

McDONALD INSTITUTE MONOGRAPHS

An Age of Experiment: Classical Archaeology Transformed (1976–2014)

Edited by Lisa Nevett and James Whitley



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with contributions from
Susan E. Alcock, Giovanna Ceserani, Alexandra Coucouzeli, Thomas W. Gallant, Michael Given, Jonathan M. Hall, Paul Halstead, Sturt W. Manning, Ian Morris, Lisa Nevett, Robin Osborne, Sara Owen, Gillian Shepherd, David B. Small, Jeremy Tanner and James Whitley

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Chapter 8

Structural Revolution: Archaeology, the Rise of the Greek State, and the Shape of the Ancient World

Ian Morris (Stanford University)

Two books turned me into an archaeologist. The first, which I read in 1971 (when I was eleven years old), was Erich von Däniken's *Chariots of the Gods?*[1] Before then, I had wanted to be an astronaut; after, I began to wonder whether archaeology might not be even better. I subsequently went to university, reading ancient history and archaeology, but my heart was still not really in it. What changed all that was the second book, Anthony Snodgrass's *Archaic Greece*.[2]

I read *Archaic Greece* almost exactly a decade after I had read *Chariots of the Gods?* I had just completed my BA and was thinking about going on to do a PhD (having already failed in another career choice, in heavy metal, the alternative seemed to be taking a job in accountancy). I was leaning toward Archaic Greek history chiefly because I knew almost nothing about it, which made it, in a von-Dänikeny kind of way, much more interesting than the periods I had already studied. However, ignorance also had a downside, in that it presented a slight problem now that I had to propose a thesis topic to the Department of Education and Science.

That was the moment when first I looked in to Snodgrass's *Archaic Greece*. Then felt I like some watcher of the skies, when a new planet swims into his ken. Unlike the other books I had been reading, this one not only had an identifiable thesis that made sense but also seemed to open endless possibilities for further research. Greek civilization, Anthony argued, had been born in a structural revolution in the eighth century BC. Rapid population growth – at Athens reaching 4 per cent per annum, as fast as human populations have ever been known to grow – drove agricultural intensification, competition over land, increasing conflict, state formation, military and religious innovation, intellectual ferment, new notions of identity, the reinvention of writing, new ideas about the past, and the recording of Homer's epics. The first couple of chapters of *Archaic Greece*, I concluded, explained pretty much everything about everything in ancient history. *Archaic Greece* changed my life. I even got my sister to buy me the book for Christmas.

However, I have to confess that I found a very odd way of thanking Anthony for everything he'd done for me. I began working on my dissertation in the autumn of 1981 at Birmingham University, where I'd been an undergraduate. After four months of going through the evidence that Anthony had collected for the Athenian population explosion, I thought that I'd detected some anomalies in the statistics; and – being a rash sort of person – I wrote him a letter suggesting that Athenian population growth had in fact been much less than he had suggested. Fortunately for me, Anthony – being a generous sort of person – immediately invited me to Cambridge to work on these ideas under his supervision.

I was giddy with excitement. I had only once been in a room with Anthony at that point, when he had come to Birmingham at the invitation of our student Archaeology Society and had lectured on narrative and allusion in Archaic Greek art.[3] He had made quite an impression on me. At one point he had shown a slide of the famous Proto-Argive krater fragment showing the blinding of Polyphemus, commenting on the odd (to modern sensibilities) way the artist had shown the Cyclops' single eye in a profile face. During the question-and-answer session, however, one of my classmates became quite insistent that he'd seen another version of this scene in which the Cyclops had had two eyes. Obviously, my friend was mistaken; but instead of getting into an argument with him, Anthony just tapped out his pipe and said 'Well, I'll have to keep an eye out for that.' I thought this was great. We didn't get much humour at the Arch Soc.

