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The development of trade to the end of  
the second century A.D. between the  
Eastern Provinces of the Roman Empire  
and the countries lying further east.

J. Thorley

Dissertation submitted for the degree of M.A.

August, 1965.

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## I N T R O D U C T I O N

During the period of the Roman Republic the development of mercantile activity was limited by two adverse factors: firstly, frequent wars and unsettled conditions around the Mediterranean were not conducive to the free flow of trade; and secondly, the wealth of the state was still concentrated in the hands of a very few people, either senatorial landowners or equestrian tax-gatherers. The majority of the population was still virtually moneyless and concerned solely with the necessities of life. These conditions prevailed for as long as Rome's military commitments restricted her surplus wealth. However, towards the end of the Republican period the expansion of Roman power to Gaul, Palestine, and Egypt brought wealth which far exceeded any additional military expenditure, but it was not yet accompanied by the peace on which a thriving commerce depends. It was only after the fall of the Republican system of government and the establishment of the Empire by Augustus that conditions ideal for trade finally prevailed.

The Senate's inability to cope effectively with a realm growing in size, complexity, and resources had resulted in over half a century of political strife and personal insecurity. Augustus' solution, involving a radical change in the concept of government, was accepted because it did cope with the problems of organisation both political and economic within the whole area of Rome's dominion. Augustus brought peace and efficient administration which in turn created economic stability and confidence. Never before had such financial and political security been known in the Mediterranean lands. Industry and trade throughout the Empire received a great impetus. The Spanish mines increased their output and their efficiency to become the prime sources of silver, lead, and tin not only for the Roman Empire but indeed for much of the east as well. The sudden outburst of activity in the ceramic industry first in Italy and later in Gaul is clearly reflected in the vast numbers of potsherds of good quality which begin to mark archaeological sites of the Empire from this time on. In the eastern provinces the production of textiles and glassware did not lag behind. The invention of the blow-pipe in the production of glassware at about this time came most

opportunely, and resulted in a thriving industry in Syria producing large quantities of high quality glass for domestic and decorative use. For the first time the lands bordering the Mediterranean were organised to form an economic unity which was for all practical purposes self-sufficient.

This last fact is of the greatest importance in understanding Rome's eastern trade, which showed a most vigorous development after the accession of Augustus. The Empire, from the time of Augustus to its fall, was essentially self-supporting. Once its parts had been welded together by an efficient administrative and commercial system, it was in truth a unified whole consisting of inter-dependent parts, a factor of no small importance in the Empire's stability. The trade with the orient was therefore by no means an economic necessity; it was in fact never anything more than a channel for the influx of luxuries which the Empire itself did not possess. The very existence of a flourishing eastern trade is a testimony to the prosperity which the peace of Augustus brought to the Mediterranean world.

It seems possible that a steady trickle of goods from India and the Far East had arrived on the shores of the Mediterranean during the Republic, and some had perhaps found their way to Rome. Certainly the trade routes from Parthia to Syria and from Arabia to Gaza had been active for some time, some of them for centuries, and there is adequate evidence of trade between Parthia and China, and between Arabia and India. The trade links existed; and since frankincense, which was common in the Republic, must have passed along the routes of the Near East, it seems quite likely that goods from further east were occasionally added to this trade. However, the trade must have been small and was apparently in the hands of Arabs or Parthians as far as the coast of Palestine and Syria. On the accession of Augustus this trade was completely transformed. Whereas the Roman World had previously been the passive recipient of what was, relatively speaking, a minute trade, Roman merchants now became actively engaged in fostering an oriental commerce on an infinitely larger scale to procure the luxuries which were being demanded by a society which had suddenly found itself amid peace and plenty.

I. THE EASTERN TRADE AND THE PRINCIPAL ROUTES  
IN THE PRE-AUGUSTAN PERIOD (See sketch-map I)

Since it was on the foundations of the oriental commerce of the later centuries B.C. that the far greater trade of the Empire period was built, a short survey of the extent of the pre-Augustan trade and its principal routes is here included.

The Ptolemies in Egypt had developed trade routes along the Red Sea, especially on the East African coast as far as Somalia, from where they  
1 obtained ivory, tortoiseshell, slaves, and a considerable supply of  
2 elephants, mainly for military use. A certain amount of trade was also  
3 carried on with the states of South Arabia, and occasionally vessels from  
Egypt went beyond Bab-el-Mandeb to the frankincense country of Hadramaut.  
Strabo even implies that Eudoxus of Cyzicus may have reached India in the  
reign of Ptolemy Euergetes II, but for the most part the Arabs were  
successful in keeping the Indian trade for themselves, and were most  
careful never to divulge to western seamen the secret of the monsoons.

Strabo gives the further information that about twenty ships a year  
from Egyptian ports passed through Bab-el-Mandeb under the later Ptolemies.  
Most of these vessels were doubtless making for East Africa or Socotra,  
but a few were apparently reaching as far as Acila on the eastern side of  
Arabia beyond Ras-el-Had, and there meeting Indian vessels. Some may even  
have taken the coastal route all the way to India, a view which  
4, 5 Charlesworth supports, quoting fragments of a Greek farce, which he dates  
to the 1st century B.C., containing odd words of what is supposed to be  
an Indian language. The words have been identified as Canarese, a  
Dravidian language of South India, but the date of the work is more  
6 probably 2nd century A.D. The dedication to Pan by an Indian in the  
temple at Redesiya on the desert road between the Nile and the Red Sea is  
also quoted by Charlesworth, but again the date is probably much later.  
It is therefore safest to conclude that in the pre-Augustan period trade  
in the Indian Ocean was still firmly in the hands of Arabs and Indians.

In Egypt itself the Ptolemies cleared the ancient canal running from  
7 the eastern branch of the Nile delta to near Arsinoe, and also repaired  
the road from Coptos, some 500 miles from the mouth of the Nile, to

Berenice on the Red Sea. Both these measures were designed to assist the passage of goods from Alexandria to the Red Sea ports.

The land routes from the Mediterranean seaboard or its vicinity into the Asian continent had already been established for many centuries, and indeed many remain unaltered today, for the harsh climate and topography of Eastern and Central Asia allow little variety of transit route. The main centres at the Mediterranean end of the trans-Asiatic routes were Antioch and Petra. To both cities led roads from the ports of the eastern Mediterranean; Antioch also had contact with the cities of Asia Minor, Petra with Egypt. From Antioch the main route went to Zeugma where the Euphrates was crossed. The route then continued to Seleucia and Ctésiphon on the Tigris.

8 The Nabataean city of Petra maintained a proud independence until its power was crushed by Trajan in A.D. 107. From the Euphrates ran desert routes direct to Petra, and from the Persian Gulf the port of Aelana on the Red Sea, Petra's nearest port, could be reached by a sea voyage round Arabia. Petra was also in contact across the North Arabian desert with Gerrha on the Persian Gulf, a port which traded by sea with India. By this route Indian goods could reach the Roman world without passing through Parthia or South Arabia. To the south this wealthy Nabataean kingdom had a most profitable trade with South Arabia in incense and spices, the latter no doubt partly of Indian origin. Before the *outburst of activity among* western merchants in Augustus' reign Petra virtually had a monopoly in this trade, and made every effort to preserve it (cf. Gallus' expedition under Augustus).

Between the Antioch and Petra routes was another route, later to gain in importance, which ran from the coastal towns of the eastern Mediterranean to Damascus and Palmyra, reaching the Euphrates and the Zeugma-Seleucia road at Circesium.

From the 1st century B.C. to the beginning of the 3rd century A.D. the Parthian Empire had its <sup>western</sup> eastern boundary on the upper Euphrates and the lower Tigris, where Ctisiphon, facing Seleucia across the Tigris, was the principal Parthian city. That the trade routes across Parthia



and Central Asia were active at this period is clearly shown by the silk which reached the eastern Mediterranean, and by the fact that c. 115 B.C. Mithridates II made an alliance with the Emperor of China, Wu Ti, "to  
9 facilitate the movement of international commerce". The Parthians also had close connections with North-west India, and there can be little doubt that trade also flourished in this direction. For the present it will suffice to mention the existence of trade in the Parthian kingdom and beyond. A fuller account of the routes along which the commerce passed will be given later in dealing with trade during the Empire period in these regions.

An alternative route from the Mediterranean to Central Asia which has been the subject of much controversy is the Caspian route. Strabo  
10 says that in the time of Alexander Indian wares passed down the Oxus into the Caspian and then to the Black Sea and the Mediterranean or Asia Minor. Pompey, during his eastern campaigns, defeated the Iberi and Albani of the Caucasus; and on reaching Harmozica learnt more about this trade. He  
11 heard, according to Pliny, that goods could reach Phasis in Colchis from North-west India by the above route in a total of twelve days. Although this period is far too short for the journey, the evidence does seem to be in favour of a route to India to the north of Parthia. It is true that the Oxus does not flow into the Caspian as Strabo states, but this may  
12 simply be an error on Strabo's part; a portage across Ust Urt to the Caspian would not be difficult. The importance of this route for the west will be discussed later, but it is perhaps significant to note here that Comidius, one of Antony's generals, followed in the footsteps of Pompey and again subdued the Iberi, this time making them "socii populi Romani".

## II. THE REIGN OF AUGUSTUS (See sketch-map II)

By the time of Augustus, then, several well-established routes from the eastern Mediterranean to the orient existed, evidence in themselves of a steady trade, although somewhat limited in quantity. The sudden peace and prosperity of the newly-constituted Roman Empire, however, soon turned the minds of wealthy Romans from the necessities of life, which were now becoming obtainable in abundance, to the luxuries which could only be had from the east. The trade-routes of the east, for centuries the monopoly of Arabs, Persians, and Indians, now began to be frequented by merchants from the eastern Roman Empire, who were anxious to maintain a good supply of eastern products for their Roman customers and to cut out middlemen whose profits would tend to make the selling price of the goods at Rome prohibitive. Under Augustus, therefore, there are very definite signs of increased eastern trade in the form of road-making and caravan protection within the Empire, and outside the Empire efforts are clearly made to ensure the passage of commerce with as little foreign interference as possible.

1 In Egypt the principal route from Alexandria to the Red Sea passed down the Nile as far as Coptos, and there branched into two main roads, one north-east for six or seven days to Myos Hormos, the other south-east for about twelve days to Berenice, some 300 miles further south on the Red Sea coast than Myos Hormos. Another route was wholly by water, going from Alexandria to the Pelusiac branch of the Nile, leaving this at Phacussae and travelling by canal through the Bitter Lakes to Arsinoe, built by Ptolemy II, who also improved the canal when he built the town. Warmington suggests that Augustus may have cleared this canal. This route was, however, by no means as popular as the Coptos route, for Arsinoe was notorious for its shifting shoals and a prevalent south wind coming up the gulf; and in addition to hazards at the port itself, the gulf was, at least early in Augustus' reign, infested with pirates.

2 Strabo stresses the importance of the land routes to Berenice and Myos Hormos, but adds that Berenice was not used as much as Myos Hormos because of shoals near the harbour. But Berenice was quickly gaining in importance because of its good landing-places, and although Augustus at

3 some time early in his reign established a naval station at Myos Hormos, he also revived the Ptolemaic system of aiding caravans by supplying storage depots, reservoirs and armed guards on the road from Coptos to both ports. At about this time Augustus also appointed a strategos as receiver of the Red Sea dues, presumably to supervise the tax-farmers of Myos Hormos and Berenice. Other inscriptions show that there was also a system of military supervision over the Coptos - Red Sea routes, perhaps even over the whole west coast of the Red Sea in Egyptian territory, and that local transit dues and road levies on caravans came under this supervision.

It is often difficult to assert that an action on the part of the emperor was done principally in the interests of commerce, but the official protection which was given along these roads in Egypt and the organised system of levies and dues cannot be interpreted in any other way. Augustus was well aware of the requirements of the expanding oriental trade.

This much Augustus was able to do in Egypt itself. The speed with which these measures were taken shows how sudden was the expansion in the eastern trade, and also incidentally shows how quickly Augustus could act, at least in his own province. But the difficulties of the sea routes to India could not be solved simply by measures taken in Egypt, important as these were. Vessels sailing down the Red Sea into the Indian Ocean had to pass close to the coasts of three powerful peoples, the Ethiopians, the Axumites, and the Himyarite-Sabaeen Arabs of South Arabia. In 25 B.C. Augustus endeavoured to solve the Arab problem, and perhaps take over some of the proverbial wealth of the Arabs, by sending an expedition under Aelius Gallus into Arabia with orders to subdue or conciliate the kingdoms which he found. But competition for the oriental trade was already keen, and the Nabataean Arabs of Petra realised that Roman penetration into Arabia would cut off their trade with the Himyarite-Sabaeans, which was one of their main sources of income, for they themselves were one of the chief suppliers of Arabian products to the  
4 Romans. The story of the expedition is well known. It is clear from the accounts that the Nabataeans played no small part in the disaster,

although the whole affair was ill-conceived from the start, based as it was on a most sketchy knowledge of the Arabian peninsula. The Nabataeans did indeed achieve their purpose, for the Romans made no effort to control the land route from South Arabia to Petra, although the  
5 25% tax at their port of Leuce Come may date from this time.

At the same period as these moves against the Arabs were taking place the Romans were also attempting to enforce a stricter control over the Ethiopians, whose coastline on the Red Sea they were anxious to make safe for Roman vessels either by actual possession or by treaty. Therefore in 29 B.C. the prefect of Egypt, Cornelius Gallus, after suppressing a revolt in the Coptos area caused by the arrival of the Roman tax collectors who were to be responsible for the dues and levies on the caravan routes, proceeded to fix the boundary between Egypt and the territory of the  
6 Ethiopians of Meroe at the 1st Cataract, and to make the Ethiopians a Roman protectorate. The next few years saw minor engagements on the frontier, in which the Romans pressed a considerable distance further south, but in 21 B.C., on the request of the Ethiopian queen Candace for an equitable settlement, Augustus fixed the boundary at Hierasycaminos. The Ethiopians remained peaceful after this, in part because of the growing power of the Axumites on their southern frontier.

The Axumites with their large port of Adulis were somewhat beyond the range of Roman arms, and although there must have been a certain amount of trade rivalry between Axumite and Roman merchants (there were probably differential dues against Axumites and Arabs at Alexandria) there is no evidence of any aggressive action on either side. But one can scarcely doubt that the Axumites played an equal part with the Arabs in trying to keep Indian vessels out of the Red Sea and Egyptian vessels in.

But the grip which these peoples had on the trade in the Red Sea and beyond was not destined to last much longer. Under Augustus the number of vessels leaving Egyptian ports quickly increased. Strabo records that  
7 when he was in Egypt (c. 24 B.C.) 120 ships a year were leaving Myos Hormos for India and East Africa. Even by this early date Augustus' measures were beginning to bear fruit. However, it was not improved conditions in Egypt but the discovery of the monsoons that finally broke the middlemen's power.

The date of the discovery by Roman mariners of the use of the monsoon winds in reaching India has been much disputed, and it cannot be said even now that the problem is solved beyond all doubt. The most commonly accepted dates have been some time in the reign of Tiberius or perhaps a little later. But Charlesworth has suggested that the first discovery of the monsoons, by a mariner named Hippalos according to the Periplus, took place about 10 B.C. Since this view is here adhered to, the evidence will be given in some detail.

In fixing the earliest possible date it is argued that the discovery cannot have been made before Strabo compiled his account of Egypt, which was apparently written c. 20 - 15 B.C. and not revised, for Strabo makes no mention of the monsoons. It would indeed have been a strange omission on Strabo's part had the discovery already been made. This date, then, is the earlier limit; the later limit is set by Pliny. In discussing the route to India Pliny says: "Postea ab Syagro Arabiae promunturio Patalen favonio, quem Hippalum ibi vocant, peti certissimum videbatur, XIII XXXII<sup>M</sup>/p. aestimatione. Secuta aetas propiorem cursum tutioremque iudicavit si ab eodem promunturio Sigerum portum Indiae peteret, diuque ita navigatum est, donec compendia invenit mercator, lucroque India admota est; quippe omnibus annis navigatur sagittariorum cohortibus inpositis; etenim piratae maxime infestabant." Charlesworth argues that "secuta aetas" means a generation of about thirty years, and that "diu" means for rather longer than a generation. Perhaps Charlesworth is being too precise in his interpretation of Pliny's rather vague temporal divisions; nevertheless, Pliny's evidence must push back the date of the discovery of the monsoons by the Romans to very soon after Strabo's time and surely not later than the turn of the era. For "aetas" add "diu" add a lapse of time from the latest discovery by which "lucro... India admota est" must total more than the seventy-seven years from the beginning of our era to the date of Pliny's work.

Such a discovery must have given a great boost to the Indian trade, and the next recorded events in the seas round Arabia do perhaps make more sense in the light of this expansion. About 1 B.C. Isidore of Charax, Dionysius of Charax and Iuba were commissioned by Augustus to survey both

sides of the Persian Gulf as a preliminary to a circumnavigation of  
11 Arabia, in which Gaius Caesar, who was in the area, probably in command  
of the fleet mentioned by Pliny, was concerned. At the same time there  
12 was talk in Rome of military conquests in the east. It would seem from  
this evidence that some sort of measures were being taken to protect  
shipping off the coast of Arabia, and the reason for such measures is not  
far to seek: the Arabs were trying to stop Egyptian vessels trading with  
India. Now that merchants from the Egyptian ports had discovered the use  
of the monsoons they were beginning to undercut the prices of the Arabian  
middlemen. For the previous twenty years western mariners had taken the  
long, expensive, and dangerous coastal route to India. It is true that  
no small number of vessels had been travelling along this route; of  
Strabo's figure of 120 vessels which went to East Africa and India from  
Myos Hormos perhaps a half were bound for India, and the total may have  
been raised to about 100 by vessels from Berenice and Arsinoe, less  
important harbours in Strabo's time. Nevertheless, the Egyptian ports  
could not have thrived simply on these vessels going beyond Bab-el-Mandeb,  
which amounted to only one every three days; most of their trade was in  
fact still with South Arabia in both the local aromatics and luxuries from  
India, which the Arabs could still supply at competitive rates because they  
were using the monsoons and Egyptian voyagers to India were not. But when  
western vessels began to use the monsoons too the Arabs saw that their trade  
in Indian goods with the Egyptian ports was now in jeopardy, and presumably  
13 was countered by Augustus with the measures described above.

One result of this rapid increase in trade with India was that  
14 "embassies" from India arrived "frequently" at the court of Augustus.  
These embassies were undoubtedly at least in part trade delegations who  
were anxious to establish firmer ties with Rome and at the same time to  
assess the commercial situation in the Eastern Empire. The evidence for  
145 these embassies has been treated very fully by Priaulx and Warmington.  
Priaulx concludes that there was only one embassy (apparently in spite of  
Augustus's own statement), Warmington that there were four, coming from  
N.W. India, Barygaza, and from two separate Tamil states in South India.

Unfortunately, Roman writers were on the whole little interested in trade and economics, and the literary evidence that has survived is merely included by the authors for its curiosity value, and is in addition somewhat confused. Nevertheless, Warmington's figure seems to be nearer the truth, especially in view of Augustus's claim. But nothing is known of the achievements of these embassies in fostering commerce, and as far as the development of Roman trade with the east is concerned they deserve only a passing mention.

It now remains to consider the overland trade with the east under Augustus. Antioch continued to be the main centre in the eastern provinces for the overland commerce and its prosperity increased considerably as the eastern trade expanded. Eastwards the trade route went to Zeugma, the only Euphrates crossing under Roman authority in Augustus's time. This was the last point in the Roman Empire. Across the river was Parthia.

