Fortifications and democracy in the ancient Greek world

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Abstract: In the modern world, access-limiting fortification walls are not typically regarded as promoting democracy. But in Greek antiquity, increased investment in fortifications was correlated with the prevalence and stability of democracy. This paper sketches the background conditions of the Greek city-state ecology, analyzes a passage in Aristotle’s Politics, and assesses the choices of Hellenistic kings, Greek citizens, and urban elites, as modeled in a simple game. The paper explains how city walls promoted democracy and helps to explain several other puzzles: why Hellenistic kings taxed Greek cities at lower than expected rates; why elites in Greek cities supported democracy; and why elites were not more heavily taxed by democratic majorities. The relationship between walls, democracy, and taxes promoted continued economic growth into the late classical and Hellenistic period (4th-2nd centuries BCE), and ultimately contributed to the survival of Greek culture into the Roman era, and thus modernity. We conclude with a consideration of whether the walls-democracy relationship holds in modernity.

1. Introduction: Democratic walls?

How much has democracy to do with the development of urban architecture in the ancient Greek world? ¹ Jessica Paga (2013), who has analyzed the impact of the emergence of democracy on the architectural development of the classical Greek

¹ Based on a paper written for Colloquium on Architecture and Democracy, Princeton University, February 2014. Our thanks to John Ma for discussion of Hellenistic politics and society. Sections 3-5 are adapted from Ober 2015b: Appendix 2.
city-state of Athens in detail, makes a strong argument that the answer is, “a great deal.” Paga, in common with other classical archaeologists and architectural historians who have addressed the question of democracy and architecture, focuses primarily on intramural civic and sacred buildings and spaces. In this paper we take a step back to look at a category of architecture that (so we will argue) helped sustain democracy (if not liberal democracy: Ober 2017a and below) across the Greek world in the late- and post-classical periods: i.e. the massive stone and brick fortifications that framed urban spaces.

We will make what we suppose is a counter-intuitive claim: In late-classical and Hellenistic Greek antiquity, big investments by city-states (Greek poleis) in military architecture (especially monumental city walls and outworks, but also fortified villages, garrison forts, watchtowers in the countryside) were closely related to the spread of democracy across the ecology of city-states, and contributed materially to the stability of democracy within those states.

In this paper we look only at the Greek evidence, but with an eye towards what we suppose might be a wider phenomenon. The general relationship between walled cities and the emergence and persistence of more or less citizen-centered forms of politics is a larger question of which the ancient Greek case is only one particular instance.² It is implausible that there is any direct causal relationship between walling a city and the emergence of democracy. Yet roughly similar political and economic dynamics could, we suppose, produce certain regularities in social outcomes (albeit at a high level of abstraction) among premodern societies

² For the wider historical frame see, for example, Tracy 2000, sections I and II; Creighton and Higham 2005.
that both developed civic institutions and built walled cities – despite marked cultural and technological differences among those societies. Testing that hypothesis goes far beyond what we can attempt here, but it would, we believe, be a fruitful area for future research.

If the claim that fortification walls, intended to enable insiders to exclude unwanted others from a defined space, promoted democracy seems counter-intuitive, it is because in antiquity, as in modernity, democracy was strongly associated with opening access – to institutions, to trade, and to culture. Fortifications are intended to deny access – at least to certain persons under certain conditions. In modernity walls are associated with political orders predicated on limiting access (to spaces, institutions, rights). The construction of the famous Berlin Wall in 1961, for example, was undertaken by an autocratic state, determined to limit movement by its own subjects. Tearing down the Berlin Wall in 1989 was, alternatively, associated with opening access and with democratization.

Modern states with democratic constitutions do sometimes invest heavily in fortifications intended to limit access. Examples include the massive walls (sometimes euphemistically referred to as “fences”) built by the US on its border with Mexico and by Israel on its border with Palestinian communities. Fortifications may or may not be justifiable as measures necessary for modern states to promote national security, but wall-building is quite unlikely to be cited by political theorists as an example of a state’s open-access or democratic policies. We will return to the question of democracy and modern security walls in section 6. In sections 2-4 we will show that there was a positive correlation between late classical and Hellenistic
Greek fortifications and democracy. We seek to explain, by use of a simple model, how that correlation arose from a positive reciprocal relationship between the demands of security and the incentives of elite and non-elite citizens of Greek city-states. In section 5 we demonstrate that the model tracks the historical record, as understood by recent scholarship in the field of ancient history, tolerably well.

2. Walls and regimes in the ancient Greek city-state ecology

The relationship between walls and democracy developed against the background conditions for emergence and development of the Greek city-states. We focus here on the age from Plato and Aristotle to the Roman takeover of the Greek cities, that is, roughly the fourth through second centuries BCE. The Greek city-state ecology in the early and mid-fourth centuries was characterized by a great many independent or semi-independent states – some 1100 states, according to a comprehensive recent study (Hansen and Nielsen 2004), with a total population of some 8-9 million persons (Hansen 2008; cf. Ober 2015b, chapter 2).

