The defining element of the Hellenistic world is most certainly warfare. The age was characterized by almost endless military struggles, with up to five major powers battling each other over the remnants of Alexander’s empire. Warfare in the Hellenistic world was so ubiquitous that general narratives of the period often skip over entire military campaigns, due to their tangled politics and lack of enduring impact. Although there are some excellent modern studies of Hellenistic warfare, some areas remain largely elusive and have traditionally been given short shrift. Imperialism, finance and in particular the links between the two, are subjects that, while of tremendous importance to Hellenistic warfare, have rarely been studied in depth. This section, while too brief to redress the balance, none the less aims to be a starting point for further study.

Modern scholars often forget about the tribal roots of the Macedonians, and that their society in the fourth and third centuries was still one of warrior élites. Macedonian generals of the Hellenistic world still fought from the front as their predecessors had, and kings were traditionally seen as the first among equals. Although modern scholarship tends to assign credit for the conquest of the East exclusively to Alexander, the sources suggest that the Diadochoi viewed it as a more broadly Macedonian achievement. This goes part of the way towards explaining the ubiquity of warfare in the Hellenistic period; warfare was what the Successors did, they were both generals and warriors, and in theory they, like all Macedonian kings, should have had the ability to plan and undertake a massive campaign, and at the same time to fight the enemy in the thick of combat. The wars fought by the early

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1 With notable exceptions. Apart from Archibald et al. (2001), the study of these areas has largely been confined to French scholarship; see Austin (1986); Lévêque (1968); Préaux (1989).
2 Diod. Sic. 20.9.2; Plut. Mor. 183d; Pyrb. 9; Polyb. 5.6, 69, 71, 84, 7.15, 9.41, 10.28–30, 16.3–6, 22.3, 31.29. See Austin (1986) 458; Bar-Kochva (1976) 85–6; Préaux (1989) 196–8. For the idea of the warrior king in Hellenistic literature see Beston (2000); Walbank (1984) 81–4. Contrast ideas of weak and feeble Hellenistic monarchs: Livy 44.42.1–2; Plut. Aem. 19.3, 23, 33; Polyb. 5.34.4–10, 87.3, 22.17, 29.17.3, 36.15.
Successors may be seen as the logical extension of this. As the empire was Macedonian and had been won by themselves, and as no obvious successor to Alexander had emerged, why should they not fight each other for the spoils for which they had spent over a decade campaigning? Why should the strongest not triumph and take control of the empire? This was what would have happened in the age before Philip II, and therefore it should come as no surprise that this happened in 323. Only the scale of the warfare had changed.

1. Philip and Alexander

This era was essentially initiated by Philip II himself, and although it is likely that changes to the Macedonian military structure were already afoot before he took the throne in 359, there is no doubt that his twenty-three-year reign represented a watershed in the development of the Macedonian army as the most successful fighting force of its time. Philip was able to achieve this because of his successful management of several areas of political and military dynamics, not the least of which was Macedonia’s finances. Macedonia was certainly not poor upon Philip’s assumption of the throne; he could count upon a good amount of monies coming into his coffers via the export of timber (upon which a royal monopoly existed), taxes on land, and his mineral reserves, which were always substantial. Nevertheless, these reserves increased dramatically once Philip occupied southern Edonis in 356 and Chalcidice in 348, tapping into the rich veins of gold and silver there. The wealth of Thessaly also made a major contribution. This increased financial strength gave Philip the freedom to engage in imperialism first towards Greece and then Persia, not only paying for his army but also allowing him to attract desirable men to his beautified court and to conduct extensive economic diplomacy.

With his new found sources of wealth Philip was able to bolster his already large native force with troops of every kind. Thousands of infantry, cavalry and missile troops could be hired from all over the Mediterranean, and he used cash incentives to attract scientists and engineers to his court in order to build him a siege train. Siege trains were relatively new in Greek warfare, and had previously only been employed with any effect by Dionysius I of Sicily (405–367); afterwards, Syracuse continued to be a centre of the study of siege technology, and this process culminated with the machines of Archimedes in the third century. Thus we may presume that Philip’s wealth attracted many a Syracuse-based engineer. Although this siege train was not always successful at first (Perinthus and Byzantium both resisting

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5 See Diod. Sic. 16.8.6. See also Bosworth (1988a) 8–10; Hammond et al. (1972–88) ii.69–73.
attack), the size of Philip’s army allowed him the time to conduct lengthy sieges as he now had the ability to fight on multiple fronts.  

Philip’s resources also allowed him to conduct extensive, and aggressive, diplomatic efforts that largely centred on financial inducements and bribery (as long used by the Persian empire). In order that he might turn to Greece, he first used his wealth to pacify his northern border, and throughout his reign he acquired many allies in that region through payments, while those who would not side with him were often paid off so that he could concentrate his efforts elsewhere (Diod. Sic. 16.3.4).

Most of Philip’s purchases of goodwill were, however, reserved for the Greeks. He used his wealth as a diplomatic tool as much as he used the threat of force; money could buy him either allies, neutrality, or outright peace. For those who would not acquiesce, Philip could and did fund fifth-column elements within many states, and paid several parties who staged successful coups in many poleis, the party in power then becoming both his ally and his client. The skilled use of his resources purchased allies for him all over Greece, and eliminated many potential obstacles to his plans for a greater integration of Macedonia into the political culture of the Greek world. And when these plans turned to categoric imperialism, these previous efforts made his invasion and eventual take-over of Greece all the easier.

Notwithstanding the advantages this gave him when he did turn to military imperialism, Philip’s exercise of diplomatic imperialism should in no way be seen as overly aggressive; in fact it was normal for the times in which he lived. This type of behaviour was characteristic of all Greek states in the fourth century, as it was simply expected that one’s wealth would be used to win these sorts of gains over opponents. Because of the end result of Philip’s dealings, namely the loss of autonomy of the Greek poleis, one is tempted to see Philip as introducing a seditious element into Greek politics, but the affairs of the Greek states before his ascendancy illustrate that his actions, although acted out on a larger scale, were in fact canonical.

