman Egypt provide insights into the size of the agricultural production. If we limit ourselves to the couple of hundreds of leases, which specify a fixed amount of wheat as rent, we can estimate the yield of land used to grow wheat, because the rent oscillates around 50% of the yield. Besides, if we include in our calculations the effect of other, more and less productive crops and of the cropping rate, we arrive at a realistic picture of the development of agricultural yield over time (**Fig.10**). In other word, if the size of the object leased decreased significantly in late antiquity, the amount of the rent should rather have increased. Clearly, if the opposite happened, the movement of the curves becomes extra significant. Also, we can also plot the duration of the contract of lease against the size of the object leased. Additionally, it makes a huge difference whether one leases for an even or an uneven number of years. Besides, from the graph it appears that an uneven number of years corresponds to smaller-scale and therefore relatively more intensive agriculture, an even number of years to larger-scale and therefore relatively more extensive agriculture (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000) (**Fig.11**).

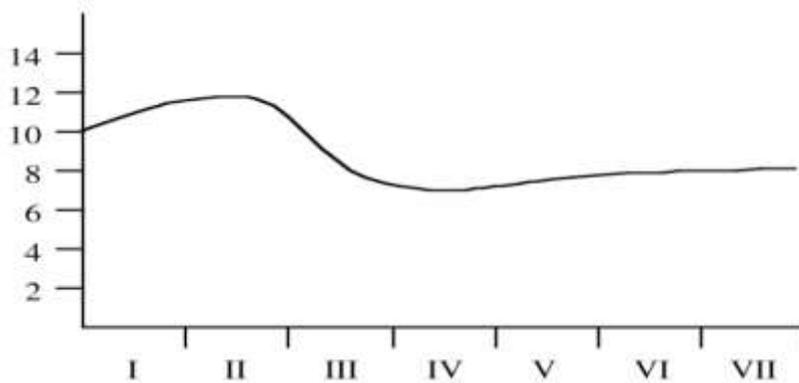


Fig.10. Agricultural yield in Roman Egypt from the first to the seventh century, (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000).

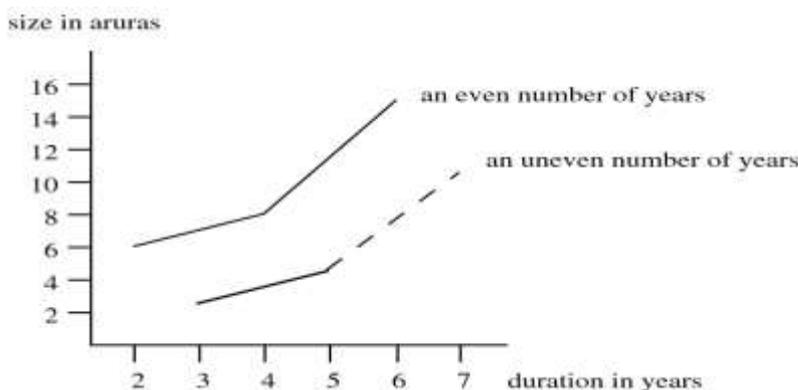


Fig.11. The duration of the lease of land plotted against the size of the object leased, (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000).

(3) The Relative Significance of Trade and Alexandria Harbor through Greco Roman period

(3-1) Historical Data of Alexandria Harbor

Clearly, the interpretation of the term port cities associated with the relationship between city and transport, as the city is accompanied by the port's prosperity with maritime activities and institutions that in turn have an impact on the economy (2019، فوز معن عبدعلي، حسين احمد سعد، Gendy, 1990). The commercial importance of Alexandria and its ports is obvious (El-Abbadi, 2000). Meanwhile, Egypt should be an integral part of the Roman economic machine (Hardy, 2017), and the ports of Alexandria flourished during the Hellenistic and the Roman periods until the last decade of the 4th century AD and Alexandria remained a major trade center. Also, the ports of Alexandria could communicate with the rest of Egypt through the Nile canal, besides controlling the Mediterranean trade (El-Abbadi, 2000). In the meantime, there was strategic location occupied by Alexandria upon the Mediterranean as well as the interior of Egypt by the Nile valley (Young, 1998). Currently, Alexandria was the largest city of the Greek world, a major political, cultural and economic center (ROWLANDSON, 1998). Also, under the Ptolemais, Alexandria's commercial importance advanced by leaps and bounds and foreign merchants and businessmen began to frequent it in increasing numbers (El-Abbadi, 2000), as well as Alexandria the capital of Ptolemaic Egypt was ideally situated for trade and commerce (R.Bunson, 2012). Therefore, Alexandria became a leading center of Hellenistic culture (Escoffey, 2012).

At that point, a papyrus, dated back to October 258 BC, has preserved a Prostagma (royal ordinance) of Ptolemy II Philadelphus that 'all foreign merchants were required to exchange their gold and silver for new Ptolemaic silver coins, in order to make their purchases in Alexandria. Therefore, in the same document, Demetrios, who was in charge of the Alexandrian mint, complaining that the amount of foreign gold and silver brought in exceeded the capacity of the Alexandria mint and reflects the great foreign demand on the supplies of the markets in Alexandria and Egypt around the middle of the third century BC (El-Abbadi, 2000).

In addition, Alexandria was great example of the importance of Egypt in the Roman period and Alexandria was a hub of trade; culture (Hardy, 2017). Specifically, under Roman rule many products of Egypt, were manufactured at Alexandria and shipped to India and elsewhere on the outward leg of the Red Sea trade for which there was a market in India and Arabia and Alexandria was involved in manufacturing both of goods made from items imported from the East, as well as goods which were made in Egypt and could be exported to India, Arabia and elsewhere (Young, 1998). In particular, Alexandrian merchants controlled seaborne trade in the Red Sea when Roman financiers entered the Alexandrian money market towards the middle of the 2nd century BC as demonstrated earlier. In addition, the ensuing rise of demand for oriental and southern goods in the Mediterranean markets whetted the appetite of Alexandrian merchants to increase their share in the north-south trade as well as bypassing the Arabian ports and in breaking directly across the ocean to the rich Indian market (El-Abbadi, 2000).

At that point, Dio Chrysostom in general specifically notes the significance to Alexandria of the Red Sea commerce and the high level of merchant activity there:

*τὴν τε θάλατταν τὴν καθ' ἡμᾶς ἅπασαν ἐκδέχεσθε, κάλλει τε λιμένων
καὶ μεγέθει στόλου καὶ τῶν πανταχοῦ γιγνομένων ἀφθονίᾳ καὶ
διαθέσει, καὶ τὴν ἔξωθεν ὑπερκειμένην ἔχετε, τὴν τε Ἐρυθρὰν καὶ τὴν
Ἰνδικήν, ἧς πρότερον τοῦνομα ἀκοῦσαι χαλεπὸν ἦν· ὥστε τὰς ἐμπορίας
οὐ νήσων οὐδὲ λιμένων οὐδὲ πορθμῶν τινῶν καὶ ἰσθμῶν, ἀλλὰ σχεδὸν
ἀπάσης τῆς οἰκουμένης γίγνεσθαι παρ' ἡμῖν.*

..and you also receive goods from the whole Mediterranean sea because of the beauty of your harbors, the greatness of your fleet and by the abundance and selling of the goods of every place; and you have also the power over the outer seas, both the Red Sea and the Indian, whose name was rarely to be heard formerly, so that the trade not only of islands or ports or some straits or isthmuses but virtually the whole world comes to you (Young, 1998).

In the same way, Alexandria became an important transshipment center, since goods caravan and fluvial transport to Alexandria could carry arriving from the Far East via the Red Sea forward then cargoes were loaded onto merchantmen destined for the markets of the West (El-Abadi, 2000). Also, in Alexandria the goods of the Red Sea trade that the goods were impounded in a public warehouse in order that the government might extract its 25% tax, the so-called re-rdp-rri in the document guarantees to place the goods in the warehouse at Alexandria under the seal of the lender:

... και κατοισω εις τήν

(έν Ἀχεξ) ανδρεια τῆς τετάρτης παραχημπτικὴν ἀποθήκην ναι σ τήνσ

(μοιω)ς ποιήσω ὑπσ τήν ὀήν ἢ τῶν σῶν ἐξονσιαν και σφραγειβα

..and I will convey (them) to the customs house for receiving the 25% tax in Alexandria and I will likewise place (them) under the authority and seal of you or of your agents... (Young, 1998).

Therefore, Strabo witnessed the flourishing state of Alexandria only five years after the Roman conquest, and observed the active trade that went through its several harbors, both to commerce by sea, because of the good harbors, and to commerce by land (El-Abadi, 2000). In addition, an additional customs duty was levied on goods, which were processed in Alexandria and then re-exported to other markets (KYLE MCLEISTER, 2011). Specifically, according to Strabo, Alexandria soon came to end farther west from Eunostos, where an extensive Necropolis began and the port on Lake Mareotis had trading value par excellence (Belov, 2014).

(3-2) Route and Function of Alexandria Harbor

In other word, the harbors accommodated an immense amount of maritime trade with the Mediterranean and made Alexandria a major center of the shipbuilding industry (Roger S. Bagnall and Dominic W. Rathbone, 2017) (**Fig.12**). In addition, there were some merchants using the northern routes and, as the political situation stabilized and the opportunities for commerce increased, the number of such merchants would have grown greater (Young, 1998). Specifically, the trade and cultural influences that did reach Egypt from water in the Mediterranean Sea and into Egypt through the Nile Delta (Gilbert, 2008).

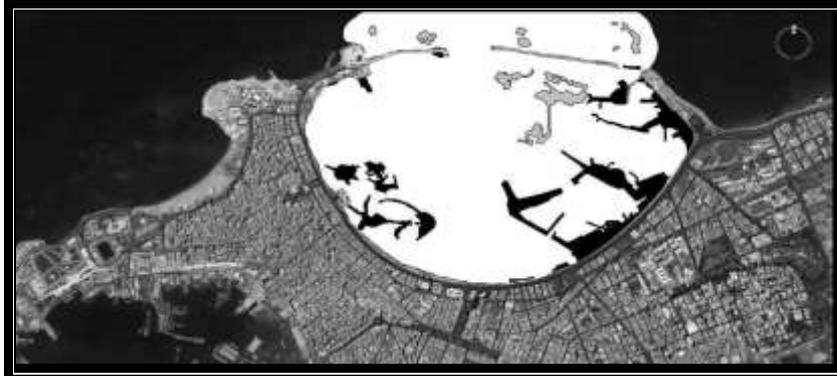


Fig.12. Submerged remains of the ancient Great harbor of Alexandria inside modern eastern port of the city. Port structures that were situated above the sea level in Antiquity are shown in black while those below it, (Belov, 2014).

Besides, the Great Harbor of Alexandria had a paramount trade, military and political value both for the city and for the country as a whole (Belov, 2014) (Fig.13-14). Therefore, Alexandria's location and its two harbors soon made it the most important trade center of the Mediterranean region (Escoffey, 2012).