While all ancient city-states are tiny by modern nation-state norms, the Greek states ranged widely in size, from states with a population of a few thousand to those with a population of up to a quarter million, with territories ranging from a little over a dozen km² up to several thousand km². Competition among the city-states was intense. That competition, along with the emergence of legal regimes that encouraged substantial investment by individuals in human capital, resulted in a remarkable economic and cultural efflorescence: The Greek world saw strikingly
high levels of both intensive (per capita) and extensive (demographic) growth in the half millennium from 800-500 BCE (Morris 2004, Ober 2015b). But inter-state competition was also potentially deadly (viz. the Peloponnesian War of 431-404), and the Greek states faced external threats from predatory empires (viz. the Persian Wars of 490-478). On the frontiers of the Greek world, and especially in the regions around the Black Sea, Greek cities confronted raids by (while also trading actively with) nomadic or semi-nomadic peoples.3

Failure against local Greek rivals, external imperialists, or nomadic raiders could, and fairly often did, mean destruction of urban infrastructure or even state death (extermination, enslavement, or forced migration of the population). Among the typical Greek responses to endemic security threats were (1) developing forms of social organization that promoted effective mobilization of soldiers and (2) construction of fortifications aimed at defending cities and rural populations. The preference for strong city walls was not universal: Sparta, famously, remained unwalled in classical antiquity, on the principle that “our fighting men are our walls.” Some Greek political theorists, notably Plato in the Laws (6.778d-e), argued against walling the ideal city on the moral grounds that brave men ought willingly to fight their enemies in the open field.

Walling a city was not a casual decision. In any premodern society, even one that was as relatively prosperous as ancient Greece, the construction, maintenance, and manning of fortification walls amounted to a huge cost. Frederiksen (2011: 1) is surely right to say that, “city walls belong to the category of public architecture and

3 The concept of efflorescence, a more or less sustained period of premodern economic and cultural growth, is developed by Goldstone 2002.
must have constituted the most expensive and laborious undertaking for the communities that built them.” Yet the no-wall option seems to have become less attractive over time. As Frederiksen’s (2011) collection of evidence of dates of city walls demonstrates, fortifications had come to be an important feature in the public architecture of a number of major Greek city states by the early fifth century BCE.

By the later classical and Hellenistic period, Greek city walls had become, on the average, much more substantial (increasingly built of stone, rather than mud-brick), much more architecturally developed (towers, crenellations, indented trace), and in many cases they were augmented with outworks and elaborate systems of rural defense (forts, watchtowers, pass-control walls). Figure 1 shows the growth in the number of known (to modern scholarship) fortified poleis in the Greek world, from 900 to 323 BCE. Even given the incomplete state of our information, it is safe to say that by 323 BCE, most major Greek cities were walled, and the trend continued into the third and second centuries.

[Figure 1 about here]

Meanwhile, a range of regime types was possible for a given Greek polis – canonically: tyranny, oligarchy, and democracy. The distinction between oligarchy and democracy, for the Greeks, was a matter of what part of the native adult free


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male population enjoyed both full protection of civil law and substantial participation rights (i.e. the chance to vote in a citizen assembly, sit on a jury, serve as a magistrate). In a Greek democracy, most native adult free males had both civil and participation rights; in an oligarchy only a fraction (generally a small fraction) had meaningful participation rights, although many, perhaps most, other residents would have had a more or less extensive package of civil rights (Simonton 2017).

Athens is, for us as for many ancient Greek writers, the model Greek democracy. But many poleis lacking various of Athens’ signature institutions were regarded by the Greeks as democracies, because enough native males had enough participation rights for the state to count as democratic by Greek standards (Robinson 2011).

As with fortifications, there was substantial change in regime prevalence over time. Tyranny was fairly rare after the early fifth century (with the notable exception of the city-states of Greek Sicily, where tyranny, and uprisings against tyrants, remained prevalent). When we compare known instances of democracy and oligarchy in the fifth and fourth centuries, it is clear that democracy was ascendant. By the end of the fourth century, perhaps half or more of all poleis were democracies (Teegarden 2014). In the Hellenistic period (from roughly 323-146 BCE) democracy increasingly became the standard form of government for Greek poleis (Gauthier 1993, Grieb 2007, Ma 2013). Measured by “extent of the authority of the demos over all relevant public affairs” (Ober 2008: 292-93), most Hellenistic cities may not have been not as democratic as was classical Athens.

But recent scholarship has tended to view Hellenistic cities as “real” Greek democracies, rather than narrow oligarchies parading under the name democracy.
Among the key features of the Hellenistic Greek cities that track relevant features of classical Athens are the very substantial contribution of elites to public goods (including fortification projects) and the apparent eagerness of those elites to have their contributions recognized by the rest of the citizenry, in the form of civic honors (including inscriptions describing the fortification-building process: Maier 1959). Although contributions were not in the form of direct taxes on income, it is fair to say that Greek democracies tended to tax the wealthy more heavily than did oligarchies, in ways that pushed back against extreme social inequality (Lyttkens 2012; Ober 2017b).

While residents of Greek states favored democracy for any number of reasons, it seems probable that more poleis chose to invest more heavily in bigger and better fortifications specifically in an adaptive response to an evolving security threat: late classical and early Hellenistic advances in warfare and siegecraft (Marsden 1969, Campbell 2011, Winter 1971: 157, Frederiksen 2011: 94). The question is how that adaptive choice about fortifications related to the choices of elites and non-elites in respect to regime type: Why, first, would changing security threats not only lead to bigger investments in military architecture, but also be positively correlated with more democracy? Does the security threat/wall-building and democracy correlation point to a causal relationship? If a causal relationship exists, which way does the causal arrow point: from democracy to wall-building, or from wall-building to democracy? We will argue that a recursive relationship exists between walls and democracy, such that more democratic states were better able to secure resources for wall-building, and also more able to defend walls against
security threats to the city that also threatened democracy. Moreover, walls and democracy are recursively related for the following reason. Elites believed that building walls and sustaining democracy were important for their own security against threats of appropriation (or worse) by external forces. This belief implied that elites were more likely to pay taxes and otherwise cooperate with the democratic regime, and less likely to seek to subvert it. Non-elite democratic citizens were less likely to tax elites at an extortionate rate, and more likely to grant elites desirable honors, if elites were seen as their partners in maintaining a secure and democratic community.