Alexander’s finances are much more straightforward than his father’s, since he used his wealth largely for the purpose of conquest. Although he had the funds to launch his expedition, this depended on heavy borrowing after the large expenditures of Philip’s reign, and it is questionable how long he could have maintained it. During the early years he relied on his Macedonian coffers and requisitions of supplies from the locals, but his finances still appear to have been taxed, as evidenced by the disbanding of his navy, which would have proved invaluable during the siege of Halicarnassus and against the Persian counter-offensive in Greece. However, this soon

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6 See Dem. 9.58; Garlan (1994) 689.  
7 Dem. 9.56–66; Diod. Sic. 16.53.2.  
8 Bosworth (1988a) 9.  
9 Arr. Anab.7.9.6; Curt. 10.2.24; Plut. Alex. 15.2.
changed as his finances were bolstered by periodic influxes of plunder, as at Sardis in 334, Issus in 333 and Damascus the following year. Even greater wealth came once he ventured into the Persian heartland and took Babylon and Susa in 331 and Persepolis and Ecbatana in 330; these places, the latter in particular, provided Alexander with the full resources of the Persian kings. From this point onward, he shows a marked disregard for finances, and funding was no longer something about which he had to worry.

A significant amount of the movable plunder that was seized from the main urban centres of the Persian empire was melted down in order to mint coins. From the early 320s Alexander coinage went into heavy circulation, and managed to displace some local coinages within a short time. Several mints were set up within his realm. Used mostly by Alexander personally to pay his mercenaries, these coins served a greater purpose in that they promoted Alexander himself, his new universal empire, and perhaps even his divinity.

Alexander appears to have cared little for the tribute that was ostensibly paid to him by various parts of his empire, largely because it was simply not required. A similar reason surely lies behind the fact that he did not bother to seize most of the satrapal treasuries that he came across, with the notable exception of those already mentioned. Ironically, left intact, some of these treasuries were seized upon his death, and they allowed the Successors a measure of financial independence which they used to strike out on their own.

**2. The early Successors**

As already mentioned, the level of warfare undertaken by the Successors (*Diadochoi*) was different to anything that the Mediterranean world had seen previously. This scale was made possible through the increased wealth of each of the individual *Diadochoi*. Hellenistic armies were massive compared to their classical predecessors – in 317 at Paraetacene, Antigonus and Eumenes fielded armies with a combined total of nearly 80,000 troops (Diod. Sic. 19.27–8), while by the time of Raphia exactly a century later, the forces of Antiochus III and Ptolemy IV Philopater totalled nearly 140,000 (Polyb. 5.79). Furthermore, these forces were composed of professional soldiers, in the form of both mercenaries and regular standing units. Concerning the former, the bullion of Darius and Alexander that was in circulation in the early Hellenistic world, coupled with the increased demands of the *Diadochoi* for troops, drove up the prices of mercenaries considerably. It has

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10 Diod. Sic. 17.80.3; Just. *Epit.* 12.1.3; Strabo 731. See Bellinger (1963) 68–70; Bosworth (1994) 865.
11 Curt. 8.12.16; Plut. *Alex.* 59.4.
14 Diod. Sic. 18.1.14.1, 19.46.6, 48.7–8, 56.5.
been calculated that standard pay for mercenaries actually doubled from the average of 4 Attic obols a day for a hoplite and 8 Attic obols a day for a cavalryman in classical Greece and under Philip and Alexander, to 8 obols a day and 16 obols a day respectively.

Another cost to Hellenistic warfare that had risen considerably from its classical predecessor was that of siege warfare. As defensive works quickly caught up to the Macedonian advances in siege technology from the mid-fourth century, so offensive siege weapons had to improve. As witnessed at Demetrius Poliorcetes’ siege of Rhodes from 305 to 304 (Diod. Sic. 20.81–100), this now became a business unto itself, and as a business it is likely to have had no small effect upon the economies where production of machines was greatest.\(^\text{15}\) Highy experienced and highly expensive scientists and engineers now began to build massive and complex engines in order to topple the walls of Hellenistic cities. As a result of this, defensive works again experienced a technological advancement, with many cities now beginning major fortification projects (fig. 14.1). More remembered today for his mathematical genius, during his own age the great Archimedes was actually a master of defensive siege warfare, and his devices significantly delayed the Roman capture of Syracuse.\(^\text{16}\)

\(^{15}\) Davies (2001a) 36

\(^{16}\) Diod. Sic. 26.18; Livy 24.33.9–34.16; Plut. Mar. 14.3, 15.1–17.3; Polyb. 8.3–7.10; Tzetz. Chil. 2.103–49; Zonar. 9.4.
In terms of numbers of warships, Hellenistic fleets did not balloon as much as the land forces did in comparison with their classical predecessors. In 315, while making preparations for the coalition war that was about to be waged against him, Antigonus Monophthalmus created a navy that was 240 vessels strong. However, nearly half of these warships were quadriremes or larger (Diod. Sic. 19.62.8), suggesting that Antigonus' navy, never mind those of his adversaries, was manned by between 85,000 and 90,000 men. These numbers exceeded even those seen in the fleets of the Athenian empire, and were enormous by ancient Greek standards. It is for these reasons that warfare in the Hellenistic age was such an expensive prospect, as the maintenance of these massive forces taxed the finances of even the most economically astute of the Successors.17

Little can be said concerning the finances of many of the original Diadochoi, largely because they were not around long enough. They and their armies seem to have lived mainly off plunder and the seizing of various mints and treasuries containing bullion and coinage that had belonged to Alexander, Philip and the Achaemenids, though taxation of rich areas such as Asia Minor must have played an increasingly important role as the bullion was gradually expended. Antipater and Craterus did receive additional funding from their peers to fight the Lamian war (323–322), but both died within three years of the War’s conclusion. Antipater’s son Cassander joined the fray in 318 and was originally funded for his invasion of Greece and conquest of Macedonia by Antigonus Monophthalmus, but he later turned against his patron and joined the coalition war against him (315–311). From 316 he was the ruler of Macedonia, where he could rely on the funds of the mints, especially that of Pella, and the mines of the region. These however, fell drastically short of what the other dynasts had in their coffers, particularly the massive wealth of his former patron Antigonus, who funded cities to ally against him. He also suffered from a lack of troops, as Macedonia’s manpower had been severely tapped by the Alexandrian conquest. Only another coalition war against Antigonus saved him from a massive invasion by Demetrius Poliorcetes, Antigonus’ son.