It took me several years to appreciate just how fortunate I was to be in the ancient history and archaeology

community of early 1980s Cambridge. As if it were not enough that my fellow graduate students – Sue Alcock, Alexandra Coucouzeli, Niall McKeown, Cathy Morgan, Dave Small, Sophia Voutsaki, and Greg Woolf, to name just a few – were doing extraordinary things, one of them – James Whitley – was even wrestling with the exact same body of evidence as me.[4] I was also able to pick the brains of an extraordinary group of postdocs – John Bennet, Tom Gallant, Paul Halstead, Robin Osborne, Todd Whitelaw – who were pushing the frontiers of classical archaeology in new directions, and to take advantage of the advice and support of a cluster of more advanced scholars – particularly Peter Callaghan, Paul Cartledge, John Cherry, Peter Garnsey, John Killen, and Colin Renfrew – without parallel at other institutions. It really took a positive effort not to flourish in those surroundings.

Best of all, though, I got to meet constantly with Anthony as I tried to combine the questions he had raised in *Archaic Greece* with the methodological advice he had offered in the preface to his *Dark Age of Greece* – 'to examine the whole period in chronological sequence, scrutinizing the evidence as it comes, assembling the facts and endeavouring to face them. 'This,' he pointed out, 'sounds banal enough,'[5] but the hard fact was that virtually no one, except for Anthony himself, had tried to do it. I soon learned why: it was much harder than it sounded. I kept at it, though, and spent the mid-1980s trying to use the Snodgrass method to add my own small twist to the Snodgrass thesis about the Archaic structural revolution.

I never really got over *Archaic Greece*. My own PhD and first book[6] was really just a commentary on pages 22–4 of Anthony's book, and when I got done with that, I had what seemed like the bright idea of expanding my commentary-writing to the rest of the first two chapters, and pushing the Snodgrass thesis and method down into Classical times. In articles and book chapters I tried to show that the structural revolution that began in the eighth century just kept going through the fourth, as the ongoing demographic boom forced Greeks to keep revolutionizing their economy, society, and culture.[7] However, I'm not sure that many of the great and good in classical Greek history really believed me (although I'm delighted to see similar questions resurfacing in my colleague Josiah Ober's outstanding new book *The Rise and Fall of Classical Greece*),[8] and in the early 1990s I began wondering whether my classical colleagues might not in fact have a point. All this emphasis on structures, they regularly complained, left out what was really interesting about ancient Greece, which was its culture. Anthony, of course, had known this all along, which was why chapters 3–6 of *Archaic Greece* focused on the period's artistic, literary, and intellectual achievements. So, having spent the first half-dozen years of my career producing pale imitations of the first two chapters of *Archaic Greece*, I now branched out, and spent the next half-dozen years producing pale imitations of the next four.

Like so many late-in-life converts, I suspect that I embraced my new faith rather too enthusiastically. I spent much of the 1990s rushing toward some of the farther frontiers of what practitioners then liked to call the 'new cultural history.' Only toward the decade's end did I find myself once again pressing up against two fundamental Snodgrassian principles: that the ideal and the material cannot be separated, and that the material is primary.[9] 'Grub first, then ethics,' as Anthony's favourite poet put it.[10]

I was thinking at the time about the origins of the steep gender hierarchies of Classical Greece, and had written several papers arguing that the late eighth century BC was probably the decisive moment.[11] I suggested this because so much of the fourth-century Athenian discussion of gender revolved around the symbolism of household space, split between a hidden, interior, female zone and a visible, outward-facing, male zone.[12] This way of thinking, it seemed to me, could not go back to the ninth or tenth centuries, when single-roomed huts had been the norm in much of Greece; surely it was a product of the late eighth century, when multi-room houses began replacing them. Further, I thought, the urge to construct more complex domestic spaces might well have been connected with new ideas about relationships between men and women, emerging just at the moment that Greeks were rethinking the relationships between rich and poor, free and slave, and mortal and divine.