Although eastern goods had trickled into the eastern provinces in the late Republic, relations between Rome and Parthia had been far from cordial. In 20 B.C., however, terms were agreed and the Parthians gave back the Roman standards captured at Carrhae, a simple act which salved the Roman conscience and at the same time freed Phraates IV of Parthia from the worry of hostilities from Rome at a time when he was sorely troubled by domestic affairs. In spite of further internal troubles in both Parthia and Armenia twenty years later, Augustus managed to maintain a strong influence in his eastern border countries without having to fight.

The result of Augustus's settlement in the east and the ensuing more amicable relations was a fairly constant flow of trade from Central Asia and beyond across Parthia to the eastern provinces of the Roman Empire. Inevitably fluctuations occurred because of the frequent disturbances in Parthia, but considering the prosperity of Antioch the trade must have been reasonably regular and of considerable bulk; indeed, except under extreme conditions this was the normal channel for the silk which was entering the Empire in swiftly increasing quantities.

There is, however, good evidence that Roman subjects did not usually  
16 cross Parthia themselves; but one Roman subject who did complete the

journey was Isidore of Charax, who has already been mentioned in connection with the circumnavigation of Arabia. This man appears to have been employed by Augustus to survey parts of the east beyond the Roman frontier, and his *Σταθμοὶ Παρθικοί* is still extant. This work is little more than a list of places on the road from Zeugma to Alexandropolis (Kandahar), but it does at least give us the trade route across Parthia used in his time. Isidore's route goes from Zeugma to Nicephorium, cutting out the wide curve in the Euphrates. From Nicephorium the route continues to Circesium, here joining the route from Palmyra, and then following the Euphrates to Seleucia and Ctesiphon. From Ctesiphon one could meet the Persian Gulf traffic at Charax, some 250 miles away at the mouth of the Tigris. Isidore's route, however, goes from Ctesiphon up the Zagros Mountains to the east and onto the Iranian Plateau, past the rock of Behistun to Ecbatana; from there through the Caspian Gates to Hecatompylos, then due east to Antiocha Margiana (Merv). From this point Isidore's account becomes much more sketchy as he describes the road from Merv to Kandahar, the last town on the route. Perhaps Isidore himself only knew this section from hearsay.

17 During the time of Augustus Isidore's account was probably the limit of Roman knowledge of the land-routes towards the east, although Augustan poets do show that some vague knowledge was acquired about the Sacae of the southern shores of the Caspian, and the location of the Seres was approximately known.

The alternative land-route by way of the Caspian has already been referred to as being in use at the time when Pompey was in the east, and dating back at least to the time of Alexander. The problems of the route as far as the Caspian were indicated at the time: from this point there appear to have been two alternative routes during the Empire period: the first was to take the Cyrus river to Harmozica or perhaps a little further, continue over the Caucasus to the river Phasis, and follow this river to the town of Phasis near its mouth. From here the trade routes across the Black Sea into the Mediterranean would normally be used. The alternative was to take the Araxes river from the Caspian into Armenia as far as



18 Artaxarta, from where land-routes spread into the western parts of Asia Minor.

The importance of this route is clear to see: it afforded a means of by-passing Parthia whenever conditions there did not allow freedom of movement for traders, and also ensured that Parthian middlemen maintained their prices at a reasonable level. This was one reason why the Romans were always intent on keeping the Parthians out of Armenia, which was traversed by one route (the Araxes) and skirted by the other. Augustus or his advisers were well aware of the commercial situation and were anxious to ensure that Armenia would be passable even if Parthia were not. Hence, perhaps, the enthroning of Tigranes (20 B.C.) and Ariobarzanes (1 B.C.), both friendly towards Rome, as kings of Armenia.

19 The route by sea from India to the Persian Gulf and thence by land to the Mediterranean continued to be used during the Empire. But very early, most probably in the reign of Augustus, Charax Spasinu at the mouth of the Tigris eclipsed Gerrha, the ancient Arabian town which had previously dominated this route. Charax Spasinu was in touch with the overland route of Isidore by a road along the Tigris valley to Seleucia and Ctesiphon, and some Indian goods passed this way to the Mediterranean. 20 But Charax Spasinu was also in direct contact with Petra across the desert, and with Aelana and Petra again by the coastal route round the Arabian peninsula. From Petra the ancient roads to the Mediterranean were still thronged with merchants. The routes beyond Petra, however, were again seldom traversed by Roman subjects. Charax Spasinu itself was a Parthian 21 town and Rome never seriously attempted to control it or its desert commerce, and Petra controlled its routes to the Mediterranean as jealously as those to South Arabia. Even the route round Arabia by sea, although under Augustus fairly safe for Egyptian vessels, does not seem 22 to have attracted Roman subjects, who usually avoided the Persian Gulf, no doubt considering the journey unprofitable when India was so accessible.

Indeed, it must be stressed at this stage that although the land-routes did carry considerable amounts of Indian goods they were principally the channels for trade from Central Asia and China. The sea routes were far more important in the commerce with India, and, as will be shown later,

also carried some of the trade from Central Asia and China, performing in this respect a similar function to the Caspian route. The position was that the land-routes carried far eastern trade with some Indian, whereas the sea routes carried Indian trade with some far eastern.

These, then, were the routes which carried the vastly increased bulk of eastern goods in the time of Augustus, and indeed for the next two centuries and more. Some alterations were made in the routes across the Indian Ocean and Roman mariners extended their frontiers well beyond India over the next 200 years, but in the Near and Middle East the routes were already well established under Augustus and little alteration took place.

The Augustan period produced no work like the *Periplus Maris Erythraei* or the *Naturalis Historia* which has survived. Consequently, in order to discover what products were arriving from the east in the first forty years of the Empire one has to rely on incidental references in the literature of the period. The list from such sources cannot be expected to be exhaustive; nevertheless, most of the typical products of the east which are described more fully in later times do already occur in Augustan writers, a clear indication of the speed at which the trade developed.

For many centuries small quantities of silk had passed along the routes of Central Asia into Persia and even to the Mediterranean. But  
23 under Augustus references to silk suddenly become very numerous. The  
silk arrived from the east at the distribution centres of Antioch,  
24 Palmyra, and Petra; that which came through Petra was usually called  
"Arabian" and was reputedly of very high quality. From these centres it  
25 went to the towns on the coast of Palestine, principally Berytus, Tyre,  
and Sidon, where the silk was rewoven into several different forms, often  
with the addition of linen or wool, and then dyed. The weaving and dying  
industries were, of course, already well established in these towns. It  
is interesting to note that pure, close-woven silk, the form in which the  
material arrived, was not common in Rome. Garments made from silk in this  
form would have been very expensive, although this was hardly an objection  
to their production considering the often rash spending which soon began

to typify high society of the 1st century A.D. The main reason for the reweaving of the silk was undoubtedly the boost it gave to the industries of Palestine. By creating from silk several materials of their own design, the textile craftsmen of the eastern Mediterranean both encouraged the silk trade and invigorated their own industries. Here at least trade with the east was combined with industry within the Empire so as to be economically beneficial to the industry. Further mention will be made of the economic aspects of the silk trade, not all so encouraging, in dealing with the period after Nero.

26 Trade with Arabia was also increased considerably in the early Empire. It has already been pointed out that a large percentage of the trade of the Egyptian ports must have been with Arabia. Various sorts of incense and unguents had long been used in the Roman world, with literary references going back to Plautus, but here again the references increase in the Augustan period. Arabian products arrived either by the sea route along the Red Sea to the Egyptian ports, or by the "incense route" from South Arabia through Medina and Petra to the eastern Mediterranean. The latter was perhaps the more used for the actual Arabian products of incense and myrrh.

Incense and myrrh were probably the only products of Arabia itself, but western merchants did not realise this and were certainly not disillusioned by the Arabs, who carried on a most profitable trade with the west in many commodities from India and East Africa. Such was the state of affairs in the first twenty years or so of Augustus's reign, that is, before the discovery of the use of the monsoons, when most Indian goods must have passed through Arab middlemen, only a relatively small tonnage being brought direct from India along the coastal route; but after this date Egyptian mariners gradually increased the quantity and the number of Indian products transported by the direct route.

However, even at the time of the Periplus and Pliny, and perhaps for the whole period of Rome's eastern trade, the Arabs retained some of the trade in Indian products, probably by some arrangement with the Indian merchants. Their monopoly in precious stones, most of which were ultimately of Indian origin, was lost fairly early, only the name "Arabian" tenaciously remaining. But the bark and tender shoots of the

27 cinnamon plant, which grows only in India and countries further east,  
28 were never traced to their true source, but were obtainable only from  
the Arabs. This was also true of several other commodities, and even  
of a few, such as ebony, which were definitely known to be Indian, but  
were not obtainable there, such was the grip of the Arab middlemen.

At the height of the eastern trade the largest export in tonnage  
from India to the Mediterranean world was pepper. There is no Roman  
reference to it earlier than Horace, although a few references to it in  
Greek from Theophrastus onwards show that pepper must have reached the  
Mediterranean in small quantities from at least the 4th century B.C.  
29 One reference in Horace, however, implies that pepper was already fairly  
easily obtainable, although still classed with incense and perfumes  
("tus et odores, et piper et quicquid chartis amicitur ineptis"). There  
is also one reference to pepper in Ovid. This is all; yet it is sufficient  
to show that even at this time pepper was by no means uncommon, although  
arriving through Arabian middlemen or by the coastal route.

Pearls had always been obtained in the Red Sea, which continued to  
be the source of the cheaper variety during the Empire; but after direct  
contact with India had been firmly established more and more pearls were  
obtained from the Indian ports. In the early Empire, when Barygaza was  
the port most frequently visited, the ultimate source of the pearls was  
probably the Persian Gulf, for it was from here that the merchants of  
30 Barygaza procured them, although some of better quality may have been  
brought from South India and Ceylon, which are still among the chief  
producers.

Tortoise-shell and mother-of-pearl, used mainly for decorative inlay  
work, were products of Malaya and the East Indies, but inferior varieties  
were obtainable elsewhere; in Pliny's day both were acquired in India.  
The use of testudo in the sense of tortoise-shell is found in Virgil and  
31 in Ovid, but also in Cicero, which may indicate a Mediterranean source.  
The use of "concha" in the meaning, apparently, of "pearl" more probably  
32 means "mother-of-pearl". Propertius says it comes from the Red Sea, which  
may have been a more convenient source for the Mediterranean, or may refer  
to an Arabian monopoly. It seems therefore possible that tortoise-shell  
and mother-of-pearl were being brought, if indirectly, from India,

although it may be that the Red Sea or East Africa were the sources under Augustus.

33 Spikenard and other nards are Himalayan plants which were even in pre-Roman times exported to the Near East. In the early Empire period  
34 nard was called Syrian, or Assyrian, which indicates that it came from India by the land route. It seems from the Augustan poets that the use of these aromatic plants in unguents was quite common, but St. John 12. 3 shows that it was still costly, at least for Judaeen peasants.

35 Costus is a similar plant to the nards. It had the advantage of being cheaper. There are several Augustan references to it, showing that it was at least as common as the nards. There is no indication at this time of how costus reached the Mediterranean, but it is quite probable that it followed the same route as nard.

There remain a few objects which arrived in the Roman Empire from the east, but which cannot be regarded as forming a part of the regular oriental trade. The prime examples are the tigers, snakes, and other creatures which are recorded as having been brought by Indian embassies and exhibited by Augustus. Romans may well have seen in some of these beasts good material for the arena, but the expense of transport was  
36 prohibitive, especially when nearby Africa could supply such a variety at a relatively low cost.

37 No Augustan writer makes any mention of how imports from the east were paid for, but fortunately archaeological evidence goes some way in answering the question. In the hoards of Roman coins found in South India a good percentage are from Augustus's reign. This does not necessarily mean that the amount of trade under Augustus was in direct proportion to the finds of coins; and indeed, apart from the obvious fact that coins are used long after the date of minting, there is good reason to believe that a considerable number of the Augustan coins was imported into India somewhat later than A.D. 14 because of the acknowledged reliability of the standard weight. Nevertheless, the fact that the reliable standard of Augustus's coinage was known in India and the evidence of a flourishing trade both lead to the conclusion that at least some, and probably no small percentage of the Augustan coins of South India were imported there

38

between 10 B.C. and A.D. 14. It is true that Roman subjects were not at this period sailing direct to South India, as many did by the time of Nero; but nor was the author of the Periplus, who also sailed in Nero's time. It is more than likely that merchants under Augustus were already following the course described in the Periplus and were coasting south from Barygaza to the Tamil ports of South India, in search of pepper, precious stones, and high quality pearls. But the weakness in the oriental trade which became so apparent under Nero was already in evidence: the Romans had no commodity of comparable value which they could exchange for the luxury products of the Deccan, and so the large balance was made up in imperial coinage.

Roman products did, however, make their way to India as a supplement to the coinage. Under Augustus the glass industry in Syria and Alexandria had begun to expand greatly, in part because of the discovery of glass-blowing instead of the old method of moulding. High quality glassware quickly spread over the whole of the Empire, and although there is no definite evidence for its export to the east in the time of Augustus, later finds and references indicate that glass was exported in considerable quantities. There can be little doubt that the trade was already well developed under Augustus. The same argument can also be applied to the export of Samian ware, wines, linen, and coral, but all will be treated more fully in dealing with the period from which the evidence comes.

In summary, trade between the Roman Empire and the east began to increase rapidly on the accession of Augustus. The land route to Central Asia was surveyed across Parthia, although seldom traversed by Roman merchants, and an alternative route to the north of Parthia, across the Caspian and the Black Sea, was known, and efforts were made to ensure the peace of Armenia at the eastern end of this route in case the Parthian route should become impassable. But the greatest development was in the Indian trade. Vessels were sent direct from Egypt to India by the coastal route from the beginning of Augustus's reign, and embassies soon arrived in the Roman Empire from India; but about 10 B.C. the monsoon route to North India was discovered. This, far more than the use of the

coastal route, which was long and costly, brought to an end many of the monopolies which the Arabs of South Arabia had in Indian products. Direct trade between the Mediterranean and India continued to increase, with the South Indian ports now also within the range of Egyptian vessels by a coastal voyage from Barygaza. Products from the Empire, especially the eastern provinces, were used to pay for some of the Indian commerce, but the drain of specie, later to be the cause of so much concern, had already begun in order to make up the balance of trade.

III. FROM TIBERIUS TO NERO (See sketch-map III)

The reigns of Tiberius, Gaius, and Claudius were not conducive to literary production. What little has survived tends to be insipid and has only a limited value as a source for history. However, the political history of the period is well covered by later authors, notably Tacitus, Cassius Dio, and Suetonius, but unfortunately the social history is still largely left to be inferred. From the point of view of the eastern trade a few details emerge, sufficient indeed to show that the trade continued to flourish at least at the Augustan level, but not enough to give a fully integrated picture of the whole commerce.

On the eastern frontier the instability of Parthia and Armenia continued to be very much in evidence, necessitating military action by Tiberius in A.D. 34, which brought a temporary solution lasting until Nero's reign. It is significant that the Caucasian tribes of the Iberi and Albani were client states under Tiberius, revealing a continuation of Augustus' policy of ensuring as far as possible a free passage along the Caspian route.

Tacitus, however, does give one very relevant piece of information which directly concerns the economics of the oriental trade, mentioning for the first time the loss of currency to the east which was quickly becoming a serious problem for the Empire. Tacitus records that Tiberius denounced extravagance in the Roman upper classes and pointed out that luxuries were being paid for with Roman coin. It will be seen later that the situation was to reach crisis proportions before action was taken.

One of Gaius' actions on the eastern frontier was to restore Commagene, with its town of Samosata, an important Euphrates crossing, to the son of the former king, on whose death Tiberius had annexed the country. This move cannot have pleased the merchants of the eastern provinces who would lose the Euphrates crossing they had only just gained. But Gaius later changed his mind and deposed his protégé.

Gaius' extravagance was notorious, but at least it is an indication that eastern products were still entering the Empire in considerable quantity. Suetonius states that Gaius drank pearls dissolved in vinegar, wore silk and a cloak encrusted with precious stones, and gave his horse



2 an ivory stall and a jewelled collar.

3 Claudius had more sober tastes, his only pretence to luxurious  
4 apparel being a liking for sardonyxes. His policy in the east included  
5 the building of roads, especially in Asia Minor, possibly stationing a  
6 legion at Zeugma, the main Euphrates crossing, and, for some reason  
which is not clear, perhaps simply out of a sense of justice, restoring  
Commagene for a second time to its king.

5 Pliny records that Claudius received an embassy from Ceylon  
(dated c. A.D. 40), although as far as is known at present Roman vessels  
did not trade direct with Ceylon until the 2nd century A.D. Pliny  
connects this embassy with the accidental visit to Ceylon of a freedman  
of a certain Annius Plocamus, the tax-gatherer in charge of the Red Sea  
revenues. This man was blown off course while sailing round Arabia and  
arrived after fifteen days in Ceylon. The king of Ceylon was impressed  
by the standard of the coinage carried by the Roman and decided to send  
an embassy to his country. This account of Pliny's has been quoted as  
evidence that the use of the monsoons was not yet known to Roman  
mariners in Claudius' time, but this conclusion is scarcely valid. All  
Pliny's account implies is that the use of the monsoons to sail to South  
India or Ceylon was not known in Claudius' time, which was indeed  
undoubtedly true, for this was the last discovery to be made by Romans  
in sailing to India. Pliny himself implies that this occurred not long  
before his time (see above<sup>p. 2</sup>). The freedman of Annius Plocamus may well  
6 have known the use of the monsoons in sailing to the Indian ports  
further north.

Nero's reign is important in the study of the development of the  
trade with the east, for to this period belongs the unique *Periplus Maris  
Erythraei*. But before this work is considered, mention must be made of  
the facts that can be gleaned from the more literary works. In Parthia  
and Armenia there was further unrest, which had already been smouldering  
towards the end of Claudius' reign. Nero did eventually reach a  
settlement in A.D. 66, in spite of military inefficiency, although it  
meant accepting a Parthian nominee, Tiridates, as king of Armenia.  
At least hostilities were stopped, and friendly relations continued

7 almost unbroken for another half-century.

The uncertain relationship which existed between Rome and Parthia during the early Empire, and the confused state into which Parthia itself not infrequently lapsed may be regarded as factors in the development of the sea routes. Had Rome and Parthia been at peace the land route might have been used far more than it was. Peace all along the overland route to India might have cut down costs to a figure which would have made it competitive with the sea routes. As it was, even some of the Chinese trade, the staple of the overland route, was diverted  
8 into India and continued to Rome by sea.

References to excessive luxury in Nero's reign, a good sign of a flourishing oriental trade, and to Nero's own extravagance are numerous. Pliny on several occasions expressed disapproval of eastern luxuries. He comments that India "lucro... admota est", that silk is sought "ut in publico matrona traluceat", and that India took away from the Empire annually not less than 55 million sesterces, with the Chinese and Arabs taking another 45 million - "tanti nobis deliciae et feminae constant". Seneca makes a similar comment about silk: "Video sericas vestes, si vestes vocandae sunt, in quibus nihil est quo defendi aut corpus aut denique pudor possit". But Seneca could scarcely complain of the expense; he himself possessed 500 tables embellished with ivory legs. Petronius  
9 speaks of costly Indian pearls, emeralds, crystals, rubies, and muslins, the vulgar display of women. From such comments as these it is clear that by the time of Nero oriental goods were flowing into the Roman Empire in unprecedented quantities.

As the quantity of Indian goods entering the Empire increased the balance of payments situation worsened. Tiberius' warning had no effect; gold and silver were still leaving the Empire in increasing amounts. The mines in the western provinces could not keep pace with the demand and in A.D. 64 Nero was forced to debase the coinage. This not only helped the financial collapse within the Empire but also shook the Indians, who would not accept the new debased coinage. The older coins no doubt continued to be used for a time in payment for Indian goods, but after Nero the commerce had to be reorganised on a more economic basis.