Cassander’s death in 297 once again left Macedonia in chaos. His main rival in Greece during these years was Polyperchon. In 321 Polyperchon was allotted funds for the coalition war against Perdiccas, and afterwards was able to fund his forces in Greece out of the resources in Macedonia. From his expulsion from Macedonia in 316 by Cassander until at least 303, he maintained himself mostly in the Peloponnese. At first he seems to have received some funding from Eumenes of Cardia, but after the latter’s death, he sustained himself and his army by ‘plundering the greater part of Greece’ (Diod. Sic. 20.100.6). Eumenes himself was provided with funding

Figure 14.2  (a)–(e) Macedonian coinage: (a) a bronze coin of Cassander; (b) and (c) silver tetradrachms of Demetrius Poliorcetes; (d) and (e) silver tetradrachms of Antigonus Gonatas.
by Perdiccas for his subjugation of Cappadocia in 322, and afterwards mostly lived on what he seized in Asia Minor. That his income was gradually running dry is illustrated by the disastrous campaign in the Iranian highlands that led to his death at the hands of Antigonus in 316.

Lysimachus did not fare well financially with Thrace as his province – the place generated little wealth, and his early expenditures were high as he first had to fight against the natives. After Ipsus in 301, however, he was granted much of western Asia Minor as an extension to his province. This brought with it some of the wealthiest lands of Alexander’s former empire, and they included several treasuries. Over time he amassed a fortune of over 9,000 talents, much of it contained in his main treasury at Pergamum. Lysimachus also forced a heavy burden of tribute onto the cities in his realm, and these sources funded his campaigns to the north and his conquest of Macedonia in 285. In the same year we are told that a large hidden treasure hoard in Thrace was revealed to him, increasing his wealth yet again (Diod. Sic. 21.13). Now at the height of his power and wealth, he was defeated and killed by Seleucus I at the battle of Corupedium in 281.

Each ruler needed to maintain an economic system that was specifically designed to finance his aims in the sphere of war. This is what largely fuelled the efforts of Antigonus Monophthalmus in his bid to reunite Alexander’s empire. Plunder taken in actual campaigns was certainly a very important source of income for Antigonus, but his chief sources of finance were the treasuries that he possessed and those that he subsequently seized after 318. As one of Alexander’s satraps, Antigonus already controlled the treasuries at Pergamum, Sardis and Synnada in Phrygia, and perhaps others as well; from early on, he began to use the contents of these treasuries to fund his personal army and navy. Most importantly, at the outset of his bid for power he seized control of the treasuries at Ecbatana, Susa and Cyinda in Cilicia (Diod. Sic. 19.46.6, 48.7–8, 56.4–5). These all held taxes, tribute and plunder that had been collected not just by Alexander, but also by Darius III and his Achaemenid predecessors. To this he added what Diodorus calls the ‘treasures of Asia’ (18.50.2), with Anatolia offering both a major source of wealth and a huge recruiting ground.

While plunder and the lands and treasuries that he already controlled made Antigonus formidable, those that he seized made him nearly unstoppable; the wealth he now possessed in the form of Macedonian and Persian bullion was overwhelming, and his fortune has been estimated at 35,000 talents. In fact it is doubtful that he even needed a significant

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18 Diod. Sic. 20.49–52.6; Plut. Dem. 16.2–3.
19 Diod. Sic. 20.107.3–5. See also Paus. 1.8.1; Polyaenus, Strat. 4.9.4; Strabo 13.623.
20 Billows (1990) 256.
percentage of this to achieve his aims, and he would probably never even have come close to using most of it. This is illustrated by the fact that a substantial war chest was left for his son Demetrius to carry on the fight (Plut. Dem. 32.i). So, from this point forward, Antigonus could comfortably afford to hire as many troops and construct as large a navy as manpower availability allowed. Although he was certainly not struggling for funds, the loss of Greece in 308 was a blow to his ambitions. Greece represented a large recruiting ground for both soldiers and sailors, possessed several well-trained navies, and was a source of additional income; this helps to explain the celerity with which he sought to retake the place the following year.

On campaign, both in Greece and elsewhere, Antigonus carried with him a large mobile treasury so that he could quickly raise, equip, and pay armies and navies. Additionally, both Monophthalmus and subsequent Antigonid leaders often received payments from cities within their realm; these took the form of voluntary gifts and of extraordinary payments that were demanded on top of any tribute, taxes, or payments towards the maintenance of a garrison. While never a major source of income, this practice nevertheless could represent a useful top-up to a dynast in a particular time of need.

Antigonus made deliberate efforts to lessen his need for imports such as grain, and to run a partially closed economy. Such measures could well have been forced upon him by his enemies refusing to trade with cities within the Antigonid sphere. However, even if this was not the case and the scheme was initiated by Antigonus, it was not a planned economy by any modern definition of the term, but in fact represented an extension of Antigonid military policy by other means. It was not designed to aid his own producers by forcing consumers to buy products made within his realm, but rather to offset imports from the rest of the Hellenistic world and thus strike an economic blow at his enemies, in particular Ptolemy I from whom Asia annually imported a large amount of grain. It would also have had the effect of making Antigonus and his forces less dependent upon outsiders for supplies. The scheme’s intention was purely military, and as a result we should see it as no different from the grain tithe of Ptolemy and the royal estate taxes of Seleucus; it was designed by Antigonus with the

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22 On Greece as a source of money and manpower see Austin (1981) 31–2; SEG xlii.1069, 1803; RC 1. See also Billows (1990) 147–8, 215–16.
23 SEG xxxii.102; Diod. Sic. 19.57.5, 61.5.
25 RC 3; Diod. Sic. 19.58.1–6, 20.82.1–2; Plin. HN 12.56, 13.73; Polyaeus, Strat. 4.6.16; Theophr. Hist. pl. 4.8.4, 9.4.8.
aim of giving himself an advantage in warfare. The success of the plan is unknown, but Antigonus is unlikely to have been around long enough to have seen its full implementation. The fact that there is no evidence for its continuance under the Seleucids, despite their own struggles with the Ptolemies, is highly significant.

3. The Hellenistic states

One of the main characteristics of warfare among the Diadochoi was the fact they were not yet tied to states and were largely fighting over the empire that had been left by Alexander. This had little administrative and financial infrastructure, and as such it took decades before anything like stable states developed. Once this did happen, leaders still could derive a great deal of income from plunder, and war was still lucrative, but it could also be costly due to the size of the forces involved, and thus other sources of funding needed to be found to maintain the dynasts and their armies. So monarchies became less imperialist over time, and settled into non-aggressive means of raising capital. The most famous instance is Ptolemy II Philadelphus’ system of taxation in Egypt in the 260s, which was designed not only to finance his military ventures but also to feed his armies. This Ptolemaic agricultural tithe system later went on to become the chief source of income for the dynasty. Its function was based upon a combination of state, regional and local officials mixed with a heavy dose of private enterprise. As the army was dependent for its financing upon the tithe, the heavy government involvement should come as no surprise.