3. Aristotle on fortifications in a changing world

Writing in the later fourth century, the philosopher Aristotle, in book 7 of the Politics, sets out what he regarded as a practical (as opposed to utopian) plan for a “best practically achievable polis.” He calls this the “polis of our prayers” – it is the form of community that he supposes a virtuous person, one who cares appropriately about human flourishing (his own and that of his fellow citizens) ought to hope for and to work to bring about. Most of Aristotle’s discussion in book 7 concerns social, political, and educational institutions. His polis, although in important ways intended to be aristocratic (political authority is to be distributed on the basis of virtue), is also democratic, in the Greek sense: All native free males in the polis of our prayers turn out to be citizens, who possess both legal rights and participation rights, in the sense of “ruling and being ruled over in turns” (Ober 2005, 2015a).
Aristotle assumes that the polis of our prayers will exist in an environment of potential conflict. He is concerned to ensure that all citizens had the right motivation (including ownership of real estate in security-sensitive border zones) and the right training, civic and military, so as to ensure full mobilization of competent soldiers in time of war. But, unlike Plato, Aristotle specifically advocates for walls to be built around the central city of his polis of our prayers, and moreover he urges that architecturally advanced fortification walls be defended by the best available military technology and by citizens familiar with that technology:

As regards walls, those [i.e. Plato] who aver that cities which pretend to valor should not have them hold too old-fashioned a view—and that though they see that the cities that indulge in that form of vanity are refuted by experience. ...[because] the superior numbers of the attackers may be too much for the human valor of a small force [fighting in the open field, against an invasion], if the city is to survive and not to suffer disaster or insult [in the case of an invasion that cannot be defeated in the field], the securest fortification of walls must be deemed to be the most warlike, particularly in view of the inventions that have now been made in the direction of precision with missiles and artillery for sieges. ... not only must walls be put round a city, but also attention must be paid to them in order that they may be suitable ... in respect of military requirements, especially the new devices recently invented. For just as the attackers of a city are concerned to study the means by which they can gain the advantage, so also for the defenders some devices have already been invented and others they must discover and think out; for [potential aggressors] do not even start attempting to attack those who are well prepared (ἀρχὴν γὰρ οὐδ’ ἐπιχειροῦσιν ἐπιτίθεσθαι τοῖς εὖ παρεσκευασμένοις). Politics 7.1330b-1331a – emphasis added.

Aristotle was writing the Politics in the third quarter of the fourth century, a time of great changes in the Greek world. Most saliently, by the last third of the fourth century the city-state ecology had relatively few fully independent city-states: Macedonian kingdoms, first under King Philip II, then under Alexander III (the
Great) and his successors, came to exercise a form of hegemony over many, although not all, of the Greek poleis.

The Macedonian kingdoms were not open access political orders, but rather—as with so many empires – tended to be predatory, rent-seeking, imperialistic states. Surprisingly, however, the rents extracted by the Macedonian kings from the Greek city-states of the mainland, Aegean, and western Anatolia were relatively low. Moreover, the Macedonian kings interfered in local affairs much less than might be expected. While many notable exceptions can be cited, for the most part the kings left the poleis within their realms with a surprisingly high level of local independence. As we have seen, many of the Hellenistic city-states were democracies. Various features of “democratic urban architecture” familiar from classical Athens became more prevalent in the Hellenistic poleis. Meanwhile, a highly refined performative language of mutual accommodation was developed, which helped kings and Greek cities to commit to a mutually beneficial equilibrium. In some ways, therefore, life in a Hellenistic Greek polis continued much as it had before the Macedonian takeover – including inter-polis wars, and very considerable resources being spent on city fortification.  

Per above, the standard regime for the Greek poleis in the period of Macedonian domination was a form of democracy, supported financially by high levels of contribution by local urban elites. This is also initially surprising: Why

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5 For the distinction between the rent-seeking “natural state” and the “open access order” see North, Wallis, and Weingast 2009). On the Hellenistic kings as large-scale robbers, out to extract as much as they could from their territories, see Austin 1986. The best studies of the relations between Hellenistic kings and Greek states, and the language of negotiation are Ma 1999, 2000, 2003.
would elites in so many Greek cities in the late classical and Hellenistic period have agreed to more democratic (and higher tax) forms of government? The answer to that question is certainly complex. Alexander III may initially have promoted democracy for the Anatolian Greek cities, in part because his opponent, the King of Persia, had favored oligarchy and because Alexander sought to distinguish Macedonian from Persian hegemony. Alexander may also have believed that democracy would reduce conflict within and among the Greek cities; a peaceful Anatolian littoral would enable him to focus on the big prize of conquering the rest of the Persian empire.

Democracy was subsequently stabilized in the Hellenistic city-states by the introduction of robust democratic institutions, including laws that promoted common knowledge, pushed against pluralistic ignorance, and lowered the democratic “revolutionary threshold” in the face of oligarchic challenges – thereby making such challenges less likely (Teegarden 2014). The phenomenon of “Hellenistic democracy” remains striking, however, and finding an additional reason for elites to cooperate with citizen masses (at high expense to themselves) is hardly otiose.