Although Nero's reign was not productive in the field of historical writing, it did give rise to two works of value in the study of the trade with the east. The *Naturalis Historia* of the Elder Pliny (actually published after Nero's death - see note 64), to which references have already been made, contains information about the products of the east, and some details about navigation and geography, the last unfortunately somewhat unreliable. The *Periplus Maris Erythraei* would, however, as Wheeler has pointed out, still preserve a clear and comprehensive account of Rome's commerce with the east, even if all other sources were lost. This work is a merchant's handbook written in Greek and dealing with the sea trade from Alexandria to India.

The date of the composition of the *Periplus* is now more or less agreed. The arguments are listed by Schoff in the introduction to his edition of the *Periplus* (Longmans, 1912), his conclusion being that the work was written during the reign of Nero, probably between A.D. 58 and 62. He is perhaps too precise in his dating, for he bases the final figure on the lack of detail in the *Periplus* about the Persian Gulf, arguing that the author did not visit the Gulf because of hostilities at the time between Rome and Parthia. But it has already been pointed out that relatively few Roman vessels visited the Persian Gulf in the early Empire, since India was now so accessible and the trip there was likely to be far more profitable; besides, the traffic round Arabia from the Persian Gulf to Aelana seems to have been an Arab monopoly, probably partly controlled by Petra, until at least the end of the first century A.D. It is true that under Augustus the route round Arabia was surveyed, but during the first century A.D. Roman vessels seem to have avoided this route. Nevertheless, the date of the *Periplus* can be set with confidence between A.D. 46 (the accession of king Malichas of Petra - see Schoff, Introduction), and 64, when the political and financial plight of the Empire must have begun to make themselves felt in the sphere of commerce.

The development of international commerce is determined not only by geographical features but also by political factors, and this was no less true in the ancient world than it is now. The author of the *Periplus*

was very much alive to the large part played by politics in commerce, for success in his trade depended in no small degree on his understanding of the political situation in the regions he visited. He needed to know the geographical limits of a ruler's power, the system of tariffs, the effectiveness of the authorities, the risks of piracy and of robbery in the ports. He made for the parts of stable kingdoms, and avoided regions of anarchy or barbarism. Indeed, the details of his course were determined by political factors within the wider geographical and ecological context of the Near and Middle East.

11 \*The route of the Periplus starts with the two Egyptian ports of Myos Hormos and Berenike,<sup>[1]</sup> which were "set apart" (*ἀποδεδειγμένως*) for some purpose, presumably as official entrance ports for eastern goods, where customs dues could be uniformly enforced. As one proceeded down the coast of Africa, the first major power to be met with was the kingdom of the Axumites with its port of Adulis<sup>[4]</sup> and its inland capital of Axum ("the city of the people called Axumites"). This power appears to have been already on the increase in Augustus' time, but this is the first reference to their city of Axum. Their power at this time stretched, according to the Periplus, from "the Calf-eaters to the Berber Country,"<sup>[5]</sup> that is from about 20°N (about half way along the west coast of the Red Sea) to Bab-el-Mandeb, or perhaps a little beyond. Their king was Zoscales, "miserly in his ways, and always striving for more, but  
12 otherwise upright and acquainted with Greek literature", who may be the Za Hakale mentioned in Abyssinian chronicles as reigning, according to Salt's calculation c.A.D. 76-89. These chronicles were, however, compiled after the country was converted to Christianity c. A.D. 330, and are therefore not sufficiently reliable to fix a date at all accurately  
13 as far back as this. Schoff has suggested moving Za Hakale three places up in the list of monarchs, which would give the date of accession as A.D. 59; but the fault is probably far more complex than this. It is interesting to note that Meroe, capital of queen Candace who caused trouble in Augustus' reign, is mentioned no more than by the way in the

\*References to chapters in the Periplus are given in the text in square brackets.

Periplus,<sup>[2]</sup> and does not enter at all into the commerce of the area.

11 The Periplus calls Adulis an ἐμπόριον νόμιμον which perhaps means  
"a trading place where traders are protected by law". This would  
certainly mark it off from other ports on the Red Sea outside Egypt,  
most of which had a reputation for violence and double-dealing. From the  
import and export list given in the Periplus<sup>[6]</sup> it is clear that Adulis  
was a very flourishing mart, trading both with Egypt and India. It is  
significant that the imports from India to the Axumite kingdom were  
almost exclusively articles of everyday use; no luxury trade from India  
seems to have passed through Adulis. This is probably explained by the  
fact that Axum was a relatively new power and did not share in the trade  
secrets concerning certain items in the Indian luxury commerce which the  
Arabs had managed to retain even after their monopoly had been broken by  
14 the Roman discovery of the monsoons. In fact only three items of export  
from Adulis are mentioned, ivory, tortoise-shell, and rhinoceros-horn,  
articles of luxury in themselves and amply balancing the long import list  
of clothing, base-metals, and ornaments, but all native products. As far  
as Rome's economy was concerned, trade with Adulis was on a sound basis,  
for although the exports of Adulis were luxury products, at least they  
were paid for in fairly cheap Empire products and not in precious metals.

The "far-side" ports,<sup>[7-14]</sup> that is those on the Horn of Africa, were  
apparently independent, each town having its own king.<sup>[14]</sup> Native products  
were chiefly ivory, tortoise-shell, and various kinds of frankincense  
and myrrh, which were exchanged mostly for Roman glass, cloth, and wine.  
The Periplus adds that ships came regularly "from Ariaca (North India)  
and Barygaza, bringing to these far-side market towns the products of  
their own places; wheat, rice, clarified butter, sesame oil, cotton cloth,  
and girdles, and honey from the reed called sacchari".<sup>[14]</sup> To this list of  
goods, which were apparently for local consumption, can be added not only  
Indian copal (a dye) and macir (a medicinal root) which were passed on to  
Arabia,<sup>[8]</sup> but also the cinnamon and casia which features in the export lists  
of all the far-side ports except Avalites, and for which Opone seems to  
have been especially noted. The fact that cinnamon was an Indian product  
was never revealed. There were other secrets of this sort, but cinnamon  
was undoubtedly the biggest asset to the middlemen. These ports, dotted

round the Horn of Africa, although not formed into one kingdom, were ideally situated to act as middlemen in the Mediterranean-Indian trade. The very existence of such a number of independent ports in this region testifies to the volume of trade which passed through Bab-el-Mandeb.

15 Rhapta,<sup>[16]</sup> the furthest town to the south along the coast of East Africa is probably to be equated with modern Dar-es-Salaam. The political situation here as described in the Periplus is most interesting, showing the extent of Arab expansion at this period. For Rhapta was under the control of the Red Sea port of Muza. From the details given in the Periplus this East African port was a veritable gold-mine for traders, although the Arabs kept as much of the trade as possible for themselves. Rhapta and its neighbourhood produced "a great quantity of ivory", although inferior to that of Adulis, "and rhinoceros-horn and tortoise-shell, which is in best demand after that from India"<sup>[17]</sup>. Yet the imports smack of exploitation of the savage but naive inhabitants: "... the lances made at Muza especially for this trade, and hatchets and daggers and awls, and various kinds of glass; and at some places a little wine and wheat, not for trade, but to serve for getting the good-will of the savages"<sup>[17]</sup>. The techniques were still the same 1800 years later.

Returning to the eastern side of the Red Sea the author of the Periplus first describes the port of Leuce Come,<sup>[19]</sup> "a harbour and fortified place... from which there is a road to Petra, which is subject to Malichas, king of the Nabataeans". It is perhaps unfortunate that the author of the Periplus was concerned almost solely with the sea trade to and from Egypt, and therefore no more than mentions Petra with which he would have no dealings; yet the importance of this city calls for some assessment of its place in the oriental trade.

16 The geographical setting of the city, its remains, and occasional references to its political power (especially in Josephus) and its trade show that Petra continued to play a large part in the eastern trade both by land, and by sea, and perhaps early in the Empire even diverted some of the trade of the Egyptian Red Sea ports to its own markets. Ammianus Marcellinus, writing in the 4th century but referring to an earlier period, says that Petra was "opima varietate commerciorum

17 castrisque <sup>p</sup>opleta validis et castellis". Pliny, too, gives some account of the city and its strong position, but his inaccurate distances from Petra to Palmyra and Gaza show that the city was by no means well known to Romans outside the merchant fraternity. Archaeological discoveries, although extensive in the form of temples and fortresses, throw little light on the trade passing through Petra, except in that the city was clearly exceedingly prosperous, and this prosperity can only have come through trade. It is indeed scarcely surprising that few indications of trade have been found, for Petra's main retail commodities were incense, myrrh, and silk, all perishable commodities.

One further point mentioned in the Periplus, however, may be directly concerned with Petra. The author says of Leuce Come that a centurion (ἐκκρονοῦντος) was stationed there as a collector of one fourth of the merchandise imported, with an armed force as a garrison. This tax was for those times prohibitive. Its only result can have been to drive the trade to the Egyptian ports on the Red Sea. Seen in this light the tax must have been a Roman imposition, enforced by a Roman centurion with a military garrison. Charlesworth has shown that it was by no means impossible for Roman troops to be garrisoned in the territory of a client kingdom. This explanation of the tax, however, leaves unexplained the apparent passiveness of the Nabataeans, who seem here to be acting very much out of character. The answer may lie in Petra's silk trade, which seems to have become an important part of its commerce with the west in the early Empire. It could be, although there is no direct evidence, that Petra had some sort of privileged position in retailing silk to the west, but paid for this concession by giving up rights to trade by sea in certain eastern goods from Arabia and perhaps beyond. The tax may even date from Augustus' reign.

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After a survey of the dangers of the harbourless and thoroughly inhospitable eastern shore of the Red Sea,<sup>[20]</sup> the author of the Periplus describes the port of Muza<sup>[21]</sup> in Arabia, some 70 miles inside Bab-el-Mandeb, whose influence as far south as Rhapta has already been mentioned. The city also traded with Barygaza, and probably had done for some centuries. Its prosperity had clearly not declined appreciably as a result of Rome's direct trade with India, but it is perhaps significant that western traders

had to pay quite heavily in the form of gifts to the king and local chief for the right to trade there,<sup>[24]</sup> in spite of the fact that the "lawful king", Charibael, who lived some way inland at Saphar, was "a friend of the emperors"<sup>[23]</sup>. Although there was still, perhaps, a certain mistrust, nevertheless the Arabs had by now realised that it was not good policy to try to prevent Roman trade with India, and trade with the Romans could still continue quite profitably in the local aromatics, with the occasional Indian product whose origin was carefully concealed. The Arabs received in return an ample supply of various cloths and ready-made garments from the looms of Syria and Egypt. There is no mention of any import of money, so it seems a good balance of trade was preserved.<sup>[24]</sup>

Some 400 miles eastwards along the southern coast of Arabia was the kingdom of Eleazus, the "Frankincense Country", with its ports of Cana and Moscha, and its capital and incense storage centre of Sabbathah.<sup>[27-32]</sup> Frankincense was one of the most precious articles of commerce in the ancient world. Its use in the Roman Empire was widespread, especially in funeral ceremonies, a practice whose extravagance was deprecated by Pliny. But this fragrant resin had been known and used for a long time in the Mediterranean world. Worshippers in Greek and Roman temples had long been acquainted with its odour, and the offering at Bethlehem shows that it was an accepted mark of divinity. But the increase in trade with the east after the accession of Augustus brought frankincense into the Empire in greatly increased quantities, with the results which occasioned Pliny's outburst. The trade in frankincense clearly became very profitable both for the producers and for Roman merchants engaged in its transport. The author of the Periplus, who must himself have been engaged in this trade, reveals something of the organisation of the production and marketing of the resin, and of the severe restrictions with which the trade was bound. Eleazus ruled quite an extensive tract of land along the southern coast of Arabia, and in addition the island of Socotra. The more easterly port of Moscha, being closer to the chief frankincense producing regions of Dhofar and Jenaba, specialised in the much sought after Sachalitic incense, a product of the area. The author goes on to say that frankincense lay in heaps all over this area, quite



open and unguarded, "for neither openly nor by stealth can it be loaded on board ship without the king's permission; if a single grain were loaded without this, the ship would not clear the harbour".<sup>[32]</sup> The customs officials were, it seems, ruthlessly efficient.

24 Pliny also has an account of the production of frankincense in this region, which agrees in all essentials with the account in the Periplus, Pliny's information doubtless came, if not from the writer of the Periplus, at least from some similar person with first hand knowledge of the area.

Both the ports of Eleazus carried on trade with India. Seen in this context the western imports of the two ports of the Frankincense Country are an interesting collection.<sup>[28]</sup> First of all "a little wheat and wine, as at Muza", clearly for immediate local consumption; then "clothing in the Arabian style, plain and common, and most of it spurious" - low quality garments for the populace; but now "copper and tin and coral and storax" (a resin used in medicine; see below), a very different group from the other two. Storax and coral were not imported at any other Arabian port mentioned in the Periplus; copper and tin are mentioned, but either "in small quantities" or, in the case of Adulis, with an explanation that the metal was imported solely for local use. On the whole, metal was not much sought after by Arabs, and storax and coral apparently not at all, except here. Yet here copper and tin together with storax and coral not only feature in the list, but must have been imported in considerable bulk, since they are the only commodities likely to have been of sufficient value to pay for the frankincense; for certainly a little wheat and wine and a heap of low quality garments would only pay for a minute percentage of the incense. It seems that the Arabs of the Frankincense Country, needing for themselves little of what western traders had to offer, took in exchange for their frankincense western products which they knew they could sell profitably in Indian ports. The Periplus makes it clear that these materials were a regular part of western cargoes going to India. Apparently the Arabs too took their share in this commerce, adding these profitable Mediterranean products to their regular export of frankincense.

Eleazus' island of Socotra (anciently Dioscorida) was, and still is a somewhat inhospitable land. The inhabitants, the Periplus says, were

few, being a mixture of Arabs, Indians, and Greeks who had emigrated to carry on trade there. They lived on the north coast, which was the most convenient position for intercepting the Indian traffic which passed across the north of the island in and out of Bab-el-Mandeb. Doubtless Indians and Arabs had frequented this convenient island for several centuries, but Greeks were, of course, relative newcomers. Their acceptance in this trading-post island is good evidence of the mutual benefits which had resulted from the mercantile expansion of the Empire.

The island itself was not completely unproductive. Several types of tortoise flourished, and cinnabar (here the vegetable product, the exudation of *Dracaena Cinnabari*) was to be found. This was exported together with tortoise shells, some of which were made whole into small plates and the like.<sup>[30]</sup>

The domains of Eleazus were indeed extensive, orderly, and flourishing. This is the sort of area which would attract trade from all quarters, especially when one of the commodities to be had was frankincense. The establishment of a stable kingdom such as this was no small factor in the development of Rome's trade with the east.

25 Although the author of the *Periplus* was clearly not well acquainted personally with the Persian Gulf he does mention one point which throws some light on the commerce of the Gulf. He says that the ports of Apologus and Ommana in the Persian Gulf both receive sandalwood, teakwood, blackwood, and ebony from Barygaza.<sup>[36]</sup> The last three timbers had been  
26 known for some time in the west (this is the first mention of sandalwood in a western writer, but it was known to the Hebrews); yet, although the author of the *Periplus* obviously knew the source of these timbers, there is no mention of Roman vessels taking timber from India, or for that matter from anywhere else. The timber must have been a Gulf monopoly, and was passed on to the Empire overland from there.

The voyage eastwards now reaches North-west India. The first port of any importance is Barbaricon,<sup>[38]</sup> situated in Scythian territory and controlled from the inland capital of Minnagara. The Scythians (Sakas) of North India were at this time at a cross-roads in their history. Their last powerful monarch, Gondopharnes, supposedly the king to whose court Saint Thomas journeyed, had recently died, and the country had

quickly fallen into the hands of various Parthian regents who were struggling amongst themselves for power, or as the Periplus puts it, "are constantly driving each other out".<sup>[38]</sup> But a more formidable enemy was still waiting in the north, having already conquered the upper Indus valley and Kashmir. This enemy was the Kushans, who towards the end of the first century swept down into North India and occupied the whole of the Punjab. It is in this interim period that the situation described in the Periplus seems to fit.

Nevertheless, trade was certainly flourishing at the port of Barbaricon. The list of exports and imports is a very varied one requiring some comment. Imports are:<sup>[39]</sup> "a great deal of thin clothing, and a little spurious; figured linens"; such commodities have already been noted before as imports into Arabian ports. Egypt produced large quantities of linen and clothing from the looms of Alexandria and its neighbourhood, and these formed one of the staples, albeit not a startlingly profitable one, of the eastern trade. But the demand was constant and western merchants doubtless regarded linens as a good, steady line. Next in the list comes topaz, a stone found in abundance in the Red Sea and forming part of the import from that area into the Roman Empire. Western vessels no doubt found this gem profitable both at Indian and Mediterranean ports. Coral follows, that is the red coral of the Western Mediterranean, one of the principal assets of the Roman Empire in its trade with the east. Pliny observes with some surprise that coral was as highly prized in India as were pearls at Rome. It was indeed very fortunate for Roman trade with India that this was so, for it was coral which, more than any other single commodity, helped to pay for the luxury products brought back from India. The list is completed with storax, frankincense, vessels of glass, silver and gold plate, and a little wine. Storax is the sap of *Liquidambar orientalis*, a tree of south-west Asia Minor. Schoff describes the substance as "an expectorant and stimulant, used in chronic bronchial infections". It is interesting to see a medicine being exported instead of imported by the Roman Empire. Frankincense was, of course, picked up in the Arabian ports and resold, although this was probably only in small quantities. Vessels of glass

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30 were a common and quite profitable export from the Empire. Roman glassware has in fact been found almost everywhere where Romans are known to have carried on trade. Silver and gold plate were not uncommon Roman exports to the east, but they may have been used partly as bullion. Wine, although never in large quantities, was quite a common Italian export. Whether the cost of transport was refunded on the sale price is doubtful, but it may well have been purely for the consumption of local merchants, or a present for officialdom.

The exports make up an equally varied list. Costus, bdellium, lycium, and nard come first, all aromatics. Costus, the chopped root of *Saussurea lappa*, a plant growing chiefly in the uplands of Kashmir, was used in the Roman Empire both as a culinary spice and as a perfume. Bdellium is the gum of the small tree *Balsamodendron mukul*, coming mainly from the Indus valley. As with most resinous gums, its main use was as an incense. Lycium is a yellow substance derived from certain varieties of the barberry plant found in the Himalayas. Both a dye and a medicine could be produced from the plant. Nard is the root of the ginger-grass, found fairly generally across Persia and India. An oil was made from the root and used in medicine and perfumes. There follow next two precious stones, turquoise and lapis lazuli. Turquoise is found in N. Persia and was presumably brought down through Afghanistan and along the Indus to  
31 Barbaricon. Pliny says the stone came from "the countries lying behind India". Lapis lazuli (as all commentators agree the ~~σαπφειρος~~ *sappheiros* of the ancients must have been, and not our sapphire) is found in India, but also in Central Asia. The latter source is just as likely as the other, for the next item on the export list is Seric skins. It has been doubted whether these skins could have been truly "Seric", that is Chinese in the wider sense, including products of Tibet and Turkestan; but Pliny says that the Seres sent iron (doubtful but the point is not relevant here) "cum vestibus suis pellibusque" and again, "in tergo (maximum est pretium)  
32 pellibus quas Seres inficiunt" - ample support for this statement in the Periplus. The route from Central Asia across the Pamirs and down into the  
33 Indus valley was an ancient and much used one.