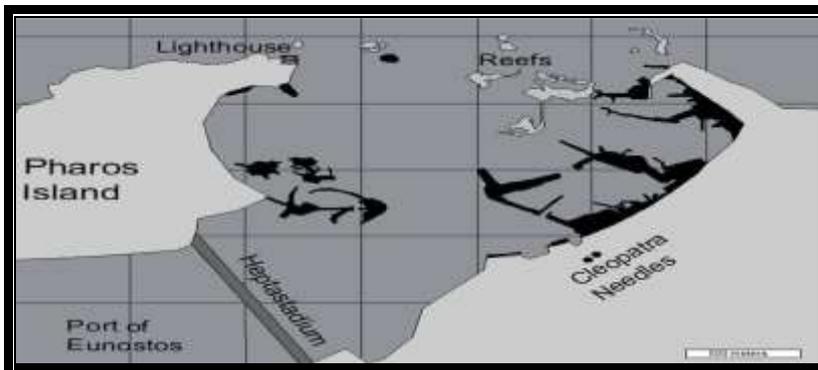


Fig.13. Reconstruction of the ancient topography of the Great Harbor including the submerged reeds and port structures discovered, (Belov, 2014).

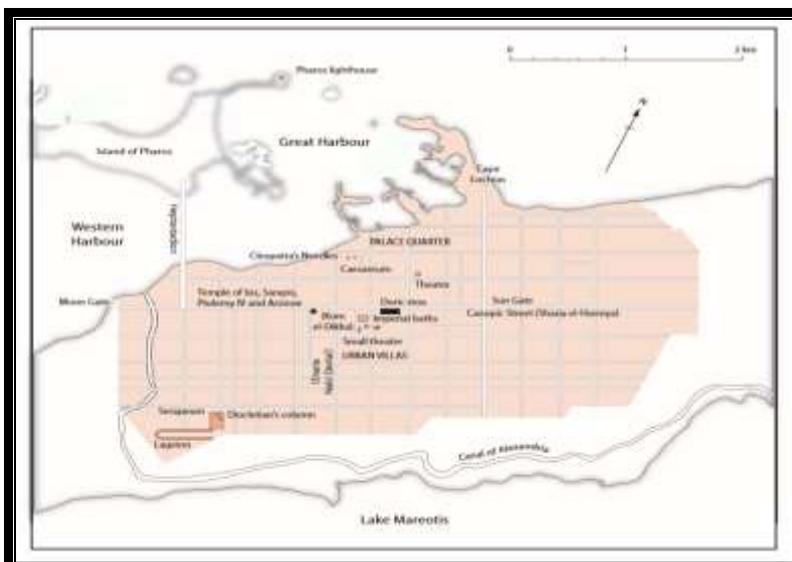


Fig.14. Alexandria Harbors through Greco Roman period, (Roger S. Bagnall and Dominic W. Rathbone, 2017).

In particular, in Antiquity, eastward-bound cargoes had to be unloaded from Mediterranean ships and reloaded onto riverboats in harbors located near one of the mouths of the Nile, possibly at Alexandria (Aubert, Trajan's Canal: River Navigation from the Nile to the Red Sea? , 2015). Also, Stela of Ptolemy VIII and an intact copy of the so-called Naukratis stela, containing a copy of an important decree of Nektanebo I (380–362 BC) which prescribed the levy of a customs tax from Greek traders, to be donated to the temple of the goddess Neith (Roger S. Bagnall and Dominic W. Rathbone, 2017). As well as a maritime loan contract is reported in an inscription dated 130 BC. Interest in the importation of precious stones, frankincense and other magnificent objects in which twelve names have partially survived representing the different parties to the agreement: a creditor, a banker, five debtors and five guarantors (El-Abbadi, 2000).

Specifically, Alexandria had access to the Mediterranean countries through its two sea harbors as well as access to the rest of Egypt via the inland harbor on Lake Mariout and making it a very wealthy city (Escoffey, 2012). Meanwhile, the harbors accommodated an immense amount of maritime trade with the Mediterranean and made Alexandria a major center of the shipbuilding industry. Similarly, to the south of the city, Lake Mareotis, which itself had an important and canals to the Canopic branch of the Nile linked thriving port on its southern shore. Alexandria was in a good position to avail herself of as much of Egypt's domestic produce such as grain that was an essential constituent of the city's own food supply, as well as that of Rome (Roger S. Bagnall and Dominic W. Rathbone, 2017). So, one of the most important goods transported to Alexandria from the Delta was large quantities of grain (Escoffey, 2012). Also, a papyrus of the middle of the second century BC informs us that there was in Alexandria, an international company for the importation of aromata from the 'incense bearing land', an area south of the Red Sea known in ancient Egypt as Punt, as well as names of Alexandrian merchants were found in inscriptions from different parts of the Mediterranean (El-Abbadi, 2000). At that point, Alexandria harbor was of primary trade significance that reached its peak in Roman Imperial Period (Belov, 2014). And With the growing awareness in Rome of the possibilities of an oriental and southern trade in incense, spices, aromatics, precious stones (and later on in silk), Roman businessmen sought to invest more in this line of commerce via Alexandria as well as more capital was pumped into its market (El-Abbadi, 2000).

In addition, customs (import and export taxes) were paid on all these goods passing through Alexandria contributing greatly to its prosperity (Escoffey, 2012). Also, spices, perfumes, precious stones and other luxury goods found their way to Alexandria where manufacturing, processing and marketing facilities developed (Roger S. Bagnall and Dominic W. Rathbone, 2017) and passed through the city on their way to elsewhere (Escoffey, 2012) as well as Alexandria was known in the eastern Mediterranean for its production of works of art: jewelry, mosaics and sculpture are particularly prominent (Roger S. Bagnall and Dominic W. Rathbone, 2017). At that point, Remains of a residential and commercial suburb, which was located outside the walls of Egypt's capital city during Greco-Roman era, were discovered at the Al-Shatbi area in Alexandria by Egyptian archaeological mission (**Fig.15**). In the same way, this area housed rest houses for visitors to stay until receiving approval to enter the capital city as well as storehouses for merchants to put their goods and check them to decide the amount of taxes due (Essam, 2021).



Fig.15. This area was used as a transit area for travelers, visitors and trade merchants, (El-Aref, 2022).

Besides, the settlement was used since the second century BC to the fourth century AD. The mission found amphoras, vessels, fishing instruments and a collection of ovens, good stores and the remains of a shrine were also unearthed along with 700 coins that reveal that the settlement had a trade market with workshops for the fabrication of these statues and fishing instruments (El-Aref, 2022) (**Fig.16-17**).



Fig.16. A number of ovens, good stores and the remains of a shrine along with 700 coins were also uncovered, (Essam, 2021).



Fig.17. amphora, (Essam, 2021)

(4) Routes and Commodities of the Red Sea Trade in Egypt under the Greeks and Romans

(4-1) The Desert Roads of the Red Sea

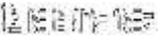
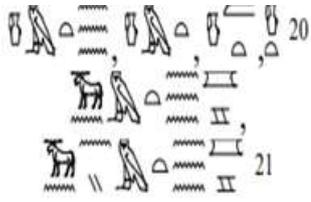
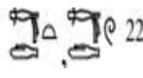
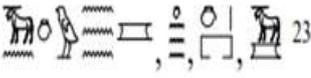
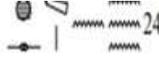
It seems, the mountainous Eastern Desert were crisscrossed by several caravan tracks that transported humans and goods to their destinations and was the main track was the gateway to Egypt (Beretta, 2021). Additionally, one important consequence was the development of a transport infrastructure in this region, which stimulated and catered for trade with soldiers and workers stationed in the desert and for the valuable trade in luxuries with the East (Adams, 2007). Immediately, along the Eastern Desert trade routes, the army can be perceived as manning the fortified watering stations, patrolling the roads, and providing escorts for the caravans themselves (Othman, 2017). Also, the Red Sea route grew into one of the main trade routes (Gilbert, 2008) and the ancient Egyptian was keen in either recording the wells he discovered in the western or the eastern desert of Egypt (Othman, 2017). Specifically, the Red Sea played a very important role in the life of ancient Egyptians (Sania B. Ibrahim, Mofida El-Weshahy and M .Abed El-Raziq, 2018). Since the Old Kingdom, periodic expeditions have been sent into the Eastern Desert, either to acquire mineral resources or to cross over to the Red Sea for trade ventures (Cobb, 2018). Clearly, the Red Sea had been used for trade even in the Pharaonic period (Young, 1998) to obtain products that were valuable to the Egyptian kings and nobles (Gilbert, 2008) during which expeditions had been sent to "Punt" (probably Somalia) and to Arabia (Young, 1998) and Sinai to obtain products that were valuable to the Egyptian kings and nobles (Gilbert, 2008). In addition, the Red Sea was the way to PA.wn.wt and its products, sometimes to Sinai mines. The sea had various designations in ancient Egypt including WAD-wr  with its various interpretations as Red Sea (Sania B. Ibrahim, Mofida El-Weshahy and M .Abed El-Raziq, 2018) (**Chart 1**).

Chart 1.

Specifically, table indicate five terms were used to indicate wells, cisterns and water – stations since the Old Kingdom till the Late Period, (Othman, 2017).

	Term	Transliteration	Translation
1		Xnm.t	Well, cistern, desert well, well-station
2		Sd.t	Well, cistern, waterhole.
3		Xnw.t	Waters, desert well, well-station
4		Xs n mw	Well
5		Bar	Well, Bir (in Arabic)

In addition, during Ptolemaic and roman Ages, Egyptian rulers' interest in eastern trade requires two other issues: First, setting up harbors alongside Red sea coasts; second, paving roads that link the Nile with the Red sea (Abdulla, 2008). In the meantime, in the Roman and to a lesser extent the Ptolemaic periods that the trade expanded or indeed that it began to reach as far as India on a regular basis (Young, 1998). Likewise, the Ptolemais continued local trade and insured an increase of the Red Sea trade (DENECKER, Evelien and Vandorpe, Katelijn, 2007). Currently, under the Ptolemais rule, a more concerted process of settlement and exploitation of the Eastern Desert and the Red Sea region began, motivated by a desire for gold and ivory and the acquisition of live elephants for use in warfare (Cobb, 2018) as well as the Ptolemais used to import myrrh, calamus, saffron, cassia, cinnamon, textiles, and woods, precious and semi-precious stones (Magdy, 2017).

Meanwhile, eastern desert of Egypt and the Red Sea were strategically and economically important due to abundance of gold, aquamarine, and gemstone mines; besides building material quarries (Abdulla, 2008). Currently, Ptolemaic trade in the south and southeast used one followed the Nile upstream into the Meroitic Empire; the second led to the Red Sea by ship and then from the coast by various land routes and the third was the so-called incense route on the Arabian Peninsula (Hölbl, 2001) and from the Ptolemaic period, it was used wagons in Eastern Desert caravans (Adams, 2007). In the meantime, under Roman rule, many ports along the Egyptian Red Sea coast such as Berenike, Myos Hormos and routes

across the Eastern Desert that connecting Nile cities like Apollonopolis Magna (Edfu) and Koptos (Qift) to the Red Sea ports were established. Over time, commercial ventures in the Red Sea and wider Indian Ocean grew in scale (Cobb, 2018). In addition, this accounts for early Ptolemies' interest in imposing their influence over these regions (Abdulla, 2008). The major part of the evidence originates from the fertile Fayum area and the Eastern Desert region, entrance to a wide Red Sea trade (DENECKER, Evelien and Vandorpe, Katelijjn, 2007).