The Ptolemaic government was involved on nearly every level of the tithe. Although private estates never ceased to exist in Egypt, the king himself was in theory the owner of all land, and various portions were rented out or given away as gifts and rewards. The office of dioiketès ran the tithe system from the highest level, and under him worked an army of civil servants who judged the yields of people’s farms, collected the tithe and at times even transported it. The relationship between the Ptolemies and the farmers was in theory reciprocal, where the former supplied the seed and the necessary implements and at harvest the farmers would be expected to hand over a fixed amount of grain, which by the standards of

26 Panagopoulou (2001) 346–8; Reger (2002) 146–9; contra Billows (1990) 291–2; Rostovtzeff (1941) iii.1354, who argue for a planned economy. While Billows does admit that the profits went to make war, he does not see the attempt to form a closed economy as a belligerent act in itself.


28 For private land see Mattha (1975) col. 6.3–4; POxy. 46.3285, fr. 1.1–3; P Teb. 1.5; W Chrest. 110.12.
other ancient and medieval tithe systems was excessively large, at times as much as sixty per cent, and must have been difficult to bear.29

Although some cases of royal collection and transport are known, for the most part individuals and conglomerates would bid for the right to collect the tithe, exact the agreed percentage from each farmer on the threshing-floor, pay the king his due, and sell the rest for profit.30 Transport of the grain was also largely handled by private river boats under sub-contract, but it seems that at least a small merchant marine was used by the Ptolemies when the proceeds of the tithe went directly to supplying their armies in the field.31 The high degree of centralization, in which extensive records were kept, and where codes and edicts governed nearly every foreseeable scenario, also appears to have been a heavy burden for the native Egyptian farmer. The proceeds of the tithe that went to feed the Ptolemaic armies included both grain and products manufactured in royal factories from the tithe’s produce, such as beer, wine and oil.

The system was far from perfect, but overall it was a success. The Ptolemies took steps towards maximizing the Egyptian economy, but the excessive bureaucracy and the heavy burdens shouldered by the peasants meant that the full potential of such a tithe would never be realized.32 Nevertheless, this would have made little difference to the Ptolemies, since it was never their intention to maximize the profits so that their kingdom as a whole could be wealthy. The Ptolemies were not capitalists, mercantilists or even shrewd financiers; they were unabashedly military dynasts and imperialists, and their tithe system existed to provide them with the means to wage war.33 The economic growth of Egypt was only furthered if it could provide the Ptolemies with greater resources for combat.

The success of the tithe, combined with the fact that Egypt was difficult to invade, go a long way towards explaining why the Ptolemies were the least aggressive of the Hellenistic dynasties but were able to maintain themselves as major players in the eastern Mediterranean longer than any of the other Diadochoi. Not only did they survive for longer, but the Ptolemies were considered fantastically wealthy, even by Hellenistic standards – Cicero tells us that even as late as the first century, the annual revenues of the Ptolemies were 12,500 talents.34 And the rulers did not hesitate to show this off, since among the Hellenistic monarchs wealth was intrinsically tied to military power.35 None the less, it was the maximization of the economy for war

31 Thompson (Crawford) (1983) 75. Although much of the transport was private, the Ptolemies nevertheless were known to have financed several vessels; see P Ryl. 4.576.
34 Cic. ap. Strabo 17.1.13. This figure has been questioned by Hopkins (2002) 196. Diod. Sic. 17.52 reports that the annual income of the Ptolemies was 6,000 talents, but even this is a very formidable sum for a kingdom to be amassing on a yearly basis.
35 See Callixeinos of Rhodes, FGrH 627 Fz; Theoc. 17.75–6.
that eventually led to cracks in the system, as the constant and large scale warfare of the Hellenistic age created too much of a strain and eventually led to social unrest and acute economic problems that irrevocably curtailed Ptolemaic ambition.36

Although smallholders made up the majority of farmers in Ptolemaic Egypt, a proportion of the land was occupied by military settlers known as cleruchs.37 Previously, the pharaohs had given land to Greek soldiers in their service, and Macedonian precedents for the cleruchy system also existed in terms of Alexander’s grants of land to mercenaries in the East and Philip’s policy of attracting good soldiers to his army by promises of agricultural plots. The Ptolemies not only continued this practice, but widened it both in terms of numbers and in terms of the ethnic origin of the military settlers.38 The original settlers were from the Macedonian army and the mercenaries of Ptolemy I Soter, and in the first half of the third century the grant of land was one of the main incentives towards service in the Ptolemaic army. While Greeks themselves were the most numerous, and formed the highest class of cleruch, a great number also migrated from Judaea and Caria; many other soldiers came from Arabia, Galatia, Idumaea, Cyrenaica, Nabataea, Palestine, Syria and Thrace. Some Persian garrison forces who remained after the Macedonian conquest became cleruchs, while the success of the system in attracting quality soldiers is attested by the fact that it also featured more than a few Campanians, Sicels and southern Italian Greeks.39 These cleruchs would have been allotted a parcel of land – varying in size according to their rank – in Egypt in return for loyal service. Other cleruchs were ex-mercenaries hired by the king and then issued with the land after a campaign or a period of service. Still others were prisoners of war, who are also known to have been forcibly settled. Although they were a privileged class, cleruch land was subject to the same tithe that the native farmers paid.40

The command structure of the Ptolemaic military cleruchies is not fully known, but at the lowest level they were commanded by eponymous commanders.36

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36 See *POxy*. 1415; see also Austin (1986) 451; Bowman (1996) 72; Shipley (2000) 229, 232. For the revenues of the tithe see Préaux (1939) 364 n. 1. To an extent, this goes against the thesis of Rostovtzeff (1941) 1.269, 271–4, which argues that the Ptolemies scrupulously planned and managed every aspect of their economy. In fact, Rostovtzeff manages to argue this about nearly every Hellenistic economy. While the work in question remains seminal, that specific thesis has long since been refuted. See Archibald (2001).