Together with Seric skins in the list is silk yarn. This was, of

course, of Chinese origin and came by the same route as the skins, but this was not the normal channel for the silk trade, which usually went by land across Parthia. There must always have been a certain amount of silk coming this way into India for the use of the Indians themselves, but as far as Romans were concerned this, like the Caspian route, was a convenient alternative to the Parthian route, especially when, as in Nero's reign, perhaps at the time of the Periplus, Rome and Parthia were at war.

Two commodities remain, cotton cloth and indigo. The cotton cloth is probably muslin, which has long been a staple product of the Punjab and Sind. Indigo (Ἰνδικόν) valued in the west as a dye and a medicine, is produced from various species of plants classed as Indigofera and found in India and elsewhere in the tropics.

Clearly Barbaricon was an active mercantile city. Although it was not engaged in the pearl of pepper traffic it was nevertheless a worthwhile mart for western vessels, especially because of its contact with Central Asia and China.

The next port was Barygaza, <sup>[40-51]</sup> a larger mart than Barbaricon and the main port of call for western vessels in North India. The approach to the port was, and still is extremely difficult, but a pilot service was provided for incoming vessels by the king of the country. <sup>[43-44]</sup> This king was a Saka, but was quite independent of his Saka colleagues to the north-west. The political situation in India at this time is only sketchily known, but it seems that the Saka kingdom of Gujarat with Barygaza as its main port was having more success than its kinsmen in the Indus valley. It will be seen later that the Gujarat Sakas were even making inroads into the large but weakening Andhra kingdom which stretched across the peninsula to the south.

As at Barbaricon the export list <sup>[49]</sup> includes costus, bdellium, lycium, and cotton cloth, which were regular exports from all North Indian ports. Silk was also exported at Barygaza, but here it was silk cloth and not the yarn; the trade was subject to the same conditions as at Barbaricon. Apart from these items the Barygaza export list is significantly different from that of Barbaricon. First on the list is spikenard, or leaf nard,

35 the product of a Himalayan plant, much valued in Rome. It is not clear why this plant was on sale at Barygaza and not at Barbaricon, for it was brought from the Kashmir region, as the author of the Periplus knew: "Through this same region (Ozene, inland from Barygaza) and from the upper country is brought the spikenard that comes through Poclais (Gandhara, the Punjab)".

Ivory also features on the list. References to "Indian" ivory (if the use of the adjective can be trusted) are common from the opening of the Empire, and Pliny says Indian ivory was still entering the Empire in  
36 quantity, whereas other sources were failing. This was probably due in part to the superior organisation of the Indian trade, and the tendency of western vessels to make for India with its additional attractions rather than the African coast.

The list includes two precious stones, the text being *ὄνυχινη λιθία καὶ μουρρίνη*. Schoff suggests that these must be carnelian and agate, found in the upper Narbada valley, about 400 miles to the east of Barygaza. This would fit with the statement in the Periplus (48) that the stones came from Ozene to the north-west of Barygaza, although some also came from Paethana in the Andhra kingdom. Schoff further notes in support of his view Pliny's description of myrrhine ware and suggests that the  
37 vessels were in fact agate.

Mallow cloth (and the yarn mentioned, if it is mallow cloth yarn) also came from Ozene, and some from even further afield. This seems an odd export to the west (the Periplus specifically says "for our trade"), since mallow cloth was a coarse fabric resembling modern blue drill; but the material never reached the Mediterranean; it was sold to the Axumites  
38 at Adulis and the neighbouring ports where there was a demand for all types of cloth.

Last on the list is long pepper, not a product of Barygaza, but coming from the hotter regions to the east and south. This is not the pepper now familiar as seasoning, but a plant of the same genus used in medicine.

In payment for these products Roman vessels took to Barygaza several of the items listed as imports at Barbaricon. Here again were imported

thin clothing of various sorts, topaz, coral, glass, storax and wine, but this time the latter in some quantity, for Italian, Laodicean, and Arabian wines were brought, although Italian was preferred.

There were, however, on the import side too several significant changes from the Barbaricon imports. At Barygaza copper, tin, and lead are included on the list. Peninsular India, although producing some copper itself, did not have sufficient supplies of these metals for its own needs, and had to rely on the west. The metals were used, not for utensils and ornaments as at Adulis, but for the production of the Saka coinage, or simply as bullion. Lead had certain medicinal uses, but this would account for only a small fraction of the lead imports. The Sakas of Barygaza were commercially in advance of their neighbours at Barbaricon, for they had seen the advantage of a uniform official coinage.

Of purely medicinal use were realgar and antimony, the former being arsenic sulphide and used mainly as an antiseptic, the latter the element in one of its ores used in ointments. If it is to be understood from the Periplus that these substances were taken to India by Roman vessels, then the situation is rather like the frankincense trade with Barbaricon; for both these medicaments are Persian products, acquired by western merchants perhaps in Arabian ports. Sweet clover, yet another medicine, although also used as a perfume, is a Mediterranean product, the best, according to Pliny, coming from Campania, Cape Sunium, Calchidice, and Crete.

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The list also includes "gold and silver coin, on which there is a profit when exchanged for the money of the country", the first mention of Roman currency used in the Indian trade. The merchants may well have found the exchange of coinage profitable, but as far as the Roman Empire as a whole was concerned the coinage was nevertheless being lost.

Finally, "for the King, there are brought into those places very costly vessels of silver, singing boys, beautiful maidens for the harem, fine wines, thin clothing of the finest weaves, and the choicest ointments". Presents were also taken to the kings of Muza and Cana, but not on this scale. This list only supports what is obvious from the rest of the account of Barygaza: it was for the author of the Periplus the most important single port on the whole of the Indian trip. Twelve chapters are devoted to its approaches, its trade, its hinterland, and its

supply routes. The author's knowledge of the region - and it is accurate knowledge - is very advanced for this period, and reveals a level of communication which was not usually reached reached between westerners and orientals until relatively recently. How the language barrier was surmounted is a matter of conjecture, but the information gathered by the author of the Periplus furnishes ample evidence that communication went beyond the normal limits of the bazaar. A glimpse of a certain familiarity with the local language is given when the author correctly infers the etymology of Dachinabades, the Deccan, from the Prakrit word for "south".<sup>[50]</sup> From acquaintances at Barygaza the author learned a considerable amount about India. He knew of Ozene (modern Ujjain, the Greek coming from the Prakrit form Ujjeni) to the east of Barygaza, where several products for the western trade were acquired. He had also picked up the information that it had once been a capital city of the earlier Maurya dynasty. He knew of the regions to the north as far as the Hindu Kush, from where the spikenard came. He had heard of deserts and mountains to the east, and of the leopards, tigers, elephants, snakes, hyenas, and baboons which inhabited them; and of "the many populous nations, as far as the Ganges".<sup>[50]</sup> He knew of the cities of Tagara and Paethana to the south-east of Barygaza, the two main cities of the Andhra kingdom. Since the Andhra port of Calliena, their usual outlet, was now closed by a Saka blockade (see below) the carnelian and cloth from these two centres and even goods passing through them from the east coast came to Barygaza: the weak Andhra control did not even extend to merchants within the kingdom.

At Barygaza, as at Cana and the rest of Eleazus' kingdom, Roman merchants found a highly organised and flourishing state where traders were welcomed, were assured of safe conduct, and could do profitable business. Commerce at Barygaza was carried on in a civilised fashion, and the congenial atmosphere encouraged the unhindered give and take of information about geography, politics, and trade.

Sailing southwards along the coast from Barygaza one reached the large kingdom of the Andhras, a people of eastern India who some three centuries before had extended their power across the peninsula to the



western coast. By the time of the Periplus their power in the west was waning before the southward expansion of the Sakas of Gujarat who finally annexed their western coastal possessions c.A.D. 78. The situation a short time before this annexation is portrayed in the Periplus. The author knew the "local" ports (ἐμπορικὰ τοπικὰ) [52-53] of the Andhras only by name; presumably he had seldom, if ever, visited them. The only port singled out for further comment is Calliena, "which in the time of the elder Saraganus became a lawful market town (ἐμποριον ἐνθρονον), but since it came into the possession of Sandares the port is much obstructed, and Greek ships landing there may chance to be taken to Barygaza under guard" [50]. To the author of the Periplus this was clearly an important matter. This port had formerly been the centre of foreign trade on the western seaboard of the Andhra kingdom, and had doubtless been visited fairly frequently by western vessels. Now the Sakas were blockading Calliena and forcing foreign vessels to trade at their own port of Barygaza. As far as western merchants were concerned trade with the Andhras had now ceased.

To the south of the Andhra kingdom were the three Tamil states which occupied the lower part of the peninsula south of latitude 13° - 14° N. The whole area went by the name of Damirica, "the country of the Tamils". The Kerala kingdom occupied the western coast from the Andhra boundary to within 150 miles of Cape Comorin. The southern tip of the peninsula was the territory of the Pandyas, and the Cholas held the eastern coast. Only the first two were known to the author of the Periplus, who had never been beyond Cape Comorin. The Keralas had three ports, Naura, Tyndis, and Muziris, the last being by far the most important, abounding in "ships sent there with cargoes from Arabia, and by the Greeks" [54]. In the Pandyan kingdom were the two ports of Nelcynda and Bacare, the latter on the coast at the mouth of a river (perhaps the Achenkoil), and probably no more than a loading depot for the former, which was situated some 12 - 15 miles up the river, and equal in importance to Muziris.

It was from these Tamil ports that the bulk of the luxury goods reached the Roman Empire. The Periplus does not distinguish between the ports in listing the imports and exports; presumably they all shared in substantially the same trade. [56] By far the most important items in the trade were pepper, malabathrum, pearls, and precious stones. Pepper was

undoubtedly the key commodity in the eastern sea trade, and Schoff is probably correct in saying that perhaps three-quarters of the total bulk of an average west-bound cargo (at least from South India) consisted of pepper. Pliny gives some information about its price and its use in Rome. Black pepper fetched four denarii a pound in the Vicus Unguentarius, white seven denarii, and long pepper (usually used for medicinal purposes) fifteen denarii. This means that an ounce of black pepper would sell at about five to six asses (the Roman pound being twelve ounces), well within the reach of the top half of Roman society. The increasing number of references to pepper in writers of the first century A.D., especially in such authors as Martial and Juvenal, show that pepper was by no means limited to the wealthy. The vast quantities which are known from the Periplus to have left the ports of South India are well authenticated by references to its everyday use in the Mediterranean world.

Pepper was grown quite extensively over the southern half of the Indian peninsula. The Periplus appears to contradict this in the statement that pepper "is produced in quantity in only one region near these markets, a district called Cottonara"; but it has been suggested that Cottonara represents the Malayalam "kodu nadu" meaning "mountain district", and that the author of the Periplus, being unfamiliar with the language, took this for a place name.

Malabathrum ( $\mu\epsilon\lambda\alpha\beta\alpha\theta\rho\sigma$ , probably from the Sanskrit patra, a leaf) was the leaf of several varieties of cinnamon. This and spikenard were the two most treasured ingredients of the ointments and perfumes of the Roman Empire, and the demand for both commodities was consequently great. But the fact that Roman merchants were able to buy malabathrum quite freely in the ports of South India reveals a curious aspect of the eastern trade. Malabathrum, cassia, and cinnamon are products of the same plant, which is common in India, Ceylon, and further east. Roman merchants, however, as has been already stated, were able to buy cinnamon and cassia (the flower-tips, and the bark and wood of the plant) only in the ports of Africa and Arabia. This trade secret is now seen to be all the more remarkable in that Roman merchants were actually buying one part of the plant in India, near to the source of the product, quite unaware that the Arabs were making a profit as middlemen in selling them other

parts of the same plant.

The pearl fisheries of South India were situated, as the author of the Periplus himself knew, in the Gulf of Manaar between Ceylon and India, where they were worked by condemned criminals. Romans could obtain pearls of inferior quality from the Red Sea and some were produced in the Persian Gulf and exported to Arabia and even to India, where they were prized because their lustre, although rather inferior to that of Indian pearls, was not dulled by the tropical heat; but India was by far the greatest exporter of pearls to the Roman Empire. Literary references again reflect the increase in the eastern trade during the early Empire by the frequent mentions of lapilli and margaritae from Horace onwards.

48 By the time Saint Paul wrote his first letter to Timothy, probably at about the same time as the Periplus was written, pearls were common enough for him to include them in a warning against excessive luxury in

49. women's apparel.

Precious stones were in great demand among the wealthy of the early Empire period. The Periplus lists "transparent stones of all kinds, diamonds (*ἀδάμας*), and sapphires (*ὀγκιθός*)".<sup>[56]</sup> The last two are probably the stones familiar to us, although some doubt has been thrown on these translations; but Pliny's account of "adamas" shows that diamond was at least included with other substances under this title. The translation "sapphire" is more doubtful, but again it is likely that sapphire in its various pigmentations is included in the term. Under the vaguer phrase "transparent stones of all kinds" the author must have in mind a selection of the wide variety of precious and semi-precious stones to be found in the markets of India. Pliny's accounts of gems supply an

50 itemised list including onyx, sardonyx, agate, sard, carnelian, crystal, amethyst, opal, beryl, ruby, turquoise, and garnet. All these came from India, mostly from the Tamil states of the south. The most commonly exported stone seems to have been beryl, which was extensively mined in the Coimbatore district, in the Tamil states some distance from the west coast. The earliest reference to the stone in Roman writings is in

51 Propertius, and it seems to have been common by Pliny's time.

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These products formed the basis of the trade with South India, a

trade solely in luxuries owing its existence to the wealth of the Roman Empire, which, instead of being channelled into the foundation of a stable economy, was more often than not lavished unthinkingly on luxurious living. This attitude on the part of the monied classes of the Roman world kept the trade with the east at a height which was never achieved again until the foundation of the India companies in the 17th and 18th centuries. But such a lack of economic foresight led inevitably to bankruptcy.

The export list was completed with further luxury products, but not having the same economic importance as those already discussed. Ivory was exported as at Barygaza. The elephant is widespread in India and supplies of ivory would be readily available at any port. Silk-cloth is an unexpected item on the list. It did not come to this part of India by the Pamir-Taxila route which supplied Barbaricon and Barygaza, but along the more direct route through Tibet, across the Himalayas, into the valley of the Ganges, and thence down the east coast of India by sea. This was the main silk supply route for the Indians themselves, and only a little would reach the ports of the south-west, where it was added to the local exports. Roman merchants were no doubt always ready to buy silk if the price was reasonable.

Spikenard was also exported from these southern ports, but the Periplus says that this came from the Ganges, meaning no doubt that it was sent to the Tamil ports from the mouth of the Ganges. Gangetic spikenard, which was gathered in the eastern Himalayas to the north of the lower Ganges, was regarded as the best variety. Its value must have been sufficient to pay for its transport over the whole length of India.

Finally, tortoise-shell was also to be had in these ports, some coming from "Chryse Island", and some "from the islands along the coast of Damirica". Chryse Island was the Malay peninsula; as will be seen later the author of the Periplus had some knowledge of Indian trade with the Far East. For such a trade to be profitable when supplies were available in Africa and Arabia, the tortoise-shell must have been of very high quality.

The Roman Empire paid dearly for the luxury products of South India. [56]

"There are imported here... topaz, thin clothing, not much; figured linens, antimony, coral, crude glass, copper, tin, lead; wine, not much, but as much as at Barygaza; realgar and orpiment". The list so far is almost the same as that at Barygaza, the only real difference being the addition of orpiment, the yellow sulphide of arsenic, which was used as a pigment. But the list was completed with the addition of "a great quantity of coin". On perusing the list as a whole one can see immediately that the other items on the list can only have paid for a small percentage of the Indian exports; the great quantity of coin must have been the main item of exchange. This drain of gold and silver coin was causing great concern to thinking Romans, and indeed had been for some time. By Pliny's day the situation was at its worst. He says that in no year did India take less than 55 million sesterces, "merces remittente quae apud nos centiplicato veneant". Warmington argues, no doubt correctly, that the figure given by Pliny in this passage is not the total value of the Indian trade, but the actual amount of coinage which was sent to India each year. Khvostoff has pointed out that the cost of the Indian commerce to the Roman Empire in the time of Pliny was almost equal to the cost of the same commerce for the whole of Europe during the period 1788-1810, at a time when the various India companies of the western nations were well established. Pliny's figures have often been doubted, but discoveries of Roman coins in large numbers in South India, although not proving the accuracy of the figures, do at least make their magnitude quite feasible.

Confirmation of the import of Roman gold and of other details of the South Indian trade also comes from Tamil literature, which was just starting out on its prolific career at the beginning of our era. In the poem Errukkaddur Thayam Kannanar - Akam (148) the poet describes Muziris:

"The thriving town of Muchiris, where the beautiful large ships of the Yavanas (Greeks), bringing gold, come splashing the white foam on the waters of the Periyar, which belongs to the Cherala, and return laden with pepper" - an independent testimony of Roman gold exchanged for Indian pepper. The Tamils used the term Yavanas ( Ionians, Greeks) because the merchants were for the most part not Latin-speaking Romans or Italians,

but Alexandrian Greeks, as was the author of the Periplus.

Another passage (Oaranar - Puram, 343) tells the same tale:

"Sacks of pepper are brought from the houses to the market; the gold received from the ships in exchange for articles sold is brought to shore in barges at Muchiris, where the music of the singing sea never ceases".

The poet Nakkirar mentions another import from the Mediterranean:  
56 "Cool and fragrant wine brought by Yavanas in their good ships" - "wine, not much, but as much as at Barygaza" (Periplus 56) for the Tamil ports.

At this point it will be convenient to observe an interesting aspect of the Indian trade which seems to be indicated by the account of the western coast of India in the Periplus. It is clear from a perusal of the text that the author knows a great deal more about Barygaza and its surrounding territory than he does about anywhere else, including the Tamil ports of South India. In his account of Barygaza the author describes in considerable detail the approaches to the port, giving warnings and instructions about the tides. Yet the South Indian ports are dealt with fairly shortly, with few details beyond the distances from one place to the next. The suspicion that the author of the Periplus was not too familiar with South India is further encouraged by his statement at the beginning of chapter 56: "They send large ships to these market towns on account of the great quantity and bulk of pepper and malabathrum". "They" are certainly western merchants, but the implication is that the author himself is not one of "those that come hither"<sup>[55]</sup>. It is also implied that these large ships are not the ones normally used in the more general eastern trade, but are specially built for carrying pepper and malabathrum in large quantities. Furthermore, the Periplus states<sup>[57]</sup> that the Tamil ports were reached by this time direct from Africa or South Arabia by "throwing the ship's head considerably off the wind". Clearly, trade with South India was a specialised occupation, requiring larger ships than the normal merchant vessel. Ships on this run did not concern themselves with ports to the north, perhaps not even with African or Arabian ports on the way. Trade with the Tamils was rewarding enough. The author of the Periplus, then, was not engaged in this trade, but in the more general trade of Africa,

Arabia, and North India. He had perhaps visited the Tamil ports, but he did not trade there regularly. Indeed, he would scarcely have had the time after visiting Barbaricon and Barygaza if he intended to return to Egypt in the same season. The Tamil trade was for the most part in the hands of specialists who could afford to build and man the large pepper ships.

Beyond Cape Comorin the writer of the Periplus had almost certainly never ventured. His knowledge of the east coast of India and beyond is nevertheless surprisingly accurate, and may have been gained from compatriots who had spent some time on the east coast. That some westerners did stay along that coast is now beyond doubt, for both archaeological evidence and Tamil literature indicate it. Yet it is probably true that no western vessel had rounded Cape Comorin, for had this occurred the uncertainty about Ceylon which is so apparent in most Roman writers would have been at least partly dispelled.