Amongst titles entrusted to the Epistrategos "Red Sea and Ocean supervision" as referred to in the following title: ο στρατηγος και επιστρατηγος της ερυθρας και Ινδικης θαλασσης (Abdulla, 2008). Besides, although the commerce had existed in the Ptolemaic period, trade in the Red Sea underwent rapid expansion during the reigns of Augustus and his successors and Strabo records that the trade entering Egypt via the Red Sea experienced a vast increase in volume almost immediately upon the Roman annexation of Egypt and attained considerable significance during the early centuries of Roman rule in Egypt. In the same way, during this period, the trade experienced a major upsurge in traffic because of the establishment of peace in the Mediterranean basin by the Romans notably by the provision of facilities and protection for the traffic (Young, 1998) also the Eastern Desert formed the conduit for trade luxuries between the Roman Empire and the East (Adams, 2007) and might be the most significant, area of the eastern 'luxury' trade of the Roman Empire (Young, 1998).

Specifically, so the volume of trade conducted via the Red Sea also grew substantially after 30 B.C. and The Roman state inherited the Ptolemaic facilities established in the Eastern Desert and Red Sea after Egypt's annexation (Cobb, 2018). Therefore, the Red Sea trade flowing into Egypt in the Roman period was very active and varied (Young, 1998). In order to facilitate the large amounts of commercial traffic and the mining and quarrying activities, it was necessary for the Roman state to control water resources in the region, and provide safe routes to travel (Cobb, 2018). As well as in the first two centuries of the Roman Empire tremendous resources were put to work in maintaining a network of roads, wells and small forts through the desert (Roger S. Bagnall and Dominic W. Rathbone, 2017). In other word, Roman traders offered a diverse range of goods such as, Egyptian linens, olive oil, Italian wines (KYLE MCLEISTER, 2011) and various items such as wine, red coral, glassware, crafted objects, and gold and silver coins were being exported via the Egyptian Red Sea ports, while spices and aromatics, textiles, and precious gems, among other items, were being imported (Cobb, 2018). In addition, the Eastern trade flowed along two main lines: one down the eastern coast of Africa and the other, taking advantage of seasonal monsoons, to India (KYLE MCLEISTER, 2011).

Also, as for the Roman age, there was a mayor pertaining to the region who carried many titles such as Berenike Commander, Topaz aquamarine mines supervision; as referred to in an inscription dated back to 11 A.D. (Abdulla, 2008). It seems, the administration and supervision of the region was undertaken by the Prefect of Berenike – Praefectus Montis Berenicidis or Praefectus praesidiorum et Montis Berenicidis – who answered directly to the Prefect of Egypt (Cobb, 2018), who was entrusted with overseeing the collection of the customs dues from the Red Sea ports (KYLE MCLEISTER, 2011) as well as fortlets protected hydremata (wells) and lakkoi (cisterns) (Cobb, 2018).

At that point, the traders in Rome's Eastern commerce faced a number of taxes and customs dues, which varied greatly with respect to their administration, rates, and function and bureaucracy to traders operating at any stage of the transport chain – from the Red Sea to the Mediterranean – as nearly every aspect of the transportation process was taxed in one way or another (KYLE MCLEISTER, 2011). Meanwhile, from the Roman period there were a number of receipts preserved on ostraca for a tax on wagons- the *τέλος ἀμαξίων*. In addition, these receipts record a series of payments made by an individual named Cametis and his associates, who appear to have made up a company of transports and they pay a large amount for this tax. There is the possibility that this was a trade tax, and that payment of this tax was only necessary if the wagons were available for private hire or were used for the purposes of trade (Adams, 2007).

Clearly, the main routes exploited in the Greco-Roman period ran from Qift (Koptos) virtually due east through the Wadi Hammamat to Quseir, from Qift (Koptos) along the Wadi Zaidun and on to Berenike, and from Qena (Kaenepolis) running along the Wadi Qena northeast to Abu Sha'r (Myos Hormos). Also, there were many other possible routes through the desert (Alston, 1995) (Fig.18). As well as various ancient roads running across the Eastern Desert (Aubert, Trajan's Canal: River Navigation from the Nile to the Red Sea ?, 2015; Eichhorn, Barbara, Hendrickx, Stan, Riemer, Heiko and Stern, Ben, 2005) as well as transportation in the Eastern desert was accomplished by means of donkeys, camels, and wagons; horses seem to have been rarely used for transport in Roman Egypt, their use in the region instead being confined to military endeavors (KYLE MCLEISTER, 2011).

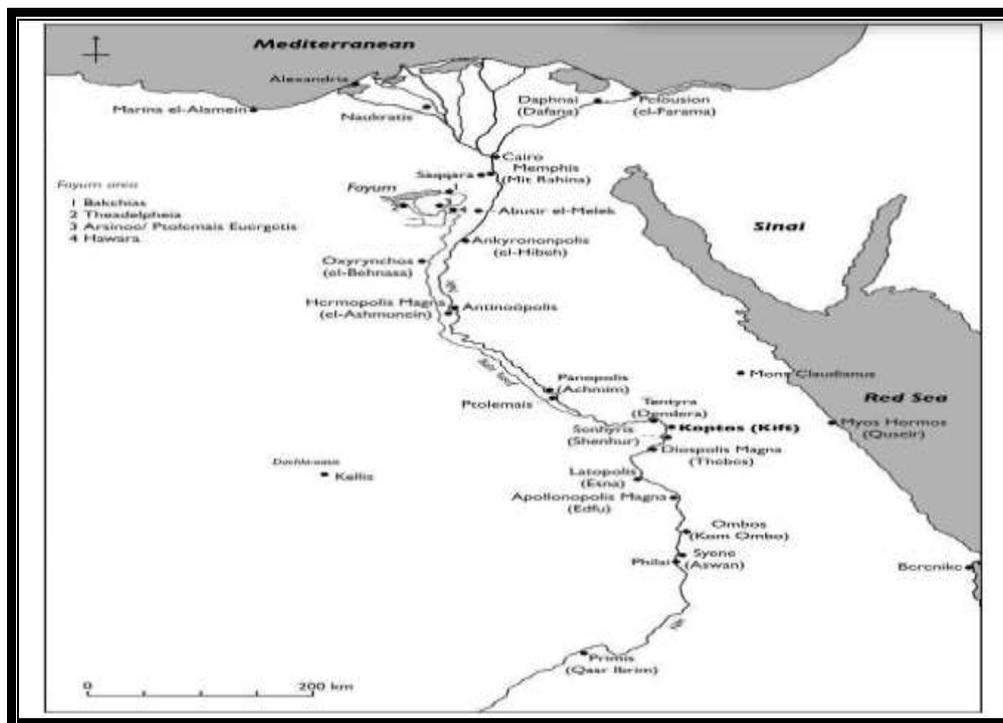


Fig.18. Map of Greco Roman Egypt, (DENECKER, Evelien and Vandorpe, Katelijjn, 2007).

Likewise, several ostraca from the Julio Caludian period testify to the transport of merchandise from Koptos to the Red Sea. In addition, these transport firms work for the account εἰς τὸν χόγον of an individual, pass the customs house gates and deliver the goods to the individual's agents in the Red Sea port or at Koptos. It was described the account γόγοζ holders as 'bid businessmen' who do not reside in the far-away ports of the Red sea (...) but carry on their business entirely through agents (DENECKER, Evelien and Vandorpe, Katelijjn, 2007). In particular, evidence from several second-century AD papyri suggests that the price to hire a donkey was 4-14 obols a day, whereas a camel was significantly more expensive, at 1-4 drachmae a day (KYLE MCLEISTER, 2011) as well as the governor (Praefectus) with laying custom tariffs imposed upon people, pack animals, the transported commodities, and entrance fees across desert routes or ports (Abdulla, 2008) (**Chart 2**).

Chart 2.

Table indicates an entrance free-list of prices to be levied at toll gates at 90 A.D, (Abdulla, 2008)

Fees of a ship to Red Sea	8 Drachma
Fees of a ship in the Nile	6 Drachma
For sale man	5 Drachma
For craftsman's	8 Drachma
Foe a Camel	2 Drachma
For a donkey	2 Obols
For a woman	1 Obols

Additionally, the transporter Herakles at 18/19 AD presents at a customs house in the eastern desert region four jars of the type χοιλόπωμα with Italian wine, the sealings of which contain the name of the businessman Gaius Iulius Epaphroditos, such a plaster sealing has been found at Koptos: 'Of Gaius Iulius Epaphroditos, year 5. Also, some rich businessmen involved in the Eastern trade appear on plaster stoppers and /or hold an account λόγος according to papyrological and inscriptional evidence (DENECKER, Evelien and Vandorpe, Katelijjn, 2007). Besides, a papyrus from the Oxyrhynchite Nome preserves a registration of two donkeys with the state, in which the owner states where they are kept and, more importantly that they are employed in his own work (Adams, 2007). In other word, recent interpretation of the archaeological and numismatic evidence relating to Roman finds in East Africa, southern Arabia, and India demonstrate a strong 1st century concentration in terms of exports (Cobb, 2018).

(4-2) The Trade with India and Arabia through the Red Sea

In addition, during the Greco-Roman period, Egypt had direct contact with Ancient India via the Red Sea trade (Lieven, 2018; R.Bunson, 2012) and Strabo shows himself as a witness to the Indo Roman trade of the early principate (Fauconnier, 2012). Currently, from the Ptolemaic Period, i.e. from the 3rd century BCE onwards, direct trade contacts between Egypt and India (Lieven, 2018) (**Fig.19**). As well as at the court of Ptolemy VIII, trade relations between India and Egypt became closer (Hölbl, 2001) and the first direct voyage by a Greek to India was done in 118 BC (reign of Ptolemy VIII) by the Greek Navigator Eudoxus of Cyzicus (Magdy, 2017).

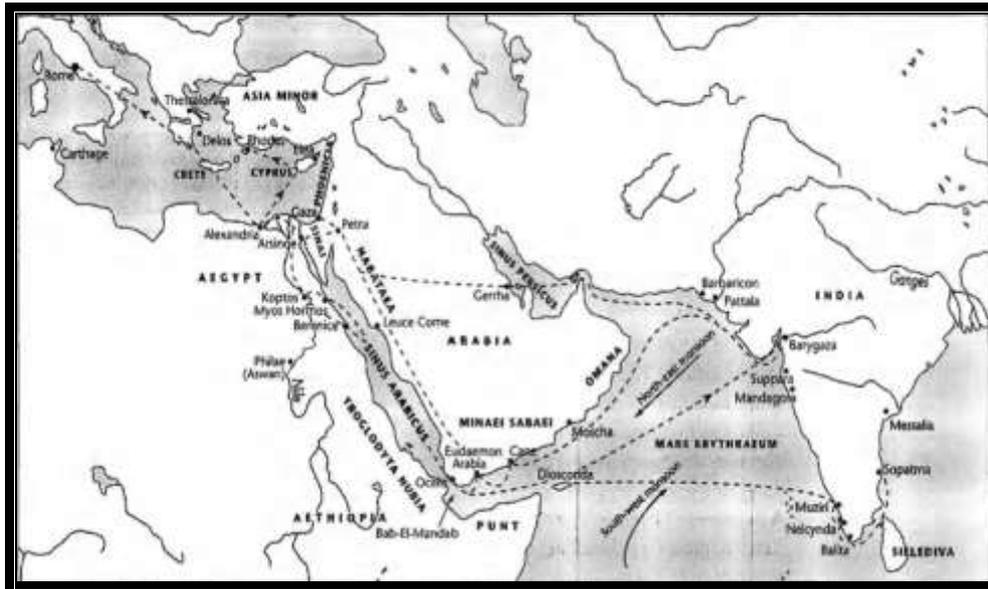


Fig.19. Egyptian Indian trade routes in Hellenistic and Roman times, (El-Abbadi, 2000).