37 For the cleruchy system in Egypt see *C. Ord. Ptol.* 22; *P Eutexus* 8; *P Hib.* 81, 110; *P Rev.* cols 24, 36; *P Têb.* 5; see also Crawford (1971) 53–85, 147–73, 185–7; Launey (1949–50) 45–50; Lesquier (1911) 192–201; Préaux (1939) 463–77; Rostovtzeff (1941) 1.284–7; Turner (1984) 124–5; Uebel (1968).


39 *P Petr.* 2.47, 3.19, 55; *P Strat.* 2.115; *P Têb.* 64, 815; *SB* 417–18, 599; see Fraser (1972) 1.38 n. 171, 154–5; Launey (1949–50) 1.570–1, 605, 12.1231–45, 1252, 1261–3.

40 *P Petr.* 2.38; *P Rev.* 259; *P Têb.* 5, 746. See Crawford (1971) 15–18, 139.
officers, whose units were simply referred to as belonging to them, such as the ‘foot soldiers of Nautos’ or the ‘horsemen of Heraklides’. These men were responsible for the mobilization of their units at designated muster points. Called a ‘state within a state’, cleruchs made up a separate class in Egyptian society, one that was privileged both socially and economically over the natives, and with its own language, culture, social structure, and even religious associations and festivals. Within this class was another hierarchy, with Greeks of high rank at the top and foreign (i.e. non-Greek) foot soldiers at the bottom.

Cleruchies were scattered all over Egypt, but were particularly numerous in the north, where it has been estimated that up to 37 per cent of the land was given over to cleruchs in some places. Following Ipsus in 301, the system spread to southern Coele-Syria, and by the mid-third century it was almost certainly in use in Cyprus and Cyrenaica as well. This spread, however, was not accompanied by any increase in troops from these areas, as over half the soldiers entering into Ptolemaic service as cleruchs in the third century continued to come from areas outside of direct Ptolemaic control, in particular Macedonia, Greece, Caria and Thrace. This is in contrast to the practices we find all over the Hellenistic East for recruiting mercenaries, where rulers tended to hire (or, more likely, were only able to hire) soldiers from within their own lands or from lands where they enjoyed strong influence. Although the Ptolemies did have significant influence in Greece and (at times) in parts of Thrace and Caria, the fact that so many new cleruchs came from areas controlled by rival dynasts illustrates just how good the offer of land was as an incentive to individual soldiers.

One of the reasons why Ptolemy I adopted the system of land grants to foreign troops was to offset the influence of the machimoi, the traditional warrior class of Egypt, who had on several occasions proved to be a seditious element for the Ptolemies’ pharaonic predecessors, even staging a coup in

41 BGU 1226–7, 1264–6, 1270, 1273, 1275–7; P Frankf. 2, 4; P Hib. 1.90–1; SB 6503, 5; P Petr. 1.11, 2.38; P Teb. 61a, 62, 87; P Würzb. 4.
42 Quotation from Bagnall (1976) 4; see also Thompson (2000). For the religious associations and festivals of the cleruch class see P. Teb. 61b; Austin (1981) 234; Richter (1884) 137 no. 8; Robert and Robert (1977) no. 366; SEG xlvii.1870. See also Fraser (1972) 1.48, 280–1.
43 For the class system amongst Hellenistic Egyptian cleruchs see P Mich. Zen. 9.6–7; Turner (1984) 173.
45 Bagnall (1976) 240.
47 The pattern was not universally the same in the West with Carthage and Syracuse, the two great mercenary employers of that area; the former, with the notable exception of the Gallic forces in its service, tended to hire its mercenaries from within the lands that it controlled in north Africa and Spain (see Ameling 1993: 210–21), while the latter relied more upon central and southern Italians (see Tagliamonte 1994: 191–216).
In fact, the pharaohs had also taken to combating the power of the *machimoi* by hiring substantial mercenary forces, and these troops, who were predominantly Greek and Carian, had been used to fight openly against the *machimoi* during civil wars. The *machimoi*, often doubling as civil servants, have been calculated as making up a substantial percentage of the population, perhaps as high as 15 per cent of adult males at certain times; thus, when they were motivated into action, they would have represented a significant threat to royal power, be it pharaonic, Persian or Ptolemaic. It would therefore make sense for these rulers to have at their disposal a large group of professional, and most importantly foreign, soldiers, loyal only to them.

Nevertheless, while cleruchies served their purpose for a time during the first half of the third century, by the mid-third century recruitment of cleruchs had dropped off, especially among Greeks. By the time of Raphia in 217 nearly a third of the Ptolemaic army were native Egyptians (Polyb. 5.65, 79), and the number of non-Greeks in Ptolemaic service only accelerated in the second century. The reasons for the system’s decline and lack of success are not fully known, but (as with the Achaemenid system of military colonists) it is likely to have something to do with the rights held over cleruch land.

In theory, cleruch land, like any other in Egypt, belonged to the king; the cleruch did not have the right to sell, mortgage, or bequeath it, and it was revocable upon his death. In practice however, from the very outset of the scheme, cleruch land tended to be owned for life and then passed down to a succeeding generation. Although the descendants still served in the same capacity as their predecessors, many cleruchs very quickly became more like landed gentry than soldiers, holding on to land well beyond the age at which they were still fit for service. By the mid-second century, cleruch land was being bought and sold, and by the first century we see women inheriting cleruchies, meaning that military service and the grant of land were no longer intrinsically linked. Moreover, if land was not available in certain places, then the king would often force the native farmers from their plots in order to convert their lands to cleruchies, and when space for a dwelling was not available, such as in places already overcrowded, the king would billet cleruchs upon the local population. Both of these policies were a source of frequent tension between the foreign military settlers and the native Egyptians, and these tensions at times erupted into violent

48 Hdt. 2.154. See also Lloyd (1975–88) 1.16. For relations between the Ptolemies and the *machimoi* see Launey (1949–50) 1.98; Lesquier (1911) 5–7; Lloyd (1975–88) iii.184–5.
50 BGU 8; P Hib. 48; P Lille 4; SB 16.12720; P Petr. 1.19; P Teb. 61a, 73, 107; for the military service of cleruch descendants see Polyb. 5.65.10.
51 P Berl. inv. no. 16223; BGU 1261.
clashes, thus making the entire cleruchy system very unpopular in parts of Egypt.52