Beyond Cape Comorin the author of the Periplus knew of the city of Colchi on the Gulf of Manaar where the pearl fisheries were, and still are.<sup>[58]</sup> Further along the coast was the inland region of Argaru which exported muslin, and which is probably to be equated with the Chola capital of Uraiyur.<sup>[59]</sup> The author also knew of trade in Indian vessels between the Tamil states (Dampirica) and the ports of the east coast, which he lists from south to north as Camara, Poduca, and Sopatma. He also  
57 knew that there was trade from these ports with the Ganges region and with Chryse, the Malay peninsula. But what is more significant from the point of view of trade with the Mediterranean, he knew that "the greatest part of what is brought at any time" from Egypt comes here<sup>[60]</sup> (that is, to the east coast ports). This again has been amply confirmed by archaeological discoveries on the east coast, and is also supported by references in the Tamil poets.

The writer's knowledge of Ceylon (Palaesimundu) is vague,<sup>61</sup> and affected by current western geographical ideas which made the island stretch almost to the coast of Africa. But at least it was known that the island produced pearls, precious stones, muslins, and tortoise-shell - an accurate summary; but if Roman vessels ever did receive Ceylonese goods,

it was through the hands of South Indian intermediaries.

After this the account becomes even sparser, although still essentially correct. The author knew of Masalia and Dosarene<sup>[62]</sup> (Masulipatam and Orissa), two ports further north than the previous three mentioned, the former producing muslins, the latter ivory. He knew of the Ganges with a port of the same name at its mouth. He had already mentioned the malabathrum and spikenard which passed through the port to South India.

His knowledge of the lands beyond is still very vague, but most interesting in that it shows that the author had received accurate information, already hinted at in the passages where silk was mentioned, about the silk routes from China, one across Tibet to the Ganges, the other through Bactria and southwards to Barygaza.<sup>[64]</sup> The author himself had, of course, never been over these routes, but it seems highly likely that he received this information directly from persons who had. Certainly the picturesque account of chapter 65 has the mark of a personal account given by someone who had witnessed this malabathrum mart.

The Periplus is in itself an invaluable statement of Rome's seaborne trade with the east just after the middle of the 1st century A.D. It has, however, been noticed that the author's experience of the Tamil states was limited, and his account of the South Indian trade less detailed than his description of the commerce of Barygaza. Nevertheless, he was well aware of the volume of the trade with the Tamils, and of its extension, by what method is unspecified, to the eastern coast of India. But knowledge of Roman trade with the Tamils has been greatly increased by archaeological discoveries south of the Deccan Plateau, and also by further references in Tamil literature filling in much of the picture which the Periplus leaves unfinished. The archaeological evidence can be conveniently divided into two categories, firstly the coinage which has been found in great quantities over the south of the peninsula, and secondly the town of Arikamedu on the east coast which has been excavated periodically since 1937.

The facts about the discoveries of Roman coins in South India are, briefly, as follows. Although coins have been found in many places in



the peninsula, by far the largest proportion comes from south of the Deccan Plateau; to limit the field of discovery even further, the majority of these has been found in the Coimbatore region, between the rivers Ponnani and Cauvery. The coins, all of which are either silver or gold, were in most cases found in large numbers of up to several hundreds, and have usually been termed "hoards". A peculiar feature of several of these hoards is that the gold coins, but not the silver, have been mutilated by a chisel cut. Almost all the coins found in the south of the peninsula are of 1st century date up to Nero, with those of Augustus and Tiberius predominating; to the north of this area, on the other hand, where there are far fewer finds, mainly in eastern central India, almost all the coins are later than the first century.

From this information several conclusions can be drawn. Firstly, and most obviously, and as one would expect from the account given in the Periplus, it was to the Tamil states of South India that the vast majority of Roman currency was exported up to the time of the Periplus.

Secondly, the question of "hoards" is easily resolved once it is realised that the Tamils had no gold or silver currency of their own with which to equate the Roman, and therefore used the Roman coins as bullion. The coins were never circulated as ordinary currency, but were used in bulk. It follows from this that the "hoards" were simply some specified weight, or collection of weights, which had been received as payment for some commodity. It has been suggested that the mutilation of the gold coins simply indicates that the coins were not in circulation as true coinage, but why the mutilation was necessary at all is still doubtful.

58

Thirdly, the geographical location of the hoards is of great importance, for it reveals the route from the west to the east coast which the goods mentioned in the Periplus (60) must have taken. Rounding any headland or cape like Cape Comorin is never an easy task for a square-rigged ship such as was in common use both in the east and the west in the early centuries of the era, and the manoeuvre was usually avoided if there was a convenient overland route. In this case navigating Adam's Bridge would be an additional hazard. Why the "hoards" were actually deposited along the route is not clear, but it may be that

59 they are the forgotten property of the proprietors of the local beryl mines, or of the pepper estates which still flourish in the district.

Fourthly, the dating of the coinage shows quite clearly that currency dated after Nero was seldom imported into the Tamil states. Furthermore, it has already been pointed out that coins of Augustus and Tiberius predominate; indeed, of the silver coins all but a few dozen are from this time. Yet the evidence so far quoted would tend to indicate an increase in the eastern trade from the time of Augustus and Tiberius up to the time of the Periplus and Pliny in Nero's reign. It seems that the Indians preferred coins, especially silver coins, of Augustus and Tiberius, which had a reputation for purity. Their opinion was doubtless fortified by Nero's debasement of the silver coinage in A.D. 64 which shook any respect they may have had for the integrity of later coinage. After A.D. 64 they refused to accept any new silver coinage whatsoever and insisted on payment in the coins of Augustus or Tiberius which they knew to be pure. After Nero's death, however, the stricter economic policy greatly reduced the amount of currency, both gold and silver, exported from the Roman Empire. All these factors contributed to form the proportions of coins found in the South Indian hoards. The question of the post-Neronian currency found in India will  
60 be returned to later.

61 Two miles south of the modern town of Pondicherry, at the eastern end of the route across the peninsula marked by the hoards of coins, is the site of Arikamedu, the ancient "New Town" of the Tamils, Pudu-chcheri, undoubtedly the Poduca of the Periplus. Excavations have so far revealed parts, but not all of the town. Near the mouth of the old estuary (it is now cut off from the sea) a structure has been revealed which appears to be a large warehouse. Behind this, away from the river, are courtyards containing brick tanks and cisterns, drains, wells, and soak pits, apparently the equipment of dyers, and probably those who processed the Argaritic muslins mentioned in the Periplus (59). The beads and semi-precious stones which have been found in large quantities in this part of the site show that stone-cutting was another industry practised here, as it undoubtedly was in most centres of trade among the Tamils.

But the most significant discoveries as far as trade with the west is concerned have been the sherds of Italian red-glazed Arretine ware and of Mediterranean amphorae, which have been found in fairly large quantities in parts of the site. A third ware, a type of flat-bottomed dish with distinctive double rings of rouletting inside on the base giving it the name "rouletted" seems very likely to be Mediterranean, although the source is not known. This last ware was much imitated, in a somewhat inferior form, by the Indians, and has been found in many places in South and Central India.

The Arretine ware, which was found only at the north end of the site, but in considerable quantities, has been dated by Wheeler from the evidence of potsherd stamps to between some time in the first quarter of the first century A.D. to c.A.D. 45. The amphorae and rouletted ware, however, are found at all levels of the site, which seems to date from just before the Arretine ware (say c.A.D. 10, or the turn of the era) to, at the latest, soon after A.D. 200.

In addition to the pottery a few pieces of Roman glassware have been found including a "pillared" bowl of first century type, and also fragments of at least two first century Roman lamps. Another interesting find was two gems carved with Graeco-Roman intaglio designs, one of them still untrimmed. This suggests that the work may have been done by a western craftsman, a view supported by the mention in Tamil literature of "carpenters from Yavana" who helped to build the palace of the Chôla king; if there were carpenters, it is not unreasonable to posit the presence of other craftsmen.

To the south of Poduca was the port of Kamara, one of "these places" into which "the greatest part of what is brought at any time from Egypt comes" (Periplus 60). The site has not yet been located with certainty, but the Tamil poets provide several picturesque descriptions of the town (Kaviripaddinam in Tamil) and its commerce. The Padinppalai describes the articles of trade, amply confirming the information given in the Periplus (60): "Horses were brought from distant lands beyond the seas; pepper was brought in ships; gold and precious stones came from the northern mountains; sandal and aghil came from the mountains towards the west; pearls from the southern seas, and coral from the eastern seas".

The coral was brought by western merchants from the Mediterranean. The Yavanas were indeed well known in the town; they were not port riff-raff but resident merchants. The Silappadikaram says in its fine description of the town: "In different places of Puhar (Kaviripaddinam) the onlooker's  
62 attention was arrested by the sight of the abodes of Yavanas, whose prosperity never waned".

Other Tamil poems show that people from the Mediterranean were not only familiar as merchants, but were employed as bodyguards to Tamil  
63 rulers. One account tells of Yavana soldiers on guard with drawn swords at the gates of the Pandya city of Madura; in another the tent of a Tamil king is guarded on the battlefield by "powerful and stern-looking Yavanas". This is indeed an unexpected profession for "Yavanas", but with the establishment of western communities in the Tamil ports it is quite possible that opportunist individuals with some military knowledge and little interest in trade decided to offer their services to the local rulers.

Archaeological discoveries and Tamil literature have certainly added substantially to the present knowledge of Rome's eastern trade. The establishment of Mediterranean communities in the Tamil ports (and quite probably in the northern ports too, although there is at present no direct evidence from this period) is adequately proved by both sources. It is strange that no mention is made of them in the Periplus, but the reason may well be that, as already suggested, the author was not very familiar with the southern trade.

64 The Naturalis Historia of Pliny the Elder has been quoted on several occasions in this section to support other evidence, and a study of the period would not be complete without some assessment of the parts of the work which deal with the route to the east and the geography of India. It must be said at the outset that Pliny's work in this field is  
65 disappointing. His account of India is little more than a repeat of much earlier Hellenistic authors, incorporating none of the information which must have been easily to hand and indeed which Pliny actually used in his work on the route to India. For this latter was undoubtedly based on information from merchants engaged on the Indian trade, and was perhaps,

e/ as suggested earlier, based on the Periplus. But since we have the Periplus in its entirety, Pliny's account adds little new to the route itself, except actually within the boundaries of Egypt, where he gives a more detailed account of the route from Coptos to Berenice with its watering places and military guard. He does, however, add distances and times of sailing which are accurate: ships left Egypt for India about midsummer (July in the Periplus 49) and reached India in about seventy days; the journey back was begun at the beginning of December. This information does supplement the scanty references of the Periplus. Likewise, Pliny adds figures, although vague, to the brief historical account of the development of the route to India found in the Periplus (57). Pliny's account has already been used to establish a date of c.10 B.C. for the discovery of the monsoons by Roman merchants. Assuming this date, one can fix the later developments roughly as follows: the crossing to Sigerus, the Melizigara of the Periplus (53), one of the ports of the Andhra coast south of Calliena, was first used in the "following age", that is, c. A.D. 15-20. This route continued to be used "for a long time", perhaps until c. A.D. 50-60 ("diu" is presumably somewhat longer than "aetas", although it must be admitted that the words are extremely vague). At about this time a "still shorter" route was discovered to South India.

These dates provide a background for the period discussed in this section, but it is only a vague one, and it would be rash to base any conclusions on this evidence alone. Nevertheless, these dates, established independently of other evidence concerning the dating of the development of the trade, do fit in well. The date of A.D. 15-20 coincides fairly well with the date established by Wheeler for the earliest Arretine ware at Arikamedu, and may therefore be the time when stations of resident merchants were first set up in South India. The discovery of the route to the Andhra coast would certainly make the Tamil kingdoms more accessible to Roman traders. Contact had indeed already been made with the south some time before, as Augustan coinage found in South India probably indicates (see pp. 17-18).

The increase in literary references to luxury products of the east

in Nero's reign accords well with the second date of A.D. 50-60. Direct access to the ports of the Tamil states must have resulted in an increased trade in pepper, malabathrum, precious stones, and pearls. It was not long after this last discovery that the Periplus was written.

A noticeable feature of the period from Tiberius to Nero is the almost complete lack of information about the overland trade with the east. Some of the political moves on the eastern frontiers of the Empire may have been made with mercantile interests in mind, but there can be little doubt that the prime motive was frontier defence. Silk continued to enter the Empire with no apparent decrease in quantity, although the Periplus shows that some silk, instead of following the usual overland route, was passing through the Indian ports. However, in spite of hostilities silk doubtless still passed in this period across Parthia, as the continued prosperity of Antioch and Petra, and the rise of Palmyra show, but it was carried to Zeugma or Ctesiphon by Parthian merchants. Except perhaps when war was actually raging on the frontier, as it was during part of Nero's reign, Parthian merchants did not miss the opportunity of making a profit in passing on Chinese silks, although their prices had always to be low enough to be competitive with the possible alternative routes. Even after Nero's settlement cordiality did not go as far as allowing Roman merchants to break the hold of the Parthian merchants on the trade.

But Roman merchants had little reason to complain of the position in Parthia. The sea route to India had become so well established, even by the end of Augustus' reign, that the majority of the products of the east - silk included when conditions demanded it - were entering the Empire by this way. With the discovery of the shorter voyages, first to the Andhra coast, and finally direct to the Tamil ports, the sea route to India became both safer and easier than the overland route ever could be. There was little point in trying to break through the Parthian empire, even had it been a feasible proposition.

IV. FROM VESPASIAN TO MARCUS AURELIUS (See sketch-map IV)

The excesses of Nero's reign had had a disastrous effect on the exchequer, and the year of civil wars which followed added further to the financial chaos. However, by a rigorous revision of taxes and dues Vespasian was able to restore the state finances to something like their Augustan stability. Such a programme necessarily had a far-reaching effect on the eastern trade. The former practice of balancing the trade with large exports of gold and silver currency had to be drastically revised. The finds in India show that after Nero the number of gold coins imported was substantially reduced, and scarcely any silver coins are reported. Clearly, Nero's successors saw the folly in allowing such a vast loss of specie to the east. It is not known how restrictions were applied, but their effect is apparent.

Yet the trade with the east did not decline as the finds of coinage might imply; in fact the period from Vespasian to Marcus Aurelius saw the trade reach its greatest extent geographically, and perhaps even in bulk. 1 The references in Martial, Statius, Juvenal, and Lucian to gems, pearls, ivory, cinnamon, silk, tortoise-shell, casia, pepper, and nard give ample evidence of the continued flow of oriental wares into the Roman Empire. But the trade was now economically very different from what it had been up to the death of Nero. The restrictions on the export of coinage meant that merchants had to find other products with which to pay for oriental wares. They had to turn more than ever to the products of the eastern provinces which already occur in the lists of the Periplus, but especially to glass and coral, the only wares which brought high prices in oriental marts. The reaction of Indian dealers in pepper and precious stones can only be surmised; no doubt they were somewhat displeased. And yet after a century of active trade with Rome they were in no position to make excessive demands. The production of pepper, beryls, pearls, and muslins was now fully geared to supplying the avid demands of the Roman Empire, and any stoppage in the western trade would have meant a serious economic decline in South India. The Indians therefore had little alternative but to accept whatever the Romans had to offer. Doubtless the South Indian imports from the west now included many more "figured linens" from

Alexandria and Syria, and more "thin clothing", as well as increased quantities of coral and glass, whose value must have increased considerably.

2           Economically the trade was now on a much sounder basis. The industries of the eastern provinces flourished with the increased demand for their products, and very little gold and silver left the Empire for India. Yet the processing factories of Egypt, Syria, and Italy continued to receive the raw goods of the east on which they depended, and the merchants and their financial backers continued to prosper. Even for South India the change in the trade was not unbeneficial. Sufficient currency had entered the Tamil states to provide a medium of exchange. The result of a continued flow would have been to depreciate the coinage. Instead, the increased supplies of clothing and linens would tend to distribute wealth, and the increased value of glass and coral would no doubt be passed on to the countries further east with which the Tamils had a flourishing trade.

The evidence for the continuing prosperity of the eastern trade in the writers of the period is reinforced by the actions of the emperors in the eastern provinces and beyond. As under Augustus, some actions appear to have been designed specifically to foster the trade, while others were primarily aimed at securing the frontiers, and any benefit to the trade was only secondary.

During his ten years as emperor Vespasian was so engrossed in his efforts to stabilise the Empire both politically and financially that he could spend neither time nor money in any definite attempts to foster trade with the east. Nevertheless, his stationing of garrisons at Harmozica in the Caucasus, and at Melitene and Samosata on the Euphrates served the dual purpose of ensuring peace on the eastern frontiers and of giving security along the trade routes. Merchants engaged on the overland trade were also doubtless gratified by the reversion of Commagene yet once more to the status of a Roman province.

Domitian, benefitting from his father's solid work, made clear efforts to make the eastern trade safer and more efficient. In his road-building enterprises were included various routes through the eastern provinces, principally the one from Samosata northwards through



Melitene and Satala to Trapezus, which provided a useful alternative to the routes across Asia Minor to Greece and Italy, and at the same time  
3 supplied the flourishing provinces along the south coast of the Black Sea. Statius shows that the overland routes to the Euphrates and beyond were now regarded as secure. The new security in this region, resulting partly from Nero's settlement and from Vespasian's amicable relations with Parthia, increased the flow of trade across Parthia and along the routes to the Persian Gulf, and consequently Palmyra, ideally situated along this route,  
4 began to increase greatly in importance and to rival its southern neighbour, Petra.

During Domitian's reign the horrea piperataria <sup>ere</sup> ~~was~~ built in Rome to accommodate the large quantities of pepper brought from the east. Martial mentions Cosmus and Niceros, two dealers specialising in oriental products. Parrots were more popular than ever as pets. The effect of the restrictions on the export of currency from the Empire seems to have had the effect of  
5 making eastern wares cheaper in Rome and therefore accessible to a wider market.

Trajan's actions in the east have often been interpreted simply as the manifestation of his military temperament and of his ambition to  
6 repeat Alexander's conquest of the east. But Warmington is doubtless correct in attributing to him an awareness of the benefits of trade with the east and in interpreting many of his actions in this context. His simplification of the provincial boundaries led to more efficient organisation and government, an essential factor in fair taxation and customs collection. The power of Petra, up to this time a virtually independent client kingdom, was reduced by the incorporation of the city and its territory into the Empire as the province of Arabia Petraea. Petra's ancient supply route from the port of Aelana was extended and paved as far as Bostra, a town on the border of Syria which now became a  
7 legionary station and a fairly important commercial centre in close touch with Palmyra to the north and with Dura Europus on the Euphrates. The road from Palmyra to Damascus was protected by forts along its length. The position of Palmyra as the principal trade centre of the area was now assured. The eastern routes were further secured when Armenia was made a Roman province and Roman forces occupied most of the important towns on the upper Euphrates.

In Egypt, too, Trajan was actively engaged in promoting trade. The old canal through the Bitter Lakes to Arsinoe was cleared once more, and a new canal was dug from the Nile to the Gulf of Suez, where the port of Clysma became an important centre of trade with the east, and had the protection of a Roman garrison. Trajan also established a fleet in the Red Sea, probably to put down pirates, who in every age have taken any opportunity offered to exercise their occupation in this region.

Many of Trajan's more militant actions in the east were revoked by Hadrian, who perhaps realised that peaceful relations in the east were as effective as military occupation and considerably cheaper. Armenia and much of the Euphrates was surrendered, but Petra was still retained as a province, so that Palmyra retained its influence as the central mart at the Mediterranean end of the overland routes. Hadrian's unpopularity in Egypt may indicate that the route from India to the Persian Gulf and thence to Palmyra was beginning to take trade from the all-sea route to Egypt, although the continued prosperity of Egypt and its ports shows that any lessening in its commerce cannot have been serious.