I was fascinated by this question, but then something else struck me. Multi-roomed Archaic Greek houses were not just more complex than those of the Early Iron Age: they were also bigger and more expensive. The average amount of wealth that Greeks were investing in domestic architecture and household goods increased sharply after 750, even though the population was simultaneously growing rapidly, and the pace of the increase then accelerated further around 550 BC. Since the 1970s, many historians had been arguing that the ancient economy saw very little intensive (per capita) growth,[13] but here, I felt, was incontrovertible evidence to the contrary. Archaic and Classical Greece had seen economic growth that was by ancient standards quite extraordinary. I was back in structural revolution territory.[14]

This time around, though, the motor of structural revolution seemed to be a combination of population growth and rising standards of living that flew in

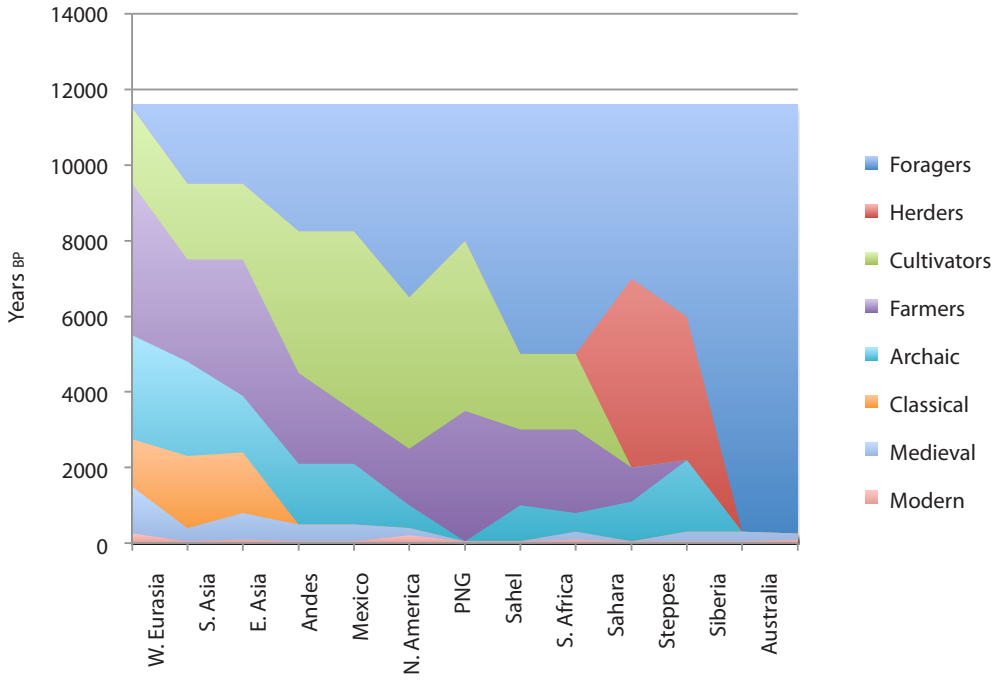


Figure 8.1. *Structural revolutions: the global sequence of changes across the last 15,000 years. Note that the vertical scale represents years* BP *– before present – not* BC. *PNG = Papua New Guinea.*

Malthus' face, and I thought that I might have a new angle on explaining it. The eighth-century Greek changes were not limited either to the eighth century or to Greece, and so the first order of business should be to define the scale of the phenomenon under study. Only then could we begin thinking about the scale of the explanation it called for. Crete had also combined demographic and economic growth in the nineteenth through sixteenth centuries BC, as had Greece in the fourth through sixth centuries AD. From the little I knew about the region, the West Mediterranean seemed to have gone through similar changes after 500 BC and especially in the first two centuries AD.

One possibility, I thought, was that structural revolution was a peculiarly Greek process, but, given that it had happened in the wildly different contexts of Minoan, Archaic-Classical, and late Roman civilizations, was driven by geography rather than culture. If so, then the West Mediterranean version must have been diffused from the East Mediterranean by trade and colonization. If, on the other hand, the West Mediterranean structural revolution was an independent development, we should probably conclude that shared conditions across the Mediterranean in the first millennia BC and AD caused both the eastern and western episodes of growth. Explaining whether structural revolution was a Mediterranean-wide development or a Hellenic export was one of the main reasons that I started excavating at Monte Polizzo, an indigenous Elymian site in Sicily, in 2000; and after several highly enjoyable seasons, we came to the momentous conclusion that it was a bit of both.[15]

By the mid-2000s, though, I was also realizing that my short hop from Greece to Sicily was merely a first step toward defining the scale of the phenomenon. The first-millennium BC structural revolution was not just a Mediterranean episode; it was an Old-World-wide one. When Anthony spoke of structural revolution, he meant linked processes of population growth, agricultural intensification, competition over resources, increased trade, war, state formation, military and religious innovation, intellectual ferment, and the rise of new notions of identity. From Spain to China, this is exactly what we see in the first millennium BC.[16] Back in the late 1940s, the German philosopher Karl Jaspers had suggested that we could speak of an 'Axial Age' in this region in the mid-first millennium BC, with Confucius, the Buddha, the Hebrew Prophets, and the Pre-Socratics all addressing the same kinds of questions and changing the direction of intellectual history.[17] This, I started to feel, was the proper framework for explaining the intellectual revolution that Anthony had addressed in the last chapter of *Archaic Greece*.