Besides, the office of 'strategos of the Red and Indian Sea' was first created under Ptolemy XII (Hölbl, 2001) and such trade is well known from Greek documentary papyri and ancient authors and texts like the famous *Periplus Maris Erythraei* (Lieven, 2018). In addition, Strabo mentioned that a Ptolemaic navy patrol in the Gulf of Aden discovered the remains of a strange ship and rescued a starving Indian sailor (Magdy, 2017). In the meantime, the same Roman economic interests that had urged Ptolemaic oriental trade to establish direct sea connections with India (El-Abbadi, 2000). Immediately, in the first and second centuries AD, with the improvement of transportation between Red Sea ports and the Nile and the expansion of the Eastern commodity market, the maritime trade between Egypt under the Roman Empire and the Indian subcontinent developed rapidly (Siwei, 2018).

So, the inscriptions have been found on the roads between the Egyptian Red Sea ports and the Nile valley, which carried the merchandise brought from India to the markets of the Empire (Young, 1998). Therefore, the Roman demand for Eastern products grew, and the Eastern trade via Egypt became increasingly prominent in the Roman economy (Siwei, 2018). As well as probably the most significant line of trade to Roman Egypt was the commerce with India based upon the fact that the bulk of the text of the *Periplus* is devoted to describing it as opposed to the trade with Arabia and Africa (Young, 1998). Also, under Roman rule Egypt became the main conduit for seaborne trade in products from India such as spices and incense (Roger S. Bagnall and Dominic W. Rathbone, 2017), as well as goods and luxuries arriving from India and beyond drove the importance of Egypt as a provider of goods, including trade goods from Asia, Grains (Hardy, 2017). Specifically, the trade in Indian spices which passed either overland up the Euphrates route or by sea from India to Egypt. The *periplus Maris Erythrai* mentions a time when there were no direct sailings from Egypt to India, but all cargo was transshipped at Edudaimon Arabia (Aden):

Εὐδαίμων Ἀραβία, εὐδαίμων δὲ ἐπεκλήθη, πρότερον οὖσα πόλις, ὅτε, μήπω ἀπὸ τῆς Ἰνδικῆς εἰς τὴν Αἴγυπτον ἐρχομένων μηδὲ ἀπὸ Αἴγυπτου τολμώντων εἰς τοὺς ἔσω τόπους διαίρειν ἄλλ' ἄχρι ταύτης παραγινομένων, τοὺς παρὰ ἀμφοτέρων φόρτους ἀπεδέχετο, ὥσπερ Ἀλεξάνδρεια καὶ τῶν ἔξωθεν καὶ τῶν ἀπὸ τῆς Αἴγυπτου φερομένων ἀποδέχεται.

Edudaimon Arabia was called “Edudaimon”, being once a city, when, because ships neither came from India to Egypt nor did those from Egypt dare to go further but only came as far as this place, it received the cargos from both, just as Alexandria receives goods brought from outside and from Egypt (Young, 1998).

Besides, merchant ships sailing between Egypt and the Indian subcontinent were loaded with diverse and valuable goods, so the traders were economically powerful and according to the Muziris Papyrus, the participants in the maritime trade of the second century took various measures to avoid risks and maximize profits (Siwei, 2018). While some scholars suggested that maritime trade between Egypt and Mesopotamia travelled from Egypt along the Red Sea, the southern coast of Arabia and into the Persian Gulf (Gilbert, 2008). Eventually, Roman Egypt sold goods to Africa, Arabia and India, especially Egyptian goods (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000) and the profits to be gained in Arabia, both by the Arab traders and those from Egypt, were quite clearly to be found in the incense trade (Young, 1998). Also, if we adopt the figures mentioned by Pliny we can calculate that Egypt could pay at most 20% of the money taxes with the profits made on goods imported from Africa, Arabia and India (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt , 2000). It seems, the trade of Arabian incense was travelled by overland through the Arabian Peninsula or by sea to Egypt. The ships left at different times and traded in different commodities; therefore, the prosperity of Arabia was assured as long as there was a demand for its local incenses (Young, 1998). Clearly, some other, non-agricultural goods were imported from Africa, Arabia and India and re-exported with huge profits to the rest of the Roman Empire, especially Italy (Minnen, Agriculture and the 'Taxes-and-Trade' Model in Roman Egypt, 2000).

(4-3) The Trade with Africa on the Southern Frontiers through the Red Sea

Likewise, the southern trade in the Red Sea was most important whenever the trade through Nubia was under threat or too costly due to interference by the rulers of Kush (Gilbert, 2008) and the pharaohs of the Middle and New Kingdoms exerted economic pressure on Asia and Nubia to ensure levels of products in stock remained sufficiently high to enable state-controlled stores to meet the demands of temples so used military garrisons (Beretta, 2021). In addition, the New Kingdom Period was the period in which the armies of the Nile marched to the Euphrates and to the fifth cataract, just above modern Khartoum, in modern Sudan (R.Bunson, 2012). Meanwhile, the Nubian Nile, south of the First Cataract and the Egyptian border town of Elephantine, was an effective maritime corridor for trade between Egypt and the rest of Africa (Gilbert, 2008).

So, trade in ancient Egypt reached in the south (Punt) on the Red Sea (Breasted, 1908). Some local Nubian chiefs appear to have served as trade agents for the Egyptians (R.Bunson, 2012) and it was necessary for the Pharaoh to protect the trade routes leading through its extreme south route (Breasted, 1908). In addition, the Egyptians established a trading settlement at BUHEN, at the second cataract, in the Second Dynasty, probably to provide a center for the caravans arriving from the interior regions (R.Bunson, 2012). At that point, the south of Egypt was the source of granite, semi-precious stones, gold and various exotic products (David, 1999) as well as copper, gold, ebony, ivory and exotic animals entered Egypt from the south (Gilbert, 2008), and Egyptians were much taken with luxury goods in New Kingdom (R.Bunson, 2012).

In the meantime, under Ptolemaic rule elephant hunting in Nubia lasted for almost three quarters of a century and produced important results (Burstein, 2007) and trade with Upper Nubia aimed at transporting ivory and war elephants to confront the Syrian enemy that used the Asian elephants in their wars. Also, the elephant hunting expeditions started during the reign of Ptolemy II, who established also ports on the Red Sea to be the base for shipping the elephants. The ships that used to carry those elephants were called "elephantegoi". Additionally, African elephants were offloaded at the Red Sea port and started their journey across the Eastern Desert to reach river ports on the Nile valley. Besides, the Ptolemies extended the roads and wells to reach these harbors. Some graffiti were found relating to such expeditions during the reigns of Ptolemy II, III and IV. Such as Examples can be seen at El-Kanais a place in in the eastern desert where the travelers of the trade route or the elephant-hunting expeditions, wrote their names and paid tributes to god Pan for a safe return from desert travel (Fig.20). In addition to, the revolt that occurred during the reign of Ptolemy IV and lasted till the reign of Ptolemy V, prompted to the interruption of the trade along the Nile between Egypt and Nubia while Ptolemy V regained his power over the Dodecaschoinos region and extended the frontiers to the Second Cataract (Magdy, 2017). Also, at the accession of Augustus, the southern routes were of primary importance: Indian and Arabian goods were transported by ship into the Egyptian Red Sea ports, and Arabian incense was transported (Young, 1998).

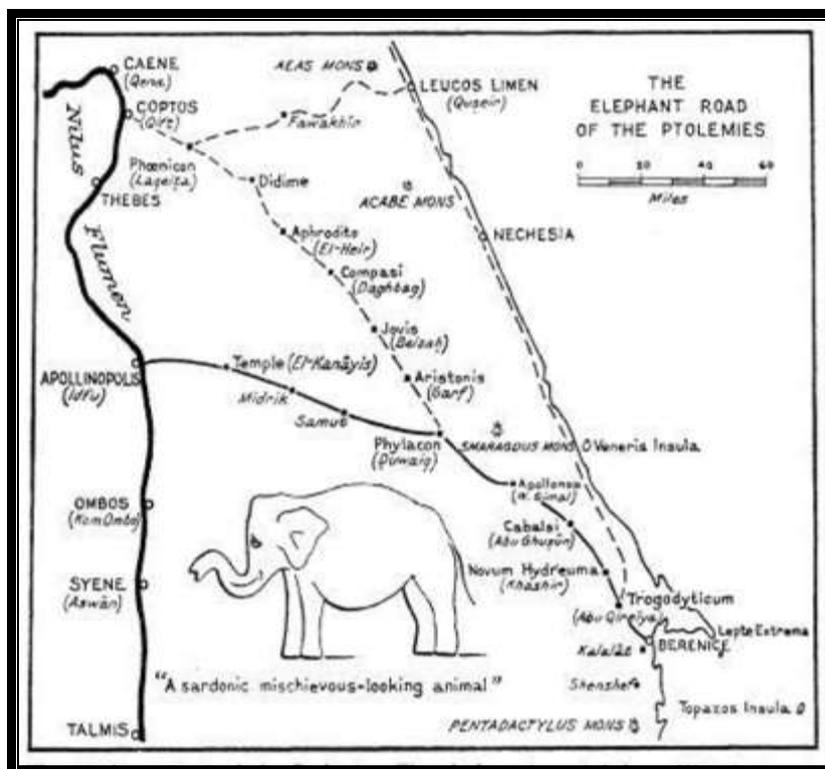


Fig.20. The elephant road of the Ptolemies, (Magdy, 2017).

(4-4) The Red Sea Ports through Greco Roman period

(4-4-1) Historical Data and Routes of Red Sea Ports

In particular, the Egyptians could get to the shores of the Red Sea from different points of the valley to reach favorable port areas (Wadi el-Jarf, Mersa Gawasis), where boats, safely stored in galleries (Fig.21), could be loaded pending the next favorable season to set sail for the coasts of the Sinai, or Punt (Beretta, 2021), as well as maritime trade protection was an important military task for the Ancient Egyptian maritime forces (Gilbert, 2008). Also, the Ptolemaic kings established ports on the Red Sea and built protected roads connecting them to the Nile valley that have encouraged entrepreneurs to make trading voyages to these places (Young, 1998), and of major interest is the trade of foreign wine, among others Italian wine that suggesting export from Italy to the East through Egypt's Red Sea ports (DENECKER, Evelien and Vandorpe, Katelijn, 2007).