8 On Hadrian's orders Arrian carried out a tour of inspection in the Black Sea. According to Arrian there were garrisons at Hyssu Limen, Apsaros, Phasis, Dioscurias, and the one established by Vespasian at Harmozica. Interpreters were stationed at Dioscurias, which is a good indication that there was trade passing through this region, but what products were involved and what the extent of the trade was is still a  
9 matter of conjecture.

The reign of Antoninus Pius continued the peace of Hadrian and trade continued to flourish, but under Marcus Aurelius the wars in Europe and the east made dangerous inroads into the state finances. The emperor was forced to sell the valuable collection of gems which Hadrian had made. Disputes about taxation arose in Egypt, which necessitated the compilation  
10 of the Digest List of wares subject to the "Vectigal Maris Rubri". The eastern trade began to lose some of its vigour. The trickle of gold coins to India which had continued up to Antoninus Pius now almost stopped. The Parthian war in which Syria was devastated and Seleucia and Ctesiphon sacked once more closed the trans-Parthian routes. In addition the

plague which was contracted by legionaries in Parthia and spread throughout the Empire must have paralysed all trade for a time. The sea-route to Egypt, however, continued to carry heavy traffic until the death of Marcus Aurelius, but then the trade gradually decreased in the confusion of the last years of the second century.

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The actions of the emperors in this period provide an outline of the development of the oriental trade after Nero inasmuch as they show what changes took place in the eastern provinces. The picture is, however, greatly clarified by other evidence which for convenience will be divided into two sections: firstly, that relating to the overland trade with China; and secondly that relating to the trade by sea with the countries of South Asia from Arabia to South China.

Although the Caspian and Indian Ocean routes were used for the transport of silk probably throughout the period from Augustus to the decline in the trade, it is nevertheless evident from the prosperity first of Petra and then of Palmyra that the trans-Parthian route must have carried large quantities of silk, constituting the great majority of all the silk entering the Empire. It is true that some by-passed Parthia by being transported from India to the western shore of the Persian Gulf and thence to Petra or Palmyra by land, but Chinese sources referring to this time state clearly that the Parthians were intermediaries between Chinese and Roman merchants, so it can be assumed that this was the normal passage for the silk.

11 It is not surprising, in view of the statement of the Chinese  
12 annalist, that from Roman sources of the time there survives only one  
account of trading enterprise along this route into Central Asia. This  
account occurs in Ptolemy's Geography, where he quotes Marinus of Tyre,  
whose information about Parthia and Central Asia was taken from the  
account of Maes Titianus, a merchant whose agents had travelled along the  
route as far as the Tarim Basin. Their journey took them from Syria,  
through Zeugma direct to Ecbatana, apparently passing to the north of  
Seleucia and Ctesiphon (not the normal route, although some details could  
have been omitted). From Ecbatana their route went to Merv and thence  
through Bactria over the Pamirs into the Tarim Basin to the Stone Tower.

Ptolemy gives little more information outside his own geographical calculations, for, following Marinus, he distrusts the evidence of merchants, in this case with little justification. Beyond the Stone Tower, however, no Roman had ever passed. Ptolemy's information about China shows a fair knowledge of its geographical position, but in extending the Asian continent indefinitely to the east he shows that the state of knowledge in this field had declined since the time of Mela and Pliny.

From Chinese sources, however, there comes confirmation of the route together with considerable information about the trans-Asiatic trade. The Hou-Han-shu (ch. 88) has an account of Ta-ts'in, a country to the west of Parthia (An-hsi), which must be the eastern Roman Empire, and also of the routes by which the country is reached. Between A.D. 25 and 94 the Chinese had reconquered Central Asia, thus making the routes across Asia safer, and doubtless encouraging the increase in the silk trade which the activity in the eastern provinces after Nero confirms. The annalist records that Pan Ch'ao, the general responsible for much of China's success in Central Asia, sent a certain Kan-ying as an ambassador to Ta-ts'in in the year A.D. 97. It seems, however, that his mission was thwarted by cunning Parthian merchants who saw the possibility of the collapse of their transit trade if the Chinese and Romans managed to make contact with each other. But Kan-ying did at least reach the Persian Gulf, and it was probably from his report that the annalist was able to give a clear account of the silk-route as far as Kan-ying had been. The route across Parthia, according to Hirth's analysis of the relevant passage, appears to have been as follows: first Merv, the Chinese Mu-lu, "20,000 li distant from Lo-yang" - a good estimate, taking the li to be about one tenth of a mile; then to Hecatompylos, Chinese Ho-tu, 5,000 li from Merv, again a reasonable estimate. From Hecatompylos, the capital of Parthia at the time, and hence also called simply An-hsi (Parthia) in the annals, the route went on to Ecbatana (A-man), and then to Ctesphon (Ssu-pin). "From Ssu-pin you go south, crossing a river and again south-west to the country of Yu-lo (=T'iao-chih), 960 li, the extreme west frontier of An-hsi"; the reference here is clearly to the journey from Ctesiphon, across the Tigris

and towards Babylonia (Yu-lo, T'iao-chih), where lay the boundary between Parthia and the Roman Empire. Here was the Parthian town and port of Hira, "the city of the country of T'iao-chih", so accurately described in the Hou-han-shu. The town had access to the Persian Gulf along the Euphrates, and it was doubtless here that Kan-ying was dissuaded from going to Ta-ts'in.

16 The information in the Hou-han-shu about Ta-ts'in may also be taken from Kan-ying's report, although his knowledge was, of course, second-hand. His informants were most probably Parthians, who were quite willing to give some details about Ta-ts'in (the description of Antioch is especially noteworthy), but in order to protect their own monopoly they were extremely vague about how the country was reached. Hence Kan-ying was told that the journey by sea could take two years; the fact that Ta-ts'in could be reached more easily by land was not divulged. Hirth has suggested, however, that after Kan-ying's time some information was received about the land route and is embodied in a difficult passage of the Hou-han-shu. The wording is excessively vague, but could be interpreted to fit the land route to Syria.

17 Nevertheless, it is evident that Chinese knowledge of the final stages of the routes to Ta-ts'in was very tenuous during the Han period. As the annalist was well aware, the Parthians were anxious to maintain their very profitable position as middlemen in the silk trade, a function which they performed with zealous efficiency. It was clearly against their interests to allow any foreign merchants to pass through their territory. Kan-ying was allowed to go as far as he did only because he was an official ambassador, not a merchant. Parthia was not a land of great natural resources and was not able to engage in commerce using its own products except on a very limited scale. But its position on the silk road was its economic salvation. As long as Romans demanded luxuries from the east the Parthians could be assured of a steady profit on the transit of goods through their territory. Good roads were made and provided with well equipped stations; caravans were properly organised; water transport was made efficient and regular; a force of mounted desert police was established. There was little retailing of goods in the country; a tax

was levied and the middlemen took their percentage, but goods from both directions for the most part simply passed through the land.

Trajan's Parthian campaign in A.D. 115 may have caused consternation among the Parthian financiers, but there is no evidence of any real crisis on the silk route. In 163-4 Marcus Aurelius repeated Trajan's moves against the Parthians and succeeded in destroying Seleucia and Ctesiphon. This caused panic among Roman silk merchants, and in 166, the Hou-han-shu states, an "embassy" (doubtless a private trade mission) arrived by sea on the south coast of China, presumably with the intention of initiating sea-borne trade in silk so as to by-pass troubled Parthia. The volume of trade crossing Parthia must have been greatly reduced after 164, for the route did not become safe again until the Sassanids established a firmer rule in the 3rd and 4th centuries.

Silk was, of course, the staple of the overland trade with China, and in spite of its perishable nature two finds of silk have been made along the silk route which have been dated with confidence to the period under discussion. Sir Aurel Stein in his excavations in the Lop Nor region found pieces of silk dated by the context to between A.D. 67 and 137; traces of silk have also been found at Palmyra. It has been estimated that silk constituted about 90% of China's exports to the Roman Empire, the rest being made up by skins, with the possible addition of cinnamon and the drugrhubarb, although the Romans usually received these last two commodities from Indians or other intermediaries. The silk continued to be processed in the towns of the eastern Mediterranean, where the benefits of the eastern trade to the industries of the Empire were especially apparent.

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19 Both the Hou-han-shu and the Wei-liao give lists of Roman products, that of the Wei-liao being much the fuller. Neither list gives any indication of relative quantities, but there was certainly no one item to compare with silk in value. However, it may be significant that gold and silver head both lists. Pliny says that India, the Seres, and Arabia together drained away at least 100 million sesterces (presumably annually) from the Empire. Elsewhere Pliny states that India's share was 55 million sesterces each year, leaving 45 million to share between the Arabs and the Seres, of

20 which the Seres may be assumed to have received approximately a half.  
This means that the Seres in Pliny's time were receiving in the region of  
a third to a half of the amount of coinage that was exported to India;  
21 yet hardly any has been found in China or along the silk route. Hudson  
has offered two possible explanations for this: either the gold and silver  
exported to China was in the form of bullion, or the coinage was not  
reaching China but was being held by Parthian middlemen, and presumably  
being returned to the Empire in payment for other goods, or reminted as  
Parthian coinage, or perhaps passed on to the eager Indian market. But  
there is the further possibility that considerable amounts of Roman  
coinage was passed on to the Chinese by the Parthians and was reminted in  
China, where there was an established coinage in gold and silver. This  
would at least explain the prominent position of gold and silver in the  
lists of the annals, since these lists were most probably compiled from  
actual commodities received, and would also accord with Pliny, who implies  
that the specie was lost to the Empire.

How far the export of currency along the land route was restricted  
after Nero's reign it is difficult to say. The evidence of the Chinese  
annals implies that gold and silver were common exports in the whole of  
the later Han period. The information could, however, refer to a state of  
affairs which no longer existed, but one would have expected some  
indication to that effect if this were so. It is also possible that some  
of the information contained in the annals, including the references to  
gold and silver, could have been only hearsay; but the prominent position  
of gold and silver at the head of both lists seems to show more definite  
knowledge. On the whole the evidence seems to point to a continuance of  
the export of currency, perhaps somewhat reduced after Nero, but still  
being sufficient to make gold and silver the typical products of the west.

Glass appears on both lists, and here there is more certain  
information. The glass industry of Syria and Alexandria was well  
established by the beginning of the first century A.D., having received a  
considerable impetus from the economic revival under Augustus. It has  
already been noted that glass was one of the more important exports to  
India. The Chinese for long believed that glass and rock crystal were the  
same thing and were willing to pay high prices in silk for ordinary glass.

Crude glass was exported to China, but the bulk of the glass was in the form of glass vessels, mirrors, and especially imitation jewellery and ornaments in coloured glass - the Wei-liao list includes "ten colours of opaque glass". Stein found beads and other objects of Roman glass in Central Asia, and the collection of Bishop White of Honan contains Roman glass objects of the first to third centuries found in various parts of China. The Chinese annals show that until the fifth century when glass production began in China glass was included among precious materials together with jade and similar stones.

Corals of various sorts, pearls, and storax again feature in both the Hou-han-shu and the Wei-liao. All were products of the eastern Roman Empire and have also been mentioned in connection with the Indian trade. The pearls exported to China may in some cases have been of Indian origin, although considering the price that these fetched in Rome it is more probable that merchants exported only the somewhat different Red Sea product to China. The Chinese were at the time trading with India by sea, and so had direct access to Indian pearls. Their discrimination in the quality of pearls was no better than their discrimination between glass and crystal. Fortunately for the economic state of the Empire the Chinese were very much attracted to these products which the Romans themselves considered of relatively low value.

Still to be included among local products of the eastern Mediterranean are the "gold-embroidered rugs" and "gold-coloured cloth". The art of twisting fine strips of gold into the woof of a texture was already an ancient skill in the first century A.D. Pliny says the practice was invented by Attalus III of Pergamum, and hence the name Attalica for gold-embroidered cloth, but the reference to gold as a constituent of Aaron's ephod seems to indicate a much earlier knowledge of the art. At any rate, Syria was recognised as the home of the finest textiles in the Empire period, at a time before Persia and the Steppes took away their trade with the Chinese in this field.

To their own products the merchants of the eastern Empire added a considerable number of gems to their exports to China. These gems were undoubtedly mainly of Indian or African origin, but the Syrians had developed a carefully protected transit trade in them which amounted



virtually to a monopoly. There were polishing factories in Alexandria, but Syria was at the hub of the trade, a position it maintained until the late Middle Ages, when expanding nations were able to reach supplies at their sources.

25 Two Roman exports in the lists of the annals are of particular interest, "ling" and "fine cloth, also called down of the water-sheep". Ling is a kind of silk gauze, but what precisely is meant by "down of the water-sheep" is still in doubt. Hirth has suggested that it may be a product of the shell-fish *Pinna squamosa*, but the usual translation of "byssus" with which Hirth equates it is simply "linen". The Hou-han-shu, however, goes on to add that "it is made from the cocoons of wild silk worms" (perhaps meaning here that silk was a part of the texture, which would accord well with the Syrian practice of combining various elements in one material). The Hou-han-shu may be correct, for the Chinese would be the least likely people to be mistaken about silk. But from an earlier passage in the Hou-han-shu it is clear that the Chinese believed that silk was actually produced in Syria, for it is specifically stated that the people of Ta-ts'in practised the rearing of silk worms. In this they were indeed mistaken, for western sources make it quite evident that the art of silk production was unknown in the Roman Empire until the time of

26 Justinian in the sixth century A.D. Here, then, is perhaps the most artful trade secret of the ancient world; for although there may be some slight doubt about the ingredients of "down of the water-sheep", ling was without a doubt made of pure silk. The Chinese were actually buying back their own silk which had simply been re woven on Syrian looms. Chinese ignorance in this matter is a factor of considerable importance in the trade, for it is now seen that the Chinese were not aware of the uniqueness of their product, nor, consequently, of its real value in the Roman Empire. The price of silk at Rome, it is true, was high, for a good percentage of the retail price at Rome was going into the hands of Syrian and Parthian merchants. The price paid by merchants in Parthia or even Syria was very probably not excessive considering the distance the silk had travelled.

This throws an interesting light on the whole basis of the silk trade. It was not maintained solely by an avid demand from the west for silk, but

was on a much more equal foundation. The Chinese were just as eager to acquire Roman gold, silver, glass, coral, and tapestries as were the Romans to acquire Chinese silk. Fortunately for the Romans the Chinese did not realise that they had a monopoly, but on the contrary were probably surprised that they were able to sell their silk to Ta-ts'in at all. It is probably now impossible to discover whether it was the Parthians or the Syrians who were perpetrating the deception; but the essential point is that the Chinese were deceived, and were therefore content with fairly modest returns compared with what they could have demanded.

27 Evidence for the trade with Arabia, India, and the Far East as approached from the sea comes at this period mainly from Ptolemy and from archaeological discoveries. Fortunately, Ptolemy had a way of indicating which material was new in his Geography either by directly stating that this was so, or by supplying an account of such detail compared with the rest of his work (e.g., in his long account of Ceylon) that it is obvious that his material is new to his readers. It is therefore possible to tell from Ptolemy's work what advances were made in his time, even in fields where no previous writings now survive with which to compare his account.

28 Over the whole of the Near East Ptolemy's information is more extensive than any of his predecessors'. In dealing with Arabia and Africa he shows that Romans had by this time found out a considerable amount about the inland regions as well as the coasts, knowledge which undoubtedly came from merchants engaged in the oriental trade.

It is, however, in his account of India and the Far East that the more noticeable advances in geographical knowledge are found. In these fields Ptolemy states that his information comes from merchants and travellers, some of whom had resided for some time in the east, and much of the information, notably that about inland regions, is presented as being new to the Roman world.

29 In North-west India Ptolemy's knowledge reaches far inland to the cities of the Kushans on the upper Indus, and he knows many of the tributaries of the Indus. By Ptolemy's time Barbaricon was no longer the chief mart on the Indus mouth, but had been replaced by Monoglosson. It

is clear that knowledge of North-west India was now far in advance of that shown in the Periplus.

At the time when the Periplus was written the political situation in this region was very unstable owing to the southward advance of the Kushans into the Indus valley. The dating of the Kushan expansion is still in doubt, but it seems that during the latter part of the first century they subdued North-west India and were already entering the valley of the Ganges. The ports of Barbaricon and Barygaza were therefore under their rule before A.D. 100. The establishment of a firm but benevolent rule resulted first in an embassy to Trajan and then in trade which left its mark on the cultural achievements of the Kushans.

Apart from the references in Ptolemy, evidence for the trade has been discovered in the form of Roman coins, although in small numbers, as is to be expected at this date, principally from the area around Taxila. Of more importance are the obviously Roman works of art found at Taxila, and those found in the varied collection of beautiful pieces known as the Begram hoard. Sir Mortimer Wheeler has pointed out the essential difference between these finds and those at Arikamedu. The sculptures and bronzes of Taxila and Begram do not indicate a terminal trade as in South India, but are probably dues levied on caravans engaged in transit trade from Central Asia. Taxila and Begram are ideally situated on the upper reaches of the Indus to act as customs stations, for the Afghan Plateau to the west and the Himalayas to the east allow only a narrow passage into North India.

These finds pose two questions: firstly, if these objects are customs dues, what were the caravans carrying on which they were levied? and secondly, why were these works of art levied and little else?

The answer to the first question is given by the Periplus. Seric skins and silk yarn were exported to the Roman Empire from Barbaricon, and silk cloth and yarn from Barygaza. The Kushans did not, of course, obstruct this trade, but saw in it a source of revenue and levied a tax on the goods in transit. How much silk passed through the Kushan ports is impossible to estimate with any precision, but the fact that a stable government could now ensure a constant and no doubt fairly priced supply of skins and silks by this route meant that Roman merchants had a permanent and safe

a/ alternative to the Parthian route, and could *continue to* force the Parthians to maintain their prices at a reasonable level. From the evidence at Taxila and Begram it would be rash to assume any more than a small but regular supply of skins and silks passing along this route. Undoubtedly the main route was still the traditional one across Parthia. The main importance of the improved Indus route continued to be as a safety valve against undue Parthian pressure.

The second question can be answered quite simply: the Kushans were very appreciative of western art, and especially the stucco techniques which were characteristic of Alexandrian artists who had easy access to the plaster which still abounds on the north coast of Egypt. Alexandria was still, of course, the western focal point of the eastern sea trade, and so it is natural that Alexandrian techniques are well represented at Begram and Taxila. As far as the merchants from the west were concerned, these works were a small price to pay for a regular supply of Chinese goods.

The commercial significance of the discoveries at Taxila and Begram is therefore clear; they indicate a steady use of the route from Bactria to the coast of North-west India with the encouragement of the Kushans. This much is beyond dispute. But mention must be made here of a much-argued question which concerns the results of contact between the Kushans and the Roman Empire at this period.

32 There developed in the period of Kushan domination in North India an artistic style which has been named Gandhara from the area of its greatest concentration, the Gandhara Plain. This style is characterised by a definite tendency to western characteristics, which are strong in the early period but later become less obvious as the native techniques assert themselves. Opinion is, however, still sharply divided as to whether the western elements in Gandhara are the results of contact with the Roman Empire in the Kushan period, or whether the legacy of the Greek dynasties in Bactria survived in native tradition and reasserted itself under the e/ beneficent rule of the Kushan monarchs. Both factors seem to have played some part in the formation of the Gandhara style, but the contemporary influence of Roman art would seem to be the dominant factor. Certainly the finds at Taxila and Begram show that Roman styles were admired by the

33 Kushans. Moreover, it has been discovered at Taxila that the use of  
Hellenistic Ionic columns was discontinued in the Kushan period, when  
the Corinthian column, a Roman feature, was introduced. This does not  
mean that all Hellenistic features were abandoned by the Kushans, but  
clearly it is an indication that Roman ideas were being introduced at the  
expense of the older Greek forms. How far the sculptures of Gandhara  
themselves reflect Hellenistic techniques derived from Bactria, and how  
far they are based on Roman models of the 1st and 2nd centuries A.D. is  
a question which cannot be answered completely objectively, and studies in  
34 this field have led to contradictory conclusions. At present it can only  
be safely stated that the Kushans did use Roman models in their sculpture,  
but they were probably building on an artistic heritage, although much  
35 diluted, from Hellenistic Bactria.