The system would appear to have been largely the brainchild of Ptolemy I and II, the latter of whom settled a massive number of cleruchs in 268 and 267, disposessing and angering many native farmers in the process.53 Subsequent rulers usually left the number of cleruchs alone, most probably because the system had not illustrated its worth, as the cleruchs did not prove to be markedly better than the mercenary forces that continued to be hired. New military settlers did still come to Egypt in greatly reduced numbers from Ptolemy III Euergetes onwards, but after the mid-third century more and more cleruchs tended to be heirs to the first few generations of settlers. Recruitment from this point falls off sharply, and the scheme attracted almost no new foreign recruits after c. 130.54 The real legacy of the system of Hellenistic military klerouchoi is measured in the fact that these settlements served as powerful instruments of Hellenization in Egypt and the Near East, both among the natives and among the foreigners who joined their ranks.55

The cleruchy system is also known to have been used by the Seleucids, who settled cleruchs as entire communities, as opposed to Egypt where they were almost always settled individually. This was a continuation of the policy of Alexander himself, who had settled many of his mercenaries throughout the Near East.56 The Seleucids continued the scheme, and granted land in communities to veterans and ex-mercenaries. Not only did the cleruchs therefore provide troops for the army, but their settlements served as garrisons for some of the far reaches of the Seleucid kingdom. Those in the east mostly tended to contain native troops such as Indians, Medians, Parthians and Persians, while the urban centres west of the Euphrates contained mostly Macedonians, Greeks, Carians, Thracians, Pisidians and Cappadocians. Many of these retained strong Greek identities and took on the characteristics of poleis, with similar social, religious and political organization.57

A situation similar to Ptolemaic Egypt developed in the Seleucid realm in terms of decline, as from the early third century we find cleruchs holding land well beyond the age at which they could possibly serve in the military.

52 Austin (1981) 249 (with commentary); C. Ord. Ptol. 24; P Petr. 12; P Petr. 3.20, 104; P Teb. 54, 61a, 62–3; see Crawford (1971) 52; Rostovtzeff (1941) 1.285–6.
53 P Petr. 1.14, 23.
54 Bagnall (1984) 18–19; contra Griffith (1935) 117; Lesquier (1911) 113, 134, who argue that the system of recruiting cleruchs continued unabated well into the second century.
55 It should be noted that this process worked both ways, as evidence exists for Greek cleruchs adopting native customs as well as the reverse. See Crawford (1971) 92 n. 1.
57 For the cleruchy system under the Seleucids see SEG xlviii.2129; Joseph. AJ 12.148–51; Griffith (1935) 147, 162–3; Musti (1984) 198–9, 201; Tarn (1985) 7–9; see also Bikerman (1938) 51–105.
Here as well, inheritance was the norm, and it seems from the very beginning that women were included. Thus, even earlier than in Egypt, the Seleucid cleruchs became more like a very well-off landed class rather than a major source of troops for the army.  

Although the Seleucids expanded Alexander’s settlement policy, their cleruchy system never reached the same heights as that in Ptolemaic Egypt. The Seleucids in the third century were still able to rely on recruiting Greek and Macedonian troops supplemented by mercenaries. After 200 they came to depend more on the descendants of their third-century forces, who had often settled or been settled in Asia. They are known to have used native levies, particularly for their cavalry and light infantry, but, unlike the example of Rome and the Italians, the Seleucids did not treat the natives as partners in the empire, and as a result they never mustered the full manpower potential of the Near East into their armies.

The Seleucids paid for these forces by a number of means. First, their empire also produced a fair amount of profit; they accumulated a good deal of cash from the annual tributes and irregular gifts paid to them from various regions and cities, and they are known to have levied heavy taxes and customs duties on goods travelling to or within their realm. Their greatest means of regular income, however, were their royal estates that were scattered throughout the Near East. These places were worked by tenant farmers and functioned similarly to their Ptolemaic counterparts, though to what extent is impossible to say, since we know far less about these lands than we do for their equivalents in Egypt. They were surely less numerous and less profitable than their Egyptian counterparts, but they do seem to have generated a large amount of wealth on a dependable basis for the Seleucids.

Although the Seleucids could maintain their realm on the wealth that their lands generated, they required a far greater source to have the ability to wage their frequent wars and to expand their empire. This source was mainly plunder. The amount of plunder taken by the Seleucids in the period 323–168 should not be underestimated, nor should its impact upon royal finances and the ability of the dynasty to wage war. As such, the seizure of Asia in 301 represented a highly significant advance in finances for Seleucus I Nicator, and the sheer volume of wealth that he was able to seize from the Asian coffers of Antigonus Monophthalmus significantly enhanced his ability to compete with the other Diadochoi.

Conquest of Coele-Syria also brought with it a large amount of money and timber, and this goes a long way towards explaining the perennial wars fought between the Seleucids and the Ptolemies over that very area. Every

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61 Diod. Sic. 18.30.3; see Billows (1995a) 88–90.
time it changed hands, the conqueror was able to lay his hands upon much movable plunder. Moreover, within these wars, if an aggressor was able to push even further than Syria, then the plunder only increased. Antiochus IV’s two invasions of Egypt between 170 and 168 produced enough booty to finance his kingdom for decades (Polyb. 30. 25–6). On the brink of disaster because of the crippling war between Antiochus III and Rome from 192 to 188, the haul that was taken in Egypt allowed the Seleucid empire to make a full recovery. Simply put, for all of the Successors, war was profit. It was a major source of revenue, and for the Seleucids, was in fact their chief source of military funding.

From 276 the Antigonid dynasty ruled Macedonia. The kingdom had been greatly weakened by the acute losses of manpower that it had been experiencing for over half a century. Financially, Macedonia was still wealthy enough to seek continued control over Greece, but not to such an extent that the Antigonid dynasty could ever really compete financially with the Seleucids or the Ptolemies. Although the Macedonian levy still produced upwards of 20,000 soldiers, the Antigonids nevertheless were forced to rely more on mercenary forces for large campaigns and for garrison duty. This proved an even further strain upon Macedonian finances, and the reduced capital is evident in the fact that the Antigonids were forced to cut back severely on their navy. All the same, the destruction of the Antigonid monarchy in the second century was not due to either a lack of manpower or financial resources, but to the military superiority of Rome.