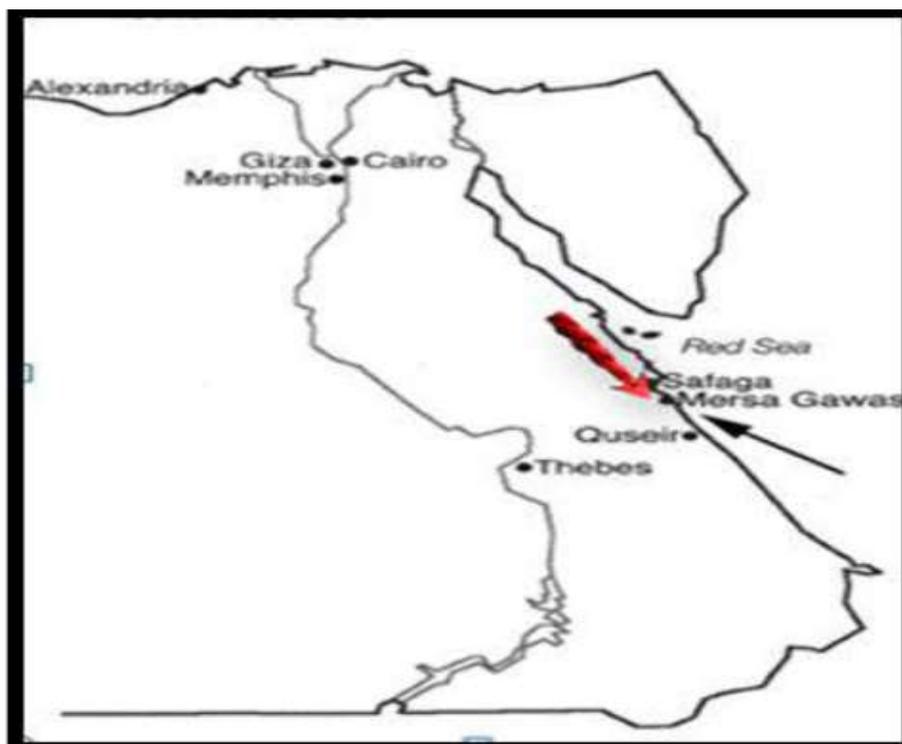


Fig.21. location of port of Mersa Gawasis, (Sania B. Ibrahim, Mofida El-Weshahy and M .Abed El-Raziq, 2018).

Clearly, many harbors were built on the Egyptian Red sea coasts listed from north south were as follows: 1- Arsinoi or Quilzam (=Suez), 2- Myos Hormos (=Ancient Qusair), 3- Philoteirs (= Gasos Berth), 4- Leukos Limen (= Qusair), 5- Nechesia (= Nakari Cape), 6- Berenike (= Hurras City) (Abdulla, 2008). Besides, although ancient authors mention 49 ports situated on the Red Sea, only 9 of them have ever been successfully located (Najeeb M.A. Rasul and Ian C.F. Stewart, 2019). Also, ships plying both the African and Indian routes began their journeys in one of Egypt's Red Sea ports, as it simply involved following the coast southwards and making stops at the various ports – both major and minor – along the way (KYLE MCLEISTER, 2011). In other word, on the Red Sea coast, successive Ptolemaic and Roman governments developed trading ports, particularly Berenike and Myos Hormos, from which and to which most trade between the Mediterranean and India and East Africa sailed, and which also had close connections to the west and south coasts of Arabia (Roger S. Bagnall and Dominic W. Rathbone, 2017) (Fig.22). Besides, the Roman army was involved

in the caravan traffic and once the merchandise of the Indian and Arabian trades had been landed at one of the Red Sea ports, it had to be conveyed overland by a system of fortified roads to the Nile valley. In addition, there are several routes that cross from the Red Sea coast to the Nile Valley. Strabo, who relates that during the prefecture of Aelius Gallus, at which time Strabo himself travelled in Egypt, ships a year sailed to India from the Egyptian ports of Myos Hormos and Berenike (Young, 1998).

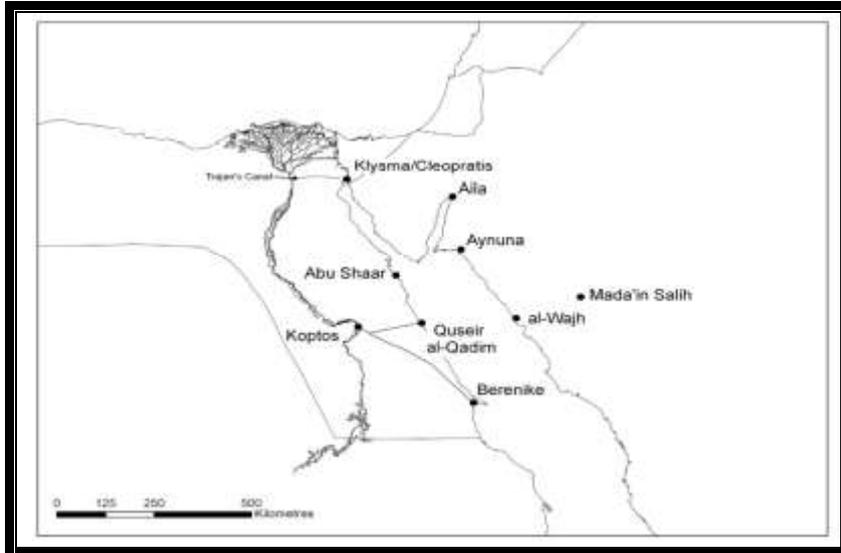


Fig.22. Greco Roman ports of The Red Sea, (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

(4-4-2) The Significance of Myos Hormos Port through Greco Roman period

Clearly, Quseir al-Qadim/ Myos Hormos lies on the Red Sea coast of Egypt, about 80 km south of Hurghada, and 8 km north of the modern port town of Quseir (Katherine, 2021; Monson, 2007; DAVID PEACOCK and LUCY BLUE, 2006). It seems, the shortest route between the River Nile and the Red Sea in southern Egypt is marked by Wadi Quseir, which forms a direct link between the important port of Myos Hormos and the site of Copts (Quft) in the Nile Valley (Najeeb M.A. Rasul and Ian C.F. Stewart, 2019). Besides, for decades, most scholars maintained that ancient Myos Hormos was the present-day town of 'Abu Sha'ar. However, this hypothesis proved to be inconsistent when archaeological investigations conducted in 'Abu Sha'ar demonstrated that this was founded at the beginning of the fourth century A.D (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020) (**Fig.23**).

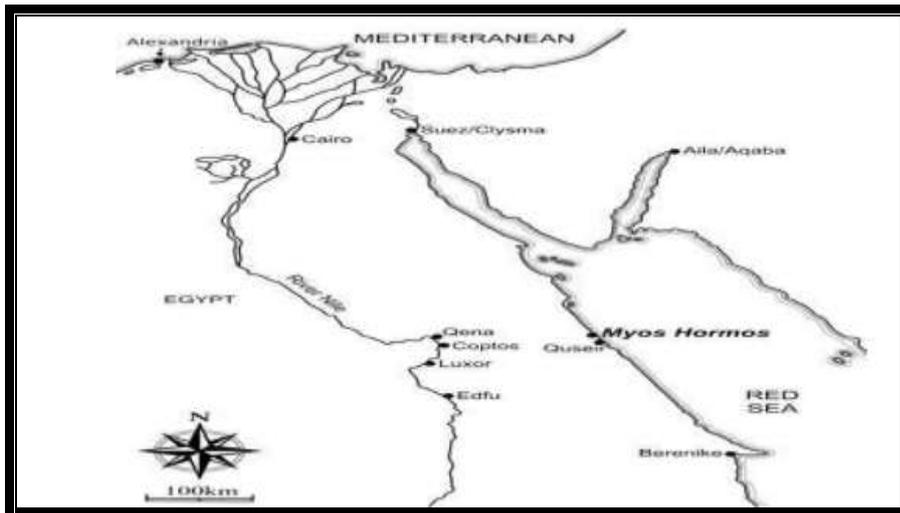


Fig.23. The northern red sea showing the location of Myos Hormos, (Whitewright, 2007).

It seems the Ptolemaic interest in the India trade led to the development of Myos Hormos at the end of the road (Roger S. Bagnall and Dominic W. Rathbone, 2017; R. Bunson, 2012)). At that point, Coptos-Myos Hormos road started with Coptos on the Nile heading for the eastern desert of Egypt to end up in Myos Hormos harbor on the Red sea (Abdulla, 2008). Clearly, Koptos lay on the lucrative trade and military routes to the Red Sea (Riggs, 2013). Meanwhile, Pliny described the journey from Coptos to Berenice by camel passing by watering points placed at intervals along the route and an old hydreauma, called —Troglodyticuml, where there is a fort, which accommodates 2,000 people (Othman, 2017). In addition, Koptos was not only a caravan hub, however, it was a major religious and administrative center of considerable antiquity and the home of a cavalry unit in Roman times (Roger S. Bagnall and Dominic W. Rathbone, 2017). At that point, Myos Hormos (Modern Quseir al-Khadim) seaport on the Red Sea built during the Ptolemaic Period but that was more prominent during the Roman Period until the 3rd century AD (Bierbrier, 2008).

In particular, Myos Hormos was a major port on the Red Sea in Roman period, between the Mediterranean and the Red Sea and indirectly to lands to the East (Whitewright, Roman Rigging Material from the Red Sea Port of Myos Hormos, 2007). In the meantime, Myos Hormos was intentionally abandoned for two reasons events that took place in the second century A.D, and because of its geographical position as the increase in the involvement of the northern ports in the international trade indeed perfectly coincides with the progressive demise of Myos Hormos and the shallow waters make it very difficult for large ships to navigate in the northern part of the Red Sea.

So, ships bound for the port faced a long trip upwind in shallow waters, therefore Strabo mentions Myos Hormos a number of times in connection with the eastern trade it has been suggested that Myos Hormos was the principal Red sea port in the late first century BC and early first century AD (Adams, 2007). Clearly, Myos Hormos port engaged in the international maritime trade connecting the Mediterranean World with India and Arabia (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020). In addition, Myos Hormos retained importance as a link for travelers and the imperial government to Arabia and to the mineral resources of the region (Roger S. Bagnall and Dominic W. Rathbone, 2017). At that point, first century writers on Roman rule over Egypt all recognize the important role of the port such as Strabo writes about the town several times, first defining its geographical location:

‘Next is Myos Hormos, which is also, called Aphrodites Hormos; it is a large harbor with an oblique entrance. In front are three islands; two are covered with olive trees, and one (the third) is less shaded with trees, and abounds with guinea fowls’ (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

Strabo made a very interesting remark on the port of Myos Hormos, from which western traders left for India:

...ὅτε γοῦν Γάλλος ἐπῆρχε τῆς Αἰγύπτου, σύνοντες αὐτῷ καὶ συναναβάντες μέχρι Συήνης καὶ τῶν Αἰθιοπικῶν ὄρων ἱστοροῦμεν, ὅτι καὶ ἑκατὸν καὶ εἴκοσι νῆες πλέοιεν ἐκ Μυὸς ὄρμου πρὸς τὴν Ἰνδικήν...

„We were with Gallus when he was prefect of Egypt, and we travelled with him as far as Syene and the frontiers of Ethiopia, where we learned that as many as 120 ships were sailing from Myos Hormos to India... (Fauconnier, 2012).

The historian Strabo visited the port with the prefect Aelius Gallus (Bierbrier, 2008). As well as Strabo’s most famous reference to Myos Hormos remains his comparison between the volume of trade passing through it in Roman times, and the levels recorded during the age of the Ptolemies, previous rulers of Egypt:

‘I was with Gallus at the time he was prefect of Egypt, and accompanied him as far as Syene and the frontiers of Ethiopia, and I found that about one hundred and twenty ships sail from Myos Hormos to India, although, in the time of the Ptolemies, scarcely any one would venture on this voyage and the commerce with the Indies’ (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020; Whitewright, Roman Rigging Material from the Red Sea Port of Myos Hormos, 2007).