The increase in trade with North-west India which Ptolemy's knowledge  
seems to indicate is, then, amply supported by archaeological finds. In  
addition the evidence points to a certain amount of cultural exchange.  
Let it be repeated, however, that the evidence does not imply a trade of  
any great proportions. It is probable that most of the trade with the  
Kushans was still in the native products of the Indus valley which formed  
the basis of Barbaricon's trade in the time of the Periplus. This trade  
in itself probably increased under the peaceful rule of the Kushans. The  
route to Central Asia was undoubtedly much safer, and its traffic and  
perhaps the number of products passing along it must have increased  
somewhat. Ptolemy's information would imply that Roman merchants now  
passed some of the way along this route, but it remained nevertheless no  
more than a useful subsidiary to the trans-Parthian route.

Down the west coast of India Simylla, one of the Andhra "local" ports  
mentioned in the Periplus, was by Ptolemy's time a legal mart. This last  
phrase appears to mean an authorised port designated for foreign trade.  
The Andhras had by this time recovered their power on the west coast and  
were once more taking an active part in trade. Their main centres were,  
however, in the east of the peninsula, and it is from this region that  
further evidence of the Andhra's revival comes. Not far from the east  
coast have been found several small hoards of gold coins dating from the  
period after Nero, mainly from the 2nd century. In the time of the

Periplus a few ports along the east coast of India to the north of Pduce were known and had presumably been visited by western merchants, but the coins found in the Andhra territories show that western trade in these regions really belongs to the 2nd century. The hoards are not large, but they constitute a good percentage of all the post-Nepnian coins found in India. The main reason for this increase in Roman activity along the Andhra coast of East India was undoubtedly the expansion of western trade to the Far East; the Andhra coast was the most convenient point to catch the monsoons across to Burma or Malaya. It is to this time that inscriptions from the Andhra city of Nasik showing the presence of "Romanakas" (Romans) are probably to be dated. Ptolemy's acquaintance with inland regions of the Andhra kingdom indicates that merchants had travelled some way into the interior. This in itself probably implies residence by some merchants, perhaps in some station similar to that at Arikamedu.

38 Again in the Tamil states Ptolemy shows an acquaintance with the inland areas of which the author of the Periplus had only a vague notion. He lists numerous towns which can only have been known by people who had spent some time in the area. The station at Arikamedu was still a centre for western merchants, as the finds of Mediterranean wares of the 2nd century show. The pattern may have been followed at other ports, especially Muziris, which alone on the west coast of the Tamil states is designated "authorised mart" by Ptolemy. The fact that coinage no longer flowed into South India did not prevent western merchants from deepening their relations with the Tamils.

39 It is, however, in dealing with Ceylon that Ptolemy enters into the greatest detail in his description of the east. Pliny knew its approximate position; the author of the Periplus knew that it was a day's sail from the mainland, and he also gives a list of its products, but follows the prevalent Roman misconception in extending the island towards the coast of Africa. Ptolemy also, however, still overestimates the size of the island by some fourteen times, although his knowledge of its towns, its peoples, and indeed of all its geographical features is very detailed, and in most respects fairly accurate. Such a wealth of information

indicates that Ptolemy was setting forth material previously unknown in the west; contact with Ceylon was a new enterprise in Ptolemy's time. With this the finds of Roman coins in Ceylon are fully in agreement, for there are only a few dated before Hadrian, and these were no doubt brought from India. After that they begin to increase slowly, although there was only a slow trickle until the Byzantine trade reached Ceylon in the 4th century. It could be that, as in South India, the virtual absence of coinage after Nero's time is no indication of the volume of trade, and the fact that Ptolemy says little about the products of the island is not necessarily a sign that there was no trade with western merchants, for he seldom mentions any articles of trade in his work. The very fact that Ptolemy knew so much about the island (the size was probably his own error, as many other inaccuracies appear to be) shows that merchants from the west had not only visited it but must have spent some considerable time there, presumably engaged in trade.

The author of the Periplus knew vaguely of lands beyond India as far as China. Ptolemy, although confused in some of his directions, has a much more detailed knowledge, which shows that Roman voyagers had reached as far as the coast of South China, and had even resided in some regions, as Ptolemy specifically states. One man by the name of Alexander had written an account of his voyage to Cattigara, apparently Tong-king in South China, by the sea route, and this was used by Marinus of Tyre in his geography, which Ptolemy consulted.

There were two methods of reaching the Malay Peninsula from South India, one by following the coast round the Bay of Bengal, the other by using the monsoons and sailing direct to the western coast of Malaya from the region of Masulipatam. Ptolemy's description of the coastal regions of the Ganges Plain and Burma shows that this coast was quite well known, and was probably visited as being a worthwhile region for trade in its own right, for Ptolemy shows some knowledge of the inland reaches of both the Ganges and the Irrawaddy. Silk and spikenard were to be had on the Ganges, and nard was grown inland in Burma. Some merchants may therefore have been content to join in the general trade of the Bay of Bengal and finally make their way back to the west with a variegated collection of eastern wares.

Those merchants, however, who wished to trade solely with the Malay Peninsula and beyond, probably with the silks of China especially in mind, would use the quicker monsoon route from the Andhra coast, and thereby be able to complete the journey to China and back to India within a season. As a result of this extension of western enterprise Ptolemy was able to give the names of a host of ports, peoples, and islands of the Far East. Unfortunately, his preconceived idea of the Indian Ocean as an enclosed sea led him to distort the regions beyond Malaya. Nevertheless, many of the details are surprisingly accurate. The Periplus calls Malaya "Chryse"; Ptolemy is even nearer its Sanskrit name when he calls it the "Golden Chersonese" (Suvarna Dvipa). Among the islands of Trans-Gangetic India (the East Indies) is included "the Island of Barley", or "Iabadiou"; Iabadiou is a good transcription of the Prakrit version of the Sanskrit Java Dvipa, Barley Island. Ptolemy's description seems to refer to Sumatra, which was apparently included with Java in the term Java Dvipa. East of Malaya Ptolemy's description becomes more difficult to equate with known facts. He seems to include both the Gulf of Siam and the Gulf of Tong-king in one large gulf whose shore curves round so as to face Malaya. Cattigara, the port of the Sinae, is placed on this shore, facing westwards. The directions are, of course, very much in error, but there can be little doubt that Cattigara is to be placed somewhere along the south coast of China, probably in Tong-king (now a part of Viet Nam). The discoveries of a few Roman objects in Indo-China may be the result of visits by western merchants, although they may equally well have been brought by Indians who were trading extensively in the Far East by the 2nd century A.D.

The Chinese annals confirm the presence of Roman merchants in South China, and give some additional information about their trade. It has already been noted that the Hou-han-shu records the visit of an "embassy" from Ta-ts'in, which arrived in South China in A.D. 166. This was supposedly sent by the emperor "An-tun", presumably Marcus Aurelius Antoninus, although the annalist realised that the absence of jewels among the gifts of the westerners cast a grave doubt on the veracity of their claim to be an official embassy. It is stated that the Romans



brought ivory, rhinoceros horns, and tortoise-shell; clearly their western cargoes had already been sold in India. The annals do not say what the Romans took away with them from South China, but there can be little doubt that it was bales of silk. This cargo would certainly not be sold in India on the return voyage, but would be transported back direct to the west, where the price would amply reward the sailors' efforts.

The Hou-han-shu goes on to say that direct intercourse with Ta-ts'in dated from the time of this embassy. This seems to be inaccurate, for Ptolemy's information almost certainly refers to a time before 166. The explanation for the inaccuracy must be that the "embassy", which seems to have been an attempt to establish some sort of official status for the Romans engaged in the sea trade with China, was the first occasion that Roman traders had come to the notice of the Chinese authorities. Before the trouble in Parthia the sea trade with China must have been somewhat sporadic, but afterwards it became a more pressing matter to ensure a regular supply of silk along the sea route. Certainly the Hou-han-shu implies that after 166 Roman vessels were not infrequent visitors to South China. This is confirmed by the Liang-shu (54), which, referring to this period, says that merchants of Ta-ts'in often visited Siam, Annam, and Tong-king. Neither annalist gives any clear indication as to exactly how often Roman merchants did visit the ports of the South China Sea, but they seem to indicate more frequent visits than Schoff has suggested, at least in the short period from A.D. 166 to the end of the 2nd century.

Ptolemy was writing at a time when the eastern trade was at its height. Trade with East Africa, Arabia, and India had continued to develop on the foundation laid before the death of Nero. But now Ceylon, the Bay of Bengal, Malaya, the East Indies, and even China lay within the scope of Roman merchants, who, with improved navigational techniques and a market assured in the west, were prepared to spend more than one season in the east in order to obtain direct from their source the goods which would amply repay their time and effort.

The contacts of trade had brought in their wake new knowledge, mainly of the geography of the east, but Clement of Alexandria could even give some details of the religion of the Brahmins of India. Nor was the flow

of information one way only. The Kushans adopted features of Roman art; in parts of India there are traces of Roman law; the denarius was a standard weight, and the word itself was used by Indians.

52 And yet the trade was not destined to survive Ptolemy by many years, not at least the flourishing trade that Ptolemy knew.

## V. THE DECLINE OF THE TRADE WITH THE EAST

In spite of plague and wars the reign of Marcus Aurelius was still on the whole fairly prosperous. Although the land route was made impassable during the Parthian wars, and remained so for some time afterwards because of the sacking of several trading centres and the weakening of Parthian control, the sea routes from Egypt and the Persian Gulf seem nevertheless to have continued to flourish, as the prosperity of Palmyra and Egypt show, but there may have been further restrictions on the export of currency.

However, the situation within the Empire rapidly worsened under Commodus, a man of Neronian mentality, whose twelve years of rule brought the Empire into financial chaos and civil war, which Pertinax's few months on the throne could not avert.

Septimius Severus emerged from the turmoil in A.D. 197, and for fourteen years succeeded in maintaining both a solvent economy, albeit in part by a depreciation of the silver coinage, and a political stability reminiscent of the achievement of Vespasian. In the east Severus conducted yet another Parthian war in A.D. 197 against Vologeses IV, who had offered assistance to Severus' rival, Pescennius Niger. The result of the campaign was the total annihilation of Ctesiphon, the annexation by Rome of Mesopotamia, where two legions were now garrisoned, and the final humiliation of the Parthian monarchy.

But for the Roman Empire the reign of Septimius Severus was simply a short respite before the fall. His fourteen years as emperor were not long enough to revive commerce to its former level. Mesopotamia was indeed made into a Roman province, but the trade with the east could not benefit since Parthia was still impassable and Ctesiphon in ruins. The decline of the eastern trade had already begun under Commodus; the Empire was soon to follow.

Although the weakening state of the Roman Empire at the end of the 2nd century was undoubtedly the main factor in the decline of the oriental commerce, other events outside the Empire played a contributory part. Three powers in Asia, whose stability over the past 150 years or more had been no small factor in the development of Rome's trade with the east, were now experiencing similar misfortunes to those in the west.

Firstly, at the same time as Commodus was wreaking havoc with the state finances in Rome, native Iranians were preparing to assert themselves over the Parthians in Persia. The Parthians had seldom been free from court intrigue and family strife within the ruling class, but trade had usually passed unhindered across the country. However, the Parthian economy had been seriously weakened by the wars of the 160's, and their authority in Persia was by now scarcely more than nominal. Until the Sassanids were well established, about the middle of the 3rd century, trade routes across the country were in a dangerous state, with the result that after A.D. 166 silk was transported by sea, probably mainly to the Persian Gulf and across the Syrian Desert to Palmyra. When Parthia was once more safe for merchants the Roman Empire was no longer in a state to seek oriental luxuries.

Secondly, in China the Later Han dynasty, which had formerly so effectively controlled the trans-Asiatic silk route almost to the eastern boundary of Parthia, was coming to a bloody close in the last years of the 2nd century. After c.A.D. 180 most of the country was racked with civil war. At the eastern end of the silk route tribes of the Hsiung Nu (Huns) settled in the western provinces of China, thus ending the security which the eastern part of the route had enjoyed as long as the Chinese controlled their "Western Regions". South China, being somewhat removed from the centre of the civil strife, escaped the worst of the conflict, but trade by sea with the west was, of course, cut short from the western end.

Thirdly, the Kushan Empire of North India, having reached its zenith in the middle of the 2nd century, began to lose its grip over the Ganges basin and Gujarat towards the end of the century. By the 3rd century their kingdom had dwindled to Bactria and the Punjab. Even by the end of the 2nd century the Kushans may not have controlled any ports, and may therefore have been cut off from contact with the west.

The unrest and consequent financial insecurity of the Roman Empire was, then, accompanied by far-reaching political changes in key areas in the east. Had the west remained in a state of prosperity these changes may have had no more than a transitory effect, but the reduced demand for eastern goods in the Roman Empire contracted the horizons of merchants to

the boundaries of the Empire itself, and what trade there was passed from hand to hand through various middlemen along the ancient caravan and sea routes. It is doubtful whether western merchants ventured far beyond the eastern provinces at all during the 3rd and early 4th centuries. Even the sea route from Egypt was soon in the hands of Axumites and Himyarites, who reinstated their former monopolies by preventing Roman vessels from leaving the Red Sea. Knowledge of India among western writers soon became vague and was supplemented by extravagant imaginary accounts. At Arikamedu  
2 there is no western pottery after c.A.D. 200. Roman coins of the 3rd and 4th centuries are rare indeed in India, and those that have been found come mostly from North India, where they were probably brought by Sassanian Persians. Romans were once again passive recipients in a small eastern trade.

I. THE EASTERN TRADE AND THE PRINCIPAL ROUTES  
IN THE PRE-AUGUSTAN PERIOD

1. M. P. Charlesworth, Trade Routes and Commerce of the Roman Empire, p.58.
2. M. Cary and E. H. Warmington, The Ancient Explorers, p.89.
3. Strabo II. 98 ff.
4. Charlesworth, op. cit., p.59. For Acila, see Pliny VI.151.
5. Grenfell and Hunt, Oxyrhynchus Papyri, 1903, No. 413, p.41 ff. See also H. Rawlinson, Intercourse between India and the Western World, pp.139-140 and refs.; also E. H. Warmington, Commerce between the Roman Empire and India, p.332, n.14.
6. Journal of the Royal Asiatic Society, 1904, p.402; see also Warmington, op. cit., p.77.
7. Charlesworth, op. cit., pp.58-59.
8. See F. Hirth, China and the Roman Orient, p.173. The sea route may have been the more important for Petra, as Hirth suggests, but the prosperity of Antioch and Palmyra, especially after A.D. 107, would indicate that Hirth is overestimating the importance of this route in saying that it was the principal channel for the silk trade until the Parthian war under Marcus Aurelius. See also the present work p.53. For Antioch see Hirth, op. cit., p.208 ff.
9. R. Ghirshman, Iran, p.250.
10. Strabo XI. 509-510. See Warmington, op. cit., p.26 ff.; Charlesworth, op. cit., p.106 ff.
11. Pliny the Elder, Natural History, VI. 52.
12. Westermanns Atlas zur Welt Geschichte, Teil 1, pp.15, 23, and 27 shows a river (nameless) joining the Oxus and the Caspian. There is no evidence for such a river.

II. THE REIGN OF AUGUSTUS

1. See Warmington, op. cit., p.6 ff.
2. Strabo XVI. 781; XVII. 815.
3. Warmington, op. cit., p.14 and notes.
4. Strabo XVI. 780-782; II. 118; Pliny VI. 160; Cassius Dio LIII. 29.

5. See Warmington, op. cit., p.16. Also the present work, From Tiberius to Nero, p.27, where the reference to the tax in the Periplus (19) is discussed.
6. Warmington, op. cit., p.16 f.
7. Strabo II. 118.
8. See Warmington, op. cit., p.42 ff.; Cary and Warmington, op. cit., p.93 ff.; G. F. Hudson, Europe and China, p.75.
9. Charlesworth in Classical Quarterly, 1928, pp.92-100. Periplus Maris Erythraei, 57.
10. Pliny VI. 100-101.
11. Warmington, op. cit., pp.15-16.
12. Warmington, op. cit., p.334. n.31.
13. The destruction of Aden (Periplus 26) may have been the work of the Roman fleet under Gaius (see Charlesworth in Classical Quarterly, loc. cit.), but the emendation  $\epsilon\lambda\iota\zeta\alpha\pi$  for  $\kappa\alpha\iota\zeta\alpha\pi$  of the Periplus is very plausible, and would make the destruction the work of Eleazar, or Eleazus the Arab king of the Frankincense Country between A.D. 29 and 65 (see W. H. Schoff's edition of the Periplus, Introduction; also Periplus 27). Cary (History of Rome, p.496) says that the destruction of Aden was effected as a punishment for the breaking by the Arabs of the "amicitia" which he believes was made by Aelius Gallus in 25 B.C.
14. Res Gestae, 31 (Gagé's edition).
15. Priaulx, Appendix to edition of Apollonius of Tyana, 1873 (quoted by R. C. Majumdar, Classical Accounts of India, Appendix II, pp.474-483); Warmington, op. cit., p.33 ff. Literary evidence: Strabo XV. 719-720; Florus, Epitome, IV. 12; Cassius Dio LIV. 9.
16. Cf. Hou-han-shu, 88. The Parthians made every effort to keep their transit trade to themselves.
17. See Warmington, op. cit., p.366 n.63; Cary and Warmington, op. cit., p. 284 n.169.  
Maes Titianus' agents (Ptolemy I. 11. 1-6) may have made their journey across Parthia under Augustus. See M. Cary in Classical Quarterly, 1956, p.130 ff.
18. Charlesworth, op. cit., p.106.
19. Warmington, op. cit., p.30.

20. e.g. "Assyrian" nard. The adjectives Syrian, Assyrian, (and sometimes Arabian) usually indicate no more than that the products were acquired by Romans from these areas. The products had in fact reached there by the overland routes from India or China. Cf. Ovid Amores 2.5.40; Horace, Odes 2.11.16; Tibullus 3.6.63. Amomum, a spice used in medicine and funereal perfumes is not mentioned at all in the Periplus, although it is of Indian origin. It seems always to have come by the land route. Cf. Virgil, Eclogues 4.25.
21. For Romans in Petra see Strabo XVI. 779.
22. Cf. Periplus 35, 36, where the author shows only an outline knowledge of the Gulf compared with his full and accurate descriptions of the coasts of Africa, Arabia, and India.
23. e.g. Propertius 1.14.22; 4(5).8.23; Horace, Epodes 8.15; Odes 1.12.56; 3.29.27; 4.15.23; Virgil, Georgics 2.121; Ovid, Amores 1.14.6.
24. Propertius 2.3.15.
25. See Hudson, op. cit., pp.91-92; Pliny VI. 54; Hirth, op. cit., p.254 ff.
26. e.g. myrrh: Ovid, Metamorphoses 3.555; 4.393; 5.53; 10.310; 15.399; Medicamina Faciei 88; Virgil, Aeneid 12. 100.  
incense: Virgil, Aeneid 1.417; 11.481; Eclogues 8.66; Tibullus 1.3.34; 1.7.53; Propertius 3.10 (4.9).19; Horace, Odes 1.30.3; 1.36.1; 4.1.22; Ovid, Metamorphoses 7.589. Also Plautus, Poenulus 2.3.
27. Warmington, op. cit., p.186 ff.
28. Virgil, Georgics 2.117; Ovid, Metamorphoses 11.610; Warmington, op. cit. p.213.
29. Horace, Epistles 2.1.270; Ovid, Ars Amatoria 2.417. Cf. Theophrastus, Historia Plantarum 9.20.2.
30. Warmington, op. cit., p.168. See Horace, Satires 1.2.80; Ovid, Ars Amatoria 3.129.
31. Virgil, Georgics 2.463; Ovid, Metamorphoses 2.737; Cicero N.D. 2.57. 144.
32. e.g. Tibullus 2.4.30; Propertius 3(4).13.6; Ovid, Metamorphoses 10.260; Amores 2.11.13.
33. Song of Solomon, 4.13 and 14 (777).
34. Horace, Odes 2.11.16; Tibullus 3.6.63.
35. e.g. Ovid, Metamorphoses 10.308; Horace, Odes 3.1.44; Propertius 4(5).6.5.