The four features of the late classical/Hellenistic Greek world that we have sketched above – more investment in fortification by city-states, more democratic city-states, lower than expected levels of rent extraction by hegemonic rulers, and local elite cooperation with democratic regimes – are, we believe, related. The key to their relationship can be found in the underlined passage of Aristotle’s Politics,
cited above: “[potential aggressors] do not even start attempting to attack those who are well prepared.”

Aristotle is sometimes criticized for being excessively ‘polis-centric’ – for failing to attend to the great changes that were afoot when he was writing the Politics. One of us has argued elsewhere (Ober 1998, chapter 7), however, that Aristotle’s “best practical polis” was designed with the emergent world of Macedonian hegemony very much in mind. This argument has an important implication for the presumptively well-prepared polis, with its up-to-date fortifications, artillery, and well-motivated defenders: we may suppose that prominent among the unnamed aggressors who will not “even start attempting to attack” is a potentially predatory Macedonian king.

It is plausible that a Macedonian king, even one with the resources of a Philip II or an Alexander III, might “not even start attempting to attack” a well-defended city because sieges of well-fortified Greek cities were extremely expensive undertakings, and kings could not always expect to be successful when they chose to besiege major Greek cities. Philip, Alexander, and the Successors put a great deal of energy into developing technology (torsion catapults, siege towers) and strategies of siegecraft. Their sieges, when attempted, were indeed often successful. Yet these sieges included some spectacular failures: Just at the time that Aristotle was writing the Politics, Philip failed to capture the major cities of Byzantion and Perinthos after major sieges in 340 BCE. A short generation later (and after Aristotle’s death) Demetrius “Besieger of Cities” failed to take Rhodes in 305. Examples could be multiplied. Moreover, even a successful siege was likely to be very costly – tying up a
great deal of manpower and resources for extended periods of time. Alexander’s famous siege of Tyre, a prominent Phoenician city-state, took 7 months.

The problem, from the point of view of the potential besieger, was that the Greek cities, when they were brought under Macedonian hegemonic authority, were already well-fortified and well-defended, and there were a great many of them. If, absent provocation, a king attacked cities within the geographic area he claimed to rule in an obviously predatory manner, the rest of the fortified cities in his realm lost their incentive to cooperate in future with him. They might, instead, refuse to pay taxes and, worse, might coordinate with other cities in resistance. They might also seek an alliance with in a rival king, as did the city of Rhodes which received substantial aid from King Ptolemy I, Macedonian ruler of Egypt, when confronted by Demetrius’ attack in 305 BCE.

Given these conditions, a king had good reason, on the face of it, not to “even start attempting to attack” a well-fortified, well-defended city if he believed that he could gain the revenue he needed otherwise. We suggest that Aristotle realized this. But, more saliently, the Hellenistic kings certainly knew it and the residents of the fortified Greek cities within their realms knew it; and each side knew that the other knew it, and so on. That is to say, the king’s disincentive to attack, if a city were well-fortified and well-defended, was a matter of common knowledge (on which, see Chwe 2001).

In the model set out below, we explain several results: why a well-fortified city was more likely to be well-defended if it was a democratic city; why a hypothetical elite member of a democratic city faced with siege would not be likely
to see that as an opportunity to seek to subvert the democracy despite the opportunity to do so; and why a king, confronted with this situation, would be more likely to negotiate a moderate tax rate than to pursue an attack that, if successful, would allow him to tax at extortionate rates.

4. Modeling choices: King, City, Elite Game

Our reconstruction in the previous section of who knew what as a matter of common knowledge allows us to set up a simple game played by a king, a democratic city, and an elite resident of that city, in the extensive form. The game we sketch in this section assumes rationality: Each player is assumed to have preferences have an ordinal ranking (A>B>C) and that order is transitive (i.e. if A>B and B>C, then A>C). Players’ preferences are based on expected utility maximizing (their choices are determined by the goal of gaining the outcome that delivers the player most utility, taking probabilities into account where relevant). Utility, here, is defined simply in material terms of getting or keeping wealth and honors. The decisions are made by stylized players who make their choices (moves in the game) under conditions of incomplete but symmetric information: That is, the outcome of the “lottery” that decides, in the case of an attack, whether the attack will succeed cannot be known with certainty in advance. But all players have the same level of knowledge about the lottery – that is, their beliefs about the likelihood of the attack succeeding are identical and common knowledge. Other than the lottery, players are assumed to have complete information.
The game is obviously an abstraction from the much messier real world of ancient Greek politics and decision-making, where many actors interact, decisions are not formally rational, and information is often asymmetric. But, as the application of game theory to the problem of why wars are ever fought has shown (Fearon 1995), formalization may be useful insofar as it offers a framework for explaining puzzling phenomena. In our case, the puzzles are the counterintuitive correlation between more democracy and more investment in military architecture, the relatively low rents demanded from Greek cities by the very powerful Hellenistic kings, and the acceptance of democracy by Greek elites who paid relatively high taxes under democratic regimes.