In the meantime, Myos Hormos started to lose out to Berenike by the middle of the first century AD (Roger S. Bagnall and Dominic W. Rathbone, 2017) and Roman traders, who gradually shifted their business northward, to use more convenient ports such Clysma (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020). While Berenike continued to operate as a port into the late-Roman period, while Myos Hormos declined during the 3rd century AD (Whitewright, Roman Rigging Material from the Red Sea Port of Myos Hormos, 2007). Also, the remains of an ancient Egyptian port on the Red Sea have been identified nearby at Mersa Gawasis (Bierbrier, 2008).

(4-4-3) Berenike Harbor Significance in Trade in Greco Roman Egypt

Besides, Berenike was the Ptolemaic and Roman harbor site at the Egyptian Red Sea Coast and fishing nets recovered from Berenike (Veldmeijer, 2004). Also, Berenike is located about 800 kilometers south of Suez and some 260 km east of Aswan (Paul T. Nicholson and Jennifer Price, 2003) (**Fig.24**).

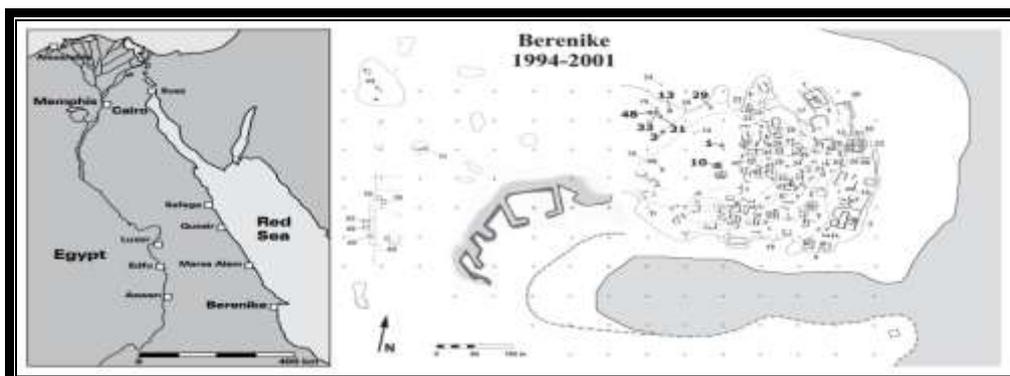


Fig.24. Map of the Ptolemaic and Roman harbor site Berenike, with trenches that produced cordage indicated in grey. Inset: the location of Berenike at the Red Sea coast of Egypt, (Veldmeijer, 2004).

As well as the site of Berenike lies on the Red Sea coast of Egypt and regarded it as one of the two main ports of trade between the Greco-Roman world and East Africa, South Arabia and India (Felicity C. Wild and John P. Wild, 2001). Likewise, the ports of Berenike show a high point of activity in the 1st century followed by a downturn from the early 2nd century (Cobb, 2018). In other word, Berenike was still a functioning port in the early 6th century (AD 524–5) but after this, the town must have been abandoned permanently (Felicity C. Wild and John P. Wild, 2001). Also, it was founded by Ptolemy II around 275 BC and named after his mother (Roger S. Bagnall and Dominic W. Rathbone, 2017) and the name of Berenike was known from classical texts such as Pliny the Elder's late first century AD (W. Z. Wendrich, R. S. Tomber, S. E. Sidebotham, J. A. Harrell, R. T. J. Cappers and R. S. Bagnall , 2003).

Therefore, Berenike was one of the most important port cities on the Egyptian Red Sea coast during the Ptolemaic and Roman periods. The port of Berenike was located just south of the large peninsula of Ras Benas, which offered the site protection from the elements (Najeeb M.A. Rasul and Ian C.F. Stewart, 2019). As well as, Berenike's geographical position was extraordinarily propitious owing partly to its natural harbors, protected against the prevailing northern winds (Kotarba-Morley, 2018). In the meantime, to the sailor, Berenike was more important than Myos Hormos that was although the journey overland to the Nile was longer, it obviated the necessity of moving against the north wind for the further 230 nautical miles up the Red Sea on the return journey (Felicity C. Wild and John P. Wild, 2001).

Also, Berenike had become the most important Egyptian red sea harbor since the second half of the first century AD (Abdulla, 2008). Berenike appears to have been refurbished during the 4th century AD (Roger S. Bagnall and Dominic W. Rathbone, 2017) and the site flourished until the late 5th or 6th century A.D (Paul T. Nicholson and Jennifer Price, 2003). It seems that it was the main port for trade with Arabia and India during the Ptolemaic Period when important imports included elephants for the Ptolemaic army, but it declined during the Roman Period when Myos Hormos, located further north, became more prominent (Roger S. Bagnall and Dominic W. Rathbone, 2017).

Additionally, during the Roman period it was strategically connected with Alexandria on the Mediterranean, the capital of Roman Egypt, by three separate routes: across the Eastern Desert, along the Nile, and to the north up the Red Sea (Kotarba-Morley, 2018) and have come into prominence during the expansion of trade between the Mediterranean world and the East from the time of Augustus. In addition, when it acted as a transit port from which goods from the East were transported overland to the Nile Valley and thence to the Mediterranean. Berenike produced cotton textile fragments reinforced with a rectangular grid-pattern of cotton strips, interpreted as the remains of sails (Felicity C. Wild and John P. Wild, 2001). So Berenike must have possessed a sheltered harbor with sufficient water depth to accommodate high volumes of incoming and outgoing merchant vessels that was at least reasonably attractive to settlers and sailors alike (Najeeb M.A. Rasul and Ian C.F. Stewart, 2019) (**Fig.25-26**).

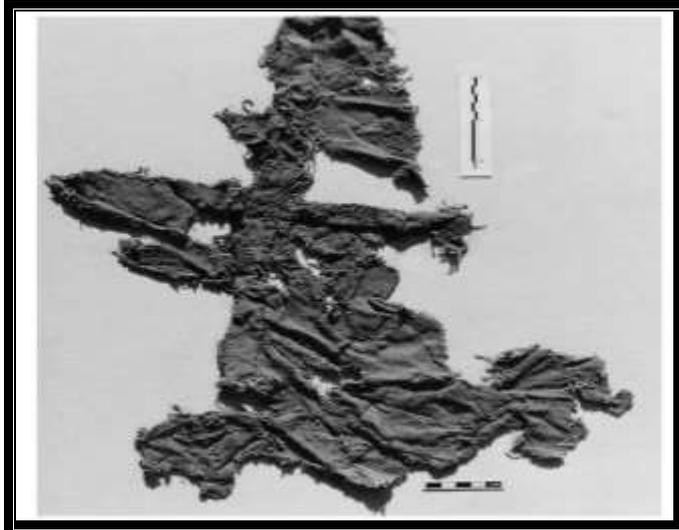


Fig.25. Sail fragment from Berenike, (Felicity C. Wild and John P. Wild, 2001)



Fig.26. The Berenike fish vessel. Courtesy of the Berenike Project., (Paul T. Nicholson and Jennifer Price, 2003)

Specifically, Berenike was one of the key harbors on the Red Sea coast during the Ptolemaic and Roman periods and was a major trade and exchange hub connecting the Indian Ocean and the Mediterranean. Also, the archaeological site of Berenike served as a port on the spice and incense routes that linked the Mediterranean world to India, Southern Arabia and East Africa (Kotarba-Morley, 2018). As well as, emperors had an increasing interest in outland routes, amongst which was emperor Hadrian who set up a road carrying his very name linking between Berenike and Antinopolis (Abdulla, 2008). In the same way, some documents reflecting the involvement in the maritime trade of south Asian groups as well as Greeks, Romans, Arabs and Egyptians (Roger S. Bagnall and Dominic W. Rathbone, 2017).

In particularly, the importance of Berenike-Coptos road was return to the Ptolemaic era, this importance was increased in Roman era and this return to length of the Road and to its security and safety (Abdulla, 2008). In addition, from the fourth century, Coptos resumed its prominent role as a commercial hub in the region, connected to the Red Sea trade, and its recovery positively affected Berenike, which also experienced a regeneration of its trading

activity (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

(5) The Commercial Motivations in Nile's Canal through Greco Roman period

In other word, the Nile dictates the regional structure of Egypt (ROWLANDSON, 1998) and the location of the Nile meant that Egypt had an easily navigable river (KYLE MCLEISTER, 2011). Specifically, the Nile provided a practical mean of communication and was vital for local movement of goods and river traffic must have been considerable with the movement of people, animals, produce and building materials, up, down, and across the Nile (Lloyd, 2010) through a canal from the Nile served as the harbor for shipping coming upriver on the Nile and the terminus for the roads to the Red Sea ports (Roger S. Bagnall and Dominic W. Rathbone, 2017). In addition, the overland journey was shortened thanks to the Nile, which could be accessed through several of its branches (Aubert, Trajan's Canal: River Navigation from the Nile to the Red Sea ?, 2015).

In the same way, the Egyptian Nile was connected to the Red Sea by (Cooper, 2009) a canal, which connected the Nile to the Red Sea (Schiestl, 2021) in a number of historical periods – the Persian, Ptolemaic, Roman (Cooper, 2009). As well as, the Nile creates a suitable route to move from southern Egypt to the north (1978، جيران،) and the river used for communications and there was always a close relationship between it and the people whose activities needed various types of boats, for example those for fishermen, traders, officials, builders, soldiers, etc. (Šichan, 2011). Additionally, boats were used in the Nile and inner channels ((2005، على،) as well as boats used for everyday purposes, such as transport of people, animals, goods, building materials, military activities, hunting, fishing, trade activities, etc. it seems, the Nile was essential for the development of internal and foreign trade and for contacts with abroad (Šichan, 2011) as well as river navigation was important in ancient Egypt as it was transporting food supplies and stones to build temples and merchandise through the Nile River the country's main artery (2017، الأمير،).

At that point, an increase in the importance of eastern trade (Roger S. Bagnall and Dominic W. Rathbone, 2017) and all trade had to across a land bridge between the Nile and the Red sea (Gilbert, 2008) (**Fig.27**) so is suggested by the canal from the Nile to the Red Sea that the pharaoh Necho II began to construct, which was completed under the Persian king Darius I (Roger S. Bagnall and Dominic W. Rathbone, 2017). Also, the project was first attempted but abandoned by Necho II and by a Pharaoh named Sesostris, for whom the twelfth dynasty pharaoh Senwosret II (Cooper, 2009). As well as ships were disassembled on the banks of the Nile, and trade goods were then transported by mule across the Eastern Desert before they were reassembled at a location on the Red Sea coast near Quseir (Gilbert, 2008) and for much of the year – from January to June – the low water in the Nile made sailing difficult if not impossible, while erratic winds made travel against the stream unpredictable (Lloyd, 2010).