Although geographically small by the standards of the time, the Attalid kingdom of Pergamum was nevertheless one of the Hellenistic world’s wealthiest states. From the outset, the lands that were left behind by Lysimachus after his death in 281 were immensely wealthy. Pergamum had been Lysimachus’ main treasury, and as such held a fortune of 9,000 talents. This money funded the lucrative expansions undertaken by Eumenes I and Attalus I in the third century, as Pergamum assumed control of some of Asia Minor’s wealthiest territories. By siding with Rome in the war against Antiochus III, Eumenes II benefited greatly from the Peace of Apamea in 188, with the new lands making the kingdom wealthier than ever. The Attalids personally and skilfully supervised the finances of their kingdom, and derived a great deal of wealth from the tributes exacted from the cities within their realm, as well as royal revenue from trade in olives, wine and timber. Pergamum remained a wealthy Hellenistic capital even after much of the East came under the influence or direct rule of Rome, until Attalus III bequeathed the kingdom to the Romans upon his death in 133.

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63 Plunder was usually a far greater source of income than annual revenues, though it came in less frequently. See Billows (1990) 257–8.
The only place in the Hellenistic world where the linkage between warfare and financial profit was broken was in the western Mediterranean, and this was largely due to the smaller nature of the states there, as well as the more immediate influence of Rome. Agathocles, like so many Sicilian tyrants before him, derived the monies with which to wage his wars from the profits of the tithe system that existed in his kingdom, Syracuse. His successor Hieron II not only continued this tithe, but reformed it, and made it into a highly regimented system that by all accounts functioned very well and yielded unprecedented profits for his realm. His system bears many resemblances to the tithe in Ptolemaic Egypt, yet, while this may have influenced him (or vice versa), it is unlikely to have been a direct copy, since the two schemes developed contemporaneously. It is with Hieron II and his tithe system that we diverge from the Hellenistic East, however, since for the most part profit was now no longer equated with imperialism.

Although Hieron, like Agathocles before him, used the profits of his tithe to hire and equip his navy and a mercenary army to fight his battles (first as a general from 275, then as *strategos autokratos* from 271, and finally as king from 269), from 263 until the end of his reign in 215 he was an ally of Rome, and as such was unable to conduct a foreign policy in any type of independent manner. While his kingdom was certainly free and did not constitute part of the Sicilian *provincia*, he was nevertheless a client king whose every decision had to be taken with Rome in mind. Thus, from this point onwards, the profits of his tithe system no longer went towards warfare, as Hieron needed only a small land and sea force for defence, mostly from Rome’s enemy Carthage. Hieron was forced to break with the tradition of rulers of his generation and channel his profits into other pursuits. This he did by using them to style himself as a Hellenistic monarch on a par with his contemporaries in the East; he illustrated the wealth of his kingdom by coming to the aid of eastern Mediterranean states in times of crisis and by engaging in expensive competitive philanthropy with the other Hellenistic kingdoms, in particular Ptolemaic Egypt. In fact, the extended peace and the security that his kingdom enjoyed through its alliance with Rome bolstered his profits significantly and allowed these other pursuits to become more extravagant.

Hieron’s non-military economy was very much the exception that proves the rule for the Hellenistic world. Most monarchs of the age, especially the *Diadochoi*, had few if any actual fiscal policies, and thought of economic profit only in terms of how it could provide them with the means to make war. This of course was not new. War and the economy were intrinsically

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linked in classical times as well, as states were expected to use the profits of combat to make themselves strong militarily.\textsuperscript{67} The \textit{Oikonomika}, perhaps written by a student of Aristotle's and dated to c. 320–300, speaks of Hellenistic rulers all attempting to maximize their economies (2.1345b); and this illustrates how in terms of finances the dynasts in fact had a great deal in common with each other, and shared more similarities than differences.\textsuperscript{68} Even when they derived income from non-aggressive means, they still used their profits not to directly benefit their people, their realms or even themselves – they used these monies to wage war.

4. Hellenistic imperialism

Modern writers from the 1870s through to the 1970s often spoke of a ‘balance of power’ that was intentionally maintained in the East between the negotiations of 311 (Diod. Sic. 19.105.1–4) and the time when Rome began to intervene in the early second century. This assumed that, if one of the \textit{Diadochoi} ever tried to exert sovereignty over the others, or simply became too powerful, then the rest would band together and force him into acquiescence in the status quo.\textsuperscript{69} However, this theory has largely been refuted as a reflection of European pre-First World War and then Cold War political geography. Although each king did indeed attempt to maintain as large, if not a slightly larger, force than his closest rivals, their purpose in doing so was much more competitive and aggressive than the ‘balance of power’ image tends to imply.\textsuperscript{70}

For Hellenistic monarchs, success in war was vital. Not only did they require the finances that victory would bring, but due to the personal nature of their reigns, they themselves had to be seen as warrior kings. Their forces, their generals, their friends and even their kingdoms were attached to them through their own personalities, and thus they had to be viewed by all as successful. Defeat was equated with weakness, and once a king started to show signs of weakness, those who surrounded him could quickly fall away, and his power itself would be eroded. Successful campaigns, and the wealth that accompanied them, were the life blood of the Hellenistic king, and so each and every monarch was to an extent imperialist, seeking to illustrate his power, and to gain more, at the expense of his contemporaries.

Aside from the desire to accumulate plunder and enrich oneself, and to have the resources to provide for more forces, Hellenistic kings were, and needed to be, imperialist for a number of other reasons. In direct opposition

\textsuperscript{68} For [Arist.] \textit{Oec}. 2.1345b see Finley (1999) 20; van Groningen (1933) 37–48.
\textsuperscript{69} For the ‘balance of power’ theory see Droysen (1836–78) iii.182; Klose (1972) 91–2; Rostovtzeff (1941) 1.23–4, 47; 552–3, ii.1026–9.
to the ‘balance of power’ theory, Hellenistic kings viewed themselves as warriors and thought that when their domains ceased to expand then they began to contract. Alexander’s immediate Successors in particular were all technically usurpers and not as yet tied to specific lands or states, so they waged war in effect to consolidate and maintain power over those lands that they did possess (Theoc. Id. 17.91–105). Moreover, most of them had taken their crowns after significant military victories, and they embodied the old Macedonian ideal that a king won his position through force. Thus they were also defending the fact that they themselves had a right to their crowns. The implications of this process are obvious, for if the Diadochoi based their monarchical power on its military equivalent, then in theory it was possible for anyone to assume the diadem if they became powerful enough, as was the case with Agathocles in Syracuse in 305 (Diod. Sic. 20.79.2) and Attalus I in Pergamum in 238 (Polyb. 18.41). Hellenistic kings not only conquered to justify their crowns, but also to keep monarchy exclusive. If the ‘balance of power’ theory can be applied anywhere in the Hellenistic world it is here, where kings cooperated to keep would-be claimants to the throne in their place.