In this game the three players are the King (K), the walled, democratic City-state (C), and an Elite citizen of that state (E). For purposes of simplification, we assume that the City-state is independent (that is, not currently paying taxes to K) at the outset of the game.6

The King moves first, deciding either to threaten the City with attack (demanding that the City submit and thus pay high rents, in the form of taxes, as the price of peace), or alternatively to negotiate a relatively low-rent agreement (Q) with the City; Q is assumed to be lower than the rent level that the King could demand if the City submitted unconditionally. If K chooses to negotiate a low rent-agreement, the game ends and the outcome is Q. If K chooses to threaten, C (that is, the democratic majority of the currently democratic city) decides whether to resist

6 If instead we assumed the game concerned a City-state facing an attack by a King to whom it was currently paying taxes, a similar result would follow, barring some implausible assumptions about the current tax rate.
or submit. If C decides to submit, the game ends, and the outcome is that C and E pay high rents to K. If C decides to resist (or, more plausibly, if C had formulated a general policy of “resistance if and when threatened” in advance of K’s decision), then E must choose either to support the existing democracy or to subvert the democracy, transforming the City’s regime into an oligarchy. If E chooses not to support democracy, K now decides whether to carry through on his threat, or to back down. If K attacks, then with probability $p'$, K's attack succeeds and with probability $1-p'$ the now-oligarchic City, without the support of the democratic masses, beats back K’s attack. If E instead chooses to support democracy, K again decides whether to carry through on his threat, or to back down. If K attacks, then with probability $p < p'$, the attack succeeds and with probability $1-p > 1-p'$, the democratic City (elites and democratic masses working together) beat back the attack.

Each player’s choices are determined by expected payoffs for each outcome. The payoffs for each player for each possible outcome are listed below and in Table 1. The extensive form of the game is illustrated as a decision tree in Figure 2.

[Table 1 and Figure 2 about here]

The payoffs to the players for each possible outcome are calculated as follows:

**N:** K chooses to negotiate tax rate Q with C and E. K accepts C and E’s offer if Q is higher than his other available payoffs. C and E will make an offer Q that K will accept if Q leaves both C and E with better payoffs than are otherwise available to

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them. The negotiation yields an expected payoff to $K$ between 2 and 5. $C$’s payoff, between -5 and -2, is the inverse of $K$’s. $E$’s payoff is 2 points below that of $C$, because $E$ must pay the bulk of the taxes and must accept democracy as the city’s regime.\footnote{The negotiations between the splendidly-walled Anatolian city of Herakleia under Latmos with Zeuxis, the envoy of King Antiochus III, provide an example: Ma 1999: 169-70, 185-86, 198-99.}

\textbf{S:} $C$ submits. In this case, $K$ can demand that $C$ pull down its fortifications (Herodotus 1.164, 6.46-47 for early examples; cf. Frederiksen 2011: 45 with n. 56) and sets a very high tax rate and can change the rate when and as he wishes, although he cannot plunder the city because doing so will increase the likelihood that other city’s will resist. This is a very good outcome for $K$, who gets high rents at low cost (payoff of 9), but inversely and equally bad for $C$ (payoff -9) and $E$ (payoff -9) who must pay those rents.

\textbf{A$_B$:} $K$ attacks and $C$ is democratic. If, counterfactually, there was no cost to $K$ in mounting the attack, and if his probability ($p$) of success in the attack were 1, then $K$’s payoff would be 15: he can plunder the city and will gain in reputation. But he must pay the costs of carrying out the attack, so his net ($p=1$) payoff is $15-5 = 10$. In this branch (of subgame) the game, we assume $p = 0.6$: $K$ has a better than even chance of success because of highly developed Hellenistic siegecraft. But $p$ is substantially less than 1 because $C$ is well-walled and well-defended. If $K$ attacks and fails, his payoff is -10 because $C$ will pay no rents, and $K$’s failure will motivate other cities to revolt. $K$’s payoff is the value of success times $p$, the probability of success, plus the value of failure times $1-p$ (the probability of failure). Thus, $K$’s expected payoff for the lottery (L) is calculated as $0.6(10)+0.4(-10)=2$. 

\footnote{The negotiations between the splendidly-walled Anatolian city of Herakleia under Latmos with Zeuxis, the envoy of King Antiochus III, provide an example: Ma 1999: 169-70, 185-86, 198-99.}
C’s payoff is calculated in the same way. If K’s attack succeeds, C’s payoff is -15: the city is subject to being plundered and potentially sacked; if K’s attack fails C’s payoff is 10: C pays no taxes and gains in honor and influence with other independent cities. Under the assumed probability (1-p = 0.4), C’s expected payoff for the lottery is calculated as 0.6(-15)+0.4(10)= -5. E’s payoff is indexed to that of C, but because E must pay higher taxes in a democratic City, E’s payoff is always 2 points lower than that of C, if C is democratic.

A0: K attacks and C is not democratic. Payoffs to K, C, and E are calculated in the same way as above but using p’ (the probability K’s attack succeeds if C is not democratic) where p’ > p (the probability that K’s attack succeeds if C is democratic) because the oligarchic city has fewer well-motivated defenders. Here p’ is set at 0.8, which yields an expected payoff to K of 6. C’s payoff is -10. Because C is not democratic, E’s payoff is identical to that of C.

B0 or B0: K backs down. K receives a payoff of -2, because he receives no rents from C and loses in reputation, although he does not face revolts in other cities, insofar as his forces are intact. C receives a payoff of 5, being spared payment of taxes, and gaining somewhat in reputation, but not having the spoils of victory. E’s payoff is, as usual, 2 points lower than that of C, if C is democratic.