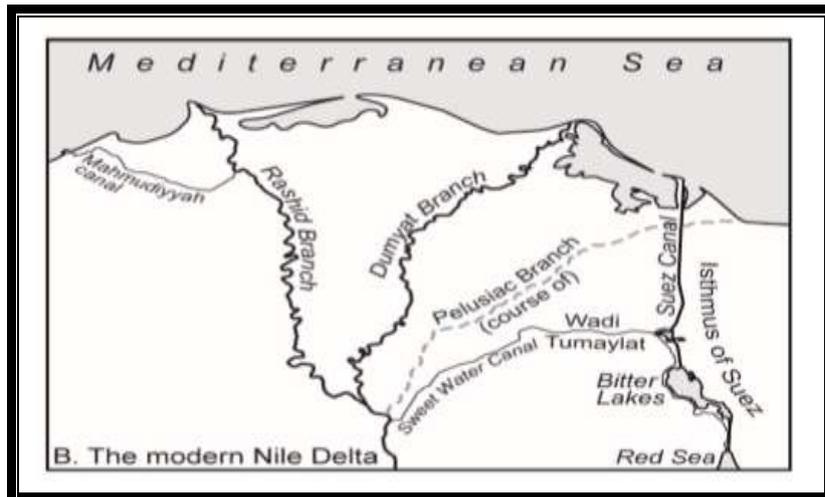


Fig.27. The Egyptian Nile and Northern Red Sea (A) and Nile Delta (B), showing principal regions and landscape features, (Cooper, 2009).

Greek and Roman authors said that Darius I dug a canal. The relatively well-preserved Persian cuneiform text of the stela found at Kabret reads”:

“Saith Darius the king: I am a Persian; from Persia I seized Egypt; I gave order to dig this canal from a river by the name Nile which flows in Egypt, to the sea which goes from Persia. Afterward this canal was dug this as I had ordered, and ships went from Egypt through this canal to Persia” (Cooper, 2009).

In the meantime, during the Hellenistic Period, the Nile was linked with the Red Sea by an artificial canal (Šichan, 2011). Also, exactly when the Ptolemaic canal no longer used was not known, but it appears not to have survived into the early decades of Roman rule (Cooper, 2009). Currently, under Trajan, a new canal was dug between Nile and Red Sea (**Fig.28**) as trade were attracted by the navigability of Trajan’s to the northernmost reaches of the Red Sea (Romanis, 2020). As well as Trajan’s canal was opened after 112 A.D., and it stayed open for centuries to come (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

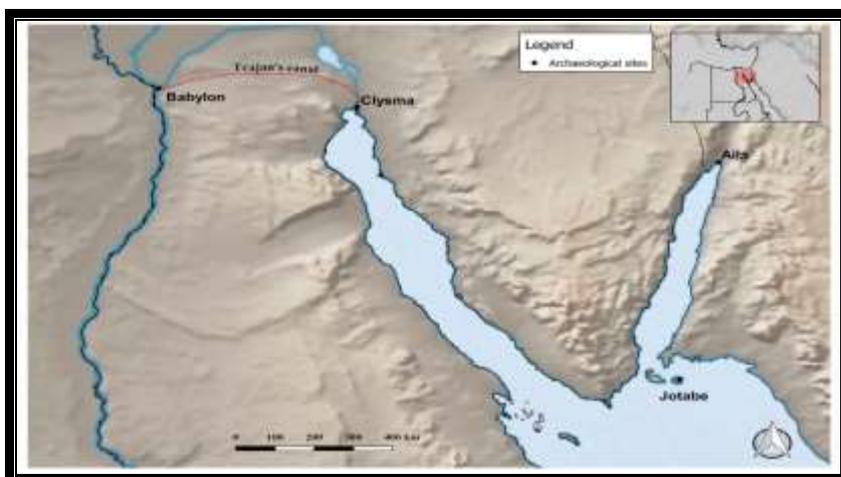


Fig.28. Trajan’s canal and the northern ports of the Red sea, (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020).

Specifically, this canal became known as Trajan’s canal or Trajan’s river that it was re-excavated under Trajan emperor, who seems generally to have made improvements to the irrigation systems of Egypt and changes to the system of administration (Adams, 2007) and some have postulated that the channel was to be used in the forthcoming war against the Parthians, while others suggest that it was intended to foster trade in the northern Red Sea area (Paolo Cimadomo, Rocco Palermo, Raffaella Pappalardo and Raffaella Pierobon Benoit, 2020). In the same way, it is certain that Trajan’s canal was not navigable all year round and must have been navigable when the water level of the Nile was at its peak and inaccessible when the river was at its lowest (Romanis, 2020) (Fig.29). The canal may still have been in use into the late Roman period. According to Gregory:

“The Nile, coming from the east, flows to the west towards the Red Sea. At the west extends a veritable lake, like an arm of the Red Sea, which goes towards the east, having a length of around 50 miles and a width of 18 (Cooper, 2009).

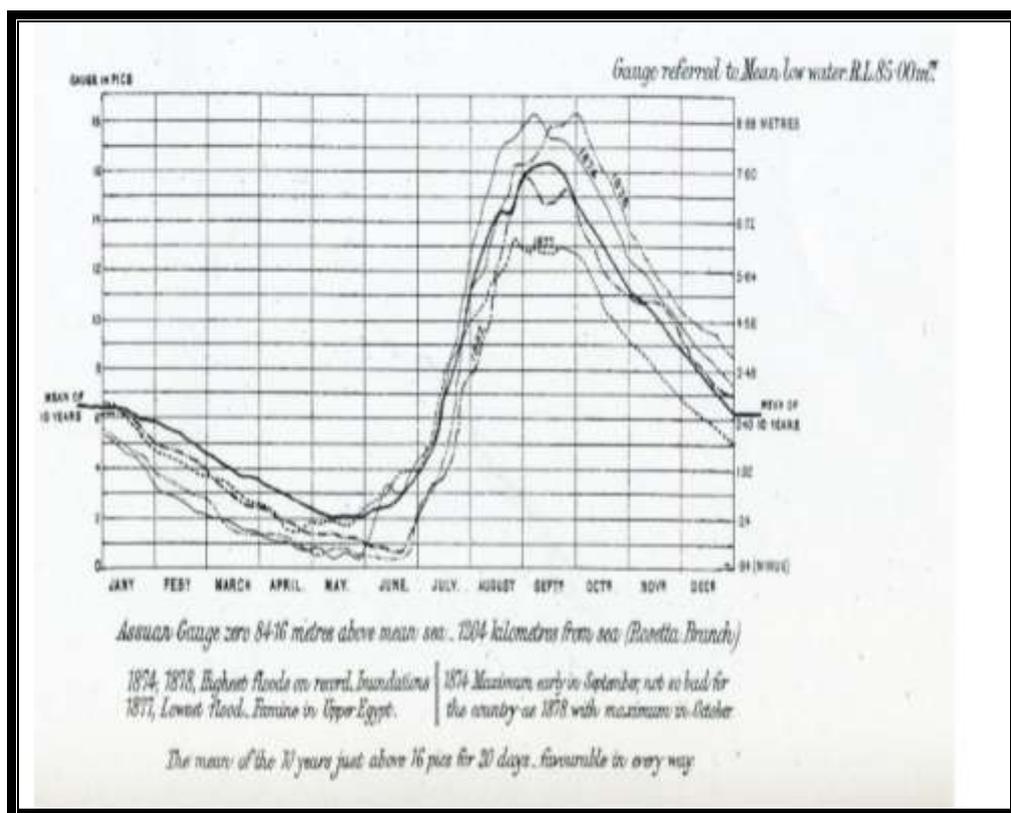


Fig.29. Assuan gage diagram, (Romanis, 2020)

Discussion and Conclusions

In general, this paper has sought to study the importance markets and roads on the domestic and foreign commercial financial transactions in Egypt during Greco Roman period.

Chart 3. A summary chart showing the most important means of financial and commercial transactions during Greco Roman period



In sum, estate management and the character of private economic behavior are point for demonstrating that Egypt was part of the ancient economy when under Greco Roman domination (Reden, 2006). As well as during the late period of ancient Egypt, the government was eager to secure the trade routes precisely the desert routes (Magdy, 2017). For instance, the expeditions to Punt are documented especially those sent by Hatshepsut (R.Bunson, 2012). There had already been Greeks living in Egypt before the arrival of Alexander (Escoffey, 2012). The rise of Greece signaled a new dominant trade factor. For instance, Naukratis originated in the twenty sixth dynasty as the result of the trading privileges.

Amasis granted Greeks a series of trade monopolis during his reign further enhancing Naukratis as well as Naukratis flourished until Alexander III the Great (R.Bunson, 2012) and was the focal point in the trade between Greece and Egypt. Greek painted pottery and Greek wine and oil containers destined primarily for the Greek in Egypt (Villing, 2008). In addition, the Ptolemais coordinated the agricultural output of Egypt with current trade systems (R.Bunson, 2012). As well as under Roman rule there were incredibly profitable trade routes linking the Mediterranean basin with India and east Africa (KYLE MCLEISTER, 2011). Besides, collecting taxes form Egypt was a skill that Rome had honed over the years (Hardy, 2017).

Chart 4. Chart showing the most important Import Products that discussed in this paper through Greco Roman Egypt

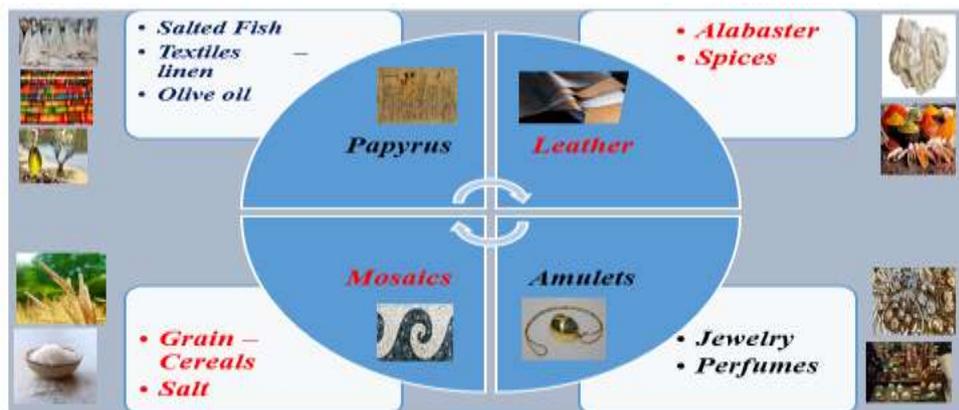
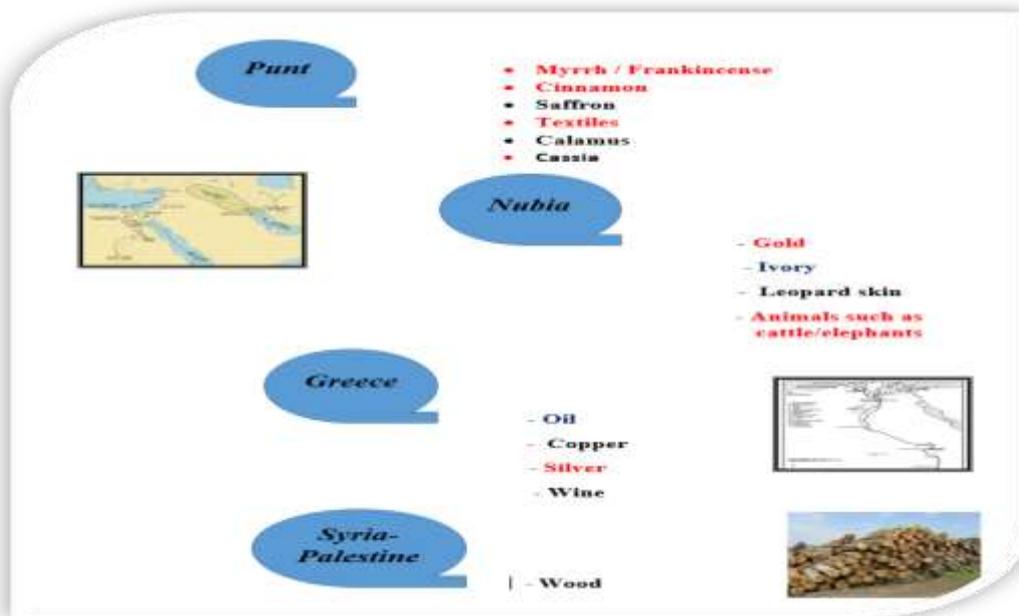


Chart 5. Chart showing the most important Export Products that discussed in this paper through Greco Roman Egypt



In the meantime, nearly all early Ptolemaic bankers have Greek names, they formed the most functions, and Greeks held occupations or Egyptians and that reflected this in their names (Vandorpe, Katelijn and Willy, Clarysse, 2008). At that point, the main sites are Berenike, built by Ptolemy Philadelphus, Quseir, and the ancient Leukos Limen, Abu Sha’r (Myos Hormos), and Klysmā or Arsinoe (Alston, 1995). The international trade in Red sea ports and along in the eastern desert routes connecting the Nile to the Red Sea, is documented in archaeological remains such as Papyri and ostraca (Vandorpe, Katelijn and Willy, Clarysse, 2008).