Now it is the late 2010s, and, more than a third of a century after first looking into *Archaic Greece*, I feel like I am still wrestling with its opening chapters, just on a bigger stage. I am now writing a book on the ancient world, but unlike so many books on that topic, this one will look at the entire planet. The main reason that ancient historians have not tried to do this, I suspect, is that there seems to be no overarching global-level story. If you pick a date – any date – in antiquity and look around the world (say at Greece, Mexico, Siberia, and the Congo Basin), the differences between regions usually overwhelm the similarities. But this, it seems to me, is a problem created by the scale on which we normally look at problems. If, for instance, we think of 'the ancient world' as something that lasted from roughly 1000 BC through AD 500, it is indeed hard to see a global story. However, if we push the starting point back to the end of the last spasm of the Ice Age, around 9600 BC, and if we sum things up in a graph, as Anthony so often does, a larger story does jump out (Fig. 8.1).

There is a lot to say about this graph, which is why I am writing a whole book on it. The narrower limits of this chapter mean that I will inevitably oversimplify and probably raise more questions than I answer, but I think that it is still worth saying a few words on how this larger perspective might change the way we think about the structural revolution of eighth-century Greece (and vice versa). If that whets your appetite for more of the same, so much the better.

Across much of the world,[18] the 12,000 years or so since the end of the Ice Age have basically been one long structural revolution, as humans transformed their societies from tiny foraging bands first into shifting hamlets of cultivators, then into settled farming villages, and then into archaic states.[19] The revolutions began at different times in different places for the reasons described so lucidly by Jared Diamond in his classic study *Guns, Germs, and Steel*.[20] Basically, as the world became warmer and wetter, some plants and animals responded to the selective pressures exerted by human hunting and gathering by evolving into forms that yielded much more food. In effect, without knowing what they were doing, people created the original genetically modified organisms. However, the plants and animals that had the potential to evolve this way were not evenly distributed; and, not surprisingly, the denser the local concentrations of potentially domesticable food sources, the earlier the process began.

The densest concentrations of all were in Western Eurasia (specifically in what we now call the Middle East), and unnaturally large wheat and barley seeds (what botanists call 'cultivated' plants) go back there to around 9500 BC, scarcely a century after the last spasm of the Ice Age ended.[21] In South and East Asia, which had dense concentrations but not as dense as those in the Middle East, cultivation began a couple of thousand years later; in Mesoamerica, the Andes, and New Guinea, it came a thousand-plus years after that; and over the next few millennia, several other parts of the world began indigenous agricultural revolutions. In every case, more food meant more people, and, as in Anthony's account of eighth-century BC Greece, more people meant structural revolution.

Some places, however, such as Australia and Siberia, had virtually no domesticable resources, and as a result had no structural revolutions; while in others, local resources took structural revolution down different paths. On the steppes, for instance, little grew but grass, which humans could not eat; however, sheep, goats, cows, and horses could eat grass, and humans could then eat the animals. Predictably, people turned themselves into herders, driving flocks of domesticated beasts from one dusty watering hole to the next.[22]

Everywhere that the process began, increasing scale threw up much the same set of problems. At the bottom, always, was the search for more food, which drove more intensive agriculture, an expanding division of labour, and increasing amounts of trade. These processes in turn usually brought steeper economic, political, and gender hierarchies, sharper conflicts over resources, and bigger and more sophisticated wars – as well as growing stocks of knowledge and slowly rising standards of living. To succeed in increasingly competitive worlds, people deepened institutional capacity, creating new ways to manage exchange, resolve disputes, store and communicate information, win the favor of the gods, and organize fighting forces.