We calculate the equilibrium of this game through the usual method of backward induction. At the penultimate node of the game, K must decide whether to attack or to back down. Given the payoffs under the assumed conditions of the lottery, he will choose to attack over backing down. At one node back, E must decide between democracy and non-democracy. All other things being equal, E prefers (low
tax) oligarchy to (high tax) democracy. But because K’s attack is less likely to succeed if C is democratic, E prefers A_D to A_O, so E chooses democracy. Backing up a node, C must decide whether to resist K’s threats or to submit. Because C prefers A_D to S, C chooses to resist. Finally, at the first node of the game, K must choose between, Q, the relatively low negotiated rent, or threaten the city in an effort to gain higher rents. K knows that if he chooses to threaten the city, the city will resist and will remain democratic, leading to the lottery A_D. On the assumption of common assumptions about the outcome of the lottery and otherwise full information, K knows that C and E will offer Q higher than his expected payoff in the lottery (i.e. above his reserve price), so he chooses to negotiate: N, which is the game’s equilibrium solution.

The solution to the game depends on the expected payoff-based preferences (both their ordinal rank and their cardinal intensity) of the players (Table 2). Those payoffs include each player’s expectations about the outcome of the lottery, and their shared belief that the king’s attack has a higher probability of failing if the walled city is democratic. The reasons for that belief are not mysterious: Aristotle had pointed out in the Politics that democracy was in general more stable than oligarchy (see Ober 2005, 2015a); recent work by historians of Greek antiquity has helped to show why that was true (Simonton 2017, Teegarden 2012, 2014).

Democracy, both ancient (Scheidel 2005), and modern (Reiter and Stamm 2002), has been correlated with success at war as a result of higher mobilization rates and higher morale among soldiers. High mobilization rates have been correlated, for modern democracies, with more progressive tax rates and that correlation can be
explained by the assumption that citizen masses believe that, in times of high mobilization, elites ought to pay more (Scheve and Stasavage 2012, 2016). Elites evidently agree, insofar as democracies are not overthrown during or in the aftermath of periods of high mobilization.

5. Reality-tracking

In addition to explaining the puzzles noted above, several implications of the game appear to track historical reality. First, as Aristotle saw quite clearly, if we change the second player in the game from well-walled City to unwalled City, the regime becomes irrelevant. The King can threaten with confidence because if the unwalled City’s forces face the King in the open field, they will certainly lose. Since that is also (as Aristotle points out) a matter of common knowledge, the unwalled City will submit. So, under the conditions pertaining in the late classical/Hellenistic world, democracy is strongly related to fortifications: Insofar as the conditions modeled in the game are relevant for elite choices, and insofar as elite choices determine democratic stability, it is only when there are fortifications in place that democracy is stably sustained. The elite submits to democracy because an expanded and well-motivated citizenry improves the probability that the polis will survive an attack by the King; that is, \( p < p' \).

The game as currently formulated does not include the original decision to build city walls (or to rebuild an outmoded wall to a higher standard). In order to address the question of how making the choice to wall the city might change the
picture, we could begin the game at an earlier point in time, with the city as yet unwalled (or poorly walled). We might then posit a democratic City that chooses whether or not to propose building a wall, to be paid for in large part by taxing the elite. In the case that the proposal is made, an Elite must choose whether or not to support that proposal. Presumably, the Elite’s decision to pay for the wall involves the condition that the rise in the expected value of the stronger wall relative to the weaker wall exceeds the known taxes it must provide to build the wall. Alternatively, we could imagine the city as being ruled by an oligarchy, so the game starts with the Elite choosing to build a wall or not, in recognition that construction will be costly and is likely to lead to a regime change in favor of democracy. The assumption of either version of this extended game is that not walling the city will lead to the outcome of Submit. The equilibrium outcome of either version of an extended game would depend on whether the payoffs to the Elite in the event of not walling are better or worse than the Submit payoff.

Democracy is not directly caused by fortifications, but, according to the logic of the game, fortifications are a necessary condition for democracy (insofar as sustaining democracy is a matter of elite choice). On the other side, insofar as fortifications are ineffectual without defenders, and democracy increases the effectuality of defenders (1-p > 1- p’), then having democracy makes the choice to invest in fortifications (i.e. to pay taxes to support fortified defenses) a rational one for the Elite. Defense of walls required a lot of reliable men: well trained (in the use of catapults and projectile weapons, capable of deploying effectively etc.), and not treasonous. This means, in the first instance, the defenders should be citizens rather
than mercenaries, and the citizens should have good reason to support the current regime (emphasized by Aeneas Tacticus, *Poliorcetica*, a mid-fourth century BCE writer on defense of cities). Thus, an implicit implication of the game is that democracy implies a non-marginal increase in the probability of deterrence \((1-p > 1-p')\) over an oligarchy, and the difference must be large. Absent this effect, the logic of the game implies that the Elite would prefer oligarchy to democracy.

Next, the payoffs change when the probability of the King succeeding in his attack changes: The higher (or lower) the probability that the King’s attack will succeed, the higher (or lower) the negotiated tax rate \(Q (K\text{'s rents})\) will be. This means that, unless \(K\) and \(C\) can credibly commit to disarmament (we assume they cannot), King and City each have an incentive to continue investing in siegecraft and defensive military architecture, respectively. The democratic citizens of the City (who, in the game, prefer democracy to oligarchy because they receive distributive benefits from taxing the elite) also have an incentive to continue to mobilize and to train for city defense. These conditions are manifest in the history of Hellenistic military developments, as noted above.