Chart 6. Chart indicates Harbors and Canals that discussed in this paper through Greco Roman Egypt

Alexandria Harbor
The Great harbor of Alexandria had a paramount trade, military and political value both for the city and for the country as a whole.

Myos Harbor Port
Myos harbor lies on the Red Sea coast of Egypt. Myos Hormos was a major port in Roman period. Myos Hormos port engaged in the international maritime trade connecting to lands to the east and the Mediterranean world with India and Arabia.

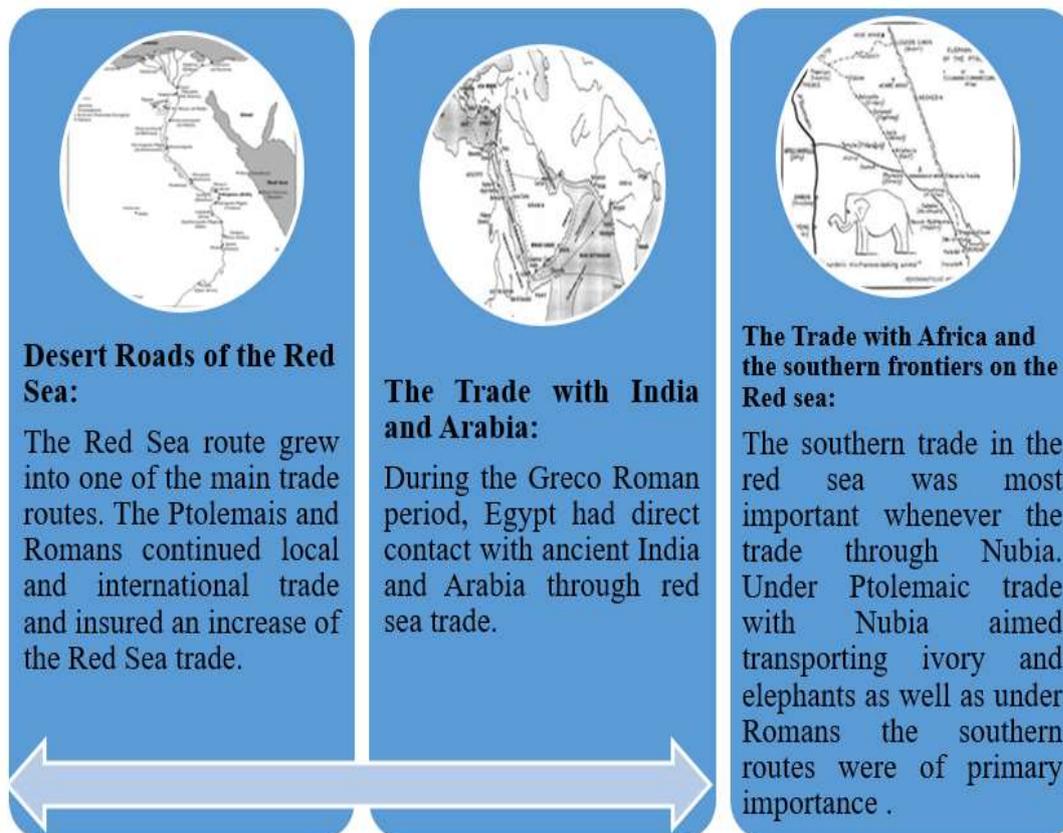
Berenike Port
Berenike was Ptolemaic and Roman harbor on the Red Sea coast it was connected with east Africa, south Arabia and India.

The Nile's Canal
Through a canal from the Nile, served as the harbor for shipping coming upriver on the Nile, and the Terminus for the roads to the Red sea port.

It seems the ancient Egyptians used the Red Sea for expeditions (Gilbert, 2008). Also, the eastern trade seems to have continued to grow for at least the first two centuries of Roman rule (KYLE MCLEISTER, 2011) and the eastern trade via Egypt was on a larger scale in the economy of the Roman empire (Siwei, 2018). As well as extensive trade, relations with the

east and Mediterranean world developed; Mycenaean products were common in Egypt, and Egyptian influences are clearly discernible in Mycenaean art (Breasted, 1908). Specifically, the existence of ports and roads had high value of the goods in Greco Roman Egypt (Young, 1998) as well as the Nile was a route used to bring materials and minerals resources (Šichan, 2011) then connected the Nile with the Red sea (Romanis, 2020).

Chart 7. Chart indicates Roads that discussed in this paper through Greco Roman Egypt



Also, it is suggested that the economics of the Near East and Egypt were oriented not around private property and markets but by a state dominated redistributive economic system with virtual monopoly power by the state and its organs on production and trade (Manning, 2003). The wide-ranging trade networks, cultural exchanges, population movements, and religious interactions of these periods provide ancient parallels for modern phenomena such as globalization, and tourism. After all, in the third century B.C. Egypt was in control of almost all the coastal regions of the eastern Mediterranean, and, as a superpower with a strong naval presence, she more or less regulated trade and commerce (Pfrommer, 2001). So Egypt an exceptionally well-documented region of the Hellenistic and Roman Mediterranean (Barrett, 2015).

Chart 8. A summary Table indicates financial transaction, foreign trade and domestic trade through Greco Roman Egypt

Financial Transaction	Foreign Trade	Domestic Trade
Ancient Egypt knew the currency system only in later times and ancient Egypt's	In ancient Egypt, trade was regarded as a royal monopoly.	In ancient Egypt temples used agents for internal trade

economy operated on a barter system without cash.		
Ancient Egypt used weights and balances	In ancient Egypt foreign traders settled in Egypt during the New Kingdom	In ancient Egypt traders were buying and selling goods for temple, kings, individuals and distribute in markets
In ancient Egypt, the value of each commodity according to its weight.	In ancient Egypt, Egypt's ingenuity in building and sailing boats was vital to Egypt's economic and political strength.	In ancient Egypt paved roads and water channels were used to carry cargo
In ancient Egypt, taxation was a part of trading arrangements.	Ancient Egypt traded goods with other countries such as Nubia, Asia Minor, Libya, Mesopotamia and Arabia.	Under Ptolemais rulers, Greek immigrants brought with their own commercial enterprise and expertise, so the importance of trade as a pillar of the economy.
Local scribes in ancient Egypt were responsible for collecting and recording taxes.	Egypt and its neighbors through the Ptolemaic period used the economic and artistic exchange system.	The Greek used Greek language as administrative language and Coinage as a mean pf payment.
In ancient Egypt, Egypt's exports such as papyrus, textiles and gold were traded for the commodities the country lacked such as wood and copper.	The Roman declared Egypt a province of special statues and regulated such commerce out of Alexandria	The Greek set up trade routes such as "forty-day route" from EL-Kharga oasis to the south.
In ancient Egypt, the king protected the state's interests by imposing customs duties at Egypt's frontiers.	Trade expanded and flourished under Roman's rule	Greek trade amphora were widely distributed in Egypt.
In ancient Egypt, the kings made efforts to	Egypt was the main source of food production,	The Ptolemaic oil industry was strictly regulated and

secure internal markets, ensure their stability, control markets and protect transactions.	especially for the city of Rome itself, for its population did not allow it to produce enough food so Egypt became the breadbasket.	controlled by the government.
Ancient Egyptians used documents in their everyday operations.		Amasis and Greek gave Greek merchants including permission to establish a trade center at Naukratis as a major economic and religious center.
In ancient Egypt, foreign vessels have been constantly flocking to Egyptian ports and unloading their cargo to be traded for Egyptian products.		Egypt was a part of the Roman administration because of the economic importance of its agricultural resources
Under Greek and Romans, documents papyri show many aspects of economy such as taxation, the organization of landholding and contracts such as leases for private or public land, loans and labor agreements.		The identification of individuals recorded on stamps of Roman Egypt shows that a distinction should be made between local and international trade.
The most important economic change was the monetization and coinage were a Ptolemaic innovation.		
Under the Greeks, banking was with Greek language.		
The Ptolemais issued gold, silver and bronze coins.		
The currency was a		

<p>closed system as Ptolemaic coins did not circulate outside Egypt and the foreign currency was forbidden and had to be exchanged for Ptolemaic coin.</p>		
<p>Under Ptolemis, large amounts of taxes locally raised and collected in bronze coinage were spent locally in a labor regime.</p>		
<p>The most radical changes the Greeks introduced into Egypt was the monetization of taxation of all sectors apart from arable agriculture.</p>		
<p>Under the Ptolemis and the Romans taxes on most grain production continued to be collected in kind, but money taxes were introduced on some agricultural produce, trades and manufactured goods.</p>		
<p>Under Ptolemis some taxes, license fees had to be paid in silver.</p>		
<p>Though Ptolemaic tax receipts are generally Greek, Demotic receipts are found as well as Greek receipts with Demotic subscriptions showing native scribes at work in the bank.</p>		

Under Romans, at least 40% had to be paid for with the profits from trade in non-agricultural goods from Egypt itself.		
To protect tax collectors, Rome had multiple legions of soldiers in Egypt.		
The Roman government managed exchanging the bulk of the tax money for foreign currency, which was brought to Egypt from the rest of the Roman Empire.		
The amount of wheat shipped to Rome was collected as taxes in kind because constant pressure was exercised on Egyptian agriculture by taxation.		
Under Roman rule, they adopted the system of individual salary accounts.		

Recommendations

- 1) Making Models of Financial Transaction tools in ancient Egypt in Egyptian museums and archaeological sites, such as coins.
- 2) Making Small Models of Market shapes in ancient Egypt, containing models of sold goods such as fish.
- 3) Making Models of Vendors’ Seals for various goods and actually used them with tourists with the ancient Egyptian language and with English translation, and the quantity and type of goods sold.
- 4) Developing the Remnants of the Existing Markets from the ancient times of Egypt, such as those in Alexandria, and making them part of the tourism program to Egypt.
- 5) Developing Trade Routes in the Eastern Desert of Egypt, such as the Qift road, and writing the prices that used in ancient Egypt at its entrances.

6) Developing the Red Sea Ports in ancient Egypt for tourism, such as the ports of Myos Hormos and Berenike, and making models of ship shapes in the past, and making them within the tourism program for the Red Sea region.

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