Not surprisingly, the first places to shift from foraging to cultivation were also the first to exhaust the possibilities of that kind of organization and resource base. These same places then became the first to transition to village-based farming, the first to create states, and the first to build classical empires and enter the Axial Age. And yet although several parts of Africa and the Americas followed the Eurasian trajectory from foragers to archaic states after time lags of several thousand years, they did not produce anything like eighth-century BC Greece or Eurasia's classical/Axial empires.

The reason for this, I suspect, is that structural revolution works across space as well as through time. If the gods (or von Däniken's spacemen) had descended to earth at the end of the Ice Age and built walls around Africa and the Americas, there is every reason to think that each region would, eventually, have created its own classical empires and Axial thought. It took about 1,500 years for China's archaic

states to develop into a classical empire and 2,750 for Western Eurasia's to do the same. If Andeans and Mesoamericans had followed the Chinese schedule, they would have got to a similar place around AD 1400; if they were more like Western Eurasians, they would not have arrived till AD 2650. Similarly, Africans in the Sahel would have created a classical empire around AD 2500 on the East Asian timetable and 3750 on the Western. In reality, though, there were no walls around Africa or America, and Western Eurasia's early start on the path of social development meant that by the fifteenth century Westerners were in a position to project power across oceans while sub-Saharan Africa was still largely preliterate and Americans were still mostly living in the Stone Age.

The geographical expansion of societies as they moved further along the path of structural revolution forced difficult choices onto neighbours who had not moved as far. When cultivators moved into valleys where foragers still lived, or full-time farmers invaded the homes of cultivators, or early states pressed upon agricultural villages, the less developed groups could emulate the aggressors, fight them, run away, or just hang on and hope for the best. It is easy to find examples of all these reactions, and of very varied results. In the Americas after AD 1500 and Africa after AD 1850, the outcomes were catastrophic for the less developed groups regardless of what they did. However, when the Persians pressed into the Aegean in the sixth and fifth centuries BC, the consequences were mixed. Some Greeks ran away and most just hoped for the best, but a few fought back, won, and then adapted some of the sources of Persian strength for their own ends. That said, by 300 BC the Greek city-states had been eclipsed by Macedon and after 200 BC were absorbed into the Roman Empire; and when we look at the big picture, fifth-century Greece's short-term success in resisting more developed societies is clearly the exception rather than the rule. Overall, early adopters of cultivation, farming, and the state steamrolled late adopters, cutting off local paths of development; and after AD 1800 early adopters of fossil-fuel power did so even faster and more thoroughly.

If I am right to suggest that the 12,000 years since the end of the Ice Age have really been one long structural revolution, of course, we might also need to conclude that if everything is a structural revolution, then saying that there was a structural revolution in eighth-century BC Greece does not really mean very much. But I think that would be a mistake: while the whole of the Holocene has been an ongoing structural revolution, some parts of it have clearly been more structurally revolutionary than others. The pace of development accelerated sharply during the first millennium BC all across the band of latitudes from China to the Mediterranean, and within that broad stretch of time and space, eighth-century Greece saw particularly profound and important changes.

As I see it, there are two big payoffs from setting the Greek structural revolution within this larger context. The first involves moving from the general to the particular. Ever since the Ice Age, structural revolution has operated on very large geographical scales, which suggests that we are unlikely to understand the Greek case if we treat it in isolation from what was happening outside the Aegean. Anthony emphasized throughout *Archaic Greece* the need to see the rise of the Greek city-state, the creation of the alphabet, the invention of hoplite tactics, the development of monumental sculpture and architecture, and expanding trade against their broader East Mediterranean context; I am just suggesting that we take this further.

Population, the prime mover in Anthony's argument, was growing everywhere from Iberia to China in the first millennium BC. That probably means that we should look for causes that operated across this whole area. Serious study of Iron Age climate change is still in its early days,[23] but one obvious culprit as a causal agent on the appropriate scale is the shift from what climatologists call the Sub-Boreal to the Sub-Atlantic regime. By 800 BC this was bringing cooler, wetter winters to much of the Mediterranean, perhaps easing the interannual variability in rainfall that was the bane of ancient Greek farmers' lives,[24] and ushering in a 1000-year-long climatic optimum that climaxed after 200 BC in the Roman Warm Period.