Third, the game yields a series of comparative static results. For example, if the spread between \(1-p\) with payoff \(A_D\) and \(1-p'\) with payoff \(A_0\) (the probability that the attack will fail depending on whether the city is democratic or not) is changed, then the payoffs to elites will change as well. If the spread is decreased significantly (e.g. if the democratic citizens refuse to train or mobilize), then Elite will prefer \(A_0\) to \(A_D\) and so will choose to subvert the democracy. Likewise if the spread between City’s payoffs and Elite’s payoffs (in the game set at 2) is increased significantly (e.g.
if the democratic masses increase Elite’s tax burden, or decrease Elite’s honors) E will once again prefer $A_0$ to $A_0$ and so will choose to subvert the democracy. Since we assume that the mass of citizens prefer that the democracy not be subverted, they have a strong incentive to continue to train and mobilize, to exercise restraint in setting the tax rate on the elites, and to continue to offer honors to the elites. Masses and elites thus have good reason to stay in communication regarding expectations and duties. In fact, a sophisticated discourse of reciprocal gratitude developed between elites and masses in democratic Greek cities and elites were taxed at rates they generally found tolerable and were offered substantial honors (Ober 1989, Ma 2013, Domingo 2016).

Fourth, the probability of the King’s success, even when the city is democratic, remains substantial ($p > 1-p$). The likelihood that, were the King to threaten, the threat would be real and that his siege would succeed, means that the city must expect to pay some rents ($Q$) to the King. As we have seen, as the likelihood of King’s attack increases, so too, as a general rule, do his expected rents (i.e. $p$ and $Q$ are positively correlated, although the strength of that correlation will vary with other factors). The negotiations are, in sum, real negotiations – each side has something to gain and something to lose. Yet, under plausible scenarios for the probability of attack success, there is an equilibrium without fighting that all can agree to. The idea that a solution exists that can be agreed upon is the background condition against which developed the performative language of King-City communication that has been explored in detail by Ma (1999). The background
condition is not adequate fully to explain the performative language or its effects, but the background is the enabling condition of the language.

Fifth, we have assumed in setting up the game that the information relevant to forming expectations about the result of the lottery is symmetrical, and thus that all players make the same calculations of probabilities. But this assumption will not always hold in the real world (cf. Fearon 1995). The City or the King may make a mistake in estimating probabilities (perhaps by over-estimating its own strength), or may possess information that the other side does not have (e.g. a secret advance in siege technology or military architecture), leading to differing expectations about the probable outcome of the lottery. As the estimates of probabilities become increasingly divergent, the equilibrium solution of “negotiate” is destabilized. The likelihood that the King will attack increases: either because he rates his chances of success higher than does the City, or because the City, over-rating its own chances of foiling the attack, offers a tax rate that is below the King’s reserve price (i.e. his calculated value of the lottery). Mistakes are potentially very costly to either side. Both King and City therefore have strong incentives to keep lines of communication open, and to share information. This situation is, once again, manifest in the diplomatic language studied by Ma (1999).

Sixth, and finally, although the negotiated rent level Q is not the first choice of any of the players, that equilibrium solution arguably had positive effects on economic growth – perhaps more positive than any given player’s first choice would have had. Although we do not yet have good data for measuring Greek economic growth after 323 BCE, it seems likely that the surprisingly robust growth (by

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premodern standards) of the Greek economy in the previous half-millennium was sustained, at least in some parts of the Greek world, in the Hellenistic period. Various possible explanations can be provided for continued growth: The first reflects Adam Smith’s (1981 [1776]) principal reason for economic growth, an expanding division of labor (Wealth of Nations Book I). Thus, the greater Greek world expanded in size and complexity as a result of Macedonian military power – and this increased the potential payoff to Greek cities from specialization and exploitation of relative advantages in production and distribution of goods. Counterfactually, however, had the Hellenistic Kings taxed the Greek cities at the high “Submission” rate, the underlying conditions that had (as argued in Ober 2015b) produced the classical efflorescence– vigorous competition between relatively wealthy cities in the context of social orders that encouraged individual and collective investments in human capital – would have come to an end.

The Hellenistic kings were often willing to forego the uncertain prospect of long-term gains for readily achieved short-term payoffs (Austin 1986). By lowering the likelihood of a short-term payoff to the King, the conjunction of fortifications and democracy pushed back against that tendency, leading to a certain level of restraint in coercive rent extraction. Restrained rent extraction helped to create the conditions that sustained a vibrant economy, and thereby enabled the Greek world to continue to make substantial cultural advances. That was the Greek culture taken up by the Romans, when they took over the Greek world in the course of the second and first centuries BCE.
Roman siege capacity was of a different order from anything the Greeks had developed, so a somewhat different game was played in the Greek world after Rome replaced the Hellenistic Macedonian dynasts as imperial hegemon. The question of what happened to the world of Greek fortifications and democracy in the face of the Roman takeover must be the subject of another paper. Nonetheless, we observe that the game in this paper could be used to analyze the same question about the Roman world; to do so, we would have to rely on a different set of assumptions reflecting the reality of Roman military power.  

Suffice it to say here that democracy did not fare very well under the Romans, at least in the long run. The architecture of Greek cities was substantially transformed in the Roman era in ways that might reasonably be regarded as fundamentally non-democratic (Wycherley 1962). Yet the Greek culture that was taken up by the Romans was, eventually and in fragmentary form, passed along to us via the essential intermediary of the Hellenistic world of cities and kings. To whatever degree we suppose that the western tradition is predicated on transmitted Greek culture, it is, therefore, also predicated on an initially counter-intuitive relationship between city walls and democracy.