36. The "biferi rosaria paesti" (Virgil, *Georgics* 4.119; cf. Ovid, *Metamorphoses* 15.708; Martial 4.42.10; 6.80.6) may have consisted of gifts of *rosa Indica* from an eastern embassy, or perhaps been added to a consignment of silk, as Warmington suggests (*op. cit.*, p.220). But the evidence is slender. They may have been some hybrid variety of the European rose.

Rice, too, could occasionally have been brought from the east. The word is of Tamil origin, and Strabo knew of its cultivation in India (XV. 690, 692). Horace refers to it once (*Satires* 2.3.155) implying that it was not uncommon at this time, apparently being used as a medicinal gruel. But Strabo says rice was also grown in Syria (XV. 692), which is the more likely source for the Roman market.

37. The most convenient analysis of the Roman coins found in India is R. E. M. Wheeler, *Rome Beyond the Imperial Frontiers*, p.164 ff.

38. Arikamedu may have been occupied by western merchants by the end of Augustus' reign. See the present work, *From Tiberius to Nero*, p.47.

### III. FROM TIBERIUS TO NERO

1. Tacitus, *Annals* III.53. Cf. Cassius Dio LVII. 15.
2. Suetonius, *Caligula* 37, 52, and 55.
3. Warmington, *op. cit.*, p.241.
4. Charlesworth, *op. cit.*, p.100 and note p.261; but Tacitus (*Annals* XII. 12) does not imply that the camp set up by Cassius was a permanent legionary fortress.
5. Pliny VI. 84.
6. The date of the voyage of Plocamus' freedman may be much earlier than A.D. 40. See D. Meredith in *Journal of Roman Studies*, 1953, p.38. However, for the wider issue of the dating of the use of the monsoons the exact date of this voyage is irrelevant.
7. Nero's expedition into Ethiopia (Pliny VI. 181 ff.; XII. 19; Seneca, *Naturales Quaestiones* VI. 8.3; Cassius Dio LXIII. 8.1) may have been an attempt to keep the Axumites in check; but see Anderson, *Cambridge Ancient History* X. p.880 ff.
8. *Periplus* 39 and 49.
9. Pliny VI. 54 and 101; XI. 76; XII. 84; Seneca, *De Beneficiis* VII. 9; Warmington, *op. cit.*, p.82; Petronius, *Satyricon* 55.
10. Wheeler, *op. cit.*, p.141.

11. See J. A. B. Palmer, *Classical Quarterly*, 1951, p.156 ff.
12. See Schoff, *op. cit.*, Introduction.
13. Schoff, *op. cit.*, p.67.
14. The Axumites were indeed no friends of the Arabs. They had arrived in Africa only a century before the date of the *Periplus*, having been driven out of South Arabia (where they had been known as the Habash people) by the Himyarites of the Frankincense Country. (See Schoff's note on *Periplus* 4, *op. cit.*).
15. Or perhaps with Bagamayo, about 30 miles north. See Schoff's note on Rhapta, *Periplus* 16, *op. cit.*
16. e.g. Josephus, *Antiquities of the Jews*, XVIII. 5.1; XX. 4.1. See also A. H. M. Jones, *Cities of the Eastern Roman Provinces*, pp.292-294.
17. Ammianus Marcellinus 14.8.13; Pliny VI. 144 ff.
18. Charlesworth in *Classical Quarterly*, 1928, pp.92-100.
19. Schoff objects to the Roman garrison theory on this ground. See *op. cit.*, note on *Periplus* 19. For a discussion of the problem see de Laet, *Portorium*, p.306 ff.
20. Warmington, *op. cit.*, p.16.
21. The phrase "friend of the emperors" does not imply that there were two emperors ruling simultaneously, as Schoff has pointed out (*op. cit.*, Appendix). Glaser has suggested dates of A.D. 40-70 for Charibael (see Schoff, *op. cit.*, Introduction), a period which includes at least two emperors up to the date which has been accepted in the present work.
22. In his translation Schoff omits "specie, as much as is required". Even if this is retained (as in McCrindle's translation, quoted by Majumdar, *op. cit.*, pp.288-312) its position on the list and the phrasing imply only small quantities.
23. Pliny XII. 83.
24. Pliny XII. 51 ff.
25. Ebony especially was common. See Virgil, *Georgics* 2.117; Ovid, *Metamorphoses* 11.610; Persius 5.135. After Nero on Ethiopian ebony became fairly common. See Warmington, *op. cit.*, p.213.

For sandalwood, teak, and blackwood see Warmington, *op. cit.*, pp.214-215

26. See Warmington, *op. cit.*, p.385 n.102.
27. Pliny XXXII. 21. See Schoff, *op. cit.*, p.168.
28. The word Storax was also used for the resin of *Styrax officinalis*. Both plants are found in the Eastern Mediterranean. For discussion see Hirth, *op. cit.*, pp.264-266. Both forms of storax have similar properties.
29. Schoff, *op. cit.*, p.128.
30. Cf. the finds at Begram.
31. Pliny XXXVII. 110.
32. Pliny XXXIV. 145; XXXVII. 204.
33. The route was not reliable before the Kushans, but there is no reason to believe, with Hudson (*op. cit.*, p.87) that this route was only established after the founding of the Kushan Empire. On the dating assumed in the present work the Kushans were still limited to the upper Indus at the time of the *Periplus*. The route probably dates back at least to the time of the Hellenistic kingdom in Bactria.
34. The text of the *Periplus* is doubtful, but the name may be Nambanus. This would be a reasonably accurate representation of the Saka king Nahapana who appears on Saka coinage from c. A.D. 78 - 124. He is also believed to have been governor of the region round Barygaza before he became king. The *Periplus* may be referring to him at the time when he was governor, not king, or may refer to some predecessor of the same or a similar name. See Schoff, *op. cit.*, note on *Periplus* 41.
35. See Pliny XII. 42-46; St. Mark XIV. 3-5.
36. See Warmington, *op. cit.*, pp.162-165. An Indian ivory statuette has been found at Pompeii. See Wheeler, *op. cit.*, p.163; M. Levi d'Ancona in *Artibus Asiae*, 1950, pp.166-180.
37. Schoff, *op. cit.*, p.193.
38. See *Periplus* 6.
39. Pliny XXI. 53.
40. The medium of communication may have been for the most part Greek, which may still have been spoken to a certain extent in North-west India even after the decline of the Greek kingdom in Bactria (one embassy to Augustus from India brought a letter written in Greek - Strabo XV. 719). It is possible, however, that stations such as that discovered at Arikamedu existed in other parts of India. Residents

from the west would undoubtedly speak the local language and would pass on the information they received to western merchants.

41. Palmer, loc. cit., omits to mention the fact that all the *ἐμπορία τοπικῆ* are in the Andhra kingdom. Calliena's position before the decline of the Andhra power seems to have been similar to that of Myos Hormos and Berenice in Egypt, that is, it was the port designated for foreign trade.
42. Pliny's Sigerus (VI. 101) was probably somewhere in the Andhra kingdom, perhaps Jaigar (see Loeb edition of Pliny, vol. II, p.415).
43. For the situation in the Andhra and Saka kingdoms see Schoff's notes on Periplus 41 and 50. He equates the elder Saraganus with the Andhra king Arishta Satakarni (c. A.D. 44-69) and Sandares with a later king, Sundara (c. A.D. 83-84). At the time of the Periplus Sandares must have been viceroy of the western province of the Andhra kingdom, a post often held by the heir to the throne. "In the time of the elder Saraganus" must refer to the viceroyship of Saraganus in the western province before his accession to the throne.
44. See Schoff's note on Periplus 56, op. cit.
45. Pliny XII. 26-29.
46. e.g. Juvenal 14.293; Persius 5.55; Celsus 2.27; 4.19; Petronius 36. Most of the recipes given in Apicius contain pepper, although the work is probably later than the 1st century.
47. Menon, Indian Antiquary, August, 1902 (quoted by Schoff, op. cit., on Periplus 56).
48. Quintilian 11.1.3; Pliny IX. 105; XXXII. 147; St. Matthew VII. 6; XIII. 45-46 (*μαργαρίτης*).
49. 1 Timothy II. 9.
50. Pliny XXXVII. 55-61.
51. See Pliny XXXVII passim.
52. Propertius 4.7.9; Pliny XXXVII. 76-79.
53. Pliny VI. 101.
54. Warmington, op. cit., p.276.
55. Khvostoff, History of the Oriental Commerce in Graeco-Roman Egypt, pp.408-410 (quoted by Warmington, op. cit., p.276).
56. For Tamil passages see R. K. Mookerji, A History of Indian Shipping.

57. The Indians called the route to the Far East the "Golden Route" (see Schoff in Journal of the American Oriental Society, 1917, pp.240-249). Malaya is called Suvarna Dvipa (Golden Peninsula - Chryse) in the Ramayana (see B. Harrison, South-east Asia, p.11).
58. See Wheeler, op. cit., p.169 ff. for a discussion of the problem. Wheeler's theory of Kushan interference in South India is open to the objection that there is no evidence of any influence of the Kushans as far south as the Tamil kingdoms.
59. See Wheeler, op. cit., p.172 ff. Wheeler also suggests that the area may have been a centre for brigandage.
60. For discussions of the coinage see Wheeler, op. cit., p.164 ff., and Warmington, op. cit., p.272 ff.
61. See J. M. Casal, Fouilles de Virampatnam-Arikamedu; Wheeler in Ancient India, 1946, p.17 ff.; Rome Beyond the Imperial Frontiers, p.173 ff.
62. V. R. Ramachandra Dikshitar's translation, p.110 ff.
63. See Mookerji, op. cit., pp. 128-129.
64. The Naturalis Historia was first published c. A.D. 77, but the bulk of the information was probably gathered in Nero's reign.
65. Pliny VI. 56 ff.

#### IV. FROM VESPASIAN TO MARCUS AURELIUS

1. e.g. Martial: 1.109.4; 2.29.2; 4.13.3; 9.37.3; 10.80.1; 10.97.2; 11.27.11; 11.50.4-6.  
Statius: Silvae 1.2.111; 2.6.88; 4.9.12; 5.3.42-43; Thebaid 2.276.  
Juvenal: 4.108-109; 6.156; 6.382; 7.133; 8.159; 13.139; 14.293.  
Lucian: Vera Historia 2.11; Muscae Laudatio, 1.
2. See Warmington, op. cit., p.272 ff., especially p.311 ff.
3. Statius, Silvae 3.2.36-38.
4. Warmington, op. cit., p.86.
5. Martial 1.87.2; 11.50.6; 12.65.4; 10.38.8 and elsewhere. Statius, Silvae 2.4.25; Persius, prol. 8.
6. Warmington, op. cit., p.91 ff.

7. Dura Europus has recently been extensively excavated (Rostovtseff and others, *Excavations at Dura Europus, Preliminary Reports I - VIII, U.S.A. 1929-39*). It was a thriving, cosmopolitan city, depending on its transit trade for its wealth, and probably typical of the boundary cities along the Euphrates.  
  
For Palmyra, see A. H. M. Jones, *op. cit.*, pp.266-269; also H. Seyrig in *Journal of Roman Studies*, 1950, pp.1-7.
8. Arrian, *Periplus*.
9. Ptolemy shows little advance over Strabo in his description of the Black Sea and Caspian regions, (see Ptolemy VI. 14.4; VI. 12.1. ff.). He follows Strabo's error of confusing the Aral and Caspian seas (Strabo XI. 509-510). It seems that Roman subjects were not at all familiar with the Caspian route; probably few, if any, had ever passed along its length into North-west India.
10. See Warmington, *op. cit.*, p.104.
11. But see the present work, *The Reign of Augustus*, n.17.
12. Ptolemy, *Geography*, 1.11.5 ff.
13. Mela, *De Situ Orbis* 1.2 and 3.7; Pliny VI. 53.
14. See Hirth, *op. cit.*, p.214 ff. The Hou-han-shu (*Annals of the Later Han*) was written in the early 5th century, but refers exclusively to the Han period.
15. The li appears to be the equivalent of a Greek stade; indeed, Kan-ying's figures in li may simply represent the stades of a western informant.
16. Hirth, *op. cit.*, p.183 ff.
17. Ghirshman, *Iran*, pp.283-284.
18. Seligman in *Antiquity*, 1937, p.5 ff., "The Roman Orient and the Far East"; also *Cambridge Ancient History*, vol. XI. p.631, n.2. Sir Aurel Stein, *Serindia*, pp.373-4.

See Hudson, *op. cit.*, p.93.

For Seric skins see Pliny XXXIV. 145. Iron mentioned by Pliny can probably be discounted (see Schoff in *Journal of the American Oriental Society*, 1915, pp.224-239).

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19. The Wei-liao, an account of the Wei dynasty which followed the Han in North China, is not extant in its entirety, but is quoted extensively in the San-kuo-chi (History of the Three Kingdoms, i.e., Wei, Wu, and Shu, A.D. 220-265). The Wei-liao was written earlier than the Hou-han-shu, perhaps as early as the 3rd century, and includes much information from Han times. The list of the products of Ta-ts'in was most probably compiled before the decline in the trade c. A.D. 200. (Hirth, op. cit., has a text and translation of the relevant passages of both the Wei-liao and the Hou-han-shu).
  20. See the present work, From Tiberius to Nero, n.9.
  21. Hudson, op. cit., p.101.
  22. See Seligman, loc. cit.
  23. According to Chinese sources, glass-making was introduced into China only in the 5th century A.D., either from India or from the Mediterranean (see Hirth, op. cit., p.230 ff.). Seligman, however, (loc. cit.) believes that glass was made in China much earlier than this, for some glass beads of Han date contain barium, which is not found in Roman glassware. Seligman's view is, however, contrary to the literary evidence. If the barium-glass beads are in fact of Chinese origin the industry in China must have been insignificant and perhaps short-lived; at any rate, most Chinese, including merchants, seem to have been unaware of its existence.  
  
For imitation jewellery see Pliny XXXVII. 98.  
  
Glassware has been found at the Nabataean site of At Telah (see Murray, Petra pp.123-124 and refs.).
  24. Pliny VIII. 196.  
  
For Attalica see Propertius 3.5.6; 5.5.24. See Exodus 28.6. Cf. Virgil, Aeneid 1.648.
  25. Hirth, op. cit., p.254 ff.
  26. "Coae vestes" were made of some insect product similar to silk, but were not the silk of Bombyx mori. See Hudson, op. cit., pp.59-60 (footnote) and p.92; also Pliny XI. 76-78.
  27. See Warmington, op. cit., p.106 ff.
  28. Ptolemy VI. 7.1-47.
  29. Ptolemy VII. 26 ff.
  30. Cassius Dio IX. 58.

31. See Wheeler, *op. cit.*, p.191 ff. See also reports by R. Ghirshman and J. Hackin quoted in bibliography.
32. See H. Buchtal, *The Western Aspects of Gandhara Sculpture* (Leiden, 1945); J. Marshall, *The Buddhist Art of Gandhara* (Cambridge, 1960); B. Rowland, *The Art and Architecture of India* (Penguin, 1953) pp.75-91; A. C. Soper in *American Journal of Archaeology*, 1951, "The Roman Style in Gandhara"; R. E. M. Wheeler in *Antiquity*, 1949, pp.4-19.
33. See Marshall, *Taxila*, Vol. 2, plate 44, and Rowland, *op. cit.*, pp.89-90.
34. Cf. the views of Rowland, Wheeler, and Buchtal, as opposed to those of Marshall.
35. The Trojan Horse from Gandhara (see Wheeler, *Rome Beyond the Imperial Frontiers*, plate 27) appears to give Virgil's version of the story, not Homer's. See J. Allan in *Journal of Hellenic Studies*, LXVI, pp.21-23; A. Foucher in *Comptes Rendues de l'Académie des Inscriptions et Belles-Lettres*, 1950, pp.407-412; C. Picard, *Revue Archéologique*, 1950, pp.150-151; *Journal of Roman Studies*, 1964, p.245 (review of R. G. Austin, *Virgil Aeneid II*).
36. See Warmington, *op. cit.*, p.112.
37. Ptolemy VII. 1. 82-83.
38. Ptolemy VII. 1. 8-15; 85-93.
39. Ptolemy VII. 4. 1 ff.
40. See Warmington, *op. cit.*, pp.120-125.
41. Ptolemy VII. 2 ff. See Warmington, *op. cit.*, p.126.
42. Ptolemy VII. 1. 16 ff.
43. Recent excavations at Tamruk in Bengal (anciently Tamralipta) have revealed Roman coins. (Information from Mr. Basu, School of Oriental Studies, Durham).  
  
See Warmington, *op. cit.*, p.128.
44. Pausanias' ideas may have been more correct (see Warmington, *op. cit.*, pp.129-130). It was not generally recognised that the Seres met with on the land route were the same nation, at least politically in Han times, as the Sinae encountered by sea.
45. Ptolemy VII. 2.5 and elsewhere.



46. Ptolemy VII. 2.29.
47. See Rawlinson, Intercourse between India and the Western World, p.134 ff. Also Harrison, South-east Asia, p.11; Hall, A. History of South-east Asia, pp.15-16.

The Sanskrit names for the lands in the Far East are evidence of the spread of Indian trade in this area.

The identification of Java Dvīpa is still not settled. Borneo has been suggested (see Harrison, op. cit., p.12). Rawlinson (loc. cit.), probably mistakenly, restricts the term to Java.

Roman glass beads of the 1st and 2nd centuries A.D. have been found on the Johore river in Malaya (see Harrison, op. cit. p.11).

48. A Roman bronze lamp, probably of the 1st or 2nd century A.D., has been found at P'ong Tuk on the Mekong, 40 miles from the coast (see Wheeler, op. cit., p.206 and ref.).

Other Roman finds have been reported from Oc-éo on the Mekong delta (see M. L. Malleret in Bulletin de l'Ecole Française d'Extrême Orient XLV, fasc. 1 (Paris, 1951) p.75 ff).

See also C. Picard, *Artibus Asiae*, XIX, nos. 3-4 1956, pp. 342-352: the Tra Vinh bronze dancer, probably made in the east in imitation of an imported Mediterranean work.

49. See Hudson, op. cit., pp.89-90.

The continued prosperity of Palmyra after A.D. 166 would seem to indicate that much of the sea trade, especially the silk coming from China, went to the Persian Gulf and thence by land to Palmyra, instead of taking the Red Sea route to Egypt.

50. Schoff in Journal of the American Oriental Society, 1917, pp.240-249.
51. Clement, *Stromateis* III. 194.
52. Warmington, op. cit., p.131.

#### V. THE DECLINE OF THE TRADE WITH THE EAST

1. Finds in India of Roman coins become scarce under Marcus Aurelius (see Wheeler, op. cit., p.164 ff.; Warmington, op. cit., p.272 ff.).
2. Warmington, op. cit., p.137. For Arikamedu, see Wheeler, op. cit., p.176.

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