Climate change rarely forces people to react in a single way, but it does confront them with challenges and require them to respond. On the one hand, people everywhere from China to the Mediterranean did respond after 800 BC in ways that accelerated the core elements of structural revolution; but on the other, each society responded in its own particular ways. This, I would suggest, is the second big payoff from taking a broad perspective. Eurasia in the first millennium BC is one of the great natural experiments in history, offering us dozens of case studies of structural revolution that we can compare and contrast. As well as moving from the general to the particular, we can move from the particular to the general; and the Greek particulars, I believe, are particularly informative.

One of the most striking and most important developments in first-millennium BC Eurasia was a broad retreat from the archaic idea that social order depended on semi-divine kings who knew what the gods wanted and mediated between this world and the supernatural order.[25] Tiglath-Pileser III, who ruled Assyria between 744 and 727 BC, is often seen as the first

clear example of a new kind of ruler who relied more on economic and military power than on ideological, drawing much of his political strength from direct ties between the throne and the peasantry. Instead of sharing the spoils of war with an aristocratic clique, who repaid the king's favors by supplying militias to fight his wars, Tiglath-Pileser largely cut the nobility out of the deal, providing the peasants with direct title to the lands they worked in return for them paying taxes and agreeing to be conscripted into his armies.[26] The *Book of Lord Shang*[27] (written to advise the kings of Qin) and the *Arthashastra*[28] (written to advise Mauryan kings) suggest that similar principles of kingship had taken hold in China and India by the fourth century BC.

The city-states that began forming in eighth-century Greece were in some ways part of this same pattern and in other ways highly unusual.[29] One of the most striking similarities is the apparent collapse of sacred kingship.[30] Much remains obscure about Bronze Age Greek kingship, but royal iconography and Linear B tablets suggest that privileged access to the supernatural had at least some role in royal authority; and while Early Iron Age politics are even more obscure, Alexander Mazarakis Ainian has made a strong case that between 1100 and 750 BC, local headmen monopolized important religious rituals.[31] But after 750, as Anthony emphasized so strongly in *Archaic Greece*, religious rituals were transformed, turning into communal activities that could no longer be appropriated to legitimize chiefly power.[32]

Greek leaders, like those in Assyria, India, and Qin, stepped back from claims to divinity, and instead forged ties directly with the peasantry. But while in the great Asian empires that meant ties between the monarch and his subjects, mediated through royal bureaucracies, in the smaller world of the early Greek city-states it meant ties between farmers and oligarchs who were not much richer than the people they tried to lead.

Not surprisingly, political hierarchies were shallower in Greece than in most state-level Eurasian societies. It is true that Hesiod's sense that he was entitled to criticize incompetent and venal *basileis* was not completely without parallel; obvious analogies include the scorn that Israelite prophets heaped on their sometimes hapless kings and the stern lectures that virtuous Chinese bureaucrats gave to their putative rulers in the stories in the *Zuozhuan*. Nor, for that matter, was the confidence of Protagoras and others that ordinary men had as much political wisdom as the self-appointed experts unique, since the fifth-century Chinese sage Mozi made some rather similar claims. However, the Greeks were pretty much unique in turning talk into practice and, from the late sixth century on, regularly taking decision-making power away from failed oligarchs and giving it to broad assemblies of free men. Why structural revolution took Greece in this direction and what long-term consequences it had remain among the most fascinating questions about first-millennium BC Eurasia, and the answers Anthony provided are likely to cast as much light on the Eurasia-wide structural revolution as the Eurasia-wide structural revolution casts on Anthony's answers.

But there I will stop, for the moment. More than a third of a century has passed since Anthony first got me thinking about structural revolution, and I suspect that these issues will keep me busy for quite a few more years yet. I can only hope that by the time I retire, I will feel that I have finally understood all the implications of the first two chapters of *Archaic Greece*.