6. Modern security walls and democracy

Whether the underlying dynamics of that relationship hold in other historical cases in which we find a coincidence between high investments in city fortifications

8 On the Roman policy of defortification of Greek towns, see Frederiksen 2011: 1 n. 6; 45-46.
and the emergence and persistence of citizen-centered political institutions (whether or not those institutions are properly understood as democratic or liberal) is another subject for future research. In the meantime, the Greek case complicates the simple association of massive walls with anti-democratic regimes, an association that might seem to be implied by the Berlin Wall. Of course the primary purpose of the Berlin Wall was preventing dissatisfied citizens from leaving the state, rather than securing citizens against a credible external threat. The walls erected by the Greek poleis might seem to be more closely related to the security walls erected by Israel and the US, as noted in the introduction.

Allowing, for the sake of the argument, the debateable proposition that a meaningful security threat exists that the Israeli and American walls could help control, we might ask whether objections to the walls are rightly thought of as originating in commitments arising from democracy or liberalism. Democracy, as collective self-government by citizens, and liberal democracy – which adds the moral commitments of individual autonomy, human rights, social justice, and religious tolerance, while potentially reducing civic participation – are often conflated in contemporary political and moral theory. But, as Duncan Bell (2014) has demonstrated, “liberal democracy” is a recent coinage. One of us has argued that basic democracy and liberal democracy are not identical and that a coherent theory of non-liberal (as opposed to anti-liberal) democracy arrives at conclusions that differ in some ways from dominant versions of liberal democratic theory (Ober 2017a). If it could be shown that wall-building is not detrimental to the well-functioning of self-government by citizens, it could be argued (again, based on the
debateable premise of a real and substantial increase in security) that wall-building by a modern state is unobjectionable from the point of view of a theory of democracy, even if (as seems *prima facie* likely) it is objectionable on liberal grounds.

Might we go one step further, by asking whether a positive and reciprocal relationship exists between (non-liberal) democracy and security walls in modernity, as we have argued that there was in late classical and Hellenistic Greek antiquity? Leaving aside the vexed question of whether democracy (or liberal democracy) requires (or permits) constraints on the free movement of persons across state borders (on which see, for example, Stilz 2011), the argument might hang on the conditions under which elites will support a democratic order, by refraining from subverting it and by paying progressive taxes to defend it.

We have suggested that Greek elites supported democracy because without mass mobilization by non-elites, the elites (and their city-state) were more vulnerable to external threats. As noted above, recent work by Scheve and Stasavage (2012, 2016) has shown that mass mobilization in time of large-scale war is a primary reason that democratic citizens demand, and elites accept, more progressive taxation. The validity of that general argument has been demonstrated by Walter Scheidel (2017). The result of mass military mobilization is lower in-country (as opposed to between-country) material inequality, which may be thought of as inherently good for democracy. The question then becomes: what is the relationship between modern security walls, mobilization of citizens, and taxation of wealth elites?

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Supposing (ex hypothesi) that security is enhanced by walls built by modern states, is enhanced security predicated on a mobilized population of democratic citizens ready and willing to defend the walls and on the willingness of elites to pay for them? In the Israel case, the democratic state does require near-universal military conscription of citizens and imposes quite a steeply progressive tax on income. So, while much more work would need to be done to prove the point one way or another, it is possible that the Israel case could support a hypothesis of a positive relationship between basic democracy and walls in modernity, mirroring in some relevant particulars the ancient Greek case.

In contrast, the US case seems, on the face of it, not to provide support for that hypothesis. The US does not currently conscript its citizens for military service. There are ca. 21,000 agents in the US Border Patrol, which may sound like a lot. But they represent a tiny fraction of the citizen body when compared with the mobilization of Greek citizens in time of invasion, or the mass mobilizations studied by Scheve, Stasavage, and Scheidel. Meanwhile, the repeated (and repeatedly debunked) claim by then-candidate and now-President Donald Trump, that a "impenetrable, physical, tall, powerful, beautiful, southern border wall" will be paid for by Mexico, rather than by US taxpayers, underlines the decoupling of proposals for building new security walls with the willingness of democratic elites to pay for them. The US retains sovereign authority to control movement across its borders.

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But arguments for the value of American border walls in enforcing that authority ought not be predicated on the salutary relationship between fortifications, democratic citizenship, and progressive taxation that we observe in Hellenistic Greece.

Figure 1. Known walled poleis in the Greek world.

Table 1. Payoffs to King, City and Elite.

<table>
<thead>
<tr>
<th>S</th>
<th>C submits</th>
<th>King (K)</th>
<th>City (C)</th>
<th>Elite (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A₀</td>
<td>K attacks C not democratic</td>
<td>6</td>
<td>-10</td>
<td>-10</td>
</tr>
<tr>
<td>N</td>
<td>Negotiate</td>
<td>&gt;2/5</td>
<td>&lt;-2/&gt;-5</td>
<td>&lt;-4/&gt;-7</td>
</tr>
<tr>
<td>A₀</td>
<td>K attacks C democratic</td>
<td>2</td>
<td>-5</td>
<td>-7</td>
</tr>
<tr>
<td>B₀</td>
<td>K backs down C democratic</td>
<td>-2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>B₀</td>
<td>K backs down C not democratic</td>
<td>-2</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 2. King, City & Elite Game


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Works cited.