Such ideals would also be prevalent for new or young kings. They had to make a name for themselves and to live up to and even surpass the deeds of their predecessors. Young kings could easily be viewed as weaklings who had not won their crowns in battle as their predecessors had, and thus the deposition or assassination of young kings was not uncommon (see Livy 24.21.7; Polyb. 4.48.7–8). Conquest would allow them to stamp their authority upon the army, and from Alexander onwards, younger kings tended to be some of the most imperialistic as well. Their Macedonian subjects respected nothing more than a warrior king, and while a lack of military success did not necessarily lead to ruin, the norm for a young Hellenistic king was that, in order to have a successful reign, it needed to be legitimized through war.71

The sources portray strong and successful leaders as honourable and attractive figures, while defeated and weak kings are morally deficient and of poor physical appearance.72 Groupings or communities of soldiers, as well as entire regiments, could become fiercely loyal to one dynast if they thought of him as a winner.73 Conversely, while some troops might stay with a king if the pay was right, in other instances we find troops deserting

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71 Beston (2000) 315; Walbank (1984) 81. Though a rarity, the reverse could also be true, as successful Hellenistic warrior kings could still have unsuccessful reigns. See Bosworth (2002) 251–3, 268. See also Gruen (1985).

72 Suda s.v. βασιλεία (basileia); Ael. VH 12.17; Art. Anab. 4.19.5; Polyb. 22.22, 26.15.1–3, 28.31.3, 32.15.9, 33.4; Plut. Alex. 46; Plut. Demetr. 9.3–4; Xen. An. 1.2.12; Cyr. 4.6.11. See also Arist. Pol. 1311b–1312a. See Beston (2000) 316, 326, 328–9 n. 8; Roy (1998a) 120.

73 SEG xlviii.1487; Diod. Sic. 33.4a; Polyb. 5.57.6–8, 15.25–33.
a king once he became perceived as a failure. Even worse, troops sometimes actually switched sides, on one occasion even assassinating the king – the unfortunate Seleucus III in 223 (Polyb. 4.48.7–8). Such disloyalty could also be shown over pay – if a commander could not meet the pay demands of his forces, he risked not just their loyalty but much of his power. The king also depended upon success in warfare to maintain the loyalty of his friends. These friends formed his inner circle, and not only were his advisors and companions, but from among them the king might recruit his military officers, provincial governors, civil servants and ambassadors. The king relied upon this group for advice and service, but their loyalty came at a price; in return they expected not only prestigious positions, but also lucrative gifts, and the latter often took the form of plunder accumulated from a successful campaign. In fact, the king’s friends expected him to foster their own economic aims by undertaking military campaigns. Even when gifts in the form of plunder were not forthcoming, it was still essential that the king be viewed by his friends as strong and powerful, since, as was the case with the military, friends would desert a monarch whom they perceived as weak, often taking up the friendship of a rival dynast afterwards. Thus, the maintenance of one’s friends was for Hellenistic monarchs an integral part of showing themselves to be powerful, and the most respected way of doing so was through military victories. A strong concept for many Macedonian monarchs was that of ‘spear-won’ territory; they went to war and conquered simply because that was what Macedonian kings did. They considered it their natural aim in life to win territory by the spear. As such, kings maintained Macedonian military traditions, including dress, until the very end. The vast majority of dynasts also continued to lead their troops from the front, as Philip and Alexander had done.

Leaders who were successful in warfare were quick to propagandize their own victories. In direct opposition to mid-Republican Rome at this time, where successful generals like Scipio Africanus were curbed by the collective body of the Senate, in every aspect of self-presentation, from their inscriptions to their coinage to their festivals, the Hellenistic kings stressed their military achievements before their army, their friends and their subjects, to the point where such achievements became the exclusive property of the kings, as with the later monopoly on military glory by the Roman emperors (upon which this Hellenistic practice had no little influence). Furthermore,
both of these arrangements, with one’s friends and with one’s army, were of course reciprocal, as in return for success in war, good kings received obedience, loyalty, power, wealth, territory and fame.\textsuperscript{79}

Unlike Rome, where warfare might benefit individuals or entire cities, the Diadochoi used the profits of warfare to enhance their own imperial ambitions. This was because their finances were personal finances, and not those of a state. Kings actively sought to be associated with wealth, hence the lavish processions, festivals and competitive philanthropy that characterized the Hellenistic age. It should thus come as no surprise when we see a number of Hellenistic wars started for economic reasons alone. Antigonos Monophthalmus fought to gain control of the lucrative frankincense and bitumen trades, Eumenes I incorporated the region around Mount Ida into his kingdom of Pergamum in order to control the area’s lucrative timber business, and the Seleucids and Ptolemies fought a number of bloody campaigns over Coele-Syria, an area that contained a large number of Alexander’s former mints.\textsuperscript{80} In just one of those campaigns, Ptolemy III Euergetes seized 40,000 talents in gold and silver (Jer. Comm. Dan. 11.9), a fortune by any standard. Successful warfare gave a dynast more money and a greater ability to hire troops and build navies, and these in turn brought him greater success.

Thus the ‘balance of power’ theory could never truly have applied, as dynasts needed to wage warfare against each other to remain powerful. In fact, it has been postulated that the Hellenistic world was in a constant state of warfare, with treaties being only temporary halts to the violence.\textsuperscript{81} Leaders like Ptolemy III, Antiochus III (‘the Great’), and Philip V attempted to live the very ideal of the Macedonian warrior king, and were keenly aware of the achievements of their dynastic forefathers. Even beyond the three major kingdoms, men like Agathocles of Syracuse, Pyrrhus of Epirus and Demetrius I of Bactria embodied the spirit of the age as both monarchs and conquerors. In this sense, the age of Philip and Alexander never really passed – their spirits lived on through the belief that conquest was a necessary requisite of kingship. Only the coming of the Romans brought an end to this era of competing warrior kings.

II. THE ROMAN REPUBLIC

Warfare and the state were intrinsically linked for the Romans during the Republic; in fact, with the possible exception of Sparta, for no other society in the ancient world were the two more fundamentally related. Warfare

\textsuperscript{79} Van Wees (1998b) 16–17.
\textsuperscript{80} Diod. Sic. 20.94–100.2; Aperghis (2001) 94–5; Billows (1990) 288; Bellinger (1963) 83–5.
\textsuperscript{81} Austin (1986) 461.