Notes

1 von Däniken 1968.
2 Snodgrass 1980.
3 Published as Snodgrass 1982.
4 Whitley 1991.
5 Snodgrass 1971, vii.
6 Morris 1987.
7 E.g. Morris 1992, 103–55.
8 Ober 2015.
9 Morris 2000.
10 W. H. Auden, 'Grub First, Then Ethics' (Auden 1965, 33). This was the poet's pithy translation of Berthold Brecht's 'Erst kommt das Fressen, dann kommt die Morale,' in his *Threepenny Opera* (1928).
11 E.g. Morris 1999.
12 Explored particularly well in Nevett 1999.
13 Particularly Finley 1973.
14 Morris 2004, 2007.
15 Morris and Tusa 2004.
16 I described some of this in Morris 2010, 227–79; 2014, 27–111.
17 Jaspers 1953 [1949].
18 The thirteen regions shown in Figure 8.1 were chosen either because they include the world's major civilizations or because they are the cases that pose most challenges to my overall hypothesis, and so provide good test cases. Each region is large and diverse, and the graph shows the level of the most developed area within the region at a particular point in time (e.g. in the case of Western Eurasia, the Assyrian and Persian Empires in the eighth through sixth centuries BC, broadening to include the Aegean in the fifth and fourth centuries, Italy and Carthage in the third, much of the Roman Empire in the second century BC through the second century AD, and so on). I explain this strategy more fully in Morris 2013, 34–8. Other regions could be added, or finer geographical divisions could be applied.
19 Many definitions are called for. I discuss some of the terms in Morris 2015, 25–6, 44–7, and 93–5, and will go into a lot more detail in my new book. Briefly, though,

by 'foraging' I mean small (usually less than a dozen people), very mobile groups that subsist almost entirely by gathering wild plants and/or hunting wild animals. By 'cultivating' I mean slightly larger (running up to a few hundred people), somewhat sedentary groups that augment foraging with plant and/or animal management enough to alter the plants' and/or animals' genomes, but not enough to domesticate them (by domestication, biologists normally mean changes in the genome that can only be sustained by continued human interventions). By 'farming' I mean larger groups (running up to a few thousand people) in permanent villages that subsist almost entirely by raising domesticated plants and/or animals. By 'herding' I mean steppe or desert societies of variable size that are usually highly mobile and subsist by keeping domesticated animals but do not domesticate plants. By 'archaic' I mean much larger sedentary farming societies with cities that include tens of thousands of people, states with millions of subjects, and godlike kings. By 'classical' I mean extremely large farming societies with cities of up to a million people, empires (defined conventionally as territories of much more than 1 million sq. km) of tens of millions of people, and Axial belief systems. By 'medieval' I mean farming societies that have already reached the limits of social development possible in a purely agricultural economy (between 30 and 35 points on the social development index that I describe in Morris 2013). Finally, by 'modern' I mean enormous societies (cities with tens of millions of residents, nations that can have more than a billion) that augment domesticated plants and/or animals with energy extracted from fossil fuels. In much of Eurasia the transitions are reasonably well dated, but in other places (especially New Guinea and parts of Africa) controversies continue, sometimes driven as much by disagreements over definitions as by problems with the evidence.

20 Diamond 1997.

21 One example of an apparently cultivated rye seed dating to 11,000 BC was found at Abu Hureyra in Syria (Willcox *et al*. 2008), which may mean that cultivation was beginning just as the Younger Dryas plunged the world back into ice age conditions, closing off this line of development for another 1,500 years.

22 Mithen 2003, Bellwood 2005, and Barker 2006 provide excellent (and competing) overviews.

23 Manning 2013, 112–15, and Brooke 2014, 300–39 are good starts; see also Sturt Manning's chapter in this volume.

24 Garnsey 1988 remains the classic account.

25 Brisch 2008 has some excellent essays.

26 Bedford 2009 is a good overview.

27 Duyvendak 1928.

28 Rangarajan 1992.

29 I discuss the similarities and differences at greater length in Morris 2015, 67–71 and 217–22.

30 Mitchell 2013 has a good discussion, with cautions against overstating the case. I have learned much from discussing this topic with my graduate student Sienna Kang.

31 Kilian 1988; Laffineur and Niemeier 1995; Rehak 1995; Mazarakis Ainian 1997.

32 Snodgrass 1980, 90–100